Forward-looking statements

Except for historical information, matters set forth in this presentation, including statements regarding Sequenom’s plans, potential, opportunities, financial or other expectations, projections, goals, objectives, milestones, strategies, market growth, timelines, product pipeline, clinical studies, product development, and the potential benefits of its products and products under development, are forward-looking statements within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995.

These forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially, including the risks and uncertainties associated with Sequenom’s operating performance and financial position, the market demand for and acceptance of Sequenom’s and Sequenom Laboratories’ products and services, research, development and commercialization of new products, reliance upon the collaborative efforts of others, competition, intellectual property rights, government regulation, obtaining or maintaining regulatory approvals, litigation, and other risks detailed in Sequenom’s SEC filings.

These forward-looking statements are based on current information that is likely to change, speak only as of the date hereof, and Sequenom undertakes no obligation to revise or update such statements.
Sequenom Laboratories at a glance

Circulating cell-free DNA
Noninvasive prenatal testing, oncology, transplantation, and autoimmune

Full service laboratory
Leader in commercial-scale next-gen sequencing; > 500k tests accessioned

Comprehensive portfolio
Most advanced offerings of genetic testing solutions for clinicians and their patients

Channel strength
Trusted clinical partner serving women’s health physicians with dedicated customer service, genetic counselors, and medical directors
Sequenom evolution
From research to commercial

[ 2011 ]
NIPT innovator
- Clinical validation of NIPT
- Launched MaterniT® 21 PLUS laboratory-developed test (LDT)
- Gained positive technology assessments

[ 2014 ]
Focused operation
- Divested biosciences business

Growing portfolio
- MaterniT® 21 PLUS Enhanced Sequencing Series, VisibiliT™, HerediT® UNIVERSAL, HerediT® CF and NextView® LDTs

[ Now ]
Expanded access
- Broad partnership and licensing agreements in US, EU + Asia

NIPT licensing pool
- Established global patent pool with Illumina for broad NIPT technology access

Growth programs
- Women’s health + oncology
  - MaterniT® GENOME LDT
  - Average-risk NIPT
  - Liquid biopsy ctDNA technology, RUO assay
2016 turnaround initiatives: restoring growth, reducing costs

Restoring growth
- New products and new channels already showing growth
- Expanded commercial strategy
- Customer experience program to accelerate commercial strategy

Cost reductions
- Consolidated North Carolina operations into San Diego operations
- COGS per unit reduced > 20% since Q4 2015
- Efficiency, productivity and cost focus: > $20 MM savings annually

Refinance convertible notes
Enabling the global market

- Leveraging patent pool agreement to enable NIPT globally
- Revenue realized with every test
- Substantial future value

PATENT POOL CONTENT

- The patent pool combines critical NIPT patents and patent applications
  - Sequenom controlled over 225
  - Illumina controlled over 200

GLOBAL LICENSES

- 46 companies globally as of 3/31/16 granted licenses to the patent pool, including Sequenom Laboratories and Verinata
- 25 licensees currently performing tests
Reproductive health worldwide: $5B by 2020

- $3B global NIPT*
  - Average-risk, U.S.
    - 3.5M pregnancies in 2015
  - High-risk, U.S.
    - 750K pregnancies in 2015

- $2B**
  - Carrier screening

- $5B
  - Sequenom Laboratories addressable market

- Other reproductive health

*Citi research May 2015. **Sequenom estimate
Sequenom Laboratories current genetic testing portfolio
Testing options for all stages of all pregnancies

- **HerediT® UNIVERSAL**
  Carrier screen that detects > 250 disorders

- **HerediT® CF**
  Carrier screen that detects > 136 cystic fibrosis mutations

- **MaterniT® GENOME**
  Genome-wide NIPT for fetal aneuploidies

- **MaterniT® 21 PLUS**
  NIPT for select fetal whole chromosome aneuploidies and 7 select microdeletions

- **VisibiliT™**
  NIPT for risk assessment of fetal chromosomes 21 and 18

- **SensiGene® RHD**
  RhD genotype in RhD-sensitized mothers

- **NextView®**
  CVS and amniocentesis

- **Newborn + pediatric**
  Opportunity for further expansion
Patient experience

Our focus is multi-faceted and a high priority in the business

- Patient researches: Consumer education
- Patient visits office: Medical education + society support
- Doctor recommends test: Patient support materials
- Patient has blood drawn: Multiple phlebotomy access options
- Sample is shipped: Logistical support + online tracking
- Patient receives results: Genetic counseling services
- Patient receives bill: Patient assistance + billing support
Driving growth: best-in-class customer experience

- Website
- Logistics
- Packs
- Lab reports
- Social media/PR
- Patient experience
- Genetic counseling
- Provider portal
Driving growth: maternal fetal medicine channel

Leading this channel

Traditionally: MaterniT® 21 PLUS
- Channel leader
- Professional society guidelines
- Established reimbursement

New: MaterniT® GENOME
- Detects up to 25% more chromosomal abnormalities than traditional NIPTs
- Strong uptake

Clinically relevant enhancements in 2016
- Strategy: maintain leadership in MFM community
- Extensive MaterniT GENOME analytical and clinical validation data
- Further performance enhancements
Driving growth: OB / GYN channel

Opportunity for Sequenom Laboratories

- Superior portfolio – led by MaterniT 21 PLUS
- In-network strategy, > 200 million lives covered
- 26 payors now have positive coverage policies for average-risk pregnancies
- > 500,000 samples processed to date
- Market leader among MFM
- 2 out of 3 MFM use Sequenom NIPT*
- 90% of MFM NIPT users recommend MaterniT 21 PLUS to colleagues for their high-risk patients**
- MFM: opinion leaders with OBs

* Internal Data 2015
** Boston Healthcare Study 2014

OBs: gateway to 3.5 million average-risk pregnancies
Driving growth: OB / GYN channel
Well-positioned to serve this large market

Comprehensive portfolio

- 3 NIPT products
- Average-risk use pulls through high-risk, carrier screening
- Competitive carrier screening solutions
- 75% of carrier screening done at OB call point*

Strategy: invest in the customer experience

- Web portals
- Integration with electronic medical records
- Phlebotomy access
- Genetic counselor support

* Internal Data 2015
Driving growth: in-network strategy

**Sequenom**
- Payors direct care to in-network labs
- Stabilize reimbursement
- Allows for expansion as tests are offered

**Doctors**
- Contractually bound to utilize in-network laboratories
- Penalties and fee reductions with use of out-of-network labs
- Confidently recommend tests to patients

**Patients**
- Typically lower out-of-pocket costs for patients
- Co-insurance is applied towards deductible
- Sequenom Laboratories tests are more broadly available; greater patient choice
MaterniT® GENOME

NIPT game-changer

**Unmet needs**
- Occurrence of sub-chromosomal abnormalities is independent of maternal age

**More content**
- Identifies > 95% of chromosomal anomalies
  - No other NIPT to date has the same depth of content

**Differentiation**
- Industry-leading performance, no-call rate + turnaround time
MaterniT® GENOME

Commercial performance

- All chromosomes
- Microdeletions > 7 Mb
- Launched August 2015
- ~8,000 tests accessioned through Q1 2016
- 453 positive findings
- Continuous improvement
  - Proprietary informatics increase sensitivity for small CNV classification while maintaining best-in-class specificity and PPV
Breadth of MaterniT® GENOME findings

First 281 positives: 170 trisomy 13, 18, or 21
MaterniT® GENOME
Clinical utility

REASONS FOR TESTING

- Advanced maternal age: 48%
- Ultrasound finding: 22.5%
- Multiple reasons: 10%
- Personal/family history: 6%
- Other reasons: 8%
- Abnormal biochemistry: 5.5%

Based on MaterniT GENOME results since launch through Q1 ‘16 (n = 7967)

POSITIVE RESULTS

- Trisomy 13 / 18 / 21: 52%
- MaterniT Genome findings: 30%
- Sex chromosome aneuploidy: 16%
- Microdeletions: 2%

Based on MaterniT GENOME positive results since launch through Q1’16 (n = 453)
Sequenom oncology program

- Most comprehensive ctDNA RUO assay to date (> 130 genes)
- Network of key opinion leaders in the therapy selection and monitoring space
- Data interpretation and delivery solutions
- High sensitivity (< 0.5% mutation frequency) and high specificity > 99.999%
- Investigator initiated studies started
- Study collection for clinical validation started

Combination of CNV and mutation enables superior detection

**Lung cancer stage 1a**

- Tissue
- Blood

**CNV**

- Mutation frequency ~53%
- Mutation frequency ~1%

**MUT**

Mutation frequency ~53%
Mutation frequency ~1%
The power of copy number alteration detection

- Patient diagnosed with stage IV hepatocellular carcinoma
- Cell-free DNA was tested using multiple platforms:
  - SQNM targeted panel: Negative
  - Another commercial targeted panel: Negative
  - SQNM genome-wide CNA assay: Positive

✓ Genome-wide CNA assay may detect alterations consistent with cancer that other assays do not detect
Investigator initiated study – Razelle Kurzrock, UCSD

- Copy number analysis was performed using both genome-wide and targeted sequencing
- Detected genome-wide CNVs in 2/6 samples
  - 601-008: 3 CNV events
  - 601-015: 5 CNV events
- Detected a focal FGFR2 amplification in sample 601-008
Q1 2016 highlights

- 11% NIPT volume growth from Q4 ’15; 10% growth in total volume
- 14% NIPT volume growth over Q1 ’15 adjusted for customer conversions
- Optimized OB sales approach and launched tests into average-risk market
- Introduced best-in-class customer experience program
- Completed North Carolina lab consolidation into San Diego
- Enhanced San Diego lab productivity
- On track for > $20 MM annualized cost reduction goal by Q4 ‘16
- In-network contracts with Anthem in 11 states
- Filed a writ of certiorari petition with the Supreme Court for review of the ‘540 patent
22 Supreme Court amicus briefs

- **Industry Organizations**
  - BIO and PhRMA
  - European Bioindustry Association
  - Global Biotech Associations:
    - U.K., Japan, Switzerland, The Netherlands, Canada, Australia, Scotland

- **Intellectual Property Organizations**
  - New York, Boston and San Diego I.P. Law Associations
  - European-based patent law practitioners
  - 19 Patent Law Professors from Leading U.S. Law Schools

- **Corporate**
  - Eli Lilly
  - Novartis
  - Microsoft
2016 outlook

- Total estimated revenues of $120 MM
  - Includes estimated $10 MM in license fee revenue
- Gross margin trending up; high 40s by Q4 2016
- Estimated cash burn of $30 MM
  - Compared to $25 MM in 2015 and $36 MM in 2014
  - ‘16 burn higher than ‘15 due to NIPT launch in average-risk market
- ‘16 NIPT accessions estimated to grow 9% to 170,000
- Goal: operating cash flow neutral by end of ‘17
Revenue and cash burn

$ Millions

Dx Revenue

2013 2014 2015 2016

$120 $152 $128 $120

Cash Burn

2013 2014 2015 2016

$108 $36 $25 $30

Focused Business:
- Sold Bioscience Unit
- Patent Pool Agreement
- 2016: Expanding in Prenatal Healthcare

Driving Down Costs:
- Consolidation
- COGS
- Efficiency, Productivity

Goal: Neutral Operating Cash Flow Run Rate Q4 ‘17

*Cash burn is cash used in operations, for capital expenditures, and payments on term loans and capital leases. Cash burn excludes the proceeds and payments from the Illumina, ISIS and CUHK transactions in 2014 and 2015.
Total patient samples accessioned

Quarterly Accessioned Tests

- Other Reproductive Health
- Noninvasive Prenatal Test

Q1-2015: 45,400
Q2-2015: 44,400
Q3-2015: 41,000
Q4-2015: 42,200
Q1-2016: 52,800

13% Growth

Other Reproductive Health
Noninvasive Prenatal Test
Pro forma total patient samples accessioned
Without customers that converted to license agreements

**Quarterly Accessioned Tests**

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<tr>
<th>Quarter</th>
<th>Other Reproductive Health</th>
<th>Noninvasive Prenatal Test</th>
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Patent pool with Illumina

- $50 MM paid up front
- $80 MM cumulative royalties 2015–2020
- Royalties continue beyond 2032

*From the patent pool structure based on contractual minimum payments, subject to potential market based adjustments
Driving costs lower

- Rationalized operations to improve business performance
  - Product improvements
  - Process optimizations

- On track to achieving $20M+ of annualized cost savings

* Sequenom estimate
Restoring Sequenom to growth

EXECUTING on COMMERCIAL STRATEGY

RESTORING GROWTH

IMPROVING EFFICIENCY and DRIVING DOWN COSTS
Sequenom Laboratories' laboratory-developed tests were developed and their performance characteristics determined by Sequenom Laboratories. They have not been cleared or approved by the U.S. Food and Drug Administration (FDA). Although laboratory-developed tests to date have not been subject to U.S. FDA regulation, certification of the laboratory is required under CLIA to ensure the quality and validity of the tests. Sequenom Laboratories is accredited and certified to perform high complexity clinical laboratory testing.