UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2021

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number **333-254886**

SEQLL INC.
(Exact name of registrant as specified in its charter)

Delaware	**46-5319744**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification Number)
3 Federal Street, Billerica, Massachusetts	**01821**
(Address of Principal Executive Offices)	(Zip Code)

(781) 460-6016
(Registrant's Telephone Number, Including Area Code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading symbol(s)	Name of each exchange on which registered
Common Stock, par value $.00001 per share	SQL	The Nasdaq Stock Market LLC
Warrants to purchase Common Stock	SQLLW	The Nasdaq Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.:

Large accelerated filer	☐	Accelerated filer	☐
Smaller reporting company	☒	Non-accelerated filer	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes ☐ No ☒

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

As of June 30, 2021, the last business day of the registrant's most recently completed second fiscal quarter, the registrant's common stock was not listed on any exchange or over-the-counter market. The registrant's common stock began trading on The Nasdaq Capital Market on August 27, 2021.

There were 11,886,379 shares of the registrant's common stock, $0.00001 par value, outstanding as of March 22, 2022.

DOCUMENTS INCORPORATED BY REFERENCE

Information required by Part III (Items 10, 11, 12, 13 and 14) hereof is incorporated by reference to portions of the registrant's proxy statement for the 2022 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission no later than 120 days after the end of the registrant's fiscal year covered by this report.

SEQLL INC.
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As used in this Annual Report on Form 10-K, the terms "we", "us", "our" and the "Company" mean SeqLL Inc. and its wholly owned subsidiary SeqLL, LLC, taken as a whole (unless the context indicates a different meaning).

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements that involve substantial risks and uncertainties. The forward-looking statements are contained principally in the sections titled “Business,” “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” but are also contained elsewhere in this report. In some cases, you can identify forward-looking statements by the words “may,” “might,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “objective,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue” and “ongoing,” or the negative of these terms, or other comparable terminology intended to identify statements about the future, although not all forward-looking statements contain these words. These statements relate to future events or our future financial performance or condition and involve known and unknown risks, uncertainties and other factors that could cause our actual results, levels of activity, performance or achievement to differ materially from those expressed or implied by these forward-looking statements. These forward-looking statements include, but are not limited to, statements about:

- the success, cost and timing of our product development activities, including statements regarding the timing of initiation and completion of our research and development programs;
- developments regarding next generation sequencing technologies;
- our expectations regarding the market size and growth potential for our business;
- the implementation of our strategic plans, including strategy for our business and related financing;
- our ability to maintain and establish future collaborations and strategic relationships;
- the rate and degree of market acceptance of our products;
- our ability to generate sustained revenue or achieve profitability;
- the potential for our identified research priorities to advance our technology;
- the pricing and expected gross margin for our products;
- our commercialization, marketing and manufacturing capability and strategy;
- our expectations related to the use of proceeds from this offering;
- our research and development plans including, among other things, statements relating to future uses, quality or performance of, or benefits of using, products or technologies;
- updates or improvements of our products;
- intentions regarding seeking regulatory approval for our products;
- our competitive position;
- our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for, or ability to obtain, additional financing as necessary; and
- our ability to maintain our intellectual property position for our technology.

You should read this report, including the section titled “Risk Factors,” and the documents that we reference elsewhere in this report and have filed as exhibits to this report completely and with the understanding that our actual results may differ materially from what we expect as expressed or implied by our forward-looking statements. Furthermore, if our forward-looking statements prove to be inaccurate, the inaccuracy may be material. In light of the significant uncertainties in these forward-looking statements, you should not regard these statements as a representation or warranty by us or any other person that we will achieve our objectives and plans in any specified time frame, or at all.

These forward-looking statements represent our estimates and assumptions only as of the date of this report regardless of the time of delivery of this report. Except as required by law, we undertake no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise after the date of this report. All subsequent forward-looking statements attributable to us or any person acting on our behalf are expressly qualified in their entirety by the cautionary statements contained or referred to herein.

GLOSSARY OF CERTAIN SCIENTIFIC TERMS

The medical and scientific terms used in this report have the following meanings:

"Bioinformatics" means a subdiscipline of biology and computer science concerned with the acquisition, storage, analysis, and dissemination of biological data, most often DNA and amino acid sequences.

"cDNA" means complementary DNA created from RNA through the use of reverse transcriptase.

"DNA" means deoxyribonucleic acid, a self-replicating material present in nearly all living organisms as the carrier of genetic information.

"Double helix" is a structure formed by a pair of parallel helices intertwined around a common axis. DNA is a double helix.

"DRS" means Direct RNA Sequencing, a method for sequencing RNA molecules without conversion to complementary DNA ("cDNA") or amplification via PCR.

"Epigenetic" is the changes in gene expression that do not involve changes in the DNA sequence.

"FDA" means the U.S. Food and Drug Administration.

"Flow cell" means an optical cell used for detection and measurement of biological samples.

"Gene" is a portion of a DNA that serves as the basic unit of heredity.

“Gene expression” is a process by which information from a gene is used for the synthesis of a functional product.

“Genome” is an organism’s complete set of DNA.

“Genomics” refers to the study of all an organism’s genetic material and their interactions to influence the organism. Large-scale studies are required to understand how changes in an organism’s genes influence the organism.

“Helix” is an extended spiral chain of molecules.

“LDT” means Laboratory Developed Tests.

“Ligation” is a process of joining two DNA strands by chemical linkage.

“Microfluidics” is the science of manipulating and controlling fluids, usually in very small ranges.

“Next Generation Sequencing” means a high-throughput sequencing to sequence DNA and RNA molecules much more quickly and cheaply than the previously used techniques.

“NGS” means Next Generation Sequencing.

“Nucleic Acid” means a complex organic substance present in living cells, such as DNA or RNA.

“Nucleotide bases” or “Nucleotides” are building blocks of nucleic acids and include adenine (“A”), cytosine (‘C”), guanine (“G”), thymine (“T”) and uracil (“U”).

“Omics” refers to various different biological analyses approaches whereby researchers can analyze complex biological data, often in high throughput methods, to find novel associations between biological entities, pinpoint relevant biomarkers and build elaborate markers of disease and physiology. Examples of various “omics” analyses include: genomics, proteomics, transcriptomics, epigenomics, and metabolomics. When two or more of the -omics analyses approaches are combined either directly in analyses and/or in examination of -omics data sets, the approach is referred to as “multi-omics.”

“PCR” means Polymerase Chain Reaction, which is a technique used to generate multiple copies (thousands to millions) of DNA sequences.

“Proteomic(s)” refers to the large-scale study of proteins. The proteome is the entire set of proteins that is produced or modified in an organism or system.

“RNA” means ribonucleic acid, a material present in all living cells which acts as a messenger carrying instructions from the DNA for controlling the synthesis of proteins.

“RNA-Seq” means RNA Sequencing, an NGS method that involves the conversion of RNA into cDNA for subsequent sample preparation and sequencing.

“Throughput” refers to the rate at which an assay can be performed during a given time period.

“Transcript” is a single stranded RNA synthesized by transcription of DNA.

“Transcriptome” refers to the sum of all RNA molecules, inclusive of noncoding and coding RNAs, that are contained within a population of cells or a single cell.

“tSMS” means True Single Molecule Sequencing.

PART I

BUSINESS

ITEM 1. BUSINESS

Overview

We are a development-stage life sciences instrumentation and research services company engaged in the development of scientific assets and novel intellectual property across multiple “omics” fields. We leverage our expertise with True Single Molecule Sequencing (tSMS) technology enabling researchers and clinicians to contribute major advancements to scientific research and development by accelerating one’s understanding of the molecular mechanisms of disease and fundamental biological processes. We believe our proprietary sequencing technology platform has critical advantages over existing NGS (Next Generation Sequencing) technologies, particularly for emerging applications in the research and development of biomarker discovery, epigenetics, nucleotide chemistry, forensics, and cell-free nucleic acid analysis. Our mission is to empower researchers with improved genetic tools that enable scientists and physicians to better understand the molecular mechanisms of disease and the underlying biological systems. This knowledge is essential to the continued development of new breakthroughs in genomic medicine that address the critical concerns involved with today’s precision medicine.

Our single molecule technology enables researchers to identify and synthesize DNA or RNA strands, irrespective of abundance, in a biological sample and is capable of analyzing billions of molecules in parallel, which positions us as both competitive and complementary with other NGS platforms. We believe our technology advantage is a simplified method of quantifying DNA and RNA molecules at single molecule resolution because our platform does not require the routine PCR amplification and library preparation and ligation steps required by most NGS systems, thereby avoiding systematic bias and consequential additional costs. Our current sequencing platform offers advantages, such as the ability of certain samples to reveal previously unknown molecular profiles by directly detecting single molecules with little to no manipulation of the original sample. Our tSMS platform then generates data that is highly accurate and creates reproducible molecular profiles, often providing researchers with new insights into the biology being researched. As supported by multiple peer-reviewed research publications, our tSMS technology platform has assisted medical researchers in uncovering potentially significant DNA and RNA biomarkers for the early detection of diseases.

Our strategy is to integrate the tSMS platform with the development of novel applications across multiple market segments, and to generate revenue through sales of partnership-specific systems and related flow cells and reagents, which we refer to as “sequencing kits”, research services and research grants. We do not offer or sell any products that are founded upon or incorporate our tSMS platform directly to healthcare professionals or consumers. To strengthen our market position, we strive to build and control intellectual property around the instruments, sequencing kits and methods that enable these applications to strengthen our market position. Integral to this strategy will be to work with existing customers in developing new instruments optimized for specific assay and chemistry performance in order to support a wide array of applications. Our target customers are consumers of NGS products and services engaged in research activities and the development of new or improved products, such as academic and government institutions, hospitals and medical centers, pharmaceutical and biotechnology companies, and non-profit research organizations.

Under our current operating model, we expect the revenues we generate from a specific customer to scale as our partnership or collaboration with such customer matures intellectual property founded on our tSMS platform is developed and sold by such customer. Initially, our customer-specific revenues are typically dependent on the funding of, or research grants obtained by, our partners and their ability to develop novel products. During the early stages of our partnerships or collaborations, we generally derive revenue from research services, grants, and the sale of customized instruments and sequencing kits as intellectual property is developed. Over the longer term, however, we expect to generate increasing revenues from our customers from the sale of application-specific assays or tests that are developed on our platform and for which we will receive royalties, a revenue split or other renumeration for the use of our platform or jointly-developed intellectual property.

Background on Genetic Sequencing

Genetic inheritance in living systems is conveyed through a naturally-occurring information storage system known as deoxyribonucleic acid, or DNA. DNA stores information in linear chains of chemical bases known as adenine ("A"), cytosine ("C"), guanine ("G") and thymine ("T"). Inside living cells, these chains usually exist in pairs bound together in a double helix by complementary base pairs. A "genome" is an organism's complete set of DNA, which for humans consists of approximately three billion DNA base pairs. Ribonucleic acid, or RNA, is a molecule used by organisms to convey genetic information. A "transcriptome" is an organism's complete set of RNA molecules at an active cellular state and includes both protein coding and noncoding RNA transcripts.

Genetic sequencing is the process of determining the order of nucleotide bases (A, C, G, or T) in a sample. This consists of three phases: sample preparation, physical sequencing and analysis. Generally, the first step of sample preparation is either to shear the target genome into multiple small fragments or, depending on the amount of sample DNA or RNA available, amplify the target region using a variety of molecular methods. In the physical sequencing phase, the individual bases in each fragment are identified in order, creating individual sequence reads. The number of individual bases identified contiguously is defined as "*read length*." The sequencing throughput is generally defined as the product of the number of individual sequence reads and the average read length of the sequence reads. In the analysis phase, bioinformatics software is used to align overlapping reads, which allows the original genome to be assembled into contiguous sequence.

Studying genomes and transcriptomes helps scientists understand the inheritance of biological characteristics, developmental biology and normal and disease states of cells and organisms. Genetic variation accounts for many of the differences between individuals, such as eye color and blood group, and also affects a person's susceptibility to certain diseases such as cancer, heart disease or diabetes. Genetic variation can also determine a person's response to drug therapies.

A trend in healthcare is towards 'personalized medicine' to enable more accurate diagnosis and treatment through better understanding of each individual patient's disease. We believe that a greater understanding of the genome will lead to this new healthcare paradigm where diseases are understood at the molecular level, allowing patients to be diagnosed according to genetic information, in many instances earlier and more accurately, and be treated with drugs designed to work on specific molecular targets. The goal is to offer precision-personalized medicine that will identify disease earlier, reduce healthcare costs, and enable more appropriate and effective treatment for better outcomes and quality of life. To date, this has largely been done through genomic testing, which provides information about a patient's predisposition to disease or likely response to medication, due to each individual's unique constellation of genes. However, DNA testing is, in most cases, a static readout that does not change through a patient's lifetime or disease course. It does not provide information about the patient's current health status. An increasing number of researchers, however, now believe the transcriptome provides dynamic information about the current state of the body that can be used to assess health, to detect early signs of disease and to enable physicians to select the appropriate treatment, monitor response to treatment and detect unwanted side effects.

Cell-free Nucleic Acids as Disease Biomarkers: Most of the DNA and RNA in the body are inside the cells, but a small amount of nucleic acids is also found in biological fluids such as blood, saliva and urine. This material is generally referred to as cell-free DNA ("cfDNA") and cell-free RNA ("cfRNA"). Analysis of these free-floating molecules can lead to multiple applications such as early disease detection, drug selection and treatment monitoring. For example, large amounts of cell-free DNA material might indicate a bacterial infection or sepsis in very early stages. Cell-free DNA is typically derived from chromatin as intact nucleosomes, or histone-bound DNA, which can be analyzed in addition to solely assessing DNA. Another such example is cfRNA analysis for detection, diagnosis and monitoring of malignant diseases such as cancer. The cfRNA transcripts are differentially expressed between normal and cancerous tissues. These transcripts can be used as a reliable biomarker for cancer screening and diagnostic applications. Analysis of cfRNA can be used to measure dynamic changes in the gene expression, allow oncologists to evaluate disease status, predict outcomes from anti-tumoral therapies and monitor the disease after treatment.

Sequencing Technologies: There are different sequencing technologies available for sequencing genetic material, each producing the sequence data in a unique format. Some of the technologies produce millions of sequence reads with a very short-read length, generally less than 300 nucleotide bases. These technologies are generally referred as short-read NGS platforms. Other technologies produce several thousand sequence reads of a very long-read length, generally more than 1,000 nucleotide bases. These technologies are generally referred as long-read NGS platforms. Both, the short- as well as long-read NGS technologies have their advantages in various settings. For *de novo* assembly of genomes and long RNA transcripts, the long contiguous reads from the long-read NGS technologies are preferred. Generally, short-reads can be used to further fill in gaps in the data from longer read technologies. For molecular counting application, a large number of independent reads from short-read NGS technologies are preferred. RNA quantitation typically occurs after converting extracted RNA molecules into cDNA fragments using commercially available reverse transcriptase as part of that process. This approach, within which there are a variety of methods, is loosely defined as RNA sequencing or "RNA-Seq". Different genes are present in varying amounts in biological samples, and the success of the technique is highly-dependent on the dynamic range of the detection technology.

Market Opportunity

The market for our products and services is segmented into two major categories, DNA NGS and RNA NGS, which, according to The Insight Partners, accounted for a combined addressable market opportunity of approximately $1.03 billion in 2019 that is projected to grow to $5.26 billion by 2025 at a CAGR of 31.3%.

DNA NGS market opportunity: According to The Insight Partners *DNA NGS Market Report 2019*, the global DNA NGS market is projected to grow from $6.82 billion in 2019 to $22.72 billion in 2025 at a CAGR of 22.2% from 2019 to 2025. Our customers in the DNA NGS market largely consist of academic and research institutes and forensic labs. Collectively, academic and research institutes and forensic labs, pathology labs and diagnostic centers represent a projected 58.4% of the end-user market share in 2019. The versatility of the tSMS platform can be applied across our near-term target segments of drug discovery, precision medicine and other novel applications. We intend to focus our commercialization efforts on academic and research institutes and forensic labs in North America and Europe, and will eventually expand our efforts to the Asia Pacific region. North America and Europe represented 69.9% of the global market in 2019. Our targeted end users, applications and regions for DNA NGS offered an addressable market opportunity of $0.74 billion in 2019 that is projected to grow to $4.10 billion in 2025 at a CAGR of 33.0%.

RNA NGS market opportunity: According to The Insight Partners *NGS-based RNA Seq. Market Report 2019*, the global RNA NGS market is projected to grow from $1.63 billion in 2019 to $4.96 billion in 2025 at a CAGR of 20.4%. We intend to leverage our simplified workflow, which reduces bias and misrepresentation caused by various enzymatic steps that other technologies utilize, to accelerate market penetration. The RNA NGS market can be segmented by products and services, end users, applications and sequencing technologies. Research and academic centers, pharmaceutical and biotech companies, pathology labs, forensic labs and diagnostic centers represented a projected 76.7% share of the end users in 2019. Our simplified and mature RNA sequencing approach will facilitate a broad application pool across diagnostics, drug discovery, precision medicine and biomarker discovery field. We will offer RNA sequencing platform and sequencing kits, sequencing services and data analysis products featuring our tSMS technology to such potential customers. Furthermore, we intend to focus on commercialization of our products in North America, Europe and Asia Pacific regions, which collectively accounted for 81.2% of the global market geographically in 2019. Our targeted end users, applications and regions for RNS NGS offered an addressable market opportunity of $0.29 billion in 2019 that is projected to grow to $1.16 billion in 2025 at a CAGR of 26.2%.

Limitations of Existing Technologies

There are multiple short-read and long-read NGS technologies available in the market that partially address the need for accurate and sensitive analysis of genetic information. These technologies can further be classified based on the resolution of the technology as single-molecule sequencing technology and amplification-based technologies. Most single-molecule sequencing technologies do not require amplification, though many of the long-read technologies still require complex sample manipulation prior to sequencing. This is especially true for sequencing of RNA molecules. Over the past two decades, researchers and clinicians have used these technologies to gain a deeper understanding of nucleic acids, to study biomarkers associated with disease, to identify molecules for new drug discovery, to create novel applications for early screening and diagnosis, and more recently to create genome-editing techniques. While researchers are making progress on various fronts by utilizing a combination of these technologies, there remains a wide gap between the needs of the research community and the capabilities of existing sequencing tools. This gap is hindering the advancement of scientific research. The inherent limitations of current technologies are summarized below:

- ***Biased results***: Short-read NGS technology typically requires a large number of DNA molecules during the sequencing process. To generate enough DNA molecules, an amplification step is required during sample preparation. This amplification process can introduce errors known as amplification bias. The effect of this bias is that resulting copies are not uniformly representative of the original template DNA, causing skewed data representation in the final results.

- ***Lower sensitivity***: In cases where the original template DNA contains regions of relatively high G-C content or relatively high A-T content, the amplification process tends to under-represent these regions. As a result, these regions, which may contain entire genes, can be completely missed. The non-linear nature of the amplification thus limits its ability to detect subtle changes in the genetic signature.

- ***Inefficient library preparation***: Many of our competitors use systems requiring multi-step sample preparation protocols to prepare sample libraries before sequencing. This library preparation technique is inefficient, capturing only a fraction of the informative input material. The process selectively captures the molecules that are present in large quantities while losing lower frequency molecules, thus not producing a true representation of the input material. The library preparation protocol limits the minimal amount of input sample. The library preparation steps also add significant burden on the sample preparation.

- ***Inadequate throughput***: Applications such as transcriptome profiling, gene expression and biomarker discovery require accurate quantification of data. The long-read single molecule technologies fall short due to the smaller number of strand throughput required to substantiate the presence or absence of a biomarker in a specific sample. The short-read amplification technology is limited due to a skewed data representation caused by the non-linear amplification bias present in the workflow.

Our Technology Solution

Our tSMS platform offers a single molecule solution for DNA and RNA sequencing by performing detection of nucleic acids without the need for complex sample manipulation. Researchers using our platform can analyze many billions of single molecules in a single experiment and still generate highly accurate and reproducible data. We believe our technology's critical advantage over other technologies is because our platform does not require the routine library preparation steps, such as PCR amplification and ligation, necessary for use with most NGS systems, thereby avoiding systematic amplification bias. RNA sequencing on our platform detects transcripts regardless of abundance and with high accuracy in quantifying gene expression changes associated with certain disease as well as detecting subtle changes in RNA transcript levels that are undetectable with other methods.

Our single molecule platform is unique because it combines a proprietary fluorescence-based optical detection apparatus with a precision microfluidics and thermal control system to perform sequencing-by-synthesis, as illustrated in Figure 1 below.

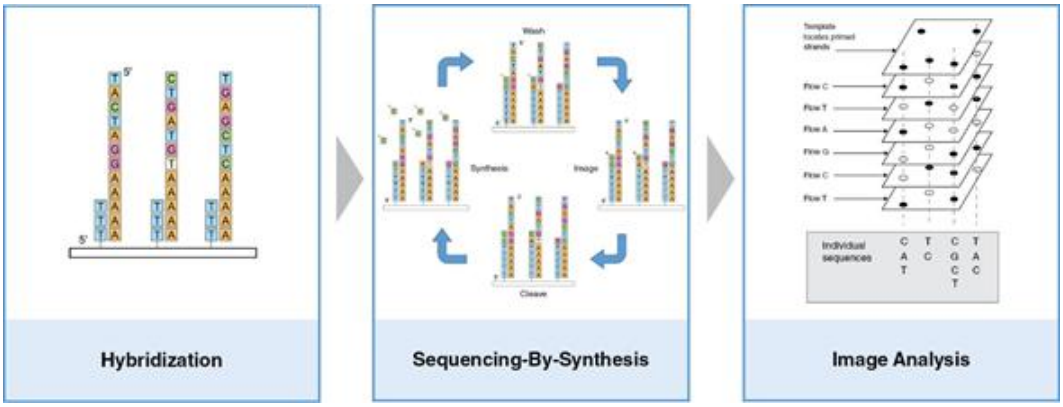


Figure 1. *tSMS* Technology Workflow

Our platform typically derives sequencing information directly from the sample itself, not a copy of the sample. It does not require amplification at any stage of the process and offers simple, straightforward sample preparation protocols. The technology uses a single-stranded DNA and RNA material with lengths that range from less than 20 bases to more than 1000 bases as an input. The platform then captures the material on a glass surface and uses a patented fluorescence-based optical detection apparatus combined with a precision microfluidics system to perform a sequencing-by-synthesis reaction on the input sample.

The single molecule fluorescence signal from millions of individual strands is captured by images using a high-sensitivity camera during multiple cycles of nucleotide incorporation. Our powerful image analysis system processes these images to produce the sequence data as an output. The output data contains millions of individual unique sequences with the average read length of between 35–60 nucleotide bases, with a range of 20–100 nucleotide bases. This length is sufficient to allow unambiguous identification of the origin of each sequence.

Our system still requires isolation and preparation of DNA or RNA samples; however, our system is adaptable to most purification and preparation kits and techniques that are currently available in the market and no additional or special steps are required to prepare the samples for sequencing.

The single molecule resolution of the sequence data in association with a sub-100 nucleotide base read length positions our platform as the only short-read single molecule sequencer commercially available in the market. The amplification-based short-read technologies are already helping the scientists in the fields of research, diagnostics and therapeutics. By giving the short-read technology the power of single molecule resolution, we believe our tSMS technology offers critical advantages over existing technologies, including:

- ***Minimal Sample Preparation***. Our tSMS platform offers a simple sample preparation process. The DNA strands are cut in shorter sizes, converted into single strands, and then tagged with a universal surface capture primer. By avoiding the complex multi-step library preparation method, the sample integrity is preserved, and the bias and errors in the sequence data output exhibited by other methods are avoided. The simplicity of our sample preparation workflow and its effect on the output data variance, compared to NGS data produced by an Illumina system, is illustrated in Figure 2 below. [*van den Oever et. al. (Clinical Chemistry, April 2012)*].

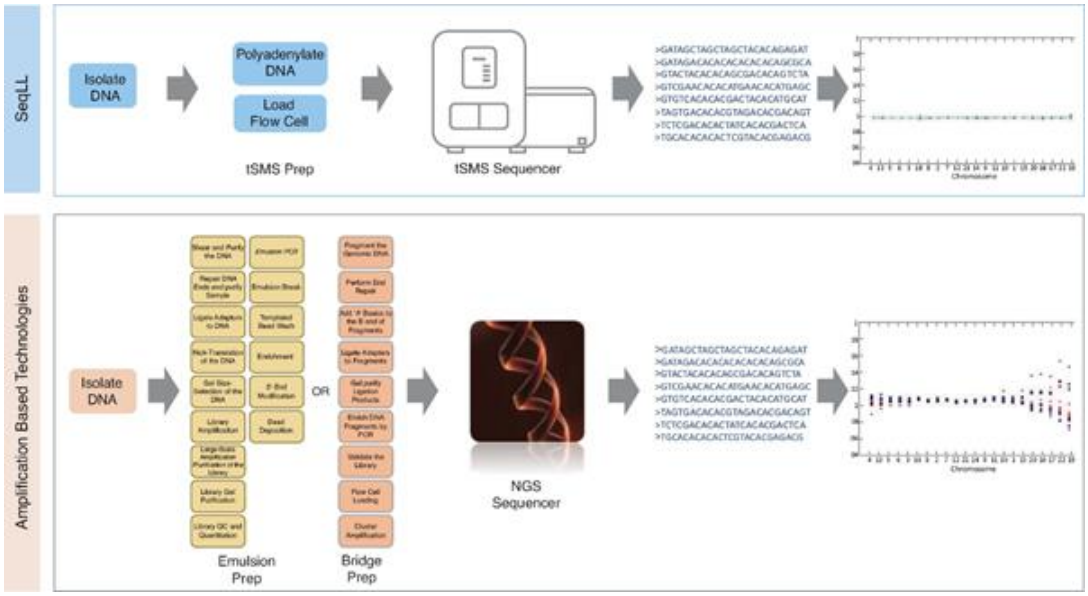


Figure 2. *tSMS* vs Amplification-based Technologies Workflow

- ***Greater Sensitivity***. Our tSMS platform offers a high level of sensitivity as each strand is identified and synthesized irrespective of its abundance in the sample. In the existing amplification-based technologies, low expressing transcripts are typically masked due to preferences and may be missed or have their numbers minimized in the final data analysis. The simplified sample preparation along with single molecule resolution facilitates the unbiased, proportionate representation of input sample, even of the low expressing transcripts and constructs. This allows for obtaining more accurate information earlier (for potential clinical treatments or decisions to be made sooner). Figure 3 below illustrates that the tSMS platform identified low-expression transcripts missed by the standard PCR-based methodology when using Illumina. The lowest expressed quartile of transcripts was detected with our tSMS technology at a 7.10x rate compared to a leading NGS platform [Sam LT, Lipson D, Raz T, et al. A Comparison of Single Molecule and Amplification Based Sequencing of Cancer Transcriptomes. *PLoS* One. 2011].

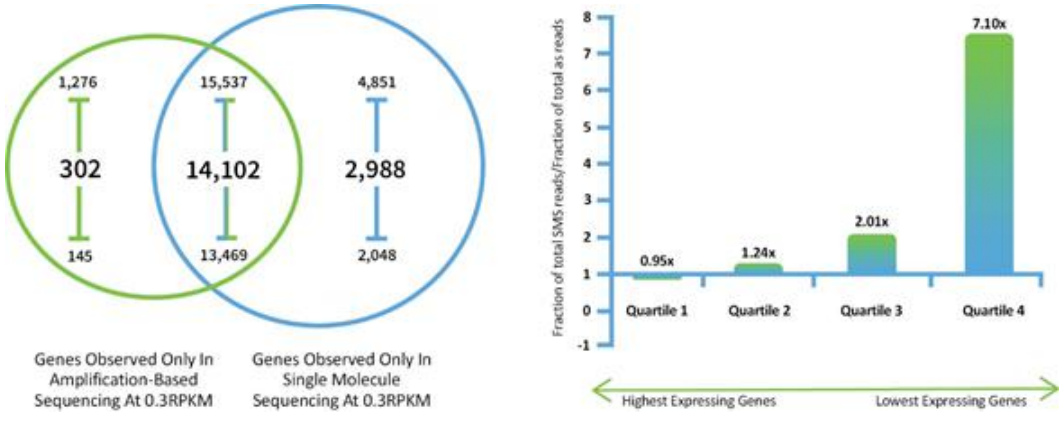


Figure 3. *tSMS* Improves Detection of Lowest Expressed Genes

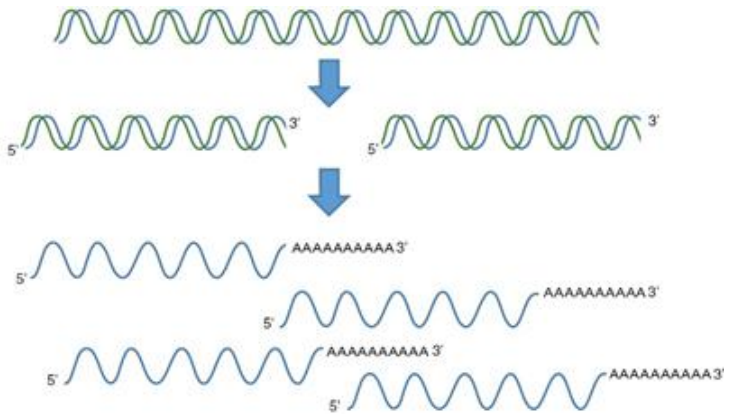
- ***High Accuracy***. Our tSMS platform provides an accurate set of data and results as well as a broader range of molecules to be evaluated. The ability to count each individual molecule, combined with simplified sample preparation and greater sample sensitivity, yields an accurate quantitative representation of sample in the final data. Our technology has been demonstrated to produce robust accurate short-reads for a variety of applications.

- ***Seamless Flexibility***. Our tSMS platform provides flexibility in two main aspects — throughput and applications. The tSMS platform has the ability to scale the throughput across a range of small to large projects. The programmable instrument workflow and modular design of sequencing kits provide flexibility to choose the sample coverage and read length required for the final data. The simplified sample preparation allows for analysis of any genetic material that can be attached to a glass surface.

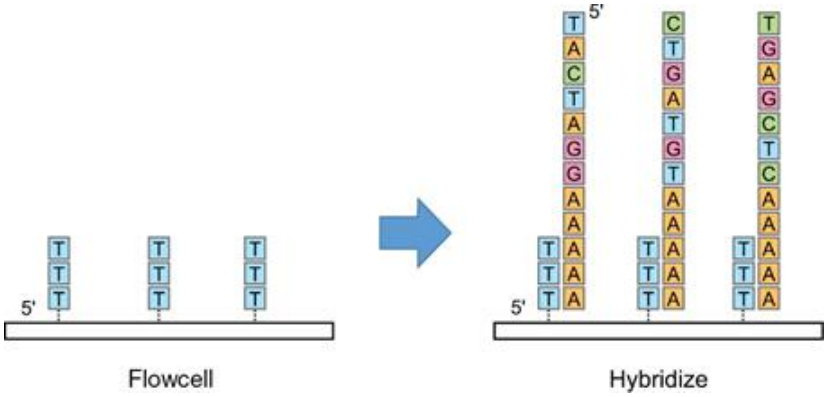
Our Gene Sequencing Methodology

The patented tSMS technology is the essence of our tSMS platform. The gene sequencing methodology takes genetic material as input and produces sequence data as an output through sequentially processing the following five major steps.

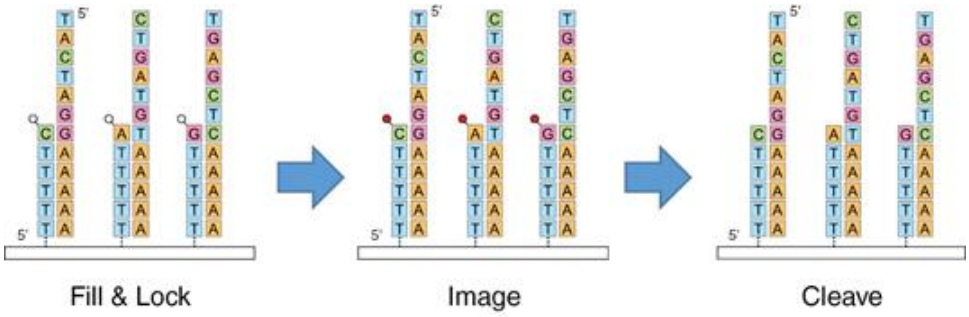
1. ***Sample preparation***: A double helix strand is cut into fragments of 100–200 nucleotides in length. In the case of cfDNA and cfRNA material, this step is not necessary as cell-free strands are generally short and fit the profile of the input material. The strand fragments are then denatured to a single strand, and a poly-A universal priming sequence is added to one end of each strand as shown in the following figure.



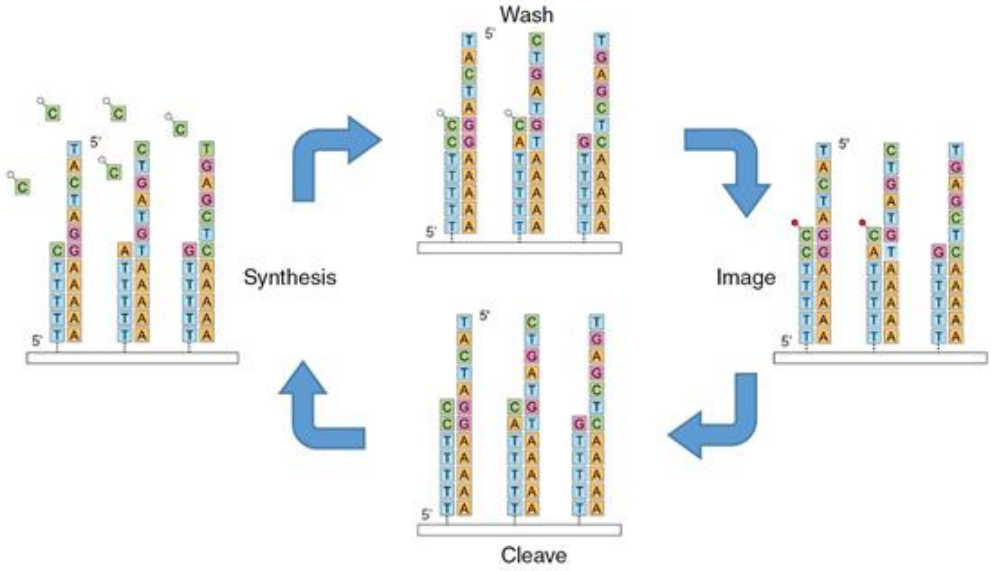
2. ***Sample loading***: The strands are hybridized in a flow cell with billions of universal Oligo T capture sites mobilized on the flow cell surface. The tSMS method typically utilizes a dT50 primer to initiate sequencing from a 3' poly-A tail, although other capture primers may be used to increase the specificity of sample hybridization.



3. ***Template registration***: Once hybridized, a "Fill & Lock" step fills up the rest of the open bases from the poly-A tail followed by the addition of fluorescently labelled nucleotides to the start of the strand. A laser illuminates the flow cell and the camera records the location of each captured sample strand. The flow cell is moved in sequential steps to allow the camera to cover its entire active area. The dye molecules are then cleaved and washed away.



4. ***tSMS sequencing-by-synthesis***:



a. ***Synthesis***: DNA polymerase enzyme and the first of the four types of novel fluorescently labelled nucleotides are added. If the nucleotide is complementary to the next base in the template strand, the polymerase will add it to the primer strand. The nucleotides are designed to inhibit the polymerase from incorporating more than one base at a time on the same strand.

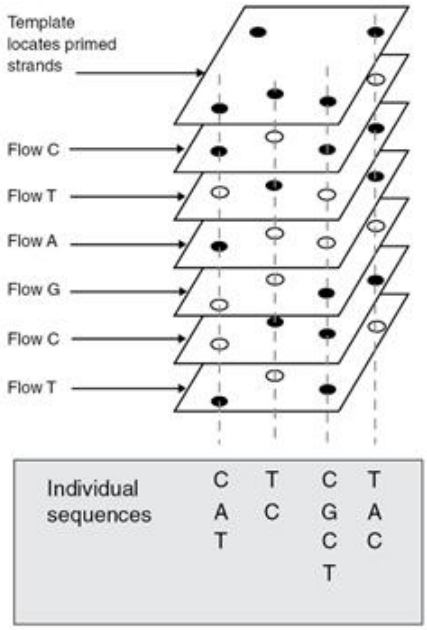
b. ***Wash***: Excess polymerase and unincorporated nucleotides are then washed away. This step ensures that only the incorporated nucleotides are available for fluorescence imaging.

c. ***Image***: The narrow bandwidth laser illuminates the flow cell surface to excite the fluorescently labelled nucleotides. The camera records the locations where fluorescently labelled nucleotides were added.

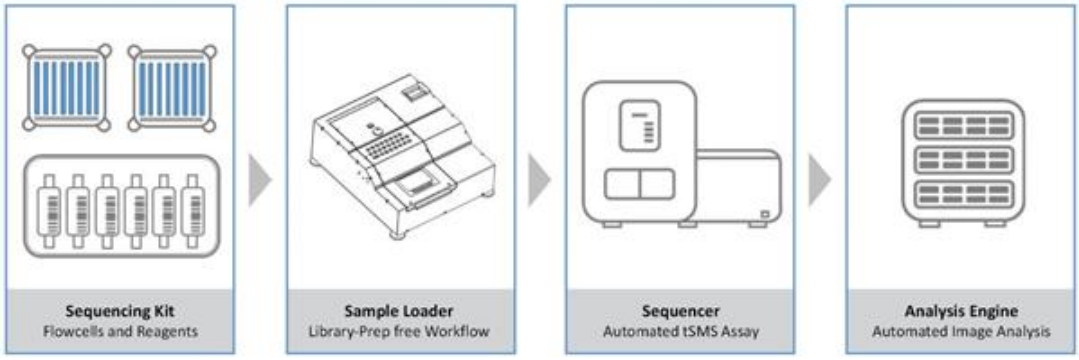
d. ***Cleave***: The fluorescent dye molecules are then cleaved from the labelled nucleotides and washed away. This step ensures that these molecules are fluoresced only for that particular nucleotide addition cycle.

The process is repeated with each of the four types of labelled nucleotides until a desired sequence length is reached. As an example, repeating this cycle 120 times adds an average of more than 33 nucleotides to the primer strand. In sequencing, this is known as the “read length.”

5. ***Data processing*:** The image analysis computer analyzes the series of images from each cycle and determines the sequence of bases in the template strand. The sequence is “read” by correlating the position of a fluorescent molecule in its vertical track with the knowledge of which base was added at that cycle. The sequence data is packaged in standard sequencing data formats for further bioinformatics analysis.



Our True Single Molecule Sequencer (tSMS)



Described above is our gene sequencing methodology using our tSMS single molecule sequencing platform. It combines a simplified operation with powerful capabilities to directly sequence original samples of RNA and DNA consisting of major components:

1. ***Sequencing Kit***: The flow cells and reagents are the major components of a sequencing kit that the instrument needs at the start of every new run. The custom flow cell features 25 discrete flow channels, and each channel of the flow cell has millions of capture probes deposited on the cover glass. The sequencing samples are loaded into the flow cell channels using the sample loader. The sequencing run can sequence up to two flow cells in a single run. The reagent kit for the sequencing run consists of custom pre-packaged bottles that store proprietary tSMS chemistry reagents and wash buffers for the system. All of the flow cells and reagent kits are barcoded, so the sequencer can scan and store the barcodes as a part of the experiment setup procedure.

2. ***Sample Loader***: The sample loader facilitates loading the billions of tailed single strands onto the glass surface of the standard 25 channel flow cell. A temperature-controlled chamber improves the hybridization efficiency and houses a mechanism to hold a standard flow cell used in the system. The proprietary sample loading block design helps to keep the transfer volume to near zero microliter, while the system offers precision control of loading the sample in 25 discrete channels without any cross-contamination. The input material volume for the sample loader can be as little as 20 microliters.

3. ***tSMS Sequencer***: The sequencer accepts up to two flow cells for a sequencing run, allowing sequencing of up to 50 individual samples in a single run. The benchtop sequencer is a fully-automated device that combines a Total Internal Reflection Fluorescence (TIRF) microscopy technique with a high-precision, temperature-controlled microfluidics system. The microfluidics system houses the reagent kit required to perform tSMS chemistry, and uses high-precision pumps and valves to formulate the chemistry just-in-time for delivery to the flow cell chamber during each chemistry cycle. The two-flow cell design maximizes the machine utilization by performing the chemistry cycle on one flow cell while the other flow cell is going through the imaging cycle, and vice-a versa. The flow cells are mounted on a high-speed, high-accuracy multi-axis stage that moves the flow cell along the channel with nanometer grade precision. The high-power optics system consists of a narrow bandwidth laser to provide the excitation signal, while the high-fidelity imaging system uses a highly sensitive camera for capturing the single molecule signal emitted by the fluorophores. All of these subsystem operations are integrated and controlled by an on-board computer in a completely automated fashion over the course of the run. A simple touch screen based graphical user interface walks the user through an intuitive run setup. A typical run on the sequencer captures three to six million images containing information about billions of individual single molecules in the strands.

4. ***Image Analysis Engine***: The image analysis engine processes the images captured by the sequencer camera, aligns them with the template image at individual position, and creates the sequence data file to be used for further bioinformatics analysis. It features a high-power CPU array with large storage capacity hard drives specifically designed for intensive image analysis and storage purposes. The image analysis engine runs parallel to the camera, processing the images as soon as the camera starts imaging the flow cell. The image analysis engine software monitors the instrument status and automatically uploads the sequence data at the end of the run at a user-configurable network location.

The instrument has a web-based interface for remote monitoring that updates the key sequencing metrics and the instrument status in real time. The database system of the instrument stores the detailed logs for both record keeping and troubleshooting purposes.

Markets for Our Technology

The initial target market for our instruments and research services has been the life sciences research and development market where we provide solutions for a variety of applications, including biomarker discovery and diagnostic assay developments. This market includes laboratories associated with universities, scientific research centers, government institutions, and biotechnology and pharmaceutical companies.

Our tSMS technology platform produces data with potential diagnostic implications, detecting biomarkers for cardiovascular diseases and various types of cancer, and offers an optimal solution for use in sequencing applications. We anticipate using these strengths to capture a portion of the growing multi-billion dollar NGS market. We strive to build and control intellectual property around the instruments, sequencing kits and methods that enable these applications to strengthen our market position. The major consumers of the NGS include academic and government institutes, hospitals and medical centers, pharmaceutical and biotechnology companies, non-profit research organizations and agrigenomics organizations.

Introductions of new technologies and products, while positive to the overall development of these markets, may result in greater competition for the limited financial resources available. There are a number of emerging markets for sequencing-based technologies that represent significant potential opportunities for us, such as but not limited to:

- ***Life sciences research and development:*** NGS technologies are accelerating the discovery and development of more effective new drugs. The complex nature of biological pathways, disease mechanisms and multiple drug targets requires an accurate, unbiased, and sensitive molecular counting platform. Single molecule sequencing, with its unparalleled quantitative accuracy in large-scale expression profiling could enable high-throughput screening of promising drug leads. During clinical trials, our technology could potentially be used for companion diagnostics to generate individual genetic profiles that can provide valuable information on likely response to therapy, toxicology or risk of adverse events. The tSMS platform may also enable more precise selection of patient pools and individualization of therapy.

- ***Liquid biopsy:*** Liquid biopsy is emerging as a simple and non-invasive alternative to the traditional tissue biopsy approach for disease screening and monitoring. A simple draw of blood contains millions of tiny fragments of cell-free DNA/RNA material with lengths on the order of 100–200bp, which carry informative signatures of cancer and other life-threatening diseases even in a very early stage of the disease progression. With its quantitative accuracy, simple sample preparation methodology, and its ability to accurately sequence fragmented short molecules, our single molecule sequencing offers an excellent solution for liquid biopsy.

- ***Infectious disease:*** Infectious diseases are disorders caused by bacteria, viruses and fungi. These organisms contain DNA and RNA that act as infectious agents to transmit disease from person to person, by insect or animal, or through food and environmental means. The detection and sequencing of the DNA and RNA from pathogens provides medically actionable information for diagnosis, treatment and monitoring of infections. Accurate sequence information could also help to predict drug resistance.

- ***Clinical diagnostics:*** Our amplification and ligation free sequencing method allows us to identify subtle changes in the RNA transcript levels that are undetectable with other methods presumably due to bias and loss of low-level transcripts inherent to the other technologies. The power of our tSMS technology can help to address the large unmet need for biomarker discovery to diagnose diseases such as cardiovascular diseases and cancer at very early stages. The potential of our technology for bio-marker discovery is illustrated in Figure 4 below, where tSMS RNA-seq was utilized to identify RNA-based gene expression changes associated with ADHD [McCaffrey TA, St Laurent G 3rd, Shtokalo D, et al. Biomarker Discovery in Attention Deficit Hyperactivity Disorder: RNA Sequencing of Whole Blood in Discordant Twin and Case-controlled Cohorts. *BMC Med Genomics*. 2020]. Further studies offer the opportunity for validating future diagnostics applications.

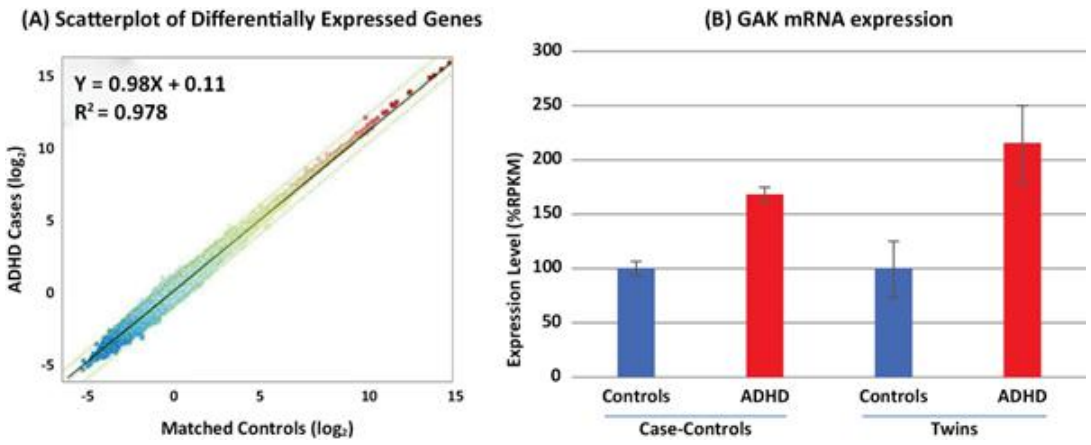


Figure 4. Biomarker Discovery in ADHD using tSMS RNA-seq

- ***Microbiome analysis:*** Microbial communities in and on the body show uniform bacterial diversity in healthy individuals. Drugs and diet can disrupt the microbial diversity, and thereby can affect disease progression and treatment efficacy. Our technology can accurately quantify the gene signature for all bacteria present and capture a real-time snapshot of the microbiome. This data can be used by physicians for disease treatment by applying methods to encourage growth of beneficial microbes and eliminate harmful microbes.

These examples of emerging markets for sequencing-based technologies represent significant potential opportunities for us. The development of these markets is subject to variability driven by ongoing changes in the competitive landscape, evolving regulatory requirements, government funding of research and development activities, and macroeconomic conditions. Given the ability of the tSMS platform to sequence nucleic acid fragments as well as to detect post-translational modifications within larger chromatin molecules, we believe our technology is uniquely positioned to produce data from molecules at both ends of the single molecule nucleic acid spectrum. This concept, and the technology leaders for each single molecule market segment, is illustrated in Figure 5 below, with our potential applications highlighted in blue font.

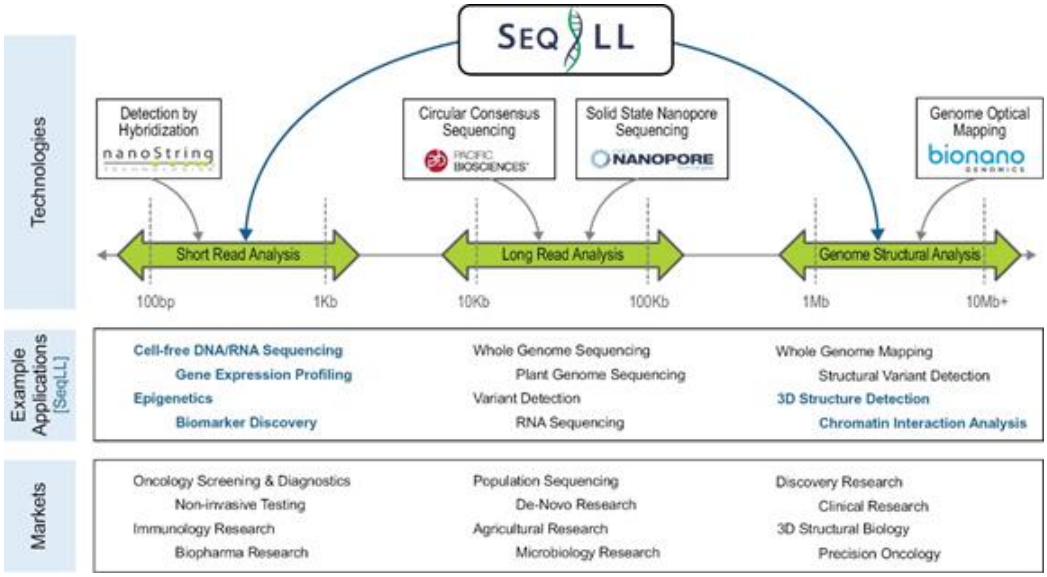


Figure 5. Illustrative Single Molecule Nucleic Acid Landscape

Our Business Strategy

Our mission is to empower researchers with improved genetic tools that enable scientists and physicians to better understand the molecular mechanisms of disease and the underlying biological systems. This knowledge is essential to the continued development of new approaches and breakthroughs in genomic medicine that address critical concerns relating to today's precision medicine efforts.

Our strategy is to integrate our tSMS platform with the development of novel applications across multiple market segments, and to generate revenue through partnership-specific system and sequencing kit sales, research services and research grants. We strive to build and control intellectual property around the instruments, sequencing kits and methods that enable these applications to strengthen our market position. Integral to this strategy will be to work with existing customers in developing new instruments optimized for specific assay and chemistry performance in order to support a wide array of applications. Figure 6 below summarizes three priority areas of research and development for current and potential collaborations, which we expect to fund with a portion of the net proceeds of this offering.

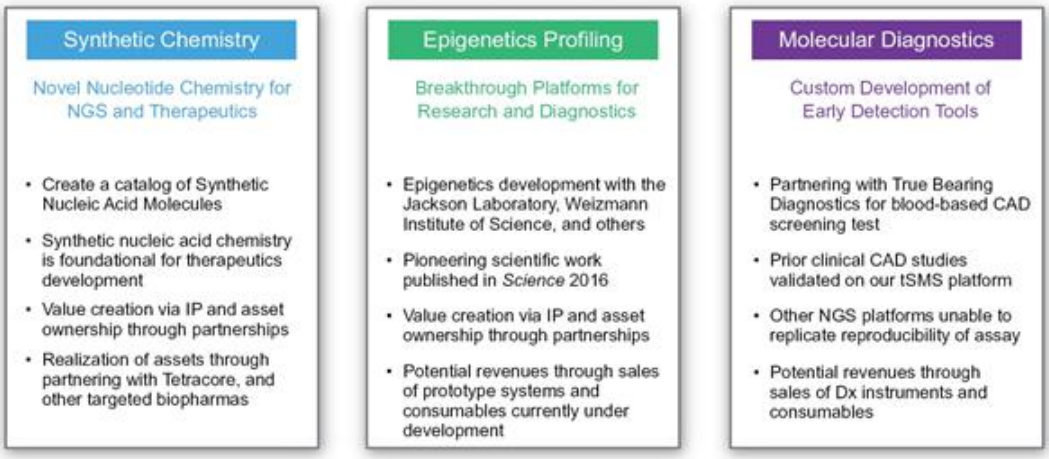


Figure 6. Three Priority Areas of Research and Development

Our target customers are consumers of NGS products and services engaged in research activities and the development of new or improved products, such as academic and government institutions, hospitals and medical centers, pharmaceutical and biotechnology companies, and non-profit research organizations.

We have generated only nominal revenues to date from our current operating model and we do not expect our revenues to scale significantly until one or more of our customers or third-party partners or collaborators has developed application-specific assays or tests for which our platform serves as a foundation. As a result, we believe our ability to continue to operate at current levels is dependent on the success of this offering. Over the longer term, we expect to generate revenues from our customers, partners and collaborators through a combination of product sales, research services and research grants. We plan to expand these revenues from recurring and prospective clients by the following key strategies:

- Provide the scientific community with a combination of research services and NGS instrumentation to serve markets that we believe are inadequately addressed by existing technologies.
- Assist in the development of new classes of RNA-based diagnostics tests.
- Collaborate with researchers to enhance pharmacogenomics and biomarker discovery.
- Support drug developers seeking a better understanding of the side effects of their new drugs.
- Continue to innovate and develop new aspects of our products and technology, applications and instrumentation through scientific collaborations, including grants.
- Leverage our expertise and the broad applicability of our tSMS platform to grow into new markets through strategic collaborations, partnerships, existing data sets, and customers.
- Maintain a strong culture and network of technical resources while continuously attracting new talent to build an industry leading single molecule solutions company.

We expect to use a portion of the net proceeds of this offering to support our research and development activities and to improve and update our tSMS platform to develop additional applications in support of our existing partnerships and collaborations. While we anticipate increased revenues as a result of those efforts, we are planning to raise additional funds following this offering to support our existing partners and collaborators and to fund the initial costs of new relationships.

Our Customers and Collaborators

Our customer base is focused on academic research, biomarker discovery, and molecular diagnostic product development. These customers over the years have produced scientific achievements through collaborative research efforts. The majority of our current customers are early adopters of genomics technology including tSMS. A significant portion of the funding for these developing technologies has historically come from research grants provided by government agencies and non-profit research centers. We often collaborate with customers to drive innovation in the field of genomic sciences through grant funded research activities. Our key collaborators and our current activities are highlighted below:

The Bernstein Laboratory

We have worked closely with the lab of Bradley Bernstein, M.D., Ph.D. at Massachusetts General Hospital and Harvard Medical School to address fundamental questions in chromatin biology and epigenetic regulation. Dr. Bernstein is also the founder and Director of the Broad Institute Epigenomics Program. Scientists from the Broad Institute have used antibody-based detection coupled with tSMS to begin decoding a dual-marking system in modified histones that signals for a gene to be activated or repressed. Early results, published in *Science*, suggest differentiated cells exhibit different patterns of "bivalent" markings than embryonic cells. Our collaboration encompasses technology development, single-cell RNA and DNA analysis, and the creation of novel intellectual property. In addition to completing NIH grant funded research activities, we have provided Dr. Bernstein with tSMS systems and onsite support. We have submitted a technology development manuscript for peer review at a leading scientific journal and expect to provide the Bernstein Lab early access to new prototype systems in the second half of 2021.

The Ting Laboratory

We have been a long-time research collaborator with David Ting, M.D., Assistant Professor, Medicine at Harvard Medical School and a leading member at the Dana Farber/Harvard Cancer Center in using tSMS to better understand cancer. His research is focused on the role of non-coding RNA transcription in cancer as it relates to tumorigenesis and as novel biomarkers. In this research area, the Ting Laboratory was first to discover aberrant overexpression of pericentromeric RNA repeats by RNA-seq using tSMS, which were found to play a significant role in pancreatic cancer and other epithelial cancers [Bersani, *PNAS*, December 2015]. This discovery resulted in new intellectual property related to pancreatic cancer biomarkers and the subsequent founding of Rome Therapeutics, an early-stage company focused on unlocking the repeatome to discover powerful new classes of medicines for cancer and autoimmune diseases. We have provided Dr. Ting with tSMS systems and onsite support, research services, and access to sample preparation methodologies.

The Jackson Laboratory for Genomic Medicine

Led by Chia-Lin Wei, Ph.D. with The Jackson Laboratory ("JAX") and supported by a recent four-year, $2.3 million grant from the National Institute of General Medical Sciences, we are assisting in the development of new methods for chromatin interaction analysis in single nuclei, with single-molecule resolution. JAX has stated that preliminary results indicate that, once fully developed, the methods under development have the potential to exceed previous methodologies and to revolutionize the field of three-dimensional ("3D") genome biology. Our research grant efforts, including instrument prototype and sequencing kit development, are continuing and will focus on generating genome-wide, single-molecule chromatin interaction maps in a variety of biological systems and uncovering the structural detail of multiplex chromatin loci that are currently unresolvable given standard NGS. We expect to provide JAX early access to newly-developed prototype systems in the second half of 2021.

Weizmann Institute of Science

In partnership with the laboratory of Efrat Shema, Ph.D., we have recently developed and applied innovative single-molecule technologies to gain a deeper understanding of chromatin regulation. We are working to establish robust single-molecule systems for genome-wide profiling of combinatorial chromatin and DNA modifications, as well as development of novel therapeutic and diagnostic tools. We have multiple manuscripts currently submitted for peer review at leading scientific journals and expect publication in the second half of 2021. We have provided the Weizmann with access to prototype sequencing systems, sequencing kits, and sample preparation methodologies.

True Bearing Diagnostics, Inc.

We have participated in a research collaboration with Timothy McCaffrey, Ph.D. of The George Washington University's Center of Genomic Medicine and True Bearing Diagnostics, Inc, performing tSMS on whole-blood RNA to identify transcripts associated with coronary artery disease ("CAD"). In comparison to other platforms that include NGS technologies, only our tSMS platform could consistently identify the novel mRNA signature in CAD patients. We believe this collaboration will provide the blueprint for a diagnostic test that could significantly reduce the more than one million U.S. catheterizations that are performed annually at a cost of approximately $20 billion per year. A scientific manuscript detailing biomarker discovery efforts for CAD is currently in preparation and expected to be published in a peer reviewed journal in the first half of 2022. We have provided True Bearing Diagnostics with research services and access to sample preparation methodologies. Potential future work includes the development of a CAD-focused clinical system for regulatory clearance.

Tetracore, Inc.

Tetracore, Inc. focuses on antibody-based and nucleic acid-based detection reagents and technologies, and contracts with the U.S. Government for the development of real-time PCR diagnostic tests for biological warfare threat agents, novel nucleic acid extraction procedures, and specialized nucleic acid products. We have provided Tetracore with tSMS systems and onsite support. We are actively preparing applications for submission to the NIH, DARPA and other funding agencies regarding the use of our technology in the development and production of detection tools. These potential products, including non-NGS applications, are for clinical, animal health, and domestic preparedness testing.

Future Products

We expect to partner or collaborate with biotech and pharma companies to develop a clinical-grade tSMS sequencer for use with one or more diagnostic tests. We intend for our partners to commercialize diagnostic tests for applications for which the tSMS platform offers accurate diagnostic capability, such as non-invasive prenatal testing for early pregnancy and high-body-mass-index-mothers, liquid biopsy for oncology applications, microbiome analysis, and transcriptome-based diagnostics for cardiovascular disease, infectious disease and others. We will look to increase industry visibility and expand our reach globally for both sequencing services and instrument sales through strategic customer relationships and partnerships with larger organizations that can increase global support, supply and distribution. Through those partnerships, we plan to identify new, high-value, cutting-edge applications that are uniquely enabled by our amplification-free, direct DNA and RNA sequencing technology.

The accuracy, sensitivity and simplicity of the tSMS platform allows the technology to be applied for developing assays and instruments used for quality control of manufactured therapeutic products, including gene therapy and vaccine technologies. We plan to explore commercial-stage partnerships with therapeutics companies interested in accessing our tSMS platform.

As our partners or collaborators expand their product lines to address the diagnosis of disease, regulation by governmental authorities in the United States will become an increasingly significant factor in development, testing, production and marketing. Products developed for the diagnostics market, depending on their intended use, may be regulated as in vitro diagnostics by the FDA. Each medical device to be distributed commercially in the United States will likely require either 510(k) clearance or approval of a pre-market approval application (PMA) from the FDA prior to marketing the device for in-vitro diagnostic use. Clinical trials related to regulatory submissions may take years to complete and represent a significant expense. The 510(k) clearance pathway usually takes from three to 12 months, but can take longer. The PMA pathway is more costly, lengthy and uncertain, and can take from one to three years, or longer.

We have not sought FDA approval of our sequencers because to-date we have marketed them for research purposes and not for clinical diagnostics. Through our partners or collaborators, we will likely need to assist in pursuing regulatory approvals from the FDA when they attempt to enter the diagnostics market, which is expensive, involves a high degree of risk and there is no assurance that we will be able to develop a commercially viable product. Even if the products under development are authorized and approved by the FDA, our partners or collaborators must still meet the challenges of successful marketing, distribution and customer acceptance. We do not intend to use proceeds from this offering to pursue FDA approval. If significant funds are required from us in seeking to obtain any FDA approval, we intend to raise additional funds for such purpose prior to pursuing FDA approval.

Marketing, Sales, Service and Support

Our business model is focused on offering our customers and collaborators access to our tSMS technology in order to drive comprehensive and reliable solutions that enhance acceptance, customer loyalty and confidence, revenue growth and shareholder value. We plan to focus on addressing specific markets for which there are not currently adequate solutions. This will require education and demonstration of added value by helping customers and collaborators meet program timelines, providing data that supports their programs, and implementing custom solutions to meet each customer's specific objectives. We currently generate revenue by selling to existing customers and through collaborative, research-focused efforts that create additional sales and growth opportunities.

To achieve recurring growth for our research services revenues and drive new value creation, we are implementing the following initiatives to increase market awareness of the tSMS platform:

- Defining our value proposition in terms of commercial value and solution to customer needs, as related to platform flexibility, speed to solution, and comprehensive quality of the genetic information provided.
- Creating new literature that highlights our technology, instruments and capabilities. This includes brochures, white papers, application notes, case studies, and solution's value proposition marketing material.
- Implementing new customer facing programs including trade show participation, posters and presentations to showcase the solutions for commercial needs, and attending scientific conferences that publish the research data from the tSMS platform.
- Expanding visibility in segment verticals with segment organization participation and by creating integrated training and education programs as a part of instrument sales and the training process.
- Furthering research collaborations with key opinion leaders to address critical, high potential needs and publish the findings in the peer-reviewed scientific journals.

We believe this approach maximizes value to our customers and shareholders by supporting the largest possible number of customers.

Manufacturing

We have the capability to manufacture the required sequencing kits and instrumentation at our own manufacturing facility. We believe manufacturing all system components internally results in greater trade secret protection for our proprietary formulations and mechanics, a higher degree of customer satisfaction in our research business, and lower production costs. In the future, we may outsource some of the non-proprietary reagents and basic instrumentation sub-assemblies for parallel inventory production ramp-ups. Relationships to various contract manufacturing organizations have already been established and we believe several are prepared to provide these services once production demand exceeds internal capacity.

Our current manufacturing staff is comprised of a team of engineers and technicians who each has more than 10 years of experience with the tSMS product line. The manufacturing team has deep experience with the tSMS platform and has the ability to adapt to future needs on both the hardware and sequencing kits. In addition, this group has experience in FDA product clearance and working in an FDA regulated environment. The team has been involved in manufacturing commercially available tSMS instruments since its original design and subsequent production in 2008.

We are planning to establish a controlled manufacturing process and environment, and to implement standards according to the International Organization for Standardization (ISO), 5S lean manufacturing methodology, and other lean techniques. We also plan to create work cells for efficiency and material control for both sequencing kits and instrumentation. Implementation of quality assurance in manufacturing documentation and processes is one of our top priorities as we continue the path toward releasing a clinical grade tSMS sequencer that is compatible with the FDA clearance process.

We believe our current facilities are adequate and have additional room to expand to meet our manufacturing needs for at least the next two years. Beyond that, we may be required to lease additional space to incorporate additional manufacturing, lab, test and assembly capabilities.

Research and Development

Our research and development efforts focus on maintaining our advantage in single molecule sequencing. These efforts leverage our team's involvement and continuing development of the tSMS technology for over a decade. The tSMS technology blends a number of scientific disciplines, including optics, micro-fluidics, biochemistry and molecular biology, systems engineering, and bioinformatics. Over the years, we have continuously established strong relationships with technology leaders and leading academic centers that augment and complement our internal research and development efforts.

Some of our research and development accomplishments include:

- Production of a second generation tSMS sequencer in benchtop form-factor;
- Optimized sample preparation, flow cell and reagent tSMS processes;
- Innovated machine-learning methods-based image analysis algorithms;
- Co-authored multiple publications in scientific journals; and
- Received multiple National Institutes of Health grant awards for technology development.

We plan to continue our investment in research and development to enhance the performance and expand the application base of our current products, and to introduce additional products based on our technology. In addition, our engineering team will continue their focus on increasing instrument component and system reliability, reducing costs, and implementing additional system flexibility and versatility through the enhancement of existing products and development of new products.

Competition

Given the market opportunity, there are a significant number of competing companies offering gene sequencing equipment or sequencing kits. These include Illumina, Inc., Pacific Biosciences of California, Inc., Thermo Fisher Scientific, Inc., GenapSys, Inc., and Oxford Nanopore Technologies, Ltd. Based on published revenue data, Illumina, Inc. leads the NGS technology market share, followed by Thermo Fisher Scientific, Inc., then Pacific Biosciences of California, Inc. and Oxford Nanopore Technologies, Ltd. We believe we are uniquely positioned among the competition to be the only company offering high strand throughput with the power of single molecule resolution.

Our competitors have greater financial, technical, research and/or other resources than we do. These companies also have larger and more established manufacturing capabilities and marketing, sales and support functions. We expect the competition to intensify within this market. The increased competition may result in pricing pressures, which could harm our sales, profitability or market share. In order for us to successfully compete against these companies, we will need to demonstrate that our products deliver superior performance and value. We will also need to continually improve the breadth and depth of current and future products and applications.

Intellectual Property

Developing and maintaining a strong intellectual property position is an important element of our business. We maintain the intellectual property through a combination of licenses, patent protection and trade secrets.

We have sought, and will continue to seek, patent protection for our technology, for improvements to our technology, as well as for any of our other technologies for which we believe such protection will be advantageous. In 2013, as part of the Helicos bankruptcy proceedings, we entered into the following non-exclusive license agreements:

License Agreement with Helicos Biosciences Corporation. Our tSMS technology has been in development since 2004 at Helicos Biosciences Corporation ("Helicos"), which pioneered the first generation tSMS technology resulting in its commercialization as the HeliScope Genetic Analysis System. In 2013, Daniel Jones, a former scientist at Helicos and our current Chief Executive Officer, formed our company to further the development of tSMS. We then purchased much of our physical assets from Helicos, including, among other items, sequencers, laboratory equipment, internal servers, protocols and data analysis procedures, through Helicos' bankruptcy proceedings that began in 2012.

In 2013, we entered into, and since such date fully paid for, a non-exclusive, royalty-free license from Helicos, for the life of such patents, for over 60 patents, all but eight of which have since expired or been abandoned, covering key areas of our technology, including design, methods and chemistry. As part of the Helicos bankruptcy proceedings, Fluidigm Corporation, a U.S. public company engaged in the design, manufacture and sale of biological research equipment based on integrated fluid circuit technology, obtained the rights to this patent portfolio. The license grants to us the right to use or sell throughout the world products or processes based upon the intellectual property covered by the licensed patents in the field of contract gene sequencing, and prohibits us from sublicensing the intellectual property to any third party or to make any assignment of the license. The license may be terminated by Fluidigm in the event we sub-license or assign any of the intellectual to a third party; however, we have the right to use the patented technology in connection with any partnership or collaboration in which we have at least a 50% ownership interest. In addition, Fluidigm has a right to terminate the license in the event Daniel Jones, our Chief Executive Officer, fails to continue to work full time for us or if we fail to use reasonable care in the investigation, testing or solicitation of government approvals with respect to the intellectual property. In addition, the license will automatically terminate in the event we dissolve, cease to conduct business, file a petition for bankruptcy, assign all of our assets to a receiver or trustee or in the event we have an involuntary bankruptcy petition initiated against us that is not dismissed within 60 days. This license is provided to us on an "as is" basis only and without any representations or warranties, express or implied, regarding the intellectual property and the use thereof. In addition, Fluidigm has no obligation under the license agreement to prosecute any patent application or to maintain any rights to the intellectual property by payment of any fees to any governmental agency. While the remaining patents comprising this patent portfolio are expected to expire in 2025 through 2028, as this patent portfolio has been broadly licensed, we do not expect such expirations to have a material adverse effect upon our business operations.

Sub-License Agreement with Helicos Biosciences Corporation. As part of the Helicos bankruptcy proceeding, Arizona Science and Technology Enterprises LLC ("AzTE") agreed that Helicos could sub-license to us the license agreement between Helicos and AzTE with respect to 10 patents owned by AzTE for the life of such patents. All of the patents under this sublicense have since expired.

We have one pending patent application, which was filed with the United States Patent and Trademark Office in August 2016. Our issued and pending patents cover various aspects of our sequencing technology, and we expect to continue to file new patent applications to protect the improvements to our technologies.

We have registered our corporate name (SeqLL) and design logo, as well as the phrase "tSMS" and "DRS". We protect trade secrets, know-how, copyrights, and trademarks, as well as continuing technological innovation and licensing opportunities to develop and maintain our competitive position. Our success depends in part on obtaining patent protection for our products and processes, preserving trade secrets, patents, copyrights and trademarks, operating without infringing the proprietary rights of third parties, and acquiring licenses for technology or products.

Employees

As of December 31, 2021, we had seven employees. None of our employees are represented by a collective bargaining agreement, and we have never experienced any work stoppage. We believe we have good relations with our employees.

Properties and Facilities

On February 2, 2022, we entered into a new lease agreement for approximately 15,538 square feet of corporate office and laboratory space in Billerica, Massachusetts. The lease has a term of 86 months with the rent escalating from $14,317 to $26,453 per month over the lease term.

Legal Proceedings

From time to time, we may be involved in various disputes and litigation matters that arise in the ordinary course of business. We are currently not a party to any material legal proceedings.

ITEM 1A. RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the following information about these risks, together with the other information appearing elsewhere in this report, including our financial statements, the notes thereto and the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations," before deciding to invest in our securities. The occurrence of any of the following risks could have a material and adverse effect on our business, reputation, financial condition, results of operations and future growth prospects, as well as our ability to accomplish our strategic objectives. As a result, the trading price of our securities could decline, and you could lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also impair our business operations and stock price.

As we have incurred recurring losses and negative operating cash flows since our inception, there is no assurance that we will be able to continue as a going concern absent additional financing, which we may not be able to obtain on favorable terms or at all.

We have incurred net losses since our incorporation in 2014 and we cannot be certain if or when we will produce sufficient revenue from our operations to support our costs. Even if profitability is achieved in the future, we may not be able to sustain profitability on a consistent basis. We expect to continue to incur substantial losses and negative cash flow from operations for the foreseeable future. Our future is dependent upon our ability to obtain financing and upon future profitable operations from the sale of future sequencing products.

Our ability to obtain additional financing will be subject to a number of factors, including market conditions, our operating performance and investor sentiment. If we are unable to raise additional capital when required or on acceptable terms, we may have to significantly delay, scale back or discontinue our operations or obtain funds by entering into agreements on unattractive terms, which would likely have a material adverse effect on our business, stock price and our relationships with third parties with whom we have business relationships, at least until additional funding is obtained. If we do not have sufficient funds to continue operations, we could be required to seek bankruptcy protection or other alternatives that would likely result in our stockholders losing some or all of their investment in us.

We do not have any credit facilities as a source of future funds, and there can be no assurance that we will be able to raise sufficient additional capital on acceptable terms, or at all. We may seek additional capital through a combination of private and public equity offerings, debt financings and strategic collaborations. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. Debt financing, if obtained, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, could increase our expenses and require that our assets secure such debt. Moreover, any debt we incur must be repaid regardless of our operating results.

We are an early, commercial-stage company with a limited operating history.

We were incorporated in 2014 and we have had limited sales to date. As such, we have limited historical financial data upon which to base our projected revenue, planned operating expenses or upon which to evaluate us and our commercial prospects. Based on our limited experience in developing and marketing our existing products and services as well as launching new products, we may not be able to effectively:

- drive adoption of our current and future products and services;
- attract and retain customers for our products and services;
- provide appropriate levels of customer training and support for our products and services;
- implement an effective marketing strategy to promote awareness of our products and services;
- develop, manufacture and commercialize new products or achieve an acceptable return on our manufacturing or research and development efforts and expenses;
- anticipate and adapt to changes in our market or predict future performance;
- accommodate customer expectations and demands with respect to our products and services;
- grow our market share by marketing and selling our products and services to new and additional market segments;
- maintain and develop strategic relationships with vendors and manufacturers to acquire necessary materials for the production of our existing or future products;
- adapt or scale our manufacturing activities to meet potential demand at a reasonable cost;
- avoid infringement and misappropriation of third-party intellectual property;
- obtain any necessary licenses to third-party intellectual property on commercially reasonable terms;
- obtain valid and enforceable patents that give us a competitive advantage;
- protect our proprietary technology; and
- attract, retain and motivate qualified personnel.

If our tSMS sequencing instruments or sequencing services fail to achieve and sustain sufficient market acceptance, we will not generate expected revenue and our business may not succeed.

We cannot be sure that our current or future tSMS sequencers or services will gain acceptance in the marketplace at levels sufficient to support our costs. We must successfully develop and commercialize our technology for use in a variety of life science and other applications. Even if we are able to implement our technology and develop products successfully, we and/or our sales and distribution partners may fail to achieve or sustain market acceptance of our products across the full range of our intended life science and other applications. Our sequencing instruments require sequencing kits in order to produce sequencing data at sufficient levels to generate expected revenue. We will have to increase our internal capabilities and to collaborate with other partners in order to successfully expand sales of our sequencing kits in the markets we seek to reach, which we may be unable to do at the scale required to support our business.

Our research and development efforts may not result in the benefits we anticipate, and our failure to successfully market, sell and commercialize our current and future sequencing instruments and services products could have a material adverse effect on our business, financial condition and results of operations.

We have dedicated significant resources to developing sequencing instruments and services. We are also engaged in substantial and complex research and development efforts, such as Direct RNA Sequencing (DRS™), single cell sequencing, biomarker discovery, and epigenetic modification detection, which, if successful, may result in the introduction of new products in the future. Our research and development efforts are complex and require us to incur substantial expenses. We may not be able to develop and commercialize new products, or achieve an acceptable return, if any, on our research and development efforts and expenses. There can also be no assurance that we will be able to develop and manufacture future sequencing instruments and applications as a result of our research and development efforts, or that we will be able to market, sell and commercialize the products that result from our research and development efforts. We will need to expand our internal capabilities and seek new partnerships or collaborations in order to successfully market, sell and commercialize the sequencing instruments and applications that we have developed in the markets we seek to reach.

The pioneer of our tSMS technology, Helicos Biosciences Corporation, was unable to successfully commercialize its tSMS product offerings and there can be no assurance that the business strategy that we have developed and are pursuing to commercialize our tSMS offerings will be successful.

Our tSMS technology has been in development since 2004 at Helicos Biosciences Corporation ("Helicos"), which pioneered the first generation tSMS technology resulting in its commercialization as the HeliScope Genetic Analysis System. Helicos was unable to successfully commercialize its product offerings and filed for protection under Chapter 11 of the United States Bankruptcy Code in 2012. In 2013, Daniel Jones, a former scientist at Helicos and our current Chief Executive Officer, formed our company to further the development of tSMS. We then purchased much of our physical assets from Helicos, including, among other items, sequencers, laboratory equipment, internal servers, protocols and data analysis procedures, through Helicos' bankruptcy proceedings. While we believe we have developed and are pursuing a unique business strategy for our company that is distinguishable from the business strategy that was pursued by Helicos, there can be no assurance that our business strategy will be successful or that we will ultimately be profitable. If our current or future tSMS sequencers or services do not gain acceptance in the marketplace, our business and financial condition would be harmed, and you could lose all or a portion of your investment in our securities.

If we are unable to successfully develop and timely manufacture our sequencing instruments and reagents, our business may be adversely affected.

In light of the highly complex technologies involved in our sequencing products, including instruments and reagents, there can be no assurance that we will be able to manufacture and commercialize our new sequencing instruments and reagents on a timely basis or provide adequate support for such products. The commercial success of our sequencers and reagents depends on a number of factors, including performance and reliability, our anticipating and effectively addressing customer preferences and demands, the success of our sales and marketing efforts, effective forecasting and management of instrument and sequencing services demand, purchase commitments and inventory levels and effective management of manufacturing and supply costs. Our ability to manufacture benchtop sequencers and reagents could be negatively impacted by changes to personnel, hiring delays, resource availability, supply chain disruption or facilities disruption, and may be insufficient to achieve customer acceptance and growth.

The development of our sequencing instruments and reagents is complex and costly, requiring successful systems integration and reagent quality to generate usable data for customers and collaborators. Problems in the design or quality of our products may have a material and adverse effect on our brand, business, financial condition and operating results. Unanticipated problems with our products could divert substantial resources, which may impair our ability to support our new and existing products, and could substantially increase our costs. If we encounter development challenges or discover errors in our products late in our development cycle, we may be forced to delay product shipments or the scaling of manufacturing or supply. The expenses or losses associated with delayed or unsuccessful product development or lack of market acceptance of our new products could materially and adversely affect our business, financial condition and results of operations.

We must successfully manage new product introductions and transitions related to the tSMS technology, we may incur significant costs during these transitions, and they may not result in the benefits we anticipate.

The introduction of future products may lead to our limiting or ceasing development of further enhancements to our existing sequencing instruments and applications, as we focus our resources on new products, and could result in reduced marketplace acceptance and loss of sales of our existing sequencing instruments or sequencing services, which could materially adversely affect our revenue and operating results. The introduction of new products may also have a negative impact on our revenue in the near-term as our current and future customers may delay or cancel orders of existing sequencing instruments or sequencing services in anticipation of new products and we may also be pressured to decrease prices for our existing products. Further, we could experience difficulty in managing or forecasting customer reactions, purchasing decisions or transition requirements with respect to newly-launched sequencing instruments or sequencing services. We could incur significant costs in completing the transitions, including costs of inventory write-downs of our products, as current or future customers transition to the new products. If we do not successfully manage these product transitions, our business, reputation and financial condition may be materially and adversely affected.

Business or economic disruptions or global health concerns, including the novel coronavirus disease, or COVID-19, pandemic, may have an adverse impact on our business and results of operations.

The COVID-19 pandemic has negatively impacted the global economy, disrupted consumer spending and global supply chains, and created significant volatility and disruption of financial markets. Many countries around the world, including in the United States, have significant governmental measures being implemented to control the spread of the virus, including temporary closure of businesses, severe restrictions on travel and the movement of people, and other material limitations on the conduct of business. To date, the direct impact of the pandemic on our operations has been mainly limited to a temporary closure of our facility early in 2021, in the context of a government-mandated general lockdown, which temporary delayed certain of our development activities. We have from time to time over the past year implemented remote working and workplace protocols for our employees in accordance with government requirements. The extent of the impact of the COVID-19 pandemic on our business and financial performance, including our ability to execute our near-term and long-term business strategies and initiatives in the expected time frame, will depend on future developments, including the duration and severity of the pandemic and the impacts of reopening, including possible additional waves, which are uncertain and cannot be predicted.

We believe the COVID-19 pandemic has adversely affected our sales and results of operations during 2020 and 2021, and may continue to adversely affect our business due to the significant reductions of research grants made available during the pandemic, particularly for sequencing research and development that is not dedicated to COVID-19 related disorders. The initial target market for our instruments and research services has been the life sciences research and development market where we provide solutions for a variety of applications, including biomarker discovery and diagnostic assay developments. This market, which includes laboratories associated with universities, scientific research centers, government institutions, and biotechnology and pharmaceutical companies, often depends on research grants and donations for a significant portion of their funding, and the demand for our products in this customer segment has been affected by a reduction in their non-COVID-19 related research grants and may continue to be so affected in the future.

The COVID-19 pandemic has the potential to significantly impact our supply chain if the factories that manufacture our supplies or the operations of other service providers are disrupted, temporarily closed or experience worker shortages. We may also see disruptions or delays in shipments and increased prices of the supplies on which we rely for our operations.

As a result of the COVID-19 pandemic, including related governmental guidance or requirements, we may need to close our facilities, at least temporarily, or implement more restrictive policies to comply with social distancing rules and other requirements. As much of our research and development work requires on-site performance, such steps may negatively impact productivity and cause other disruptions to our business.

The full extent of the COVID-19 pandemic's impact on our business and results of operations depends on future developments that are uncertain and unpredictable, including the duration and spread of the pandemic, its lasting impact on capital and financial markets, including any economic recession, and any new information that may emerge concerning the severity of the virus, its spread to other regions as well as the actions taken to contain it, among others. At this point in time, we cannot reasonably estimate the full extent of the COVID-19 pandemic's impact on our business, financial condition, results of operations and cash flow.

Our future capital needs are uncertain, and we may need to raise additional funds to support those needs.

We believe the net proceeds from the initial public offering of our common stock in August 2021, together with our cash generated from commercial sales and research activity, will enable us to fund our operations as currently planned until the first quarter of 2024. However, we expect to seek significant future financing, namely to:

- expand our sales and marketing efforts to further commercialize our products and services;
- hire additional personnel;
- add operational, financial and management information systems;
- pay increased costs as a result of operating as a public company;

- lease additional laboratory space to accommodate expanded operations and increased human resources;
- expand our research and development efforts to improve our product offerings and to successfully launch new products;
- enter into collaboration agreements, if any, or in-license other products and technologies; and
- seek FDA approval to market our existing products or new products that would be utilized for diagnostic purposes.

Our future funding requirements will depend on many factors, including:

- market acceptance of our products;
- the cost and timing of establishing additional sales, marketing and distribution capabilities;
- the cost of our research and development activities;
- the success of our existing distribution and marketing arrangements and our ability to enter into additional arrangements in the future; and
- the effect of competing technological and market developments.

We cannot assure you that we will be able to obtain additional funds on acceptable terms, or at all. Our ability to obtain additional financing will be subject to market conditions, our operating performance and investor sentiment, among other factors. If we raise additional funds by issuing equity or equity-linked securities, our stockholders may experience dilution. Future debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt or equity financing may contain terms that are not favorable to us or our stockholders. If we raise additional funds through collaboration and licensing arrangements with third parties, it may be necessary to relinquish some rights to our technologies or our products, or grant licenses on terms that are not favorable to us. If we do not have, or are not able to obtain, sufficient funds, we may have to delay development or commercialization of our products. We also may have to reduce marketing, customer support or other resources devoted to our products or cease operations. Any of these factors could have a material adverse effect on our financial condition, operating results and business.

We rely on other companies for certain components and materials and intend to outsource sub-assembly manufacturing in the future. We may not be able to successfully assemble or manufacture reagents and instruments or scale the manufacturing process necessary to build and test multiple products on a full commercial basis, which could materially harm our business.

Our products are complex and involve a large number of unique components, many of which require precision in manufacturing that is performed in-house using third-party components. The nature of our products requires significant use of customized components that are currently available only from a limited number of sources, and in some cases, single sources. If we are required to purchase these components from alternative sources, it could take several months or longer to qualify the alternative sources. If we are unable to secure a sufficient supply of these product components on a timely basis, or if these components do not meet our expectations or specifications for quality and functionality, our operations and manufacturing will be materially and adversely affected, we could be unable to meet customer demand and our business and results of operations may be materially and adversely affected.

The operations of our suppliers could be disrupted by conditions unrelated to our business or operations or that are beyond our control, including but not limited to international trade restrictions or changes resulting from factors beyond our control. If our suppliers are unable or fail to fulfill their obligations to us for any reason, we may not be able to manufacture our instruments or reagents and satisfy customer demand or our obligations under sales agreements in a timely manner, and our business could be harmed as a result. Our current manufacturing process is characterized by long lead times between the placement of orders for and delivery of our products. If we have received insufficient components to manufacture our products on a timely basis to meet customer demand, our sales and our gross margin may be adversely affected, and our business could be materially harmed. If we are unable to reduce our manufacturing costs and establish and maintain reliable, high-volume manufacturing suppliers as we scale our operations, our business could be materially harmed.

We may be unable to consistently manufacture our instruments and reagents to the necessary specifications or in quantities necessary to meet demand at an acceptable cost.

In order to successfully generate revenue from our products, we need to supply our customers with products that meet their expectations relating to read length, error rates and data yield in accordance with established specifications. There is no assurance that we will be able to manufacture our products so that they consistently achieve the product specifications and quality that our customers expect, including any products developed for clinical uses. Problems in the design or quality of our products may have a material adverse effect on our brand, business, financial condition, and operating results. There is also no assurance that we will be able to increase manufacturing output and decrease costs, or that we will be successful in forecasting customer demand or manufacturing and supply costs. Furthermore, we may not be able to increase manufacturing to meet anticipated demand or may experience downtime in our existing or new manufacturing facilities. An inability to manufacture sequencing instruments and reagents or provide sequencing services, that consistently meet specifications, in necessary quantities and at commercially acceptable costs, will have a negative impact, and may have a material adverse effect, on our business, financial condition and results of operations.

Rapidly changing technology in life sciences and diagnostics could make our technology obsolete unless we continue to develop and commercialize new and improved products and pursue new market opportunities.

The biotechnology industry is characterized by rapid and significant technological changes, frequent new product introductions and enhancements and evolving industry standards. Our future success will depend on our ability to continually improve our products, to develop and introduce new products that address the evolving needs of our customers on a timely and cost-effective basis and to pursue new market opportunities. These new market opportunities may be outside the scope of our proven expertise or in areas where the market demand is unproven, and new products and services developed by us may not gain market acceptance. Our inability to develop and introduce new products and to gain market acceptance of such products could harm our future operating results. Unanticipated difficulties or delays in replacing existing products with new products or other new or improved products in sufficient quantities to meet customer demand could diminish future demand for our products and harm our future operating results.

Increased market adoption of our products by customers may depend on the availability of sample preparation and informatics tools, some of which may be developed by third parties.

Our commercial success may depend in part upon the development of sample preparation and software by third parties for use with our sequencing and data analysis workflow. We cannot guarantee that third parties will develop tools that our current and future customers will find useful with our sequencing instruments given that our sample preparation methods are uniquely tailored to single molecule sequencing. Similarly, as our sequencing methodology does not require amplification and bridge PCR, the downstream data analysis tools required for informatics analysis are specialized. A lack of complementary sample preparation options and software to enable broader usability may impede the adoption of our technology and may materially and adversely impact our business.

We operate in a highly competitive industry and if we are not able to compete effectively, our business and operating results will likely be harmed.

Some of our current competitors, including Illumina, Inc., Pacific Biosciences of California, Inc., Thermo Fisher Scientific Inc., and BGI Group (formerly known as the Beijing Genomic Institute) as well as other potential competitors, have greater name recognition, more substantial intellectual property portfolios, longer operating histories, significantly greater financial, technical, research and/or other resources, more experience in new product development, larger and more established manufacturing capabilities and marketing, sales and support functions, and/or more established distribution channels to deliver products to customers than we do. These competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. In light of these advantages, even if our technology is more effective than the products or service offerings of our competitors, current and potential customers might purchase competitive products and services instead of our products. There are also several companies that are in the process of developing or have already developed new, potentially competing technologies, products and/or services. Increased competition may result in pricing pressures, which could harm our sales, profitability or market share. Our failure to further enhance our existing products and to introduce new products to compete effectively could materially and adversely affect our business, financial condition or results of operations.

Single molecule sequencers are highly complex, have recurring support requirements and could have unknown defects or errors, which may give rise to claims against us or divert application of our resources from other purposes.

Products using our technology are highly complex and may develop or contain undetected defects or errors. Despite testing, defects or errors may arise in our products, which could result in a failure to maintain or increase market acceptance of our products, diversion of development resources, injury to our reputation and increased warranty, service and maintenance costs. New products or enhancements to our existing products in particular may contain undetected errors or performance problems that are discovered only after delivery to customers. If our products have reliability or other quality issues or require unexpected levels of support in the future, the market acceptance and utilization of our products may not grow to levels sufficient to support our costs and our reputation and business could be harmed. We generally ship our sequencing instruments with one year of service included in the purchase price with an option to purchase one or more additional years of service. We also provide a warranty for our sequencing kits, which is generally limited to replacing, or at our option, giving credit for any sequencing kit with defects in material or workmanship. Defects or errors in our products may also discourage customers from purchasing our products. The costs incurred in correcting any defects or errors may be substantial and could materially and adversely affect our operating margins. If our service and support costs increase, our business and operations may be materially and adversely affected.

In addition, such defects or errors could lead to the filing of product liability claims against us or against third parties who we may have an obligation to indemnify against such claims, which could be costly and time-consuming to defend and result in substantial damages. Although we have product liability insurance, any product liability insurance that we have or procure in the future may not protect our business from the financial impact of a product liability claim. Moreover, we may not be able to obtain adequate insurance coverage on acceptable terms. Any insurance that we have or obtain will be subject to deductibles and coverage limits. A product liability claim could have a serious adverse effect on our business, financial condition and results of operations.

We depend on the continuing efforts of our senior management team and other key personnel. If we lose members of our senior management team or other key personnel or are unable to successfully retain, recruit and train qualified scientists, engineers and other personnel, our ability to maintain and develop our products could be harmed and we may be unable to achieve our goals.

Our future success depends upon the continuing services of members of our senior management team and scientific and engineering personnel. We compete for qualified management and scientific personnel with other life science companies, academic institutions and research institutions, particularly those focusing on genomics. If one or more of our senior executives or other key personnel is unable or unwilling to continue in their present positions, we may not be able to replace them easily or at all, and other senior management may be required to divert attention from other aspects of the business. In addition, we do not have “key person” life insurance policies covering any member of our management team or other key personnel. The loss of any of these individuals or our inability to attract or retain qualified personnel, including scientists, engineers and others, could prevent us from pursuing collaborations and materially and adversely affect our support of existing products, product development and introductions, business growth prospects, results of operations and financial condition.

A significant portion of our potential sales depends on customers’ spending budgets that may be subject to significant and unexpected variation which could have a negative effect on the demand for our products.

Our instruments represent significant capital expenditures for our customers. Potential customers for our current or future products include academic and government institutions, genome centers, medical research institutions, clinical laboratories, pharmaceutical, agricultural, biotechnology, diagnostic and chemical companies. Their spending budgets can have a significant effect on the demand for our products. Spending budgets are based on a wide variety of factors, including the allocation of available resources to make purchases, funding from government sources which is highly uncertain and subject to change, the spending priorities among various types of research equipment and policies regarding capital expenditures during economically uncertain periods. Any decrease in capital spending or change in spending priorities of our current and potential customers could significantly reduce the demand for our products. Any delay or reduction in purchases by potential customers or our inability to forecast fluctuations in demand could harm our future operating results.

Delivery of our reagents could be delayed or disrupted by factors beyond our control, and we could lose customers as a result.

We rely on third-party carriers for the timely delivery of our products both domestically and internationally. As a result, we are subject to carrier disruptions and increased costs that are beyond our control. Any failure to deliver products to our customers in a safe and timely manner may damage our reputation and brand and could cause us to lose customers. If our relationship with any of these third-party carriers is terminated or impaired or if any of these carriers are unable to deliver our products, the delivery and acceptance of our products by our customers may be delayed, which could harm our business and financial results. Specific reagents utilized in our sequencing reactions are temperature-sensitive and are required to be kept and stored in a temperature-controlled method in order to properly ship. In addition, many of the raw materials used during the manufacturing process of our reagents require temperature control during shipment. The failure to deliver our products in a safe, temperature-controlled, and timely manner may harm our relationship with our customers, increase our costs and otherwise disrupt our operations.

We are, and may become, subject to governmental regulations that may impose burdens on our operations, and the markets for our products may be narrowed.

We are subject, both directly and indirectly, to the adverse impact of government regulation of our operations and markets. Moreover, the life sciences industry, which is expected to be one of the primary markets for our technology, has historically been heavily regulated. There are, for example, laws in several jurisdictions restricting research in genetic engineering, which may narrow our markets. At a minimum, biosafety regulations enforced by local government must be followed and updated should new regulations pass the approval process. Given the evolving nature of this industry, legislative bodies or regulatory authorities may adopt additional regulations that may adversely affect our market opportunities. Additionally, if ethical and other concerns surrounding the use of genetic information, diagnostics or therapies become widespread, there may be less demand for our products.

Our business is also directly affected by a wide variety of government regulations applicable to business enterprises generally and to companies operating in the life science industry in particular. Failure to comply with government regulations or obtain or maintain necessary permits and licenses could result in a variety of fines or other censures or an interruption in our business operations which may have a negative impact on our ability to generate revenue and the cost of operating our business. In addition, changes to laws and government regulations could cause a material adverse effect on our business as we will need to adapt our business to comply with such changes.

Our products could become subject to regulation by the U.S. Food and Drug Administration or other domestic and international regulatory agencies, which could increase our costs and impede or delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations.

Our products are not currently subject to the FDA clearance or approval since they are not intended for use in the diagnosis or treatment of disease. However, in the future, certain of our products or related applications, such as those that may be developed for clinical uses, could be subject to FDA regulation, or the FDA's regulatory jurisdiction could be expanded to include our products. Even where a product is exempted from FDA clearance or approval, the FDA may impose restrictions as to the types of customers to which we or our partners can market and sell our products. Such regulation and restrictions may materially and adversely affect our business, financial condition and results of operations. In the event that we fail to obtain and maintain necessary regulatory clearances or approvals for products that we develop for clinical uses, or if clearances or approvals for future products and indications are delayed or not issued, our commercial operations may be materially harmed. Furthermore, even if we are granted regulatory clearances or approvals, they may include significant limitations on the indicated uses for the product, which may limit the market for the product. We do not have experience in obtaining FDA approvals and no assurance can be given that we will be able to obtain or to maintain such approvals. Furthermore, any approvals that we may obtain can be revoked if safety or efficacy problems develop.

We believe we can produce accurate financial statements on a timely basis, however, this could be impacted by the loss of any of our accounting staff, which would adversely affect our business and our stock price.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be evaluated frequently. We believe our ability to produce accurate financial statements on a timely basis could be impaired due to our small internal accounting team. We may in the future discover other areas of our internal financial and accounting controls and procedures that need improvement. Operating as a public company requires sufficient resources within the accounting and finance functions in order to produce timely financial information, ensure the level of segregation of duties, and maintain adequate internal control over financial reporting customary for a U.S. public company.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States (U.S. GAAP). Our management does not expect that our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected.

Our ability to use net operating losses to offset future taxable income may be subject to substantial limitations.

Under Section 382 of the Internal Revenue Code, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its pre-change net operating losses ("NOLs") to offset future taxable income. Significant changes in our stock ownership could result in us being unable to utilize a material portion of our NOLs even if we attain profitability.

Our sales cycle is unpredictable and lengthy, which makes it difficult to forecast revenue and may increase the magnitude of quarterly or annual fluctuations in our operating results.

The sales cycle for our sequencing instruments is lengthy because our products represent a major capital expenditure and generally require the approval of our customers' senior management. This may contribute to substantial fluctuations in our quarterly or annual operating results, particularly during the periods in which our sales volume is low. Factors that may cause fluctuations in our quarterly or annual operating results include, without limitation:

- market acceptance for our products;
- our ability to attract new customers;
- publications of studies by us, competitors or third parties;
- the timing and success of new product introductions by us or our competitors or other changes in the competitive dynamics of our industry, such as consolidation;
- the amount and timing of our costs and expenses;
- general economic, industry and market conditions;
- changes in our pricing policies or those of our competitors;
- the regulatory environment;
- expenses associated with warranty costs or unforeseen product quality issues;
- the hiring, training and retention of key employees, including our ability to grow our sales organization;
- litigation or other claims against us for intellectual property infringement or otherwise;
- our ability to obtain additional financing as necessary; and
- changes or trends in new technologies and industry standards.

Because of these fluctuations, it is likely that in some future quarters our operating results will fall below the expectations of securities analysts or investors.

Our operations involve the use of hazardous materials, and we must comply with environmental, health and safety laws, which can be expensive and may adversely affect our business, operating results and financial condition.

Our research and development and manufacturing activities involve the use of hazardous materials, including chemicals and biological materials. Our sequencing reagents, such as tris (2-carboxyethyl) phosphine and acetonitrile, include hazardous materials. Accordingly, we are subject to federal, state, local and foreign laws, regulations and permits relating to environmental, health and safety matters, including, among others, those governing the use, storage, handling, exposure to and disposal of hazardous materials and wastes, the health and safety of our employees, and the shipment, labelling, collection, recycling, treatment and disposal of products containing hazardous materials. Liability under environmental laws and regulations can be joint and several and without regard to fault or negligence. For example, under certain circumstances and under certain environmental laws, we could be held liable for costs relating to contamination at our or our predecessors' past or present facilities and at third-party waste disposal sites. We could also be held liable for damages arising out of human exposure to hazardous materials. There can be no assurance that violations of environmental, health and safety laws will not occur as a result of human error, accident, equipment failure or other causes. The failure to comply with past, present or future laws could result in the imposition of substantial fines and penalties, remediation costs, property damage and personal injury claims, investigations, the suspension of production or product sales, the loss of permits or a cessation of operations. Any of these events could harm our business, operating results and financial condition. We also expect that our operations will be affected by new environmental, health and safety laws and regulations on an ongoing basis, or more stringent enforcement of existing laws and regulations. New laws or changes to existing laws may result in additional costs and may increase penalties associated with violations or require us to change the content of our products or how we manufacture them, which could have a material adverse effect on our business, operating results and financial condition.

Ethical, legal, privacy and social concerns or governmental restrictions surrounding the use of genetic information could reduce demand for our technology.

Our products may be used to provide genetic information about humans and other living organisms. The information obtained from our products could be used in a variety of applications that may have underlying ethical, legal, privacy and social concerns, including the genetic engineering or modification of agricultural products or testing for genetic predisposition for certain medical conditions. Governmental authorities could, for safety, social or other purposes, call for limits on or regulation of the use of genetic testing. Such concerns or governmental restrictions could limit the use of our products, which could have a material adverse effect on our business, financial condition and results of operations.

Disruption of critical information technology systems or material breaches in the security of our systems could harm our business, customer relations and financial condition.

Information technology ("IT") helps us to operate efficiently, interface with customers, maintain financial accuracy and efficiently and accurately produce our financial statements. IT systems are used extensively in virtually all aspects of our business, including sales forecast, order fulfilment and billing, customer service, logistics, and management of data from running samples on our products. Our success depends, in part, on the continued and uninterrupted performance of our IT systems. IT systems may be vulnerable to damage from a variety of sources, including telecommunications or network failures, power loss, natural disasters, human acts, computer viruses, computer denial-of-service attacks, unauthorized access to customer or employee data or company trade secrets, and other attempts to harm our systems. Certain of our systems are not redundant, and our disaster recovery planning is not sufficient for every eventuality. Despite any precautions we may take, such problems could result in, among other consequences, disruption of our operations, which could harm our reputation and financial results.

If we do not allocate and effectively manage the resources necessary to build and sustain the proper IT infrastructure, we could be subject to transaction errors, processing inefficiencies, loss of customers, business disruptions or loss of or damage to intellectual property through security breach. If our data management systems do not effectively collect, store, process and report relevant data for the operation of our business, whether due to equipment malfunction or constraints, software deficiencies or human error, our ability to effectively plan, forecast and execute our business plan and comply with applicable laws and regulations will be impaired, perhaps materially. Any such impairment could materially and adversely affect our reputation, financial condition, results of operations, cash flows and the timeliness with which we report our internal and external operating results.

Security breaches and other disruptions could compromise our information and expose us to liability, which would cause our business and reputation to suffer.

In the ordinary course of our business, we collect and store sensitive data, including intellectual property, our proprietary business information and that of our customers, suppliers and business partners, and personally identifiable information of our employees, on our networks. The secure processing, maintenance and transmission of this information is critical to our operations. Despite our security measures, our IT infrastructure may be vulnerable to attacks by hackers, computer viruses, malicious codes, unauthorized access attempts, and cyber- or phishing-attacks, or breached due to employee error, malfeasance, faulty password management or other disruptions. Third parties may attempt to fraudulently induce employees or other persons into disclosing usernames, passwords or other sensitive information, which may in turn be used to access our IT systems, commit identity theft or carry out other unauthorized or illegal activities. Any such breach could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability under laws that protect the privacy of personal information, disruption of our operations and damage to our reputation, which could divert our management's attention from the operation of our business and materially and adversely affect our business, revenues and competitive position. Moreover, we may need to increase our efforts to train our personnel to detect and defend against cyber- or phishing-attacks, which are becoming more sophisticated and frequent, and we may need to implement additional protective measures to reduce the risk of potential security breaches, which could cause us to incur significant additional expenses.

We are subject to certain U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations. We can face serious consequences for violations.

Among other matters, U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations, which are collectively referred to as Trade Laws, prohibit companies and their employees, agents, clinical research organizations, legal counsel, accountants, consultants, contractors, and other partners from authorizing, promising, offering, providing, soliciting or receiving, directly or indirectly, corrupt or improper payments or anything else of value to or from recipients in the public or private sector. Violations of Trade Laws can result in substantial criminal fines and civil penalties, imprisonment, the loss of trade privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We also expect our non-U.S. activities to increase in time. We plan to engage third parties for collaborations, sales and distribution of sequencing products and we can be held liable for the corrupt or other illegal activities of our personnel, agents, or partners, even if we do not explicitly authorize or have prior knowledge of such activities.

Risks Related to Our Intellectual Property

Failure to secure patent or other intellectual property protection for our products and improvements to our products may reduce our ability to maintain any technological or competitive advantage over our current and potential competitors.

Our ability to protect and enforce our intellectual property rights is uncertain and depends on complex legal and factual questions. Our ability to establish or maintain a technological or competitive advantage over our competitors may be diminished because of these uncertainties. For example:

- we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications or issued patents;
- we or our licensors might not have been the first to file patent applications for these inventions;
- the scope of the patent protection we or our licensors obtain may not be sufficiently broad to prevent others from practicing our technologies, developing competing products, designing around our patented technologies or independently developing similar or alternative technologies;
- our and our licensors' patent applications or patents have been, are and may in the future be, subject to interference, opposition or similar administrative proceedings, which could result in those patent applications failing to issue as patents, those patents being held invalid or the scope of those patents being substantially reduced;

- the current assignee of our intellectual property may elect to forego paying maintenance fees, placing us at risk to lose the licensed IP, or the assignee may neglect to enforce the intellectual property we license from them;

- we or our partners may not adequately protect our trade secrets;

- we may not develop additional proprietary technologies that are patentable; or

- the patents of others may limit our freedom to operate and prevent us from commercializing our technology in accordance with our plans.

The occurrence of any of these events could impair our ability to operate without infringing upon the proprietary rights of others or prevent us from establishing or maintaining a competitive advantage over our competitors.

The intellectual property that is important to our business is owned by other companies or institutions and licensed to us, and changes to the rights we have licensed may adversely impact our business.

We license the intellectual property that is important to our business from Fluidigm Corporation ("Fluidigm") (which obtained this intellectual property portfolio from Helicos Biosciences Corporation ("Helicos")) pursuant to a non-exclusive licensing agreement. If we fail to comply with the terms of the license, Fluidigm could terminate the license. If these third parties who license intellectual property to us fail to maintain the intellectual property that we have licensed, or lose rights to that intellectual property, the rights we have licensed may be reduced or eliminated, which could subject us to claims of intellectual property infringement. Termination of our license from Fluidigm or reduction or elimination of our licensed rights may result in our having to negotiate new or reinstated licenses with less favorable terms or could subject us to claims of intellectual property infringement in litigation or other administrative proceedings that could result in damage awards against us and injunctions that could prohibit us from selling our products. In addition, our license agreement from Fluidigm is non-exclusive and Fluidigm may license the technology to our competitors, which may result is significant competition for us.

In addition, we have limited rights to participate in the prosecution and enforcement of the patents and patent applications that we have licensed. As a result, we cannot be certain that these patents and applications will be prosecuted and enforced in a manner consistent with the best interests of our business. Further, because of the rapid pace of technological change in our industry, we may need to rely on key technologies developed or licensed by third parties, and we may not be able to obtain licenses and technologies from these third parties at all or on reasonable terms. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

A license agreement for intellectual property that is important to our business may be terminated in the event that Daniel Jones, our Chief Executive Officer, fails to continue to work full time for us.

As discussed above, we license certain intellectual property that is important to our business from Fluidigm (which obtained this intellectual property portfolio from Helicos) pursuant to a non-exclusive licensing agreement. The license agreement provides that Fluidigm has a right to terminate the license in the event Daniel Jones, our Chief Executive Officer, fails to continue to work full time for us. If we lose our rights to such intellectual property, the rights we have licensed may be reduced or eliminated, which could subject us to claims of intellectual property infringement, require us to cease selling certain or all of our products, negotiate less favorable agreements or otherwise result in a loss of business. In addition, such language could prevent us from terminating Mr. Jones from his position when it would otherwise be favorable for stockholders or our business in general.

Our licensed intellectual property and future intellectual property will have limited window of enforcement.

Our licensed intellectual property and future intellectual property will have limited windows of enforcement. The patents on substantially all of our licensed IP are expected to expire between 2025 and 2028, excluding any extension or adjustment of patent terms that may be available. Following the expiration and termination of the patents relating to our licensed technology, we may face the development of similar technology from our competitors or other market participants, which could impede our revenue and growth.

We may not be able to protect intellectual property and proprietary rights worldwide.

The majority of our intellectual property is licensed from third parties through non-exclusive license agreements. Although our company has accumulated trade secrets and know-how to make this technology work effectively and reliably over the last decade, other entities may attempt to commercialize this technology by gaining access to the intellectual property. As a result, we may encounter additional competition from third parties, and may require significant amounts of time and resources to protect our intellectual property and proprietary rights.

Filing, prosecuting and defending patents on our products and other technologies in all countries throughout the world would be cost prohibitive, and the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets, and other intellectual property protection, particularly those relating to biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our intellectual property and proprietary rights generally. Proceedings to enforce our intellectual property and proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly, could put our patent applications at risk of not issuing, and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate, and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property and proprietary rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Intellectual property laws, and patent laws and regulations in particular, have been subject to significant variability either through administrative or legislative changes to such laws or regulations or changes or differences in judicial interpretation, and it is expected that such variability will continue to occur. Additionally, intellectual property laws and regulations differ by country. Variations in the patent laws and regulations or in interpretations of patent laws and regulations in the United States and other countries may diminish the value of our intellectual property and may change the impact of third-party intellectual property on us. Accordingly, we cannot predict the scope of the patents that may be granted to us with certainty, the extent to which we will be able to enforce our patents against third parties or the extent to which third parties may be able to enforce their patents against us.

If the scope of any patent protection we obtain is not sufficiently broad, or if we lose any of our patent protection, our ability to prevent our competitors from commercializing similar or identical sequencing technology and applications would be adversely affected.

The patent position of biotechnology companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. Our owned or in-licensed pending and future patent applications may not result in patents being issued which protect our tSMS platform, or other technologies or which effectively prevent others from commercializing competitive technologies and applications.

Our ability to stop third parties from making, using, selling, offering to sell, or importing products that infringe our intellectual property will depend in part on our success in obtaining and enforcing patent claims that cover our technology, inventions and improvements. With respect to both licensed and company-owned intellectual property, we cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our products and the methods used to manufacture those products. Moreover, even our issued patents do not guarantee us the right to practice our technology in relation to the commercialization of our products. The area of patent and other intellectual property rights in biotechnology is an evolving one with many risks and uncertainties, and third parties may have blocking patents that could be used to prevent us from commercializing our sequencing instruments and practicing our proprietary technology. Our issued patent and those that may be issued in the future may be challenged, invalidated, or circumvented, which could limit our ability to stop competitors from marketing related products or limit the length of the term of patent protection that we may have for our technology. In addition, the rights granted under any issued patents may not provide us with protection or competitive advantages against competitors with similar technology. Furthermore, our competitors may independently develop similar technologies. For these reasons, we may have competition for our products. Moreover, because of the extensive time required for development and testing of new sequencing instruments, it is possible that, before any particular product can be commercialized, any related patent may expire or remain in force for only a short period following commercialization, thereby reducing any advantage of the patent.

Moreover, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted after issuance. Even if patent applications we own or license issue as patents, they may not issue in a form that will provide us with any meaningful protection, prevent competitors or other third parties from competing with us, or otherwise provide us with any competitive advantage. Any patents that we own or in-license may be challenged, narrowed, circumvented or invalidated by third parties. Consequently, we do not know whether our tSMS platform or other technologies will be protectable or remain protected by valid and enforceable patents. Our competitors or other third parties may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner which could materially adversely affect our business, financial condition, results of operations and prospects.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and patents that we own or license may be challenged in the courts or patent offices in the United States and abroad. We or our licensors may be subject to a third-party reissuance submission of prior art to the U.S. Patent and Trademark Office (“USPTO”) or to foreign patent authorities or become involved in opposition, derivation, revocation, re-examination, post-grant and *inter partes* review, or interference proceedings or other similar proceedings challenging our owned or licensed patent rights. An adverse determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate or render unenforceable, our owned or in-licensed patent rights, allow third parties to commercialize our tSMS platform technologies or other technologies and compete directly with us, without payment to us, or result in our inability to manufacture or commercialize products without infringing third-party patent rights. Moreover, we, or one of our licensors, may have to participate in interference proceedings declared by the USPTO to determine priority of invention or in post-grant challenge proceedings, such as oppositions in a foreign patent office, that challenge our or our licensor’s priority of invention or other features of patentability with respect to our owned or in-licensed patents and patent applications. Such challenges may result in loss of patent rights, loss of exclusivity, or in patent claims being narrowed, invalidated, or held unenforceable, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our tSMS Platform and other technologies. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us.

We may in the future co-own patent rights relating to future sequencing instruments, reagents, applications, or our tSMS platform with third parties. Some of our in-licensed patent rights are, and may in the future be, co-owned with third parties. In addition, our licensors may co-own the patent rights we in-license with other third parties with whom we do not have a direct relationship.

We could in the future be subject to legal proceedings with third parties who may claim that our products infringe or misappropriate their intellectual property rights.

Our products are based on complex, rapidly developing technologies. We may not be aware of issued or previously filed patent applications that belong to third parties that mature into issued patents that cover some aspect of our products or their use. In addition, because patent litigation is complex and the outcome inherently uncertain, our belief that our products do not infringe third-party patents of which we are aware or that such third-party patents are invalid and unenforceable may be determined to be incorrect. As a result, third parties have claimed, and may in the future claim, that we infringe their patent rights and have filed, and may in the future file, lawsuits or engage in other proceedings against us to enforce their patent rights. In addition, as we enter new markets, our competitors and other third parties may claim that our products infringe their intellectual property rights as part of a business strategy to impede our successful entry into those markets. Furthermore, parties making claims against us may be able to obtain injunctive or other relief, which effectively could block our ability to develop further, commercialize, or sell products or services, and could result in the award of substantial damages against us. Patent litigation between competitors in our industry is common. In defending ourselves against any of these claims, we could in the future incur, substantial costs, and the attention of our management and technical personnel could be diverted. We may be unable to modify our products so that they do not infringe the intellectual property rights of third parties. In some situations, the results of litigation or settlement of claims may require us to cease allegedly infringing activities, which could prevent us from selling some or all of our products. The occurrence of these events may have a material adverse effect on our business, financial condition or results of operations.

In addition, in the course of our business, we may from time to time have access or be alleged to have access to confidential or proprietary information of others, which, though not patented, may be protected as trade secrets. Others could bring claims against us asserting that we improperly used their confidential or proprietary information, or that we misappropriated their technologies and incorporated those technologies into our products. A determination that we illegally used the confidential or proprietary information or misappropriated technologies of others in our products could result in us paying substantial damage awards or being prevented from selling some or all of our products, which could materially and adversely affect our business.

We have not yet registered some of our trademarks in all of our potential markets, and failure to secure those registrations could adversely affect our business.

While we believe our trademarks are registered in the markets in which we currently operate, some of our trademark applications may not be allowed for registration in markets in which we may seek to enter in the future, and our registered trademarks may not be maintained or enforced. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose new or pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings.

Risks Related to our Collaborations with Third Parties

Our future collaborations may be important to our business. If we are unable to maintain any of these collaborations, or if these collaborations are not successful, our business could be adversely affected

We have limited capabilities for technology development, sales, marketing or distribution. Accordingly, we may enter into collaborations with academic and commercial entities to provide us with important technologies and funding for our programs and technology, and we may receive additional technologies and funding under these and other collaborations in the future. Any future collaborations we enter into may pose a number of risks, including the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of any platform or may elect not to continue or renew development or commercialization programs or license arrangements based on changes in the collaborators' strategic focus or available funding, or external factors, such as a strategic transaction that may divert resources or create competing priorities;
- collaborators may provide insufficient funding for the research program;

- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our sequencing instruments and applications if the collaborators believe that the competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;

- biomarkers discovered by our collaborators in collaboration with us may be viewed by our collaborators as competitive with their own products, which may cause collaborators to cease to devote resources to the commercialization of our product;

- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or terminations of the research, development or commercialization of new products or platforms, might lead to additional responsibilities for us with respect to technology development, or might result in litigation or arbitration, any of which would be time-consuming and expensive;

- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;

- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;

- if a collaborator of ours is involved in a business combination, the collaborator might deemphasize or terminate the development or commercialization of any product licensed to it by us; and

- collaborations may be terminated by the collaborator, and, if terminated, we could be required to raise additional capital to pursue further development or commercialization of the applicable sequencing technology.

If our potential future collaborations do not result in the successful discovery, development and commercialization of products or if one of our collaborators terminates its agreement with us, we may not receive any future research funding or milestone potential payments under the collaboration. If we do not receive the funding we expect under these agreements, our development of our technology and applications could be delayed and we may need additional resources to develop products and our technology. All of the risks relating to product development, regulatory approval and commercialization described in this prospectus also apply to the activities of our therapeutic collaborators.

Additionally, if one of our potential future collaborators terminates its agreement with us, we may find it more difficult to attract new collaborators and our perception in the business and financial communities could be adversely affected.

Risks Related to Ownership of Our Common Stock and Publicly-Traded Warrants

The market price of our common stock and publicly-traded warrants may be highly volatile, and you could lose all or part of your investment.

The prices of our common stock or publicly-traded warrants could be subject to wide fluctuations in response to a variety of factors, which include:

- actual or anticipated fluctuations in our financial condition and operating results;

- announcements of technological innovations by us or our competitors;

- announcements by our customers, partners or suppliers relating directly or indirectly to our products, services or technologies;

- overall conditions in our industry and market;

- addition or loss of significant customers;

- changes in laws or regulations applicable to our products;

- actual or anticipated changes in our growth rate relative to our competitors;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, capital commitments or achievement of significant milestones;
- additions or departures of key personnel;
- competition from existing products or new products that may emerge;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- disputes or other developments related to proprietary rights, including patents, litigation matters or our ability to obtain intellectual property protection for our technologies;
- announcement or expectation of additional financing efforts;
- sales of our common stock or warrants by us or our stockholders;
- stock price and volume fluctuations attributable to inconsistent trading volume levels of our shares;
- reports, guidance and ratings issued by securities or industry analysts; and
- general economic and market conditions.

If any of the forgoing occurs, it would cause our stock and Warrant prices or trading volume to decline. Stock markets in general and the market for companies in our industry in particular have experienced price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of our common stock or Warrants. You may not realize any return on your investment in us and may lose some or all of your investment.

We may be subject to securities litigation, which is expensive and could divert our management's attention.

The market price of our securities may be volatile, and in the past companies that have experienced volatility in the market price of their securities have been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

Our directors, executive officers and principal stockholders will continue to have substantial control over our company after this offering, which could limit your ability to influence the outcome of key transactions, including a change of control.

On March 1, 2022, our executive officers, directors and 10% stockholders owned 7,504,252 shares of our common stock, or approximately 68.5% of the outstanding shares of our common stock, based on the number of shares outstanding as of such date. As a result, these stockholders will be able to exercise a significant level of control over all matters requiring stockholder approval, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. They may also have interests that differ from yours and may vote in a way with which you disagree and which may be adverse to your interests. This concentration of ownership may have the effect of delaying, preventing or deterring a change of control of our company, could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company and might ultimately affect the market price of our common stock.

If our shares become subject to the penny stock rules, it would become more difficult to trade our shares.

The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than $5.00, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If we do not retain a listing on Nasdaq and if the price of our common stock is less than $5.00, our common stock will be deemed a penny stock. The penny stock rules require a broker-dealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks; and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our common stock, and therefore stockholders may have difficulty selling their shares.

We are an "emerging growth company" and the reduced disclosure requirements applicable to emerging growth companies could make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act. We may remain an emerging growth company until as late as December 2026 (the fiscal year-end following the fifth anniversary of the completion of our initial public offering), though we may cease to be an emerging growth company earlier under certain circumstances, including (1) if the market value of our common stock that is held by non-affiliates exceeds $700 million as of any June 30, in which case we would cease to be an emerging growth company as of the following December 31, or (2) if our gross revenue exceeds $1.07 billion in any fiscal year. Emerging growth companies may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. Investors could find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, Section 102 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended, or the Securities Act, for complying with new or revised accounting standards. An emerging growth company can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We will incur significant costs as a result of operating as a public company and our management expects to devote substantial time to public company compliance programs.

As a public company, we will incur significant legal, accounting and other expenses due to our compliance with regulations and disclosure obligations applicable to us, including compliance with the Sarbanes-Oxley Act, as well as rules implemented by the SEC and Nasdaq. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact, in ways we cannot currently anticipate, the manner in which we operate our business. Our management and other personnel will devote a substantial amount of time to these compliance programs and monitoring of public company reporting obligations and as a result of the new corporate governance and executive compensation related rules, regulations and guidelines prompted by the Dodd-Frank Act and further regulations and disclosure obligations expected in the future, we will likely need to devote additional time and costs to comply with such compliance programs and rules. These rules and regulations will cause us to incur significant legal and financial compliance costs and will make some activities more time-consuming and costlier.

To comply with the requirements of being a public company, we may need to undertake various actions, including implementing new internal controls and procedures and hiring new accounting or internal audit staff. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Securities Exchange Act of 1934, as amended, or the Exchange Act, is accumulated and communicated to our principal executive and financial officers. Our current controls and any new controls that we develop may become inadequate and weaknesses in our internal control over financial reporting may be discovered in the future. Any failure to develop or maintain effective controls when we become subject to this requirement could negatively impact the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting that we may be required to include in our periodic reports we will file with the SEC under Section 404 of the Sarbanes-Oxley Act, harm our operating results, cause us to fail to meet our reporting obligations or result in a restatement of our prior period financial statements. In the event that we are not able to demonstrate compliance with the Sarbanes-Oxley Act, that our internal control over financial reporting is perceived as inadequate or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and the price of our common stock could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on Nasdaq.

Because we have elected to use the extended transition period for complying with new or revised accounting standards for an emerging growth company our financial statements may not be comparable to companies that comply with public company effective dates.

We have elected to use the extended transition period for complying with new or revised accounting standards under Section 102(b)(1) of the JOBS Act. This election allows us to delay the adoption of new or revised accounting standards that have different effective dates for public and private companies until those standards apply to private companies. As a result of this election, our financial statements may not be comparable to companies that comply with public company effective dates, and thus investors may have difficulty evaluating or comparing our business, performance or prospects in comparison to other public companies, which may have a negative impact on the value and liquidity of our common stock and publicly-traded warrants.

If securities or industry analysts do not publish research, or publish inaccurate or unfavorable research, about our business, our stock and warrant prices and trading volume could decline.

The trading market for our common stock and publicly-traded warrants will depend, in part, on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on us. If no securities or industry analysts commence coverage of us, the price for our common stock and publicly-traded warrants could be negatively impacted. In the event securities or industry analysts initiate coverage, if one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, the prices of our common stock and publicly-traded warrants could decline. In addition, if our operating results fail to meet the forecast of analysts, the prices of our common stock and publicly-traded warrants could decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock and publicly-traded warrants could decrease, which might cause the prices of our common stock and publicly-traded warrants and trading volume to decline.

Anti-takeover provisions in our charter documents and under Delaware law could make an acquisition of us, which may be beneficial to our stockholders, more difficult and may prevent attempts by our stockholders to replace or remove our current management and limit the market price of our common stock and Warrants.

Provisions in our certificate of incorporation and bylaws, as amended and restated as of the closing of this offering, may have the effect of delaying or preventing a change of control or changes in our management. Our amended and restated certificate of incorporation and bylaws include provisions that:

- provide for a staggered board of directors;
- authorize our board of directors to issue, without further action by the stockholders, up to 20,000,000 shares of undesignated preferred stock and up to approximately 80,000,000 shares of authorized but unissued shares of common stock;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by our board of directors, the Chairman of the Board, the Chief Executive Officer or the President;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- provide that our directors may be removed only for cause; and
- provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum.

These provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management. In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us.

Our Amended and Restated Certificate of Incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for certain litigation that may be initiated by our stockholders.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory law or Delaware common law, subject to certain exceptions: (1) any derivative action or proceeding brought on our behalf; (2) any action asserting a claim of breach of a fiduciary duty or other wrongdoing by any of our directors, officers, employees or agents to us or our stockholders; (3) any action asserting a claim against us arising pursuant to provisions of the Delaware General Corporation Law or our amended and restated certificate of incorporation or amended and restated bylaws; or (4) any action asserting a claim governed by the internal affairs doctrine. The choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, employees or agents, which may discourage such lawsuits against us and our directors, officers, employees and agents. Stockholders who do bring a claim in the Court of Chancery could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near the State of Delaware. The Court of Chancery may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition. By agreeing to the exclusive forum provisions, investors will not be deemed to have waived our compliance obligations with any federal securities laws or the rules and regulations thereunder.

We do not anticipate paying any cash dividends on our common stock in the foreseeable future and, as such, capital appreciation, if any, of our common stock and publicly-traded warrants will be your sole source of gain for the foreseeable future.

We have never declared or paid cash dividends on our common stock. We do not anticipate paying any cash dividends on our common stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. In addition, and any future loan arrangements we enter into may contain, terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. As a result, capital appreciation, if any, of our common stock and publicly-traded warrants will be your sole source of gain for the foreseeable future.

ITEM 1B. UNRESOLVED STAFF COMMENTS

As a Smaller Reporting Company as defined by Rule 12b-2 of the Exchange Act and in Item 10(f)(1) of Regulation S-K, we are electing scaled disclosure reporting obligations and therefore are not required to provide the information requested by this Item 1B.

ITEM 2. PROPERTIES.

On February 2, 2022, we entered into a new lease agreement for approximately 15,538 square feet of corporate office and laboratory space in Billerica, Massachusetts. The lease has a term of 86 months with the rent escalating from $14,317 to $26,453 per month over the lease term.

ITEM 3. LEGAL PROCEEDINGS

From time to time, we may become involved in various lawsuits and legal proceedings that arise in the ordinary course of business. Neither we nor any of our subsidiaries currently is a party to any legal proceeding that, individually or in the aggregate, is material to our company as a whole.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

Market Information for Common Stock

Prior to August 27, 2021, there was no public market for our common stock. On August 27, 2021, our common stock and publicly-traded warrants commenced trading on the Nasdaq Capital Market under the ticker symbols "SQL" and "SQLLW," respectively.

Holders

As of December 31, 2021, there were approximately 22 stockholders of record, according to the records of our transfer agent, and an unknown number of additional holders of common stock held in 'street name'.

Dividends

We have not declared any common stock dividends to date. We have no present intention of paying any cash dividends on our common stock in the foreseeable future, as we intend to use earnings, if any, to generate growth. The payment by us of dividends, if any, in the future, is within the discretion of our board of directors and will depend upon, among other things, our earnings, capital requirements and financial condition, as well as other relevant factors. There are no material restrictions in our Certificate of Incorporation, as amended, or Bylaws that restrict us from declaring dividends.

Securities Authorized for Issuance Under Equity Compensation Plans

The information required by this item with respect to our equity compensation plans will be incorporated by reference to our Proxy Statement for the 2022 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission no later than 120 days from the end of our 2021 fiscal year.

Unregistered Sales of Equity Securities

On December 6, 2021, we granted to an executive officer options under our 2014 Equity Incentive Plan to purchase an aggregate of 100,000 shares of our common stock at an exercise price of $2.52 per share. We believe such issuance was exempt from registration under the Securities Act by virtue of Rule 701 because the transaction was pursuant to a compensatory benefit plan or contract relating to compensation as provided under such rule.

Issuer Purchases of Equity Securities

None.

Use of Proceeds from Initial Public Offering of Class A Common Stock

In August 2021, we closed our initial public offering (the "IPO") in which we sold an aggregate of 3,060,000 units at a price to the public of $4.25 per unit, each unit consisting of one share of our common stock and a warrant to purchase one share of our common stock at an exercise price of $4.25 per share. In August 2021, we sold warrants to purchase an additional 459,000 shares of common stock, and in September 2021, we sold an additional 189,000 shares of common stock, in connection with the exercise of the underwriters' option to purchase additional shares and warrants. The offer and sale of all of the securities in the IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-254886), filed with the Securities and Exchange Commission (the "SEC") on March 31, 2021, as amended, and a registration statement on Form S-1MEF (File No. 333-259097), filed with the SEC on August 26, 2021, each of which became effective on August 26, 2021. We raised aggregate net proceeds of approximately $12 million from the IPO, after deducting underwriting discounts and commissions and offering costs. There has been no material change in the planned use of proceeds from the IPO as described in our final prospectus filed with the SEC on August 30, 2021 pursuant to Rule 424(b)(4).

The managing underwriter of the IPO was Maxim Group LLC. No payments were made by us to directors, officers, or persons owning ten percent or more of our common stock or to their associates, or to our affiliates, other than the repayment of principal and interest in the aggregate amount of $166,000 on loans made to us by Daniel Jones, our Chief Executive Officer, and payments in the ordinary course of business to officers for salaries and to non-employee directors pursuant to our director compensation policy.

ITEM 6. [Reserved]

As a Smaller Reporting Company as defined by Rule 12b-2 of the Exchange Act and in Item 10(f)(1) of Regulation S-K, we are electing scaled disclosure reporting obligations and therefore are not required to provide the information requested by this Item 6.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

You should read the following discussion of our financial condition and results of operations in conjunction with our audited consolidated financial statements for the year ended December 31, 2021, and related notes included elsewhere in this report. This discussion and analysis and other parts of this report contain forward-looking statements based upon current beliefs, plans and expectations that involve risks, uncertainties and assumptions. Our actual results and the timing of selected events could differ materially from those anticipated in these forward-looking statements as a result of several factors, including those set forth under "Risk Factors" and elsewhere in this report. You should carefully read the "Risk Factors" section of this report to gain an understanding of the important factors that could cause actual results to differ materially from our forward-looking statements. Please also see the section entitled "Cautionary Note Regarding Forward-Looking Statements and Industry and Market Data" in this report.

Overview

This overview and outlook provide a high-level discussion of our operating results and significant known trends that affect our business. We believe that an understanding of these trends is important to understanding our financial results for the periods being reported herein as well as our future financial performance. This summary is not intended to be exhaustive, nor is it intended to be a substitute for the detailed discussion and analysis provided elsewhere in this report.

About SeqLL

We are a development-stage life sciences instrumentation and research services company engaged in the development of scientific assets and novel intellectual property across multiple "omics" fields. We leverage our expertise with True Single Molecule Sequencing (tSMS) technology enabling researchers and clinicians to contribute major advancements to scientific research and development.

Our customers are primarily the early adopters of genomics technology and tSMS in academic research, biomarker discovery, and molecular diagnostic product development.

Our financial results have been, and will continue to be, impacted by several significant trends, which are described below. While these trends are important to understanding and evaluating our financial results, this discussion should be read in conjunction with our consolidated financial statements and the notes thereto within the Consolidated Financial Statements section of this report, and trends discussed in "Risk Factors" within the Business & Market Information section of this report.

Financial Overview

Beginning in 2020, the COVID-19 pandemic and international efforts to control its spread have significantly curtailed the movement of people, goods, services and research worldwide, including in the areas in which we conduct our business and collaborations. We expect the COVID-19 pandemic to continue to impact our business and collaborations in 2022, the size and duration of which is significantly uncertain.

Consolidated financial highlights for 2021 included the following:

- Revenue decreased 36% in 2021 from 2020 primarily due to the reduction in research services and business activities due to the COVID-19 pandemic. We expect our revenue to increase in 2022.
- Gross profit as a percentage of revenue (gross margin) was 72% in 2021 compared to 48% in 2020. The increase in gross margin was driven primarily by the reduction in salaries due to the Covid-19 pandemic.
- Net Loss increased by $2,658,205, or 254%, to $3,703,558 as compared to $1,045,353 for the year ended December 31, 2020, due to transactions resulting from our initial public offering, including an extinguishment loss of $934,257 for the conversion of $2.1 million in promissory notes and a significant increase in professional fees. We expect our operating expenses to increase in 2022, primarily due to our increased funds for research and development.
- We ended 2021 with cash, cash equivalents, and short-term investments totaling $9.9 million, enough to fund our operations as currently planned until the first quarter of 2024.

Results of Operations

Comparison of the Years Ended December 31, 2021 and 2020

The following table summarizes our results of operations for the years ended December 31, 2021 and 2020:

	December 31,		
	2021	**2020**	**Change**
Revenue			
Sales	$ 48,021	$ 50,588	$ (2,567)
Grant revenue	161,974	278,907	(116,933)
Total revenue	209,995	329,495	(119,500)
Cost of sales	57,690	170,803	(113,113)
Gross profit	152,305	158,692	(6,387)
Operating expenses			
Research and development	530,076	330,979	199,097
General and administrative	2,170,857	777,435	1,393,422
Total operating expenses	2,700,933	1,108,414	1,592,519
Operating loss	(2,548,628)	(949,722)	(1,598,906)
Other (income) and expenses			
Other income	(190,193)	(191,566)	1,373
Investment income	(36,463)	-	(36,463)
Unrealized loss on marketable securities	43,078	-	43,078
Change in fair value of convertible notes	195,962	-	195,962
Loss on extinguishment of notes	934,257	-	934,257
Interest expense	208,289	287,197	(78,908)
Net loss	$ (3,703,558)	$ (1,045,353)	$ (2,658,205)

Revenues

Our revenues during the year ended December 31, 2021, were $209,995 as compared to revenues of $329,495 during the year ended December 31, 2020, representing a decrease of $119,500, or 36%. During 2021, revenue included product sales of $31,537, grants of $161,974 and $16,484 from research services as compared to revenue in the same period of 2020 from product sales of $0, grants of $278,907 and $50,588 in research services. The change in revenue was primarily a result of the reduction in research services and business activities due to the COVID-19 pandemic, as well as the reduction of the NIH grant revenue.

Gross Profit

Gross profit for the year ended December 31, 2021, was $152,305, as compared to gross profit of $158,692 for the year ended December 31, 2020, resulting in a decrease of $6,387, or 4%. The gross profit as the percentage of revenues was 72% as compared to 48% in 2020 as a result of the reduction in cost of sales attributed to the decrease in the sales of products and services, including significantly reduced salaries, due to the COVID-19 pandemic.

Research and Development Expenses

Research and development expenses increased by $199,097, or 60%, for the year ended December 31, 2021, as compared to the prior year. The increase in expenses was a result of the ramp up in our research and development activities to levels of pre-COVID-19 pandemic.

We expect these expenditures to increase over the first half of 2022 and beyond as we grow our research and development efforts to advance certain projects that were on hold during the COVID-19 pandemic.

General and Administrative Expenses

General and administrative expenses increased $1,393,422, or 179%, for the year ended December 31, 2021 as compared to the prior year. The increase was primarily attributable to increased operating expenses related to the preparation for our initial public offering in August 2021, including professional fees for accounting and legal of approximately $870,000, increased personnel expenses of approximately $275,000 (inclusive of $215,000 of one-time bonuses), increase rent expense of approximately $55,000 due to higher rent prices, as well as increase of approximately $90,000 in Directors and Officers pro-rated insurance premiums.

General and administrative expenditures should not increase, and possibly decrease, during 2022, in comparison to 2021. This is due to no recurrence of the one-time professional fees related to the IPO. However, this reduction will be mitigated somewhat due to the additional costs to support ongoing financial reporting and compliance activities.

Interest and Other Income/Loss

We recognized interest expense of $208,289 and $287,197 in the years ended December 31, 2021, and 2020, respectively, representing a decrease of $78,908, or 27%, in 2021 over 2020. The decrease in interest expense was due to a decrease in our outstanding indebtedness as a result of the conversion of $2.1 million in notes to equity concurrently with the consumption of our initial public offering on August 31, 2021.

We recognized Other Income of $190,193 and $191,566 related to the PPP loan forgiveness in the years ended December 31, 2021, and 2020, respectively, resulting in a decrease of $1,373, or 1%.

We recognized $36,463 and $43,078 of investment income and unrealized losses on marketable securities for the year ended December 31, 2021, which was attributable to our short-term investments held in mutual funds. We did not hold such investments during the year ended December 31, 2020.

We recognized a loss on extinguishment of debt totaling $934,257 and a change of $195,962 in the fair value of convertible notes for the year ended December 31, 2021. The loss on the extinguishment of debt represented the excess of the fair value of certain convertible notes totaling $3,075,987 over their carrying value of $2,141,730 at their amendment date in the first quarter of 2021. The accounting loss of $195,962 was due to the change in fair value of the convertible notes carried at fair value between the amendment date and their conversion at the IPO date.

Net Loss

Our net loss for the year ended December 31, 2021, increased by $2,658,205, or 254%, to $3,703,558 as compared to $1,045,353 for the year ended December 31, 2020 due primarily to the extinguishment loss of $934,257 for the conversion features added to $2.1 million aggregate principal amount of promissory notes, and the increase in general and administrative expenses as a result of our becoming a public company.

Liquidity and Capital Resources

As of December 31, 2021, we had approximately $9.9 million in cash and cash equivalents and marketable securities. Cash and cash equivalents increased significantly from prior year due to the "Financing Activities" described in the "Cash Flow Summary" below. Since inception, we have funded our operations primarily through equity and debt financings, as well as from modest sales of products and research services. As of December 31, 2021, we had an accumulated deficit of $14,413,851.

From January to March 2021, we issued senior secured convertible promissory notes to investors totaling $250,000 which were converted into shares of common stock upon our initial public offering in August 2021.

In July and August of 2021, Daniel Jones our CEO loaned us $90,000 and $50,000, respectively, of which both loans were repaid in full with proceeds from the IPO.

In August 2021, we issued 3,060,000 shares of common stock to investors in our initial public offering. The gross proceeds from our initial public offering was $13.0 million. We incurred offering expenses of $1.6 million in cash. We also converted $2.1 million of debt into 641,895 shares of common stock at our initial public offering.

On September 29, 2021, we issued 189,000 shares of common stock to the underwriters at a price of $4.24 per share from the partial exercise of the overallotment option, increasing the net proceeds by approximately $730,000, net of offering costs.

We believe the net proceeds from our initial public offering, together with our cash generated from commercial sales and research activity, will enable us to fund our operations for at least one year from the date this Annual Report on Form 10-K is filed with the SEC. However, our forecast of the period of time through which our financial resources will be adequate to support our operations is a forward-looking statement that involves risks and uncertainties, and actual results could vary materially. We have based this estimate on assumptions that may prove to be wrong, and we could use our capital resources sooner than we expect.

Our future capital requirements will depend on many factors, including:

- our ability to successfully and further develop our technologies and create innovative products in our markets, including the costs associated with the development of our tSMS platform across multiple market segments, for which we have budgeted approximately $1 million in 2022 and $2 million in 2023 in support of our collaborative efforts in detection tools for heart disease and cancer, and chromatin mapping in genome biology,

- scientific progress in research and development of our collaborative programs, including the costs of obtaining, maintaining and enforcing our patents and other intellectual property rights, as well as the costs associated with any product or technology that we may in-license or acquire; and

- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements; including the need to enter into other collaborations to enhance or complement our product and service offerings.

We plan to continue seeking additional financing sources from time to time to meet our working capital requirements, make continued investment in research and development and make capital expenditures needed for us to maintain and expand our business. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, or if we expend capital on projects that are not successful, our ability to continue to support our business growth and to respond to business challenges could be significantly limited. In addition, if we raise additional funds through further issuances of equity or debt securities, our existing stockholders could suffer significant dilution, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our common stock.

Cash Flows

The following table sets forth the primary sources and uses of cash and cash equivalents for each of the periods presented.

	For the Years Ended December 31,	
	2021	**2020**
Cash proceeds provided by (used in):		
Operating activities	$ (1,989,877)	$ (757,911)
Investing activities	(5,990,912)	—
Financing activities	11,995,917	752,048
Net increase (decrease) in cash and cash equivalents	$ 4,015,128	$ (5,863)

Net cash used in operating activities

Net cash used in operating activities was approximately $2.0 million and $0.8 million for the years ended December 31, 2021 and 2020, respectively. The decreases in 2020 were primarily attributable to reduced research and development and operating expenses as a result of the COVID-19 pandemic-related slowdown, including salary reductions, furloughs and reduced spending. The increase in 2021 was primarily attributable to the significant expenses related to our operating as a public company starting in the third quarter of 2021.

We anticipate our research and development efforts and on-going general and administrative costs will generate negative cash flows from operating activities for the foreseeable future.

Net cash used in investing activities

Net cash used in investing activities was $6.0 million for the year ended December 31, 2021, and none in the year ended December 31, 2020. The investing activities are related to the acquisition of highly liquid short-term investments with the proceeds from our initial public offering.

Net cash provided by financing activities

Net cash provided by financing activities was approximately $12.0 million and $0.75 million for the years ended December 31, 2021 and 2020, respectively. The increase was primarily attributable to the proceeds raised in our initial public offering on August 31, 2021.

Recent Accounting Pronouncements

In August 2020, Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) ASU 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity’s Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity’s Own Equity, which, among other things, provides guidance on how to account for contracts on an entity’s own equity. This ASU eliminates the beneficial conversion and cash conversion accounting models for convertible instruments. It also amends the accounting for certain contracts in an entity’s own equity that are currently accounted for as derivatives because of specific settlement provisions. In addition, this ASU modifies how particular convertible instruments and certain contracts that may be settled in cash or shares impact the diluted EPS computation. The amendments in this ASU are effective for the public companies for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020. We adopted this standard on January 1, 2022, for which, there was no material impact to our consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, Leases (“ASU 2016-02”) which establishes new accounting and disclosure requirements for leases. ASU No. 2016-02 requires recognition in the statement of operations of a single lease cost, calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. ASU 2016-02 requires classification of all cash payments within operating activities in the statement of cash flows. Disclosures are required to provide the amount, timing and uncertainty of cash flows arising from leases. We will adopt the provisions of ASU 2016-02 in the quarter beginning January 1, 2022, using the modified retrospective approach and will record right of use assets and lease liabilities on its consolidated balance sheet for the leases with terms in excess of one year. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. We adopted this standard on January 1, 2022.

We do not believe that any other recently issued but not yet effective accounting pronouncements will have a material effect on the accompanying consolidated financial statements.

Critical Accounting Policies and Estimates

Stock-based Compensation

Our share-based compensation program grants awards including stock options and restricted stock awards. The fair value of stock option grants is estimated as of the date of the grant using the Black-Scholes option pricing model. The fair value of restricted stock awards is based on the fair value of our common stock on the date of the grant. The fair value of the stock-based awards are expensed over the requisite service period, generally the vesting period, for each award.

Our expected stock price volatility assumption is based on the volatility of comparable public companies. The expected term of a stock option granted to employees and directors (including non-employee directors) is based on the average of the contractual term (generally 10 years) and the vesting period. For non-employee options, the expected term is the contractual term. The risk-free interest rate is based on the yield of U.S. Treasury securities consistent with the life of the option. No dividend yield was assumed as we do not pay dividends on common stock. We recognize forfeitures related to stock-based awards as they occur.

We have periodically granted stock options and restricted stock awards to consultants for services, pursuant to our stock plans at the fair market value on the respective dates of grant. Should we terminate any of our consulting agreements, the unvested options underlying the agreements would be cancelled. For awards granted to consultants and non-employees, compensation expense is recognized over the vesting period of the awards, which is generally the period services are rendered by such consultants and non-employees.

We granted stock options to purchase an aggregate of 100,000 shares of common stock in the year ended December 31, 2021, and did not grant any stock options during the year ended December 31, 2020.

Revenue Recognition

Our revenue is generated primarily from the sale of products and research services. Product revenue primarily consists of sales of genetic sequencing equipment and sequencing reagent kits. Research service revenue primarily consists of revenue generated from gene sequencing services and grants.

We recognize revenue in accordance with Accounting Standards Codification (“ASC”) Topic 606, Revenue from Contracts with Customers (“ASC 606”). Under ASC 606, we recognize revenue when control of our products and services is transferred to our customers in an amount that reflects the consideration we expect to receive from our customers in exchange for those products and services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, we perform a five-step process. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when (or as) the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. We only apply the five-step process to contracts when it is probable that we will collect consideration we expect to be entitled to in exchange for the goods or services we transfer to the customer.

We evaluate contingent payments to estimate the amount which is not probable of a material reversal to include in the transaction price using the most likely amount method. Future payments that are not within our control and are not considered probable of being achieved until the contingencies are resolved.

Revenue from product sales, including customized sequencing instruments and sequencing reagent kits and off-the-shelf consumables, is recognized generally upon delivery, which is when control of the product is deemed to be transferred.

Revenue from gene sequencing services, using the tSMS platform, is recognized generally as the services are provided to the customer. The components of the sequencing process, including reagent kits and off-the-shelf consumables, sample loader and sequencer, are not distinct within the context of the genetic sequencing service contract. This is because in a gene sequencing service contract the reagent kits and other components, such as off-the-shelf consumables, used in the sequencing process become required inputs to achieve the specified gene sequencing analysis, and the components in the sequencing process are sequential in nature and highly interrelated as they work together to generate sample-specific data.

As our standard payment terms are less than one year, we have elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component.

We have elected to exclude sales tax from revenue. We generally have no obligations for returns, refunds and other similar obligations and do not provide separate equipment warranties. We recognized $16,484 and $50,588 in revenue from gene sequencing services for the years ended December 31, 2021 and 2020, respectively. We recognized $31,537 and $0 in revenue from product sales for the years ended December 31, 2021 and 2020, respectively.

Grant Revenue

Our grant revenues are derived from research programs by various departments of the National Institute of Health ("NIH").

Grants awarded to us for research and development by government entities are outside the scope of the contracts with customers and contributions guidance. This is because these granting entities are not considered to be customers and are not receiving reciprocal value for their grant support provided to us. These grants provide us with payments for certain types of expenditures in return for research and development activities over a contractually defined period.

We recognize NIH grant revenue as reimbursable grant costs that are incurred up to pre-approved award limits within the budget period. The costs associated with these reimbursements are reflected as a component of research and development expense in the accompanying consolidated statements of operations. In the years ended December 31, 2021, and 2020, we recognized grant revenue of $161,974 and $278,907, respectively.

JOBS Act

Section 107 of the JOBS Act provides that an "emerging growth company" can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an emerging growth company can delay the adoption of new or revised accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

For as long as we remain an emerging growth company under the recently-enacted JOBS Act, we will, among other things:

- be permitted to have only two years of audited financial statements and only two years of related selected financial data and management's discussion and analysis of financial condition and results of operations disclosure;
- be entitled to rely on an exemption from compliance with the auditor attestation requirement in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act;
- be entitled to reduced disclosure obligations about executive compensation arrangements in our periodic reports, registration statements and proxy statements; and
- be exempt from the requirements to seek non-binding advisory votes on executive compensation or golden parachute arrangements.

Although we are still evaluating the JOBS Act, we currently intend to take advantage of some or all of the reduced regulatory and reporting requirements that will be available to us so long as we qualify as an "emerging growth company." Among other things, this means that our independent registered public accounting firm will not be required to provide an attestation report on the effectiveness of our internal control over financial reporting so long as we qualify as an emerging growth company, which may increase the risk that weaknesses or deficiencies in our internal control over financial reporting go undetected.

Likewise, so long as we qualify as an emerging growth company, we may elect not to provide certain information, including certain financial information and certain information regarding compensation of our executive officers, that we would otherwise have been required to provide in filings we make with the SEC, which may make it more difficult for investors and securities analysts to evaluate our company. As a result, investor confidence in our company and the market price of our common stock may be materially and adversely affected.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As a Smaller Reporting Company as defined by Rule 12b-2 of the Exchange Act and in Item 10(f)(1) of Regulation S-K, we are electing scaled disclosure reporting obligations and therefore are not required to provide the information requested by this Item 7A.

ITEM 8. FINANCIAL STATEMENTS.

Our Consolidated Financial Statements are on pages F-1 through F-18

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

Evaluation of disclosure controls and procedures

Our Chief Executive Officer (who is our principal executive officer) and Chief Financial Officer (who is our principal financial officer), conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the "Exchange Act") as of December 31, 2021. As of December 31, 2021, based upon the evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective. Disclosure controls and procedures designed to reasonably ensure that information required to be disclosed in our reports filed under the Exchange Act, such as this report, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Management's Annual Report on Internal Control over Financial Reporting

This Annual Report does not include a report of management's assessment regarding internal control over financial reporting due to a transition period established by the rules of the SEC for newly public companies.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting that occurred during the year ended December 31, 2021, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION.

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

The information required by Item 10 is incorporated by reference to our Proxy Statement for our 2022 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission no later than 120 days from the end of our 2021 fiscal year.

ITEM 11. EXECUTIVE COMPENSATION.

The information required by Item 11 is incorporated by reference to our Proxy Statement for our 2022 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission no later than 120 days from the end of our 2021 fiscal year.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.

The information required by Item 12 is incorporated by reference to our Proxy Statement for our 2022 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission no later than 120 days from the end of our 2021 fiscal year.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE.

The information required by Item 13 is incorporated by reference to our Proxy Statement for our 2022 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission no later than 120 days from the end of our 2021 fiscal year.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

The information required by Item 14 is incorporated by reference to our Proxy Statement for our 2022 Annual Meeting of Stockholders, which will be filed with the Securities and Exchange Commission no later than 120 days from the end of our 2021 fiscal year.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

Exhibit Number	Description of Exhibits	Incorporation by Reference		
		Form	Filing Date	Exhibit Number
3.1	Amended and Restated Certificate of Incorporation	8-K	8/31/21	3.1
3.2	Amended and Restated Bylaws	8-K	8/31/21	3.2
4.1*	Description of Securities			
4.2	Specimen common stock certificate	S-1/A	5/22/19	4.1
4.3	Warrant Agency Agreement dated as of August 31, 2021 between SeqLL Inc. and VSTOCK Transfer LLC	8-K	8/31/21	10.1
4.4	Form of Common Stock Purchase Warrant	S-1/A	8/16/21	4.6
10.1#	Amended and Restated 2014 Equity Incentive Plan	S-1	3/31/21	10.1
10.2	License Agreement dated March 15, 2013 between SeqLL, LLC and Helicos Biosciences Corporation	S-1	4/23/19	10.2
10.3	Sub-License Agreement dated March 15, 2013 between SeqLL, LLC and Helicos Biosciences Corporation	S-1	4/23/19	10.3
10.13	Investor Rights Agreement dated as of September 30, 2018	S-1/A	5/28/21	10.13
22*	Subsidiaries of the Registrant			
23*	Consent of Wolf & Company, P.C.			
31.1*	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002			
31.2*	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 302 of The Sarbanes-Oxley Act of 2002			
32.1*	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002			
32.2*	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 906 of The Sarbanes-Oxley Act of 2002			
101.INS	Inline XBRL Instance Document.			
101.SCH	Inline XBRL Taxonomy Extension Schema Document.			
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.			
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.			
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.			
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.			
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).			

* Filed herewith.

\# Indicates a management contract or compensatory plan.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934 the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized, on the 23rd day of March, 2022.

SEQLL INC.

By: /s/ Daniel Jones
Daniel Jones
Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Daniel Jones Daniel Jones	Chief Executive Officer and Chairman *(Principal Executive Officer)*	March 23, 2022
/s/ John W. Kennedy John W. Kennedy	Chief Financial Officer and Secretary *(Principal Financial and Accounting Officer)*	March 23, 2022
/s/ Douglas Miscoll Douglas Miscoll	Director	March 23, 2022
/s/ David Pfeffer David Pfeffer	Director	March 23, 2022
/s/ Dr. Patrice Milos Dr. Patrice Milos	Director	March 23, 2022

SEQLL INC.

CONSOLIDATED FINANCIAL STATEMENTS

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and the Stockholders of SeqLL Inc.:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of SeqLL Inc. (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of operations, changes in stockholders' equity (deficit) and cash flows for the years then ended, and the related notes to the consolidated financial statements (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Wolf & Company, P.C.

We have served as the Company's auditor since 2018.

Boston, Massachusetts
March 23, 2022

SeqLL Inc.
Consolidated Balance Sheets

	December 31,	
Assets	**2021**	**2020**
Current assets		
Cash and cash equivalents	$ 4,015,128	$ -
Marketable securities, at fair value	5,933,364	-
Accounts receivable, net	30,714	30,714
Other receivables	34,965	108,815
Inventory	224,155	203,011
Prepaid expenses	186,056	-
Total current assets	10,424,382	342,540
Other assets		
Property and equipment, net	265,267	337,241
Other assets	50,488	14,262
Total assets	$ 10,740,137	$ 694,043
Liabilities and Stockholders' Equity (Deficit)		
Current liabilities		
Accounts payable	$ 871,364	$ 861,840
Accrued expenses	311,405	123,639
Loan payable - related party	-	26,000
Non-convertible promissory notes – current portion	1,375,000	-
Total current liabilities	2,557,769	1,011,479
Non-current liabilities		
Convertible notes	-	1,105,000
Non-convertible promissory notes – net of current portion	-	2,431,730
Total non-current liabilities	-	3,536,730
Total liabilities	2,557,769	4,548,209
Commitments and contingencies (Note 14)		
Stockholders' equity (deficit)		
Preferred stock, $0.00001 par value; 20,000,000 shares authorized; 0 and 5,791,665 shares issued and outstanding as of December 31, 2021 and 2020, respectively	-	58
Common stock, $0.00001 par value; 80,000,000 shares authorized; 11,886,379 and 4,864,862 shares issued and outstanding as of December 31, 2021 and 2020, respectively	119	49
Additional paid-in capital	22,596,100	6,856,020
Accumulated deficit	(14,413,851)	(10,710,293)
Total stockholders' equity (deficit)	8,182,368	(3,854,166)
Total liabilities and stockholders' equity (deficit)	$ 10,740,137	$ 694,043

The accompanying notes are an integral part of these consolidated financial statements.

SeqLL Inc.
Consolidated Statements of Operations

	December 31,	
	2021	**2020**
Revenue		
Sales	$ 48,021	$ 50,588
Grant revenue	161,974	278,907
Total revenue	209,995	329,495
Cost of sales	57,690	170,803
Gross profit	152,305	158,692
Operating expenses		
Research and development	530,076	330,979
General and administrative	2,170,857	777,435
Total operating expenses	2,700,933	1,108,414
Operating loss	(2,548,628)	(949,722)
Other (income) and expenses		
Other income	(190,193)	(191,566)
Investment income	(36,463)	-
Unrealized loss on marketable securities	43,078	-
Change in fair value of convertible notes	195,962	-
Loss on extinguishment of convertible notes	934,257	-
Interest expense	208,289	287,197
Net loss	$ (3,703,558)	$ (1,045,353)
Net loss per share - basic and diluted	$ (0.51)	$ (0.21)
Weighted average common shares - basic and diluted	7,216,001	4,864,862

The accompanying notes are an integral part of these consolidated financial statements.

SeqLL Inc.
Consolidated Statements of Changes in Stockholders' Equity (Deficit)
For the years ended December 31, 2021 and 2020

	Preferred Stock		Common Stock		Additional Paid-In	Accumulated	Total Stockholders' Equity
	Shares	Amount	Shares	Amount	Capital	Deficit	(Deficit)
Balance as of December 31, 2019	5,791,665	$ 58	4,864,862	$ 49	$ 6,835,810	$ (9,664,940)	$ (2,829,023)
Stock-based compensation expense	-	-	-	-	20,210	-	20,210
Net loss	-	-	-	-	-	(1,045,353)	(1,045,353)
Balance as of December 31, 2020	5,791,665	$ 58	4,864,862	$ 49	$ 6,856,020	$ (10,710,293)	$ (3,854,166)
Conversion of preferred stock into common stock	(5,791,665)	$ (58)	3,130,622	$ 31	$ 27	$ -	$ -
Stock-based compensation expense	-	-	-	-	333,978	-	333,978
Conversion of convertible notes into common stock	-	-	641,895	6	3,222,300	-	3,222,306
Issuance of Units and warrants in initial public offering, net of issuance costs of $1,555,976	-	-	3,060,000	31	11,453,614	-	11,453,645
Issuance of common stock to underwriters in initial public offering, net of issuance costs of $71,199	-	-	189,000	2	730,161	-	730,163
Net loss	-	-	-	-	-	(3,703,558)	(3,703,558)
Balance as of December 31, 2021	-	$ -	11,886,379	$ 119	$ 22,596,100	$ (14,413,851)	$ 8,182,368

The accompanying notes are an integral part of these consolidated financial statements.

SeqLL Inc.
Consolidated Statements of Cash Flows

	December 31,	
	2021	**2020**
Cash Flows from Operating Activities		
Net loss	$ (3,703,558)	$ (1,045,353)
Adjustment to reconcile net loss to net cash used in operating activities:		
Depreciation	86,444	108,759
Unrealized loss on marketable securities	43,078	-
Loss on extinguishment of notes	934,257	-
Stock-based compensation	333,978	20,210
Change in fair value of convertible notes	195,962	286,972
Changes in operating assets and liabilities:		
Accounts receivable, net	-	23,986
Other receivables	73,850	(27,846)
Prepaid expenses	(186,056)	2,354
Inventory	(21,144)	81,246
Other assets	(36,226)	-
Accounts payable	9,524	(35,818)
Accrued expenses	280,014	(147,421)
Deferred revenue	-	(25,000)
Net cash used in operating activities	(1,989,877)	(757,911)
Cash Flows from Investing Activities		
Purchases of lab equipment	(14,470)	-
Purchases of marketable securities	(5,976,442)	-
Net cash used in investing activities	(5,990,912)	-
Cash Flows from Financing Activities		
Proceeds from issuance of units and common stock warrants, gross	13,009,621	-
Payment for issuance costs of units and common stock warrants	(1,627,175)	-
Proceeds from issuance of non-convertible promissory notes	-	554,048
Payment of non-convertible promissory notes	(270,000)	
Proceeds from issuance of convertible notes	250,000	200,000
Proceeds from issuance of common stock to underwriters	801,362	-
Settlement of convertible notes	(141,891)	-
Proceeds from loan payable - related party	140,000	33,000
Payment of loan payable - related party	(166,000)	(35,000)
Net cash provided by financing activities	11,995,917	752,048
Net increase (decrease) in cash and cash equivalents	4,015,128	(5,863)
Cash and cash equivalents, beginning of year	-	5,863
Cash and cash equivalents, end of year	$ 4,015,128	$ -
Supplemental disclosure of cash flow information and non-cash financing transactions		
Conversion of notes at initial public offering into common stock	$ 3,222,206	-
Conversion of preferred stock par value to common stock and additional paid-in capital	$ 58	-
Fair value of warrants of common stock issued to underwriters	$ 1,647,076	-
Conversion of 2020 accrued interest into promissory notes	$ -	426,020

The accompanying notes are an integral part of these consolidated financial statements.

Note 1 – Nature of Operations and Basis of Presentation

SeqLL Inc. was incorporated as a Delaware corporation on April 3, 2014. On April 8, 2014, SeqLL Inc. acquired a 100% ownership interest in SeqLL, LLC ("Subsidiary"), a domestic limited liability company formed on March 11, 2013 in the State of Massachusetts. SeqLL Inc. is a holding company of the Subsidiary (together the "Company" or SeqLL") and is a life sciences company focused on the development and application of innovative genetic analysis technologies and the monetization of that technology and related intellectual property. The Subsidiary purchased technology to enable the analysis of large volumes of genetic material by directly sequencing single molecules of DNA or RNA. The Subsidiary's principal office is located in Woburn, Massachusetts.

Initial Public Offering

On August 31, 2021, the Company completed its initial public offering ("IPO") whereby it sold 3,060,000 units, each unit consisting of one share of the Company's common stock and a warrant to purchase one share of common stock at an exercise price of $4.25 per share (the "Warrants"), at a price to the public of $4.25 per unit. The gross proceeds from the IPO were approximately $13 million and were offset by $3.2 million in offering costs, of which $1.6 million was paid in cash and $1.6 million was issued in warrants issued to Maxim Group LLC ("Underwriter") (see Note 10). In connection with the IPO, all of the outstanding shares of the Company's convertible preferred stock automatically converted into 3,130,622 shares of common stock (see Note 9). Additionally, the outstanding convertible notes converted into 641,895 shares of common stock (see Note 8).

Pursuant to the Underwriting Agreement, the Company granted the Underwriter a 45-day option to purchase up to 459,000 additional shares of common stock, and/or 459,000 additional Warrants, to cover over-allotments in connection with the Offering. The Underwriter partially exercised this option and purchased 459,000 Warrants on August 31, 2021, at $0.01 per Warrant. On September 29, 2021, the Company issued 189,000 shares of common stock to the underwriters at a price of $4.24 per share from the exercise of the overallotment option, raising the net proceeds of approximately $730,000, net of offering costs.

On August 31, 2021, and September 29, 2021, the Company also issued to the Underwriter warrants to purchase up to a total of 162,450 shares of common stock at an exercise price of $4.675 per share ("Underwriter Warrants") (Note 10).

Risks and Uncertainties

The Company is subject to a number of risks similar to other companies in its industries, including rapid technological change, competition from larger pharmaceutical and biotechnology companies and dependence on key personnel.

The extent of the impact of the COVID-19 pandemic on the Company's business continues to be highly uncertain and difficult to predict, as the responses that the Company, other businesses and governments are taking continue to evolve. Furthermore, capital markets and economies worldwide have also been negatively impacted by the COVID-19 pandemic, and it is possible that it could cause a lasting national and/or global economic recession. Policymakers around the globe have responded with fiscal policy actions to support the healthcare industry and economy as a whole. The magnitude and overall effectiveness of these actions remain uncertain.

The severity of the impact of the COVID-19 pandemic on the Company's business will depend on a number of factors, including, but not limited to, the duration and severity of the pandemic and the extent and severity of the impact on the Company's service providers, suppliers, contract research organizations and the Company's clinical trials, all of which are uncertain and cannot be predicted. During 2021 and 2020, the COVID-19 pandemic has adversely affected the Company's sales and results of operations and may continue to adversely affect its business. The extent to which the COVID-19 pandemic may in the future materially impact the Company's financial condition, liquidity or results of operations is uncertain.

Basis of Presentation

The accompanying consolidated financial statements include the accounts of SeqLL Inc. and its wholly-owned subsidiary, SeqLL, LLC. All intercompany accounts and transactions have been eliminated in consolidation.

Note 2 – Significant Accounting Policies

A summary of significant accounting policies followed by the Company in the preparation of the accompanying consolidated financial statements are as follows:

Use of Estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America ("U.S. GAAP"), requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosure of contingent liabilities at the date of the financial statements and the reported amounts of expenses during the reporting period. Significant estimates include but are not limited to stock-based compensation expense, research and development accruals, fair value of warrants and loss on extinguishment of notes. Actual results could differ from those estimates and changes in estimates may occur.

Cash and Cash Equivalents

The Company considers all highly liquid securities readily convertible to cash that mature within three months or less from the original date of purchase to be cash equivalents. Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash and cash equivalents. Cash and cash equivalents are held by financial institutions and are federally insured up to certain limits. At times, the Company's cash and cash equivalents balance exceeds the federally insured limits. As of December 31, 2021, the Company has not experienced a loss on its accounts for which it exceeds federally insured deposit limits, and does not expect a loss to occur. On December 31, 2021, the cash equivalents include $60,021 of investments in money market funds.

Accounts Receivable

In the normal course of business, the Company provides credit to its customers and performs credit evaluations of these customers. The Company periodically reviews accounts receivables for doubtful accounts on a customer-by-customer basis and established an allowance to reserve for balances that are deemed uncollectible. The allowance for doubtful accounts was $6,016 as of December 31, 2021, and 2020.

Investments in marketable securities

The Company accounts for its investments in equity securities in accordance with ASC 321, *Investments — Equity Securities* ("ASC 321"). Equity investments, which are comprised of investments in mutual funds shares, are measured at fair value, based on quoted market prices, with all gains and losses reported in the Company's statement of operations. We may sell our equity securities in response to changes in interest rates, risk/reward characteristics, liquidity needs or other factors.

Inventory

Inventory consists of finished goods, work-in-process and raw materials and is valued at the lower of cost or net realizable value, determined by the first-in, first-out ("FIFO") method. As the Company manufactures the finished goods and work-in-process materials, overhead costs are included in inventory. The Company evaluates the carrying cost of finished goods, work-in-process and raw materials items. To the extent that such costs exceed future demand estimates and /or exhibit historical turnover at rates less than current inventory levels, the Company reduces the carrying value of the applicable inventories. Inventory consisted of the following:

	December 31, 2021	December 31, 2020
Raw materials	$ 91,995	$ 59,416
Work in process	132,160	143,595
Total inventory	$ 224,155	$ 203,011

Property and Equipment

Property and equipment are recorded at cost and depreciated over the estimated useful lives of the related assets using the straight-line method. Lab equipment is depreciated over a five-year period. Leasehold improvements are depreciated over the shorter of the useful life and the term of the lease. When assets are retired or otherwise disposed of, the cost of these assets and related accumulated depreciation or amortization are eliminated from the balance sheet and any resulting gains or losses are included in the statement of operations in the period of disposals.

Long-lived Assets

The Company assesses, on an annual basis, the recoverability of the carrying amount of long-lived assets used in continuing operations. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to the future net cash flow expected to be generated by the asset. A loss is recognized when expected future cash flow (undiscounted and without interest) are less than the carrying amount of the asset. The impairment loss is determined as the difference by which the carrying amount of the asset exceeds its fair value. No impairments were recognized in the years ended December 31, 2021, and 2020.

Revenue Recognition

The Company's revenue is generated primarily from the sale of products and research services. Product revenue primarily consists of sales of genetic sequencing equipment and sequencing reagent kits. Research service revenue primarily consists of revenue generated from gene sequencing services and grants.

The Company recognizes revenue in accordance with Accounting Standards Codification ("ASC") Topic 606, Revenue from Contracts with Customers ("ASC 606"). Under ASC 606, the Company recognizes revenue when control of its products and services is transferred to its customers in an amount that reflects the consideration the Company expects to receive from its customers in exchange for those products and services. To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, the Company performs a five-step process. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when (or as) the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. The Company only applies the five-step process to contracts when it is probable that the entity will collect consideration it expects to be entitled to in exchange for the goods or services it transfers to the customer.

The Company evaluates contingent payments to estimate the amount which is not probable of a material reversal to include in the transaction price using the most likely amount method. Future payments that are not within the control of the Company, are not considered probable of being achieved until the contingencies are resolved.

Revenue from product sales, including customized sequencing instruments and sequencing reagent kits and off-the-shelf consumables, is recognized generally upon delivery, which is when control of the product is deemed to be transferred.

Revenue from gene sequencing services, using the tSMS platform, is recognized generally as the services are provided to the customer. The components of the sequencing process, including reagent kits and off-the-shelf consumables, sample loader and sequencer, are not distinct within the context of the gene sequencing service contract. This is because in a gene sequencing service contract the reagent kits and other components, such as off-the-shelf consumables, used in the sequencing process, become required inputs to achieve the specified gene sequencing analysis, and the components in the sequencing process are sequential in nature and highly interrelated as they work together to generate sample-specific data.

As the Company's standard payment terms are less than one year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component.

The Company has elected to exclude sales tax from revenue. The Company generally has no obligations for returns, refunds and other similar obligations and does not provide separate equipment warranties. The Company recognized $16,484 and $50,588 in revenue from gene sequencing services for the years ended December 31, 2021, and 2020, respectively. The Company recognized $31,537, and $0 in revenue from product sales for the years ended December 31, 2021, and 2020, respectively.

Grant Revenue

The Company's grant revenues are derived from research programs by various departments of the National Institute of Health (NIH Grants).

Grants awarded to the Company for research and development by government entities are outside the scope of ASC 606 guidance. This is because these granting entities are not considered to be customers and are not receiving reciprocal value for their grant support provided to the Company. These grants provide the Company with payments for certain types of expenditures in return for research and development activities over a contractually defined period.

The Company recognizes NIH Grants revenue as reimbursable grant costs are incurred up to pre-approved award limits within the budget period. The costs associated with these reimbursements are reflected as a component of research and development expense in the accompanying consolidated statements of operations. In the years ended December 31, 2021, and 2020, the Company earned grant revenue of $161,974 and $278,907, respectively.

Income Taxes

The Company utilizes the liability method of accounting for income taxes as required by ASC 740, *Income Taxes*. Under this method, deferred tax assets and liabilities are determined based on differences between financial reporting and the tax basis of assets and liabilities as well as net operating loss carryforwards and tax credits and are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that these assets may not be realized. Currently, there is no provision for income taxes, as the Company has incurred operating losses to date, and a full valuation allowance has been provided on the net deferred tax assets.

The Company determines whether it is more likely than not that a tax position will be sustained upon examination. If it is not more likely than not that a position will be sustained, none of the benefit attributable to the position is recognized. The tax benefit to be recognized for any tax position that meets the more-likely-than-not recognition threshold is calculated as the largest amount that is more than 50% likely of being realized upon resolution of the contingency. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes.

The Company has no accruals for interest or penalties related to income tax matters. Tax years subsequent to 2017 remain open to examination by federal and state tax authorities.

Stock-based Compensation

The Company's share-based compensation program grants awards include stock options and restricted stock awards. The fair value of stock option grants is estimated as of the date of the grant using the Black-Scholes option pricing model. The fair value of restricted stock awards is based on the fair value of the Company's common stock on the date of the grant. The fair value of the stock-based awards are then expensed over the requisite service period, generally the vesting period, for each award.

The Company's expected stock price volatility assumption is based on the volatility of comparable public companies. The expected term of a stock option granted to employees and directors (including non-employee directors) is based on the average of the contractual term (generally 10 years) and the vesting period. For non-employee options, the expected term is the contractual term. The risk-free interest rate is based on the yield of U.S. Treasury securities consistent with the life of the option. No dividend yield was assumed as the Company does not pay dividends on its common stock. The Company recognizes forfeitures related to stock-based awards as they occur.

The Company has periodically granted stock options and restricted stock awards to consultants for services, pursuant to the Company's stock plans at the fair market value on the respective dates of grant. Should the Company terminate any of its consulting agreements, the unvested options underlying the agreements would be cancelled. For awards granted to consultants and non-employees, compensation expense is recognized over the vesting period of the awards, which is generally the period services are rendered by such consultants and non-employees.

The Company did not grant any stock options during the year ended December 31, 2020. The assumptions used in determining the fair value of share-based awards granted in 2021 are as follows:

	2021
Risk-free interest rate	1.21%
Expected option life	5 years
Expected dividend yield	0%
Expected stock price volatility	52%

Research and Development Expenses

The Company expenses all research and development costs as incurred. Included in research and development costs are wages, stock-based compensation and benefits of employees and other operational costs related to the Company's research and development activities, including facility-related expenses and external costs of outside contractors engaged by the Company.

Segments

The Company operates in a single business segment that includes the design, development and manufacturing of genetic analysis technologies.

Derivative Instruments

The Company from time-to-time will issue warrants to its investors and accounts for warrant instruments as either equity-classified or liability-classified instruments based on an assessment of the specific terms of the warrants and applicable authoritative guidance in ASC 480, *Distinguishing Liabilities from Equity* ("ASC 480") and ASC 815, *Derivatives and Hedging* ("ASC 815"). The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and meet all of the requirements for equity classification under ASC 718, *Compensation – Stock Compensation* ("ASC 718") and ASC 815, including whether the warrants are indexed to the Company's own stock and whether the holders of the warrants could potentially require net cash settlement in a circumstance outside of the Company's control, among other conditions for equity classification.

At the IPO date, the Warrants and Underwriter Warrants (see Note 9) were accounted for as equity as these instruments meet all of the requirements for equity classification under ASC 815 and ASC 718.

Net Loss per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding for the period, without consideration for potentially dilutive securities if their effect is antidilutive. Diluted net loss per share is computed by dividing the net loss by the weighted average number of shares of common stock and dilutive common stock equivalents outstanding for the period determined using the treasury stock and if-converted methods. Dilutive common stock equivalents are comprised of convertible preferred stock, convertible promissory notes, options outstanding under the Company's stock option plan and warrants. For all periods presented, there is no difference in the number of shares used to calculate basic and diluted shares outstanding as inclusion of the potentially dilutive securities would be antidilutive.

The following potential shares of common stock were not considered in the computation of diluted net loss per share as their effect would have been antidilutive:

	December 31,	
	2021	**2020**
Convertible preferred stock	-	5,791,556
Convertible promissory notes	-	345,266
Stock options	918,915	818,915
Warrants for common stock	4,393,396	658,262

Recently Issued Accounting Standards

In August 2020, FASB issued ASU 2020-06, Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity, which, among other things, provides guidance on how to account for contracts on an entity's own equity. This ASU eliminates the beneficial conversion and cash conversion accounting models for convertible instruments. It also amends the accounting for certain contracts in an entity's own equity that are currently accounted for as derivatives because of specific settlement provisions. In addition, this ASU modifies how particular convertible instruments and certain contracts that may be settled in cash or shares impact the diluted EPS computation. The amendments in this ASU are effective for the public companies for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020. The Company is currently evaluating the impact of ASU 2020-06 on its consolidated financial statements. The Company adopted this standard on January 1, 2022, for which, there was no material impact to the Company's consolidated financial statements.

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, Leases ("ASU 2016-02") which establishes new accounting and disclosure requirements for leases. ASU No. 2016-02 requires recognition in the statement of operations of a single lease cost, calculated so that the cost of the lease is allocated over the lease term, generally on a straight-line basis. ASU 2016-02 requires classification of all cash payments within operating activities in the statement of cash flows. Disclosures are required to provide the amount, timing and uncertainty of cash flows arising from leases. The Company will adopt the provisions of ASU 2016-02 in the quarter beginning January 1, 2022, using the modified retrospective approach and will record right of use assets and lease liabilities on its consolidated balance sheet for the leases with terms in excess of one year. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. The Company adopted this standard on January 1, 2022, for which, there was no material impact to the Company's consolidated financial statements.

The Company does not believe that any other recently issued but not yet effective accounting pronouncements will have a material effect on the accompanying consolidated financial statements.

Note 3 – Property and Equipment, net

Property and equipment are recorded at historical cost and consist of the following:

	December 31, 2021	December 31, 2020
Lab equipment	$ 740,963	$ 735,714
Leasehold improvements	74,390	74,390
Office equipment	5,896	-
Other	3,325	-
	824,574	810,104
Less: accumulated depreciation	(559,307)	(472,863)
	$ 265,267	$ 337,241

Depreciation expense amounted to $86,444 and $108,759 for the years ended December 31, 2021, and 2020, respectively.

Note 4 – Accrued Expenses

Accrued expenses consist of the following:

	December 31, 2021	December 31, 2020
Accrued interest	216,073	100,031
Other	95,332	23,608
	$ 311,405	$ 123,639

Note 5 – Fair Value Measurements

The accounting guidance defines fair value, establishes a consistent framework for measuring fair value and requires disclosure for each major asset and liability category measured at fair value on either a recurring or non-recurring basis. Fair value is defined as an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, the accounting guidance establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1: Observable inputs such as quoted prices in active markets.

Level 2: Inputs, other than the quoted prices in active markets that are observable either directly or indirectly.

Level 3: Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The following table summarizes fair value measurements by level on December 31, 2021 of the Company's assets measured at fair value on a recurring basis:

		Fair Value Measurements Using		
	Fair Value	Level 1	Level 2	Level 3
Cash and cash equivalents	$ 60,021	$ 60,021	$ -	$ -
Marketable securities	5,933,364	5,933,364	-	-
Total financial assets	$ 5,993,385	$ 5,993,385	$ -	$ -

The Company determines fair value for cash equivalents and marketable securities with Level 1 inputs through the reference to the quoted market prices.

There were no assets or liabilities measured at fair value on December 31, 2020.

The table below presents the changes in Level 3 liabilities measured at fair value on a recurring basis (See Note 8).

	Convertible Notes
Balance at December 31, 2020	$ -
Issuance of Amended Notes (Note 8)	3,168,236
Change in fair value of convertible notes	195,962
Fair value of convertible notes at IPO date	(3,364,198)
Balance at December 31, 2021	$ -

At the IPO date, the Amended Notes were converted into 641,895 shares of common stock (see Note 8). The interest expense of $89,239 for the period between the date of the Conversion Agreements related to the Amended Notes (see Note 7) and December 31, 2021, is included in the change in fair value of the Amended Notes.

There are no assets or liabilities measured at fair value on a non-recurring basis during the years ended December 31, 2021, and 2020.

Note 6 – Stock Option Plan

The Company's 2014 Equity Incentive Plan (the "2014 Plan") permits the grant of options for its common stock and shares of common stock to its employees, board members and consultants for up to 3,500,000 shares.

As of December 31, 2021, there were 2,581,085 shares available for future issuance under the Plan. Generally, option awards are granted with an exercise price equal to the fair value of the Company's stock at the date of grant and vest over a period of four years. No option may have a term in excess of ten years from the option grant date. Share awards generally vest over a period of four years. Certain option and share awards provide for accelerated vesting if there is a change in control (as defined by the 2014 Plan). The weighted average grant date fair value of options granted in 2021 was $1.15 per share. No option awards were granted in 2020.

The stock option activity for the year ended December 31, 2021 is as follows:

	Number of Options	Weighted-Average Exercise Price per Share	Weighted Average Remaining Contractual Term (in Years)
Outstanding as of December 31, 2020	818,915	$ 1.77	6.52
Granted	100,000	$ 2.52	
Exercised	-	-	
Cancelled/Forfeited	-	-	
Outstanding of December 31, 2021	918,915	$ 2.09	5.79
Exercisable at December 31, 2021	918,288	$ 2.09	5.79

During the years ended December 31, 2021 and 2020, the Company recorded $333,978 and $20,210 of stock-based compensation associated with granted and vested stock options, respectively. As of December 31, 2021, there was $2,772 of unrecognized compensation expense related to unvested share-based compensation awards, which will be recognized over approximately 1.3 years.

Note 7 – Related Party Transactions

As of December 31, 2021, and 2020, the outstanding amount due to Daniel Jones, the Company's Chief Executive Officer, was $0 and $26,000, respectively, relating to a series of non-interest-bearing demand loans to us. The loans were repaid in the year ended December 31, 2021, with a portion of the net proceeds from the IPO.

Daniel Jones also made non-interest-bearing demand loans to the Company in the amounts of $90,000 and $50,000 on July 30, 2021 and August 20, 2021, respectively. Both loans were repaid in full with proceeds from the IPO.

At December 31, 2021 and 2020, the Company had the following outstanding payables, which are included within the Company's accounts payable above, to its preferred shareholders for past services:

	December 31, 2021	December 31, 2020
Floral Finance	$ -	$ 9,849
Genomic Diagnostic Technologies	23,725	16,675
St. Laurent Institute	313,679	113,954
St. Laurent Realty, Inc.	27,913	27,913
Stonemill Center	-	16,627
William St. Laurent	-	15,415
Total related party payables	$ 365,317	$ 200,433

William C. St. Laurent, a former member of the Company's board of directors, relatives of Mr. St. Laurent and entities controlled by the St. Laurent family are controlling shareholders of the Company. These entities are all St. Laurent family-owned entities and are therefore related parties: St. Laurent Realty, Inc. and Genomic Diagnostic Technologies assisted the Company by previously providing corporate accounting support; St. Laurent Institute, a 501C-3 company, provided bioinformatics specialist support for certain sequencing services; Stonemill Center assisted the Company by paying for certain out of pocket expenses incurred by William C. St. Laurent in his former role as Chairman of the Board for the Company; and William C. St. Laurent as the former Chairman of the Board accrued Director's compensation was paid by the Company prior to December 31 ,2021.

The Company issued convertible notes and promissory notes to the related parties (see Note 8).

Note 8 – Notes Payable

The Company entered into a series of convertible promissory notes (the "Convertible Notes") through April 8, 2019, with certain preferred stockholders amounting to $905,000.

The Convertible Notes had a one-year term and accrued interest at 10% per annum. The Convertible Notes were convertible at the lower of $3.10 per share or a 20% discount to the share price paid by the purchasers of equity securities in the Company's next Qualified Financing, as defined in the convertible note agreement.

From April 29, 2019, to April 29, 2020, the Company entered into a series of non-convertible promissory notes (the "Promissory Notes") with a certain preferred stockholder amounting to $1,375,000. The Promissory Notes had a one-year term with interest accruing at 10% per annum.

In November and December 2020, the Company issued senior secured convertible promissory notes (included in the Convertible Notes) to a third-party investor amounting to $200,000. These notes accrued interest at 10% per annum, were to be repaid at the earlier of December 31, 2022, or the Company's next qualified financing of a minimum of $7.5 million (as defined in the notes agreement), or convertible at $3.75 per share.

On December 31, 2020, the Company issued a non-convertible promissory note to St. Laurent Investments LLC amounting to $426,020 due July 31, 2022, bearing 10% interest per annum in exchange for the accrued interest on all their notes outstanding.

From January to March 2021, the Company issued senior secured convertible promissory notes to investors for total proceeds of $250,000. The Convertible Notes accrued interest at 10% per annum, matured at the earlier of December 31, 2022, or the Company's next qualified equity offering of a minimum of $7.5 million, and were convertible at $3.75 per share.

On February 3, 2021, the preferred stockholder and the holder of $2,910,710 in the Convertible Notes and Promissory Notes of the Company granted the Company an extension on all their notes to be repaid on or before July 31, 2022. This amendment was accounted for on a prospective basis under the troubled debt restructuring guidance.

In March 2021, the Company entered into a series of agreements with the noteholders to automatically convert $786,730 in outstanding Promissory Notes and $1,305,000 in Convertible Notes (together, "Amended Notes"), to common stock upon the closing of the IPO ("Conversion Agreements"), of which $1,552,683 is held by St. Laurent Investments, LLC and its affiliates. Under the terms of the conversion agreements, $826,020 and $1,265,710 in Amended Notes were to be converted at the closing of the IPO based on the $3.75 and $3.10 conversion prices, respectively. Since the automatic conversion could result in a material benefit to the noteholders, this amendment was deemed substantive and was accounted for as an extinguishment of debt. Accordingly, the Company recognized a loss on extinguishment of debt totaling $934,257 in the consolidated statement of operations in March 2021, which represents the excess of the fair value of the Amended Notes totaling $3,118,235 over their carrying value of $2,183,978. The Company elected the option to account for the Amended Notes at fair value, with the changes in fair value recognized in the statement of operations. The fair value of the Amended Notes was estimated using probability weighted expected payouts under various settlement scenarios, discounted to their present value based on the estimated effective rate of return.

On April 29, 2021, the Company entered into an agreement with a noteholder to automatically convert an additional $50,000 in outstanding Amended Notes, including any accrued interest, to common stock upon the closing of the IPO at the conversion price of $3.75 per share.

At the IPO date, the Amended Notes automatically converted based on their original terms into 641,895 shares of common stock. The fair value of the Amended Notes of $3,364,198 immediately prior to the conversion, less $141,884 cash payment related to the accrued interest, was reclassified into the additional paid in capital on the condensed consolidated balance sheet. The fair value of the Amended Notes at the conversion date was estimated based on the fair value of the common stock issued upon the conversion.

The Company recognized $195,962 loss due to the change in fair value of the Amended Notes between the amendment date and their conversion at the IPO date.

In October 2021, the Company entered into an agreement with St. Laurent Investments LLC to reduce the interest on $1,375,000 in the Promissory Note from 10% to 5% per year starting on October 1, 2021. The Company accounted for this transaction as a modification on a prospective basis.

In October 2021, the Company repaid $270,000 of the Promissory Notes to William C. St Laurent in cash.

In connection with all the Convertible Notes and Promissory Notes issued during 2021 and 2020, the Company issued warrants to noteholders to purchase the total of 66,665 and 53,333 shares of the Company's common stock, including 11,466 to the placement agent (see Note 10). The grant-date fair values of these warrants were immaterial.

For the years ended December 31, 2021, and 2020, interest expense related to both convertible and non-convertible promissory notes was $208,289 and $287,197, respectively.

Note 9 – Preferred Stock

The Company had outstanding preferred stock as of December 31, 2020:

	Shares authorized	Shares issued	Issuance price per share
Series A-1 Convertible Preferred Stock		3,125,000	$ 0.32
Series A-2 Convertible Preferred Stock		2,666,665	$ 1.68
Series A Preferred stock	**20,000,000**	**5,791,665**	

The Series A-1 Preferred Stock ("Series A-1") and Series A-2 Preferred Stock ("Series A-2") collectively the "Preferred Stock", could be converted at any time at the election of the holder into common stock at an initial conversion price determined by dividing the Series A-1 original issue price of $0.59, as amended, by the Series A-1 conversion price of $0.59; and the Series A-2 original issue price of $3.10, as amended, by the Series A-2 conversion price of $3.10; both were subject to adjustment for stock splits, stock combinations and the like, and to a weighted-average adjustment for future issuances of common stock, warrants or rights to purchase common stock or securities convertible into common stock for a consideration per share that is less than the then-applicable conversion price, subject to certain exceptions listed in the Charter.

The Preferred Stock was subject to automatic conversion upon (i) the closing of an initial public offering of the common stock at a price per share equal to at least $9.25 (as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalization or the like) in an underwritten public offering in which the Company raised gross proceeds of at least $10 million or (ii) the consent of holders of at least a majority of the then-outstanding shares of Preferred Stock voting together as a single class.

In connection with the IPO, all of the outstanding shares of the Company's convertible preferred stock automatically converted into 3,130,622 shares of common stock.

Note 10 – Common Stock Warrants

On March 16, 2021, the Company made a down payment to ShareIntel-Shareholder Intelligence Services, LLC for anticipated services connected to the Company's planned offering, which was in the form of issuing 9,865 warrants to purchase common stock at $4.10 per share, with an expiration date of June 30, 2024. The warrants are exercisable starting at their issuance dates.

On August 31, 2021, the Company sold an aggregate of 3,060,000 units at a price to the public of $4.25 per unit, each unit consisting of one share of the Company's common stock and a warrant to purchase one share of common stock at an exercise price of $4.25 per share. In addition, pursuant to the Underwriting Agreement, the Company granted the Underwriter a 45-day option to purchase up to 459,000 additional shares of common stock, and/or 459,000 additional warrants, to cover over-allotments in connection with the Offering. The Underwriter partially exercised this option and purchased 459,000 warrants on the closing date at $0.01 per Warrant, for the total proceeds of $4,590. These warrants are exercisable at any time from the issuance date at $4.25 for common stock shares and have a five-year term. The warrants may be exercised for cash or through cashless exercise.

The Company may redeem the outstanding warrants, in whole and not in part, at $0.001 per warrant if, after thirteen months from the issuance date, (i) the daily volume weighted average price of the Common Stock for each of 10 consecutive trading days (Measurement Period) exceeds $12.75 (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and the like after the issuance date), (ii) the average daily volume for such Measurement Period exceeds $1,000,000 per Trading Day and (iii) the holders of warrants are not in possession of any information that constitutes, or might constitute, material non-public information which was provided by the Company, any of its Subsidiaries, or any of their officers, directors, employees, agents or Affiliates.

Pursuant to the Underwriting Agreement, on August 31, 2021, and September 29, 2021, the Company also issued to the Underwriter warrants to purchase up to a total of 162,450 shares of common stock as a compensation for their services. These warrants are exercisable at any time from the issuance date at $4.675 per share of common stock and have a term of five years through August 26, 2026. The total fair value of the warrants granted to the Underwriter was $1,642,486 at the issuance date. The Company estimated the fair value of the warrants using the Black-Scholes option pricing model based on the following assumptions:

Risk-free interest rate	0.77% - 1.01%
Expected life	5 years
Dividend yield	0%
Volatility	67%

The following table summarizes information with regard to outstanding warrants to purchase common stock as of December 31, 2021.

Issuance Date	Number of Shares Issuable Upon Exercise of Outstanding Warrants	Exercise Price	Expiration Date
5/4/2017	3,860	$ 3.10	5/3/2022
6/14/2017	1,351	$ 3.10	6/13/2022
8/30/2018	3,088	$ 3.10	8/29/2023
9/30/2018	60,506	$ 3.10	9/29/2023
9/30/2018	486,486	$ 2.16	9/29/2023
10/17/2018	1,157	$ 3.10	10/16/2023
11/2/2018	964	$ 3.10	11/1/2023
11/9/2018	964	$ 3.10	11/8/2023
11/16/2018	964	$ 3.10	11/15/2023
11/29/2018	964	$ 3.10	11/28/2023
12/21/2018	964	$ 3.10	12/20/2023
12/27/2018	964	$ 3.10	12/26/2023
1/31/2019	1,930	$ 3.10	1/30/2024
2/7/2019	1,640	$ 3.10	2/6/2024
2/21/2019	1,640	$ 3.10	2/20/2024
3/20/2019	3,378	$ 3.10	3/18/2024
4/8/2019	1,930	$ 3.10	4/6/2024
11/19/2020	53,333	$ 4.10	6/30/2024
11/19/2020	8,533	$ 4.10	6/30/2024
1/8/2021	13,333	$ 4.10	6/30/2024
1/11/2021	26,666	$ 4.10	6/30/2024
2/13/2021	13,333	$ 4.10	6/30/2024
3/16/2021	10,665	$ 4.10	6/30/2024
3/16/2021	13,333	$ 4.10	6/30/2024
8/31/2021	3,519,000	$ 4.25	8/31/2026
8/31/2021	153,000	$ 4.675	8/26/2026
9/29/2021	9,450	$ 4.675	8/26/2026
	4,393,396		

Note 11 – Marketable Securities

The cost and fair value of marketable securities were $5,976,442 and $5,933,364 as of December 31, 2021, respectively, resulting in $43,078 unrealized loss.

The Company's investment income amounted to $36,463 and $0 for the years ended December 31, 2021, and 2020, respectively, included in the investment income on the consolidated statement of operations.

Note 12 – PPP Loan

On May 5, 2021, and May 7, 2020, the Company applied for and received a loan for $190,100 in each year in connection with the Paycheck Protection Program ("PPP") pursuant to the CARES Act that was signed into law on March 27, 2020.

The loans have a term of 5 years, are unsecured, and are guaranteed by the Small Business Administration. The loans bear interest at one percent per annum, with the first six months of interest and principal deferred. Some or all of the loans may be forgiven if at least 60% of the loans' proceeds are used by the Company to cover payroll costs, including benefits, and if the Company maintains its employment and compensation within certain parameters during the period following the loans' origination dates and comply with other relevant conditions.

The Company elected to account for the PPP loans as in-substance government grants by applying the guidance in IAS 20 by analogy based on the assessment that it is probable that it will meet both (a) the eligibility criteria for a PPP loans, and (b) the loan forgiveness criteria for all or substantially all of the PPP loans. Under this guidance, the Company recorded the loan proceeds in Other income in the consolidated statement of operations for the years ended December 31, 2021 and 2020.

As of December 31, 2021, the Company has been forgiven for its PPP loan that was incurred on May 7, 2020.

Note 13 - Income Taxes

The Company is subject to United States federal and Massachusetts state income taxes at an approximate combined rate of 29% in 2021. During the years ended December 31, 2021 and 2020, there was no provision for income taxes as the Company incurred losses during both periods. The primary component of the Company's deferred tax assets are its net operating loss carryforwards. At December 31, 2021, the Company has a federal and state net operating loss carryforward of approximately $14,701,000 and $14,749,000, respectively, which begins expiring in 2034. The Company's 2018 and after federal net operating losses can be carried forward indefinitely.

The valuation allowance against deferred tax assets was approximately $4.3 million and $3.2 million as of December 31, 2021, and 2020, respectively. During the years ended December 31, 2021, and 2020, the valuation allowance increased by approximately $1.2 million and $0.4 million, respectively.

As of December 31, 2021, the Company did not maintain any foreign subsidiaries and did not have previously deferred foreign earnings subject to the transition tax.

The income tax benefit differs from the amount of income tax determined by applying the U.S. federal income tax rate to pretax income for the years ended December 31, 2021 and 2020 due to the following:

	2021	2020
Computed "expected" tax benefit	(21.0)%	(21.0)%
Increase (decrease) in income taxes resulting from:		
State taxes, net of federal benefit	(8.0)%	(8.0)%
Permanent differences	0%	0%
Increase in valuation reserve	29.0%	29.0%
	0%	0%

Note 14 – Commitments and Contingencies

In November 2014, the Company entered an office space lease in Woburn, Massachusetts (the "Lease"), which is considered the Company's corporate headquarters, which was extended through November 30, 2020, and then subsequently further on a month-to-month basis until a notice by either of the parties. This lease is accounted for as a short-term lease with the expense recognized on a monthly basis when incurred. The rent expense for this lease was $216,860 and $180,732 for the years ended December 31, 2021 and 2020, respectively.

On September 15, 2018, the Company executed an agreement to guarantee of the obligations of John W. Kennedy, our Chief Financial Officer, on a lease for Mr. Kennedy's housing. The annual rental amount due on the lease is $32,400 and was paid by Mr. Kennedy for each of the years ended December 31, 2021 and 2020. At December 31, 2021 and 2020, the Company had no obligations either anticipated or currently payable under the guarantee.

Note 15 – Subsequent Events

On January 11, 2022, the Company converted its marketable securities with a cost basis of $5,988,462 to cash equivalents. The Company realized a loss associated with this conversion of its marketable securities in the amount of $106,294.

On January 13, 2022, the Company issued 1,085,000 stock options. These stock options expire five years from the grant date, vest over a period of three to four years, and have an exercise price of $1.73.

On February 2, 2022, the Company entered into a new lease agreement for approximately 15,538 square feet of corporate office space in Billerica, Massachusetts. The lease has a term of 86 months, with the first two months of rent being $0, and subsequently escalating from $14,317 per month to $26,453 per month over the lease term.

Exhibit 4.1

DESCRIPTION OF THE COMPANY'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

SeqLL Inc. ("we," "us," or "our company) has two classes of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"): (i) our common stock and (ii) our publicly-traded warrants (the "Warrants").

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to the complete text of our Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation"), and our Amended and Restated Bylaws (the "Bylaws"), each of which are incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.1 is a part. We encourage you to read our Certificate of Incorporation, the Certificate of Designations, our Bylaws and the applicable provisions of the General Corporation Law of the State of Delaware (the "DGCL"), Title 8 of the Delaware Code for additional information.

Our authorized capital stock consists of 80,000,000 shares of common stock, par value $0.00001 per share (our "common stock"), and 20,000,000 shares of undesignated preferred stock, par value $0.00001 per share.

Common Stock

Dividend Rights

Subject to the rights of any holders of any outstanding shares or series of preferred stock, holders of common stock are entitled to the payment of dividends when and as declared by our board of directors in accordance with applicable law and to receive other distributions.

Voting Rights

Except as provided by law or in a preferred stock designation, holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the stockholders, have the exclusive right to vote for the election of directors and do not have cumulative voting rights. Except as otherwise required by law, holders of common stock are not entitled to vote on any amendment to the Certificate of Incorporation (including any certificate of designations relating to any series of preferred stock) that relates solely to the terms of any outstanding series of preferred stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation (including any certificate of designations relating to any series of preferred stock) or pursuant to the DGCL.

Liquidation Rights

Subject to the rights of any holders of any outstanding shares or series of preferred stock, in the event of any liquidation, dissolution or winding up of our affairs, whether voluntary or involuntary, our funds and assets, to the extent they may be legally distributed to holders of common stock, shall be distributed among the holders of the then outstanding common stock pro rata in accordance with the number of shares of common stock held by each such holder.

Other Rights and Preferences

All outstanding shares of common stock are fully paid and non-assessable. The holders of common stock have no pre-emptive or other subscription rights.

Classification of the Board of Directors

Our Certificate of Incorporation divide our board of directors into three classes, as nearly equal in number as possible, with staggered three-year terms. Under our Certificate of Incorporation and our Bylaws, any vacancy on our board of directors, including a vacancy resulting from an enlargement of our board of directors, may be filled only by the affirmative vote of a majority of our directors then in office, even though less than a quorum of the board of directors.

Stock Exchange Listing

Our common stock is traded on the NASDAQ Capital Market under the symbol, "SQL."

Anti-Takeover Effects of Provisions of Our Certificate of Incorporation and our Bylaws

Some provisions of Delaware law, our Certificate of Incorporation and our Bylaws contain provisions that could make the following transactions more difficult: an acquisition of us by means of a tender offer; an acquisition of us by means of a proxy contest or otherwise; or the removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions which provide for payment of a premium over the market price for our shares.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-Takeover Law

We are subject to Section 203 of the DGCL. Section 203 generally prohibits a publicly traded corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding specified shares; or
- at or subsequent to the date of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66⅔% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a "business combination" to include:

- any merger or consolidation involving the corporation and the interested stockholder;
- any sale, lease, exchange, mortgage, pledge, transfer or other disposition of 10% or more of the assets of the corporation to or with the interested stockholder;

- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an "interested stockholder" as any person that is:

- the owner of 15% or more of the outstanding voting stock of the corporation;

- an affiliate or associate of the corporation who was the owner of 15% or more of the outstanding voting stock of the corporation at any time within three years immediately prior to the relevant date; or

- the affiliates and associates of the above.

Under specific circumstances, Section 203 makes it more difficult for an "interested stockholder" to effect various business combinations with a corporation for a three-year period, although the stockholders may, by adopting an amendment to the corporation's certificate of incorporation or bylaws, elect not to be governed by this section, effective 12 months after adoption.

Our Certificate of Incorporation and Bylaws do not exclude us from the restrictions of Section 203. We anticipate that the provisions of Section 203 might encourage companies interested in acquiring us to negotiate in advance with our board of directors since the stockholder approval requirement would be avoided if a majority of the directors then in office approve either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder.

Undesignated Preferred Stock

The ability of our board of directors, without action by the stockholders, to issue up to 20,000,000 shares of undesignated preferred stock with voting or other rights or preferences as designated by our board of directors could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Stockholder Meetings

Our Bylaws provide that a special meeting of stockholders may be called only by our chairman of the board, chief executive officer or president, or by a resolution adopted by a majority of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our Bylaws establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our Certificate of Incorporation and Bylaws do not allow stockholders to act by written consent without a meeting.

Removal of Directors

Our Certificate of Incorporation provides that no member of our board of directors may be removed from office by our stockholders except for cause and, in addition to any other vote required by law, upon the approval of not less than two-thirds of the total voting power of all of our outstanding voting stock then entitled to vote in the election of directors.

Staggered Board

Our Certificate of Incorporation provides for a staggered board of directors whereby directors serve staggered three-year terms.

Stockholders Not Entitled to Cumulative Voting

Our Certificate of Incorporation does not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of our common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of our preferred stock may be entitled to elect.

Choice of Forum

Our Certificate of Incorporation provides that, unless we consent in writing to the selection of an alternative form, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for the following types of actions or proceedings under Delaware Statutory or Common law: (1) any derivative action or proceeding brought on our behalf; (2) any action asserting a claim of breach of a fiduciary duty or other wrongdoing by any of our directors, officers, employees or agents to us or our stockholders; (3) any action asserting a claim against us arising pursuant to any provision of the DGCL or our amended and restated certificate of incorporation or amended and restated bylaws; or (4) any action asserting a claim governed by the internal affairs doctrine. Our Certificate of Incorporation also provides that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of and to have consented to this choice of forum provision. It is possible that a court of law could rule that the choice of forum provision contained in our amended and restated certificate of incorporation is inapplicable or unenforceable if it is challenged in a proceeding or otherwise. This choice of forum provision has important consequences to our stockholders.

Amendment Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, would require approval by holders of at least 66⅔ of the total voting power of all of our outstanding voting stock.

The provisions of the DGCL, our Certificate of Incorporation and our Bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of our board and management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

DESCRIPTION OF WARRANTS

The following summary of certain terms and provisions of the warrants we registered under Section 12 of the Exchange Act (the "Warrants") is not complete and is subject to, and qualified in its entirety by the provisions of the Warrant Agency Agreement between the Warrant Agent (as defined below) and us and the form of warrant attached thereto, which is incorporated by reference as an exhibit to the Annual Report on Form 10-K of which this Exhibit 4.1 is a part. We encourage you to read the Warrant Agency Agreement and the form of Warrant attached as an exhibit thereto for additional information.

Exercisability

The Warrants are exercisable at any time up to August 31, 2026. The Warrants will be exercisable, at the option of each holder, in whole or in part by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of common stock purchased upon such exercise. Each Warrant entitles the holder thereof to purchase one share of common stock. Warrants are not exercisable for a fraction of a share and may only be exercised into whole numbers of shares. In lieu of fractional shares, we will, pay the holder an amount in cash equal to the fractional amount multiplied by the exercise price and round down to the nearest whole share. Unless otherwise specified in the Warrant, the holder will not have the right to exercise the Warrants, in whole or in part, if the holder (together with its affiliates) would beneficially own in excess of 4.99% (or 9.99% at the holder's election) of the number of our shares of common stock outstanding immediately after giving effect to the exercise, as such percentage is determined in accordance with the terms of the Warrant. However, any holder may increase or decrease such percentage to any other percentage not in excess of 9.99% upon at least 61 days' prior notice from the holder to us.

Exercise Price

The exercise price per share of common stock purchasable upon exercise of the Warrants is $4.25 per share, and is subject to adjustments for stock splits, reclassifications, subdivisions, and other similar transactions. In addition to the exercise price per share of common stock, and other applicable charges and taxes are due and payable upon exercise.

Redemption

The Warrants are callable by us in certain circumstances. Subject to certain exceptions, if, after September 30, 2022, (i) the volume weighted average price of our common stock for 10 consecutive trading days (the "Measurement Period"), which Measurement Period commences after 13 months from the date hereof, exceeds 300% of the exercise price (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and similar transactions after the initial exercise date), (ii) the average daily trading volume of our common stock for such Measurement Period exceeds $1,000,000 per trading day, and (iii) the warrant holder is not in possession of any information that constitutes or might constitute, material non-public information which was provided by us, and subject to the beneficial ownership limitation described above, then we may, within one trading day of the end of such Measurement Period, upon notice to the holders of the Warrants (a "Call Notice"), call for cancellation of all or any portion of the Warrants for which a notice of exercise has not yet been delivered, or a Call, for consideration equal to $0.001 per warrant share. Any portion of a Warrant subject to such Call Notice for which a notice of exercise shall not have been received by us on the Call Date will be cancelled at 6:30 p.m. (New York City time) on the thirtieth day after the date the Call Notice is received by the holder (such date and time, the "Call Date"). Our right to call the Warrants will be exercised with respect to all of the then issued and outstanding Warrants.

Warrant Agent

The Warrants were issued in registered form under a warrant agency agreement between VSTOCK Transfer LLC, as warrant agent (the "Warrant Agent"), and us. The Warrant Agent's address is 18 Lafayette Place, Woodmere, NY 11598 and its telephone number is (212) 828-8436.

Stock Exchange Listing

The Warrants traded on the NASDAQ Capital Market under the symbol, "SQLW."

Rights as a Shareholder

Except by virtue of such holder's ownership of our common stock, the holder of Warrants does not have rights or privileges of a shareholder, including any voting rights, until the holder exercises such Warrant.

Exhibit 22

Subsidiaries

Name	Jurisdiction	Percentage Ownership
SeqLL LLC	Massachusetts	100%

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement on Form S-8 (No. 333-263670) of SeqLL Inc. of our report dated March 23, 2022, relating to the consolidated financial statements of SeqLL Inc., appearing in the Annual Report on Form 10-K for the year ended December 31, 2021.

/s/ Wolf & Company, P.C.

Wolf & Company, P.C.
Boston, Massachusetts
March 23, 2022

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, Daniel Jones, certify that:

1. I have reviewed this Annual Report on Form 10-K of SeqLL Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13-a13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures; and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 23, 2022

/s/ Daniel Jones
Daniel Jones
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, John W. Kennedy, certify that:

1. I have reviewed this Annual Report on Form 10-K of SeqLL Inc. (the "Registrant");

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13-a13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures; and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 23, 2022

/s/ John W. Kennedy
John W. Kennedy
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of SeqLL Inc. (the "Company") for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Daniel Jones, Chairman and Chief Executive Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of, and for, the periods presented in the Report.

Dated: March 23, 2022

By: /s/ Daniel Jones
Daniel Jones
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of SeqLL Inc. (the "Company") for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, John W. Kennedy, Chief Financial Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company as of, and for, the periods presented in the Report.

Dated: March 23, 2022

By: /s/ John W. Kennedy
John W. Kennedy
Chief Financial Officer
(Principal Financial Officer)