# LEXAGENE HOLDINGS INC.
# Management's Discussion and Analysis
## For the Nine Months Ended
## November 30, 2017

## General

This management discussion and analysis of financial position and results of operations ("MD&A) is prepared as of January 23, 2018 and should be read in conjunction with the unaudited condensed consolidated interim financial statements for the nine months ended November 30, 2017 and related notes of LexaGene Holdings Inc. ("LexaGene" or the "Company"). These condensed consolidated interim financial statements, including comparatives, have been prepared in accordance with the International Financial Reporting Standards ("IFRS") issued by the International Accounting Standards Board ("IASB") and interpretations of the IFRS Interpretations Committee ("IFRIC").

Management is responsible for the preparation and integrity of the consolidated financial statements, including the maintenance of appropriate information systems, procedures and internal controls. Management is also responsible for ensuring that information disclosed externally, including the condensed consolidated interim financial statements and Management Discussion and Analysis ("MD&A"), is complete and reliable.

All dollar amounts included therein and in the following MD&A are expressed in United States dollars except where noted. This discussion contains forward-looking statements that involve risks and uncertainties. Such information, although considered to be reasonable by the Company's management at the time of preparation, may prove to be inaccurate and actual results may differ materially from those anticipated in the statements made. Additional information on the Company is available for viewing on SEDAR at www.sedar.com.

## Description of Business

Up to May 2015 the Company was a natural resource company engaged in the acquisition, exploration, and evaluation of assets ("mineral properties"). Following the acquisition of BDI, the Company is engaged in development and commercialization of a proprietary technology for automated pathogen detection. The Company trades on the TSX Venture Exchange (the "Exchange") under the symbol LXG and on the OTCQB Venture Market in the United States under the symbol LXXGF.

## Summary of Operations, Events and Future Plans

On August 15, 2017, the Company announced the appointment of Dr. Manohar Furtado, Ph.D., to the Company's Board of Directors. On December 2nd, Dr. Eric Olsen, Ph.D., resigned from the Board of Directors for family-related reasons.

During the nine months ended November 2017, the Company began actively promoting its technology at conferences, the first of which was the International Association for Food Protection conference in Tampa, Florida on July 9th, 2017, where the Company unveiled a 'show model' of the alpha prototype under development. The Company recently surveyed over 50 food safety officers using Food Safety Magazine's subscriber list. The results of this survey confirm there is a demand for automated molecular testing in this marketplace. The market size for LexaGene's technology in the food safety industry is expected to reach $21.4 billion by 2024.

A few months later, the Company exhibited at the Southwest Veterinary Symposium, in San Antonio Texas, where Dr. Jack Regan spoke to conference attendees about the advantages of LexaGene's technology for more quickly identifying pathogens. Due to the demand for better diagnostics from emergency care veterinarians, the Company engaged Ethos Veterinary Health Group to determine a stack-rank list of pathogens and drug resistant targets that are of most interest to veterinarians. The Company anticipates using this information to guide product development decisions. The market size for veterinary diagnostics is expected to reach $6.7 billion by 2021.

The last conference the Company attended as an exhibitor in 2017 was the Association for Molecular Pathology in Salt Lake City in November. There, Company representatives spoke with CLIA laboratory directors and clinicians regarding the benefits LexaGene's technology over the solutions currently being used for *in vitro* diagnostics (IVD). The Company intends on pursuing human clinical diagnostics – otherwise known as the IVD market after it has first gained success in food safety and veterinary diagnostics. In order to sell into the IVD market, LexaGene will be required to seek 510k clearance from the FDA. The size of the infectious disease testing market is expected to reach $25.9 billion by 2022.

At the end of November, the Company completed the assembly of its alpha prototype, which will be the world's first fully automated, open-access and on-site pathogen detection platform. The technology will be capable of screening for up to 22 pathogens at once and will deliver results in just one hour – as opposed to three to five days, which is typical for standard methods. It is also designed to be used by people with no knowledge of automated instrumentation, microbiology or molecular biology.

The completion of the assembly of the alpha prototype marked a very important milestone for LexaGene. The Company has now turned its attention to maximizing the instrument's performance so that end - users can better manage the care of their patients and food safety officers can better prevent illnesses from occurring in the first place.

Over the next several months, the Company will conduct a series of experiments to optimize the alpha's performance and then re-evaluate its design to determine whether improvements can be made for the beta prototype. In contrast to the alpha prototype, which is for in-house testing only, the beta prototype is intended to be as close to a commercial system as possible.

Accordingly, LexaGene will spend a considerable amount of effort to maximize the performance of the instrument, while taking into consideration the cost of manufacturing and the ease of service. The Company anticipates sending betas to prospective customers for a free trial during the summer

of 2018. Feedback will be collected and only small required changes will be made for the commercial system, which is slated for manufacturing and sale by the end of 2018.

The Company is in the last editing stages for an animated video that describes how the Company's technology works. Management expects to post this video for public viewing during Q1 of 2018.

**Selected Yearly Information**

| | February 28, 2017 | February 29, 2016 | 19-day period ended February 29, 2015 |
|---|---|---|---|
| Total assets | $ 1,052,274 | $ 77,278 | $ 5,865 |
| Working capital (deficiency) | $ 818,142 | $ (27,281) | $ (4,470) |
| Loss for the year | $ 4,483,215 | $ 59,399 | $ 5,262 |
| Loss per share | $ 0.17 | $ (0.01) | $ (53.15) |

**Selected Quarterly Information**

The following selected financial data has been prepared in accordance with IFRS and should be read in conjunction with the Company's financial statements. All dollar amounts are in United States dollars.

| Quarter Ended | Net loss for the period | Net loss per Share (Basic & Diluted) | Total Assets |
|---|---|---|---|
| November 30, 2017 | $ (1,319,312) | $ (0.00) | $ 969,067 |
| August 31, 2017 | $ (741,064) | $ (0.01) | $ 1,514,817 |
| May 31, 2017 | $ (617,902) | $ (0.01) | $ 1,800,307 |
| February 28, 2017 | $ (384,390) | $ (0.01) | $ 1,052,274 |
| November 30, 2016 | $ (3,794,738) | $ (0.12) | $ 1,041,225 |
| August 31, 2016 | $ (200,818) | $ (0.01) | $ 62,452 |
| May 31, 2016 | $ (103,269) | $ (0.01) | $ 61,888 |
| February 29, 2016 | $ (20,552) | $ (0.00) | $ 77,278 |
| November 30, 2015 | $ (7,134) | $ (0.00) | $ 24,280 |

**Results of Operations**

***Nine months ended November 30, 2017 compared to the nine months ended November 30, 2016***

*Net loss*

During the nine months ended November 30, 2017, the Company recorded net loss of $2,678,278 compared to a net loss of $4,048,462 for the nine months ended November 30, 2016. The decrease of $1,370,184 is primarily the result of the reverse-take-over expense transaction closed in October 2016 and the following changes in the operating expenses and other losses:

*Operating expenses*
Operating expenses for the nine months ended November 30, 2017 were $2,668,790 as compared to $414,648 for the nine months ended November 30, 2016. The increase of $2,254,142 is primarily the result of the following:

- During the nine months ended November 30, 2017, research and development expense was $1,352,567 (2016 - $265,945), an increase of $1,086,622. The increase is due to the Company advancing its operations, which include research and development of pathogen detection devices in the life sciences industry.

- During the nine months ended November 30, 2017, the Company incurred advertising and promotion expenses of $352,958 (2016 - $5,775) with an increase of $347,183, wages and salaries of $268,330 (2016 - $29,494) with an increase of $238,836, and travel expenses of $136,222 (2016 - $8,762) with an increase of $127,460. These increases are a result of increased operational activities related to the commercialization of the Company's first 'open-access' instrument for pathogen detection and increased management requirements.

- During the nine months ended November 30, 2017, the Company incurred professional fees of $110,129 (2016 - $3,614) with an increase of $106,515, and transfer agent and filing fees of $39,354 (2016 - $9,277) with an increase of $30,077. The increase is a result of increase in audit accrual and legal fees pertaining to the Omnibus Incentive Plan.

- During the nine months ended November 30, 2017, share-based compensation expense was $237,698 (2016 - $nil). In January 2017 the Company granted 2,175,000 stock options to purchase common shares of the Company. Share based compensation recorded during the nine months ended November 30, 2017 related to these stock options. No stock options were granted during the nine months ended November 30, 2016.

***Three months ended November 30, 2017 compared to the three months ended November 30, 2016***

*Net loss*
During the three months ended November 30, 2017, the Company recorded net loss of $1,319,312 compared to a net loss of $3,794,738 for the three months ended November 30, 2016. The decrease of $2,475,426 is primarily a result of the reverse-take-over transaction closed in October 2016 and related to it increase in operating expenses:

*Operating expenses*
Operating expenses for the three months ended November 30, 2017 were $1,314,902 as compared to $212,252 for the three months ended November 30, 2016. The increase of $1,102,650 is primarily the result of the following:

- During the three months ended November 30, 2017, research and development expense was $825,552 (2016 - $147,057), an increase of $678,495. The increase is due to the Company advancing its operations, which include research and development of pathogen detection devices in the life sciences industry.

- During the three months ended November 30, 2017, the Company incurred advertising and promotion expenses of $118,633 (2016 - $5,693) with an increase of $112,940, wages and salaries of $88,316 (2016 - $29,077) with an increase of $59,239, and travel expenses of $52,983 (2016 - $8,638) with an increase of $44,345. These increases are a result of increased operational activities related to the commercialization of the Company's first 'open-access' instrument for pathogen detection and increased management requirements.

- During the three months ended November 30, 2017, the Company incurred professional fees of $51,857 (2016 – $14) with an increase of $51,871, and transfer agent and filing fees of $21,184 (2016 - $9,146) with an increase of $12,038. The increase is a result of increase in audit accrual.

- During the three months ended November 30, 2017, share-based compensation was $91,807 (2016 - $nil). In January 2017 the Company granted 2,175,000 stock options to purchase common shares of the Company. Share based compensation recorded during the three months ended November 30, 2017 related to these stock options. No stock options were granted during the three months ended November 30, 2016.

**Financial Condition, Liquidity and Capital Resource**

The Company's working capital as of November 30, 2017 was $659,246, including cash of $805,022, compared to a working capital of $818,138 including cash of $867,483 as of February 29, 2017.

The Company's business currently does not generate positive cash flows from sales. The Company is reliant on equity financing to provide the necessary cash to continue research and development of the instrument described in the Summary of Operations, events and Future Plans section of this management discussion and analysis. There can be no assurance that equity financings will be available to the Company in the future with terms that are satisfactory to the Company.

The Company has not entered into any off-balance sheet arrangements.

**Related Party Transactions**

Key management includes personnel having the authority and responsibility for planning, directing and controlling the Company and includes the directors and current executive officers. Expenses incurred for key management compensation are summarized as:

| | November 30, 2017 | November 30, 2016 |
|---|---|---|
| Salaries and Benefits | $ 239,068 | $ 28,375 |
| Administration | 34,689 | 30,583 |
| Consulting | 21,584 | 42,052 |
| Management fees | - | 3,823 |
| Share based compensation | 215,745 | - |
| | $ 511,086 | $ 104,833 |

Balances with key management and other related parties are:

As at November 30, 2017, $1,164 (2016 - $nil) was payable to an officer of the Company.

As at November 30, 2017, $nil (2016 - $3,910) was payable to a management company for providing administrative services including CFO services.

All related party balances are non-interest bearing, unsecured and have no fixed terms of repayment and have been classified as current.

## Financial Instruments and Risk Management

LexaGene is active in the biotechnology industry, which means it is exposed to a number of risks. There is a financial risk as the continuing operations of the Company are dependent upon its ability to continue to raise adequate financing and to commence profitable operations in the future. The Company has incurred operating losses since its inception and has experienced negative operating cash flows.

The Company is dependent upon its current management and if the services of such personnel were withdrawn for any reason, this could have a material adverse impact on the Company's operating activities.

## Fair Values

The fair values of cash, receivables, short-term loan and trade payables approximate their book values because of the short-term nature of these instruments.

### (a) *Financial Risk Management*

The Board of Directors has overall responsibility for the establishment and oversight of the Company's risk management framework. The Company considers the fluctuations of financial markets and seeks to minimize potential adverse effects on financial performance.

### (b) *Financial Instrument Risk Exposure*

The Company is exposed in varying degrees to a variety of financial instrument related risks. The Board approves and monitors the risk management process.

*Credit Risk*
Credit risk is the risk of a financial loss to the Company if counterparty to a financial instrument fails to meet its contractual obligation. The Company's exposure to credit risk includes cash and receivables. The Company reduces its credit risk by maintaining its bank accounts at large international financial institutions. The Company's receivables consist of tax receivables due from federal government agencies and a short-term loan. The maximum exposure to credit risk is equal to the fair value or carrying value of the financial assets.

*Liquidity Risk*
Liquidity risk is the risk that the Company will not be able to meet its obligations as they become due. The Company's ability to continue as a going concern is dependent on management's ability to raise required funding through future equity issuances. The Company manages its liquidity risk by forecasting cash flows from operations and anticipating any investing and financing activities. Management and the Board of Directors are actively involved in the review, planning and approval of significant expenditures and commitments.

*Market risk*
Market risk is the risk of loss that may arise from changes in market factors such as interest rates, foreign exchange rates, and commodity and equity prices. Such fluctuations may be significant.

(i) Interest rate risk
The Company has cash balances and no interest-bearing debt. The Company's current policy is to invest excess cash in investment-grade short-term deposit certificates issued by its banking institutions. The Company periodically monitors the investments it makes and is satisfied with the credit ratings of its banks.

(ii) Foreign currency risk
Currency risk is the risk that the fair values or future cash flows of the Company's financial instruments will fluctuate because of changes in foreign currency exchange rates. The Company is exposed to currency risk through financial assets and liabilities denominated in currencies other than the Canadian dollar, the Company's presentation currency.

The Company's financial instruments denominated in currencies that are not the United States dollar as at November 30, 2017 are as follows:

| | **CAD$** | **US$ equivalent** |
|---|---|---|
| Cash | 926,374 | 718,788 |
| Accounts payable and accrued liabilities | 161,723 | 125,484 |

(iii) Price risk
The Company is exposed to price risk with respect to commodity and equity prices. Equity price risk is defined as the potential adverse impact on the Company's earnings due to movements in individual equity prices or general movements in the level of the stock market. Commodity price risk is defined as the potential adverse impact on earnings and economic value due to commodity price movements and volatilities. The Company closely monitors commodity prices, individual equity movements and the stock market to determine the appropriate course of action to be taken by the Company.

**(c) Technical Risk**

Although each individual step of the technology has been de-risked by Boston Engineering using subcomponents, some risk remains regarding integrating these subcomponents into a single instrument. Furthermore, although we are confident the instrument will effectively process simple matrices (e.g. water, buffer, enrichment broth, etc.), we are less confident the initial sample

preparation cartridge will effectively process more complex matrices such as milk, blood, and fat-containing liquids. Once the instrument and cartridge are built, the Company will need to test each of these different matrices to determine performance. It is likely that specialized cartridges will need to be built to effectively process these more challenging matrices. It is also possible that customers frequently processing some matrices may require their instrument to be serviced more frequently.

**(d) Life sciences Market Risk**

LexaGene's technology offers some advantages that are not available in other sample-to-answer instruments. Most notably, the ability to process large volumes of fluid and the ability to customize genetic screens. The Company believes these features are strong selling points that will result in user adoption. However, the Company is only in the Alpha Prototype development stage, so it only has a rough estimate of the expected list price of the instrument and the cost per test. These estimates are likely to change as more information is gathered during Beta Prototype development. The final price point of LexaGene's instrument and tests, as well as its performance compared to competitor instruments will affect user adoption. If these factors are not favorable for LexaGene, there is a possibly the Company will generate little to no sales. The Company has engaged Ethos Veterinary Health Group to perform market research in veterinary diagnostics, and has completed a survey of food safety officers regarding the need for LexaGene's technology in the food market. The information gained through these efforts will be used to guide the Company's business development strategy and product marketing strategy leading up to commercial launch.

**Contingencies**

The Company is not aware of any contingencies or pending legal proceedings as of January 23, 2018.

**Additional share information**

The Company is authorized to issue an unlimited number of common shares without par value. As at January 23, 2018, the Company has 58,559,953 common shares issued and outstanding.

The Company has the following warrants outstanding and exercisable as at January 23, 2018:

| Number of warrants | Exercise Price | Expiry Date |
|---|---|---|
| 5,000 | CAD$ 0.08 | June 20, 2019 |
| 1,000,000 | CAD$ 0.08 | May 7, 2018 |
| 150,800 | CAD$ 0.25 | October 4, 2018 |
| 5,351,033 | CAD$ 0.60 | March 13, 2020 |

At January 23, 2018, the weighted average remaining contractual life of warrants outstanding was 1.27 years, with a weighted average exercise price of CAD$0.49.

As at January 23, 2018 the Company has stock options to purchase a total of 1,675,000 common shares at a price of CAD$0.33 per common share, 500,000 common shares at a price of CAD$0.363 per common share, and 270,000 common shares at a price of CAD$1.050. The stock options expire on July 27, 2020 and March 21, 2021. Weighted average expected life of the stock options as at January 23, 2018 is 2.62 years. Weighted average exercise price of the stock options as at January 23, 2018 is CAD$0.46. As at January 23, 2018, 433,250 stock options are exercisable.

As at January 23, 2018, the Company granted 315,000 restricted share units to a director and consultants with the trigger date of March 12, 2019 and the expiry date of September 12, 2020.

**Disclaimer**

The information provided in this document is not intended to be a comprehensive review of all matters concerning the Company. It should be read in conjunction with all other disclosure documents provided by the Company, which can be accessed at www.sedar.com. No securities commission or regulatory authority has reviewed the accuracy or adequacy of the information presented herein.

**Cautionary Statement on Forward Looking Information**

Certain statements contained in this document constitute "forward-looking statements". Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance, or achievements of the Company to be materially different from any future results, performance, or achievements expressly stated or implied by such forward-looking statements. Such factors include, among others, the following: product development technical risks, lifesciences market risks, fluctuation in the equity markets that affect the Company's ability to raise capital, government regulations, competition, litigation risks, and commercial viability risks.