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LexaGene is a biotechnology company developing genetic analyzers for pathogen detection and other molecular markers.

- Our patented automated microfluidic technology is designed to be operated at the site of sample collection and can produce **accurate test results in approximately 1 hour**, which is a drastic improvement over the 1-3 day typical turn around time for an offsite reference laboratory to process samples.

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**Corporate Highlights**

- **Public Since**: October of 2016
- **Headquartered**: Near Boston, Massachusetts
- **Current Employees**: 21
- **Capital**
  - 6 financings totaling $18.6M USD
- **Shares Outstanding**: 85,659,300
- **Warrants Outstanding**: 28,375,054
- **Stock Options and RSUs Outstanding**
  - 6,778,850
  - (2,491,000 vested)
- **Exchange**
  - TSX.V: LXG
  - OTCQB: LXXGF

*As of October 29, 2019*
Technology History

- Inventor of the technology: Dr. Jack Regan, LexaGene CEO
- Was the lead author developing LX2 predecessor technology at LLNL for biodefense and public safety
- US Government spent >$20M on predecessor instruments
- Includes instrument adopted by BioWatch Program

LexaGene has **secured an exclusive license to market** its microfluidic technology from Lawrence Livermore National Laboratory
Key Investor Considerations

- Raw Sample In - Answers Out in ~1 hour (vs. 1 – 3 days)
- 98.2% concordance with reference lab data (further improvements expected)
- Low cost/test
- Extremely high margin, razorblade recurring revenue model
- Targeting underserved markets valued at over $40 Billion USD
- 2 Patents issued, 4 pending
- Veterinary Diagnostics ~ $5.4B
- Food Safety ~ $24.4B
- Open-Access Use > $10B
LexaGene’s Microfluidic Technology
LX2™ Genetic Analyzer

Unlike any other sample-to-answer system on the market

**Open-access**
Run customized testing or our validated assays. Open-access feature can be rapidly configured to detect new pathogens.

**Ease-of-use**
Designed for non-technical workers. Simply load the sample and a cartridge onto the instrument and press ‘Go’. No pipetting required.

**Low cost per test**
- Cartridge
- Reagents

**Benefits of Genetic Analysis over Culture**
- Time & Cost saver
- Extreme sensitivity/specificity
- Avoid false positive & negative results
- Test for multiple pathogens
Improved User Experience

Operators can
• Process 2 samples at a time, in an on-demand fashion (48 samples/24 hrs)
• Process various raw sample types
• <1 minute hands-on time (no pipetting)

Fully Automated LX Analyzer
• Concentrates pathogens
• Extracts and purifies
• Screens for 27 pathogens
• Amplifies and analyzes
• Reports and emails PDF results in ~1 hour

Normally done by a skilled molecular biologist… TAKES HOURS!
Addressable Markets
Top Markets Targeted

Veterinary Diagnostics ($5.4B USD by 2024)¹
• Pet diagnostics
• Prevents misdiagnosis, long wait times
• Growing industry, consolidation
• Want improved use of antibiotics

Food Safety ($24.4B USD by 2025)²
• Agricultural Testing ($6.3B USD by 2022)³
  (includes cannabis, hemp, aquaculture testing)
• Concerned with costly recalls, brand damage
• Want to ship fresher, safer product to consumers

FDA changes - mandated testing

Clinical Diagnostics ($12.9B USD by 2025)⁴
• 18K Moderate Complexity CLIA labs in United States⁵
• Pandemic prevention

Other Open-Access Markets
• Water Safety Testing ($3.5B USD by 2019)⁶
• Sample Prep Market ($9.3B USD by 2025)⁷
• PCR Market ($7B USD by 2026)⁸
• Genotyping Market ($11.8B USD⁹
• Pharma, biotech, academic labs, military applications, border crossing, biodefense, cruise ships, etc.

All numbers referenced are global market numbers unless indicated
**Market Drivers - Veterinary Diagnostics**

Point-of-care testing gives vets the ability to **diagnose in 1 hour** rather than waiting 1 - 3 days for results.

- Pet Hospitals ~ 25,000 in the US\(^1\)
- 90 million dogs in the United States\(^2\)
- 95 million cats in the United States\(^3\)
- 5.4 million Urine Sediment Tests run per year in the US\(^4\)
Market Drivers - Food Safety

48 million illnesses due to contaminated food EVERY YEAR in the US\(^1\)

1.1 B tests are performed/year\(^2\)

- Multiple tests run per sample (salmonella, \textit{E.coli}, listeria, etc.)
- More testing required with Food Safety Modernization Act – new rules

Typical food recall costs \(~$30\) million\(^3\)
Open Access Market

2,772 Biotech Companies\(^1\)
(Roche Headquarters)

9,509 Life Sciences Companies\(^1\)
(Illumina Research Park)

173 Universities (>10M in NIH grants)\(^2\)
(Harvard Medical School)

WATER QUALITY TESTING | AGRICULTURAL TESTING | BIO-THREAT | PANDEMIC PREVENTION
Supporting Data & Comparative Studies
**Alpha Prototype Studies**

**UTI comparative study** generated results 97.5% concordant with reference lab data in 107 canine urine samples tested. Antibiotic resistant bacteria detected.

**Romaine lettuce study** detected pathogenic *E. coli*. Both live and dead bacteria detected - huge advantage for food safety testing.

**Gray Mold fungus study** detected *Botrytis cinerea* that causes most yield loss in crops of strawberries, grapes and cannabis.

**Genotyping study** using cheek swabs, generated conclusive data across AKT1 & COMT genes - testing can be used to determine response to a drug, risk of addiction/side effects.

Results generated by LX Analyzer much faster than using a reference lab.
Beta Prototype Studies

Beta Testing results:
- >98% concordant with reference lab data
- Successfully detected *E. coli*, *Proteus*, and *Staph*
- 56% of animals tested did not need antibiotics

“This will completely change what we do and how quickly we do it.”
Rebecca Davies, DVM DACVECC
*Mass Vet Referral Hospital*

“Provided by...”

Asurance Scientific Laboratories
Provides testing for healthcare;
Located in Vestavia, Alabama

Beta Testing:
- Testing urine and other sample types
- Antibiotic resistance factors
- Improved current sample processing methods (manual PCR)

“We are always looking for new technology to help streamline sample processing and analysis.”
Dr. Greer Massey, Director of Molecular Diagnostics
*Assurance Scientific Laboratories*
Beta Prototype Studies continued

- Provides quality and safety testing for hemp-cannabis
- Two of the three accredited cannabis testing laboratories in Massachusetts

Beta Testing:
- Microbial Testing for pathogens like *E.Coli*, toxic fungus, and mold
- Automating manual steps to streamline sample processing methods
- Improve reliability of testing and reduce customization of tests
- Increase efficiency, time savings and safety for human consumption

“These time savings would largely impact our test profit margins in a great way.”
Dr. Brianna Cassidy, Chief Science Officer
*CDX Analytics*

“LexaGene and their new rapid detection platform has the potential to make an impact on testing.”
Dr. Christopher Hudalla, Founder and Chief Scientific Officer
*ProVerde Laboratories*
Financial Section
Recurring Revenue Stream
From Consumables

Disposable Sample Preparation Cartridge

- Razor blade business model
- >90% gross margin per sample tested

Reagent Panels

- Analyzer accepts two reagent panels
- Each panel allows for each sample to be screened for 27 targets plus controls
- Open-access feature allows for customized testing

LX Analyzer draws from a reagent panel using microfluidics to perform tests. Hundreds of samples can be processed per panel.

Single-use cartridge used every time a sample is processed to purify genetic material from the sample.
Objectives for the Next Twelve Months

- Continue **Beta LX2 testing** and publish data
- Build **sales funnel** by expanding beta program to others in vet, food and open-access markets
- Make key **sales and marketing hires**
- Select contract **manufacturer**
- Formalize **first commercial agreements** with clients
- **Start selling** first commercial LX2 product
LexaGene has assembled a **management** team and board with over 192 years of combined experience in developing equipment and research in medical technology and life-science companies.

The team brings **extensive experience** in genetics, microfluidics, food and water safety, infectious disease and diagnostics.

The collective team was involved in the development of **75 patents** and were instrumental in $1.4B of combined M&A activity.
Summary

LexaGene’s disruptive technology meets critical needs of underserved markets

Soon to be first-of-its-kind, on-site pathogen detection system

- Fast turnaround time (~1 hour)
- Anyone can operate - load in seconds
- Great sensitivity and specificity
- Open-access (customizable)
- Low cost per sample tested
### Appendix: References

#### Slide 10:

#### Slide 11:
4. [https://research-doc.credit-suisse.com/docView?language=ENG&format=PDF&document_id=1057479581&source_id=em&serialid=AVM6lPJ1QcDc%2FbWeS%2F0qLDMRB9gg2ruiYKQ8ly%3D](https://research-doc.credit-suisse.com/docView?language=ENG&format=PDF&document_id=1057479581&source_id=em&serialid=AVM6lPJ1QcDc%2FbWeS%2F0qLDMRB9gg2ruiYKQ8ly%3D)

#### Slide 12:
1. [https://www.cdc.gov/foodsafety/foodborne-germs.html](https://www.cdc.gov/foodsafety/foodborne-germs.html)
3. Grocery Manufacturers Association

#### Slide 13: