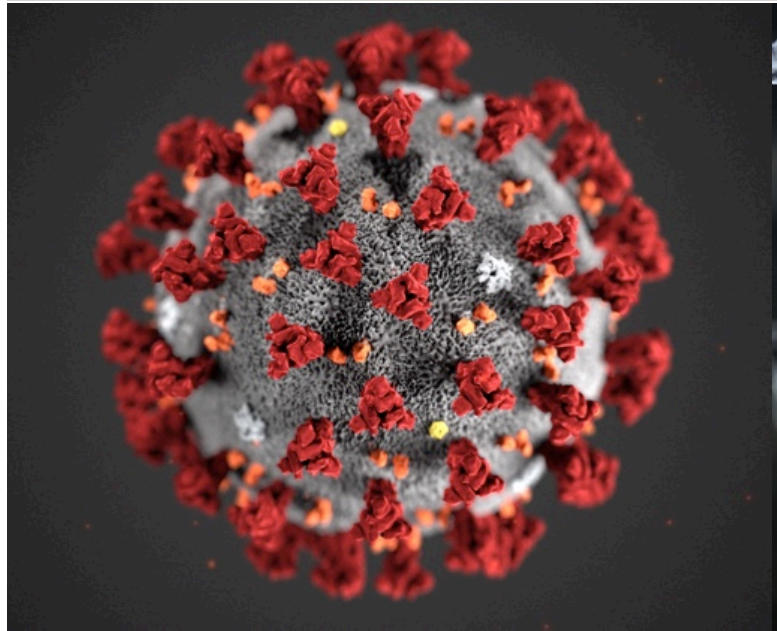
LexaGene

TSX.V: LXG | OTCQB: LXXGF

# AUTOMATED PATHOGEN DETECTION

## Investor Presentation

Q2/2020

# Disclaimer

LexaGene

TSX.V: LXG | OTCQB: LXXGF

This corporate presentation and the information contained herein (the "**Presentation**") is confidential, proprietary and for authorized use only. It is being provided for the use of prospective investors solely for such investors' confidential use, with the express understanding that, without the prior permission in writing from LexaGene Holdings Inc. ("**LexaGene**" or the "**Company**"), the investor will not copy this document or any portion of it or use any information contained herein for any purpose other than evaluating a potential investment in securities of LexaGene. Under no circumstances are its contents to be reproduced or distributed to the public, media or potential investors without written authorization from the Company. Any failure to comply with this restriction may constitute a violation of applicable securities laws. Recipients are required to inform themselves of, and comply with, all such restrictions or prohibitions and LexaGene does not accept liability to any person in relation thereto.

This Presentation provides general background information about the activities of LexaGene. Information disclosed in this Presentation is current as of May 8, 2019, except as otherwise provided herein and LexaGene does not undertake or agree to update this Presentation after the date hereof. All information is derived solely from management of LexaGene and otherwise publicly available third-party information that has not been independently verified by the Company. Further, it does not purport to be complete nor is it intended to be relied upon as advice (legal, financial, tax or otherwise) to current or potential investors. Each prospective investor should contact his, her or its own legal adviser, independent financial adviser or tax adviser for legal, financial or tax advice.

No representation or warranty, express or implied, is made or given by or on behalf of LexaGene or any of its affiliates, directors, officers or employees as to the accuracy, completeness or fairness of the information or opinions contained in this Presentation and no responsibility or liability is accepted by any person for such information or opinions. No person has been authorized to give any information or make any representations other than those contained in this Presentation and, if given and/or made, such information or representations must not be relied upon as having been so authorized.

This Presentation contains "forward-looking information" within the meaning of applicable Canadian securities laws. This information and these statements, referred to herein as "forward looking statements", are made as of the date of this Presentation or as of the date of the effective date of information described in this presentation, as applicable. Forward-looking statements relate to future events or future performance and reflect current estimates, predictions, expectations or beliefs regarding future events and include, without limitation, statements with respect to LexaGene's: (i) financial results, future financial position and expected growth of cash flows; (ii) business strategy, including budgets, projected costs, projected capital expenditures, taxes, plans, objectives, potential synergies and industry trends; (iii) research and development, including the Company's detection of fungus using its LX Technology; (iv) expectations concerning the size and growth of the global biotechnology market, the effectiveness of the Company's technology compared to its competitors' products and the laws and regulations governing the development, production, sale and use of the Company's technology; and (v) ability to commercialize its products and navigate potential growth opportunities.

Generally, forward-looking information can be identified by the use of forward-looking terminology such as "plans", "expects", or "does not expect", "is expected", "budget", "scheduled", "estimates", "projects", "targets", "forecasts", "intends", "anticipates", or "does not anticipate", or "believes" or variations of such words and phrases or state that certain actions, events or results "likely", "may", "could", "would", "might", or "will be taken", "occur", or "be achieved". Forward-looking information is based on the opinions and estimates of management at the date the information is made, and is based on a number of assumptions and is subject to known and unknown risks, uncertainties and other factors that may cause the actual results, level of activity, performance or achievements of the Company to be materially different from those expressed or implied by such forward looking information, including without limitation: (i) the availability and continuity of financing; (ii) the effectiveness of the Company's technology and the Company's ability to bring its technology to commercial production; (iii) continued growth of the global biotechnology market; and (iv) a continued minimal regulatory/legal burden concerning the development, production, sale and use of the Company's technology.

Although the Company has attempted to identify important factors that could cause actual results to differ materially from those contained in forward-looking information, there may be other factors that cause results not to be as anticipated, estimated or intended. There can be no assurance that such information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. LexaGene and its directors, officers and employees disclaim any obligation to update any forward-looking statements, whether as a result of new information, future events or results or otherwise, except as required by applicable law. Accordingly, current and potential investors should not place undue reliance on forward-looking statements due to the inherent uncertainty therein. All forward-looking information is expressly qualified in its entirety by this cautionary statement.

This Presentation does not constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction in which such offer, solicitation or sale would be unlawful.

# Corporate Overview

LexaGene

TSX.V: LXG | OTCQB: LXXGF

- LexaGene is a **molecular diagnostics company** developing **genetic analyzers** for **pathogen detection**
- Bringing reference laboratory quality data to the point of need with **~ 1-hour test results**
- In addition to pursuing other markets, LexaGene is applying for **FDA Emergency Use Authorization** to deploy **COVID-19** testing

# The need for better COVID-19 Testing

LexaGene
TSX.V: LXG | OTCQB: LXXGF

- Singleplex tests likely return a negative result. Practitioners left guessing: **False negative?** Flu?
- Many **different viral infections** present with similar symptoms to **COVID-19**
- Value in multiplexed diagnostics – **higher confidence in results** (more positive results)

**More than 2.2M cases and 100,000 deaths in the US.**

# Limitation of Tests on the Market

LexaGene
TSX.V: LXG | OTCQB: LXXGF

- **Isothermal Genetic Amplification:**
  - Results in 5 - 30 minutes
  - Looks for one pathogen at a time
  - Lacks sample preparation, hurting sensitivity
- **Rapid Antigen Detection:**
  - Results in >15 minutes
  - Poor sensitivity

**Point-of-Care**

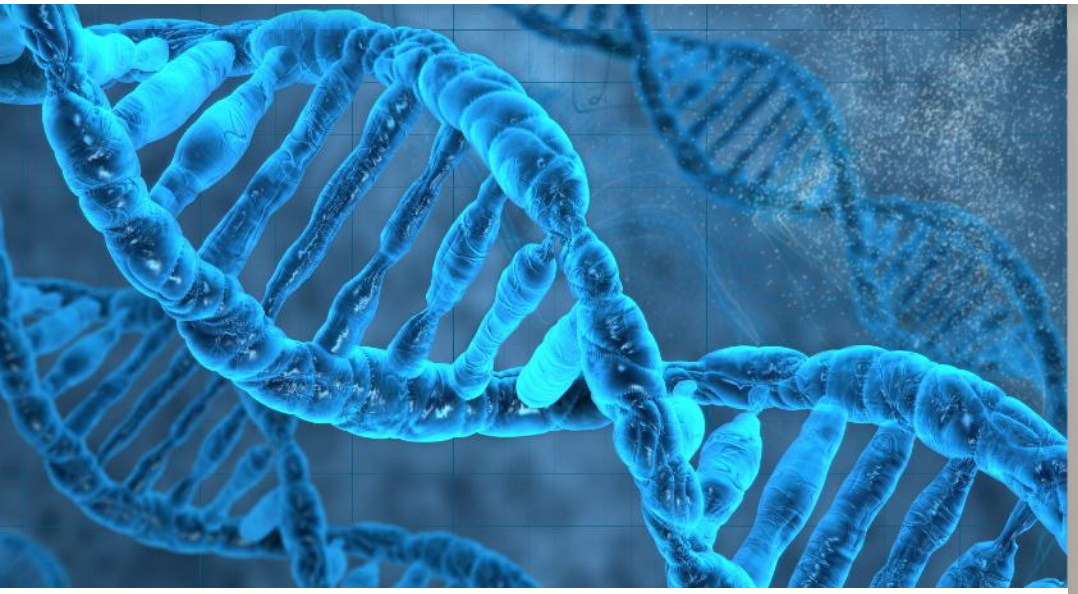
**TESTS ARE NOT ALL CREATED EQUAL**

- **Quantitative Real-time RT-PCR:**
  - Gold standard
  - Highly sensitive and specific
  - Provides quantitative information on viral burden

**Laboratory**

**NEED:**
**Sensitivity + speed + multiplex ✓**

**LexaGene → POC**



# LexaGene's Microfluidic Technology

# Technology History

LexaGene
TSX.V: LXG | OTCQB: LXXGF

- 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**

# Technology Highlights / Markets

LexaGene
TSX.V: LXG | OTCQB: LXXGF

Sample In - Answers Out
in **~1 hour** (vs. 1 – 3 days)

**98.2% concordance** with reference lab data

**Low cost per test**

**Razorblade** business model,
high margin

Targeting **markets** valued at
over $40 Billion USD

2 **Patents** issued,
5 pending

**Human Clinical Diagnostics (COVID-19 Testing)** ~ $12.9B

**Veterinary Diagnostics** ~ $5.4B

**Food Safety** ~ $24.4B

**Open-Access** Use > $10B

# LX Genetic Analyzer

LexaGene
TSX.V: LXG | OTCQB: LXXGF

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 (like COVID-19).

**Low cost per test**

- Cartridge
- Reagents

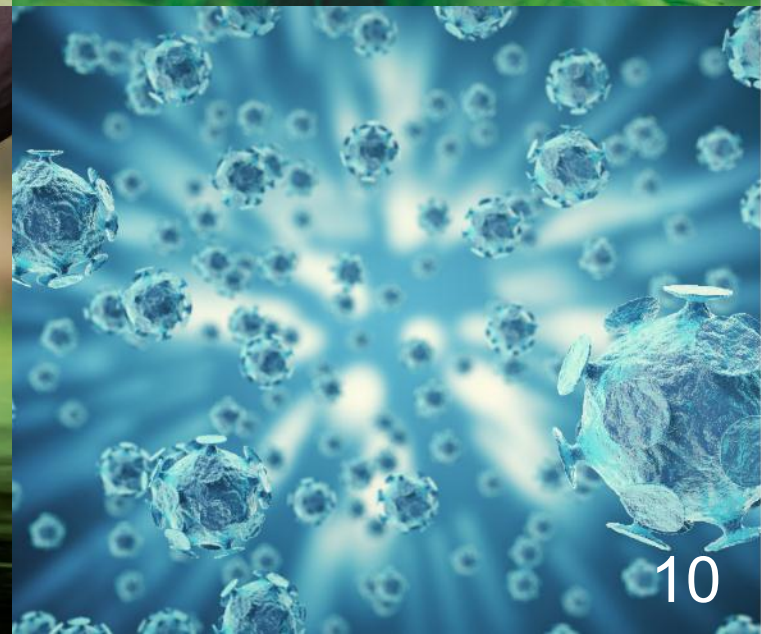
**Ease-of-use**

Simply load the sample and a cartridge onto the instrument and press ‘Go’. No pipetting required.

**Benefits of multiplex genetic testing**

- Gold-standard sensitivity/specificity
- Tests for 27 targets at once
- Avoid false positive & negative results
- Results in ~ 1-hour

# Addressable **Markets**



# Top Markets Targeted

LexaGene
TSX.V: LXG | OTCQB: LXXGF

## Clinical Diagnostics ($12.9B USD by 2025)[1]

- COVID-19 testing
- 18K Reference labs in US[2]
- Prevent future outbreaks

## Veterinary Diagnostics ($5.4B USD by 2024)[3]

- Better decision making
- Improve use of antibiotics
- Reduce wait times

## Food Safety ($24.4B USD by 2025)[4]

- Avoid costly recalls, brand damage
- Ship fresher and safer food
- FDA changes - mandated testing

## Open-Access Markets (customized testing)

- Pharma, academic labs, biodefense, etc.
- Water Safety Testing
- Genotyping Market
- Agricultural pathogen testing

*All numbers referenced are global market numbers unless indicated*

# Market Drivers – Pandemic Prevention

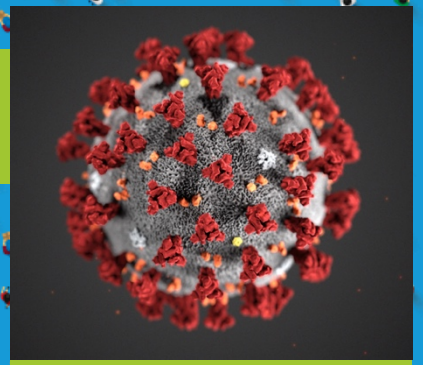
LexaGene
TSX.V: LXG | OTCQB: LXXGF

**Rapid, early detection is the key to preventing the next pandemic.**

**Need for flexible multiplexed systems that can adapt quickly to new threats.**

**6 new respiratory viruses discovered since the year 2001[1]**

**e.g. COVID-19, SARS, MERS, avian influenza, human metapneumovirus**



**LX Analyzer can be configured to detect a new pathogen in < 1 week.**

# Market Drivers - Veterinary Diagnostics

LexaGene
TSX.V: LXG | OTCQB: LXXGF

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

- 25,000 pet hospitals in the US[1]
- 90 million dogs and 95 million cats in the US[2,3]
- 5.4 million urine sediment tests run per year in the US[4]

# Market Drivers - Food Safety

LexaGene
TSX.V: LXG | OTCQB: LXXGF

48 million illnesses due to contaminated food EVERY YEAR in the US[1]

## 1.1 B tests are performed each year[2]

- Multiple tests run per sample
  (*salmonella, E.coli, listeria*, etc.)
- More testing
  (new requirements Food Safety Modernization Act)


## Typical food recall costs ~$30 million[3]

# Open Access Market

LexaGene

TSX.V: LXG | OTCQB: LXXGF

2,772 Biotech Companies[1]
(Roche Headquarters)

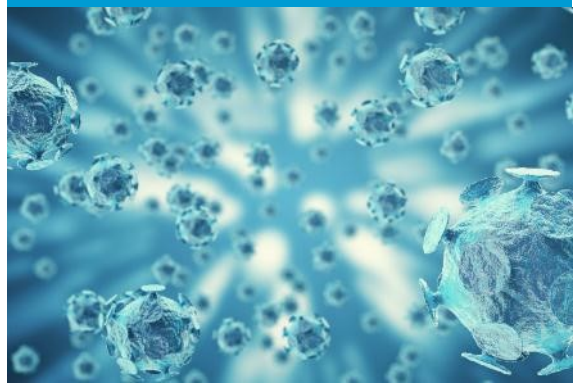
9,509 Life Sciences Companies[1]
(Illumina Research Park)

173 Universities (>10M in NIH grants)[2]
(Harvard Medical School)

**WATER QUALITY TESTING**

**AGRICULTURAL TESTING**

**BIO-THREAT**



# Supporting Data & **Comparative Studies**

# LX Analyzer Prototype Studies

LexaGene
TSX.V: LXG | OTCQB: LXXGF

## Human and Veterinary Diagnostics

**Beta Testing** results:

- >98% concordant with reference lab data
- Tested urine and other sample types
- Improved in-clinic sample processing
- Detected
  - multiple pathogens at once
  - antibiotic resistance factors

Assurance Scientific Laboratories

ETHOS VETERINARY HEALTH

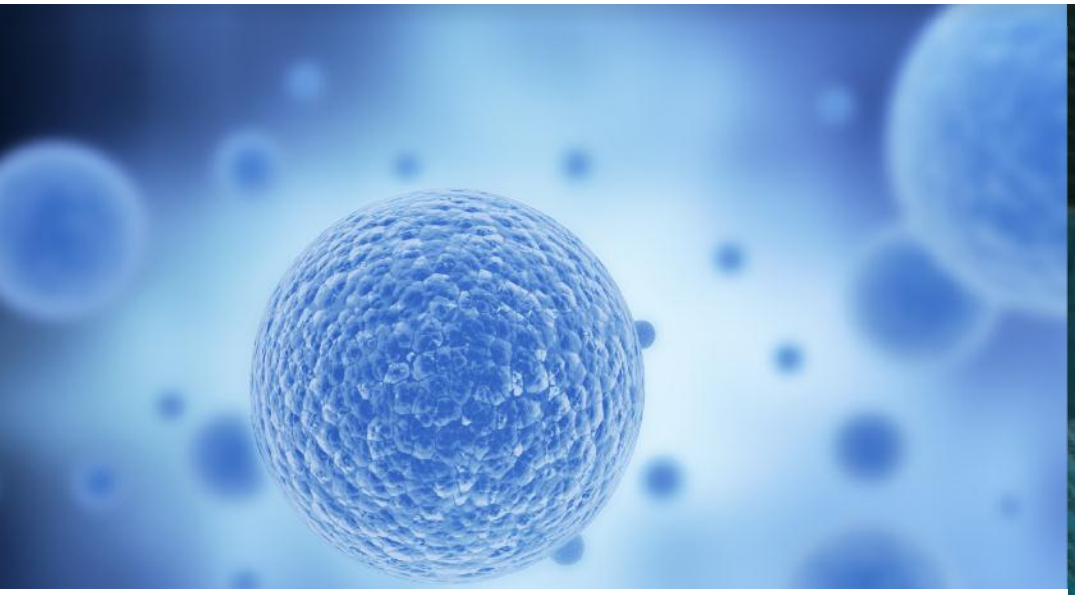
## COVID-19 Study

- **Pre-Commercial Testing** in US Hospital for COVID-19 testing at Dartmouth-Hitchcock Medical Center

## LexaGene Studies

In-lab LX Analyzer results:

- 100% concordance on superbug testing
- Detected
  - multiple UTI pathogens at once
  - live and dead *E. coli* on lettuce
  - agricultural fungus that causes billions in crop loss
  - gene mutations from cheek swabs



# Financial
Section

# Corporate Highlights

LexaGene
TSX.V: LXG | OTCQB: LXXGF

**LexaGene** - Public since October of 2016 | Headquartered near Boston, Massachusetts

| | | |
|---|---|---|
| **Current Employees**<br>26 | **Shares Outstanding**<br>93,213,651 | **Warrants Outstanding**<br>20,682,172 |
| **Capital**<br>6 financings<br>totaling $18.6M USD | **Stock Options and RSUs Outstanding**<br>7,495,963<br>(2,813,250 vested) | **Exchange**<br>TSX V: LXG<br>OTCQB: LXXGF |

*As at June 22, 2020*

# Recurring Revenue Stream
From Consumables

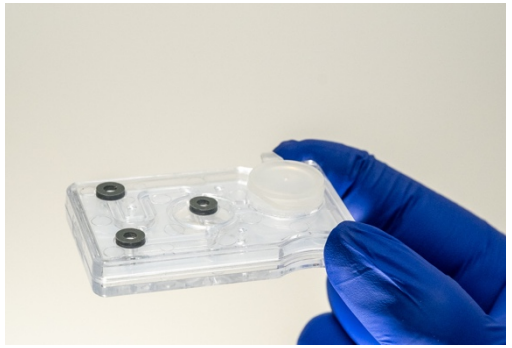
LexaGene
TSX.V: LXG | OTCQB: LXXGF

## Disposable Sample Preparation Cartridge

- Razor blade business model
- High gross margin per sample tested

## Reagent Panels

- Each panel allows for each sample to be screened for 27 targets plus controls
- Open-access feature allows for customized testing



**Single-use cartridge** used every time a sample is processed to purify genetic material from the sample

LX Analyzer draws from a **Reagent panel** using microfluidics to perform tests.

# Current Activities

LexaGene

TSX.V: LXG | OTCQB: LXXGF

- Applying for **FDA Emergency Use Authorization** for COVID-19 testing
- Establishing **Quality Manufacturing System** (ISO 13485)
- **Beginning manufacturing** commercial units
- Making key **sales hires**
- **Start selling** first commercial LX Analyzers and tests

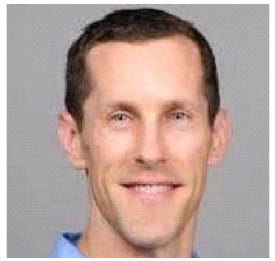
# Team

LexaGene
TSX.V: LXG | OTCQB: LXXGF

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 team has authored **75 patents**, launched 50+ **FDA-cleared** products and been involved in substantial **M&A activity**



Dr. Jack Regan
**Founder, CEO**

Daryl Rebeck
**President, Co-founder**

Tom Slezak
**Director**

Dr. Manohar Furtado
**Director**

Joseph Caruso
**Director**

Jeff Mitchell
**CFO**

Greg Dale
**VP Product Dev + Manufacturing**

Jay Adelaar
**VP of Capital Markets**

Dr. Nathan Walsh
**VP of Applications + Bioinformatics**

Steve Armstrong
**Senior Director Operations**

Palomar
QIAGEN
ENSEMBLE THERAPEUTICS
BIO-RAD
applied biosystems by Thermo Fisher Scientific
Roche
ThermoFisher SCIENTIFIC
life technologies
BECKMAN COULTER
QUANTALIFE
Lawrence Livermore National Laboratory

# Summary

LexaGene
TSX.V: LXG | OTCQB: LXXGF

LexaGene's disruptive technology **meets critical testing needs.**

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

**First-of-its-kind**, open-access on-site **pathogen detection system**

# Appendix: References

LexaGene

TSX.V: LXG | OTCQB: LXXGF

**Slide 11:**

[1] Clinical: https://www.globenewswire.com/news-release/2019/07/16/1883243/0/en/Infectious-Disease-Diagnostics-Market-Worth-12-88-Billion-by-2025-Exclusive-Report-by-Meticulous-Research.html
[2] Clia Labs: M. Schwartz. Clinical Chemistry, 45:5 p739 –745 (1999)
[3] Veterinary Diagnostics: https://www.marketwatch.com/press-release/over-8-cagr-animal-diagnostics-market-will-reach-54-billion-by-2024-2018-09-24
[4] Food safety: https://www.bccresearch.com/market-research/food-and-beverage/food-safety-testing-technologies-markets-report.html

**Slide 12:**

[1] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4379558/

**Slide 13:**

[1] https://news.vin.com/vinnews.aspx?articleId=32051
[2] https://www.statista.com/statistics/198100/dogs-in-the-united-states-since-2000/
[3] https://www.statista.com/statistics/198102/cats-in-the-united-states-since-2000/
[4] https://research-doc.credit-suisse.com/docView?language=ENG&format=PDF&document_id=1057479581&source_id=em&serialid=AVM6IPJ1QCdC%2FbWeS%2BV%2FqLDMRB9gq2ruoiYKQ6IdYx4%3D

**Slide 14:**

[1] https://www.cdc.gov/foodsafety/foodborne-germs.html
[2] https://www.foodsafetymagazine.com/magazine-archive1/februarymarch-2017/a-look-at-the-microbiology-testing-market/
[3] Grocery Manufacturers Association

**Slide 15:**

[1] https://www.labiotech.eu/tops/countries-recruit-biotech-talents-2017/
[2] https://report.nih.gov/award/index.cfm?ot=DH,27,47,4,52,64,41,MS,20,16,6,13,10,49,53,86,OTHDH&fy=2018&state=&ic=&fm=&orgid=&distr=&rfa=&om=n&pid=

LexaGene

**TSX.V: LXG**
**OTCQB: LXXGF**

LexaGene.com
info@lexagene.com
800.215.1824