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**ARCH BIOPARTNERS INC.**

**MANAGEMENT DISCUSSION AND ANALYSIS:**

**FOR THE YEAR ENDED SEPTEMBER 30, 2017**

**DATED JANUARY 29, 2018**

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The following Management Discussion and Analysis (“MD&A”) should be read in conjunction with Arch Biopartners Inc.’s (the “Company”) audited consolidated financial statements and related notes for the year ended September 30, 2017 which were prepared in accordance with International Financial Reporting Standards (“IFRS”) and comparative periods have been restated in accordance with IFRS where applicable.

The audited consolidated financial statements have been prepared in accordance with IFRS applicable to a going concern that contemplates the realization of assets and the payment of liabilities in the ordinary course of business. Accordingly, they do not give effect to adjustments that would be necessary should the Company be unable to continue as a going concern. In other than the normal course of business, the Company may be required to realize its assets and liquidate its liabilities and commitments at amounts different from those in the accompanying consolidated financial statements. The Company's viability as a going concern is dependent upon its ability to obtain adequate financing, the on-going support of its shareholders, affiliates and creditors, and to achieve profitable levels of operation. It is not possible to predict whether financing efforts shall be successful or if the Company will attain profitable levels of operations.

These financial statements, along with additional information relating to Arch Biopartners Inc, may be found on SEDAR at [www.SEDAR.com](http://www.SEDAR.com).

## **Disclosure Regarding Forward-Looking Statements**

This Management Discussion and Analysis contains forward-looking statements that involve various risks and uncertainties, including, without limitation, statements regarding the future plans and objectives of the Company. There can be no assurance that such statements will prove to be accurate. Actual results and future events could differ materially from those anticipated in such statements. These and all subsequent written and oral forward-looking statements are based on the estimates and opinions of management on the dates they are made and are expressly qualified in their entirety by this notice. The Company assumes no obligation to update forward-looking statements should circumstances or management's estimates or opinions change; however, these risks may be detailed from time to time in Arch Biopartners Inc.'s public disclosures.

Arch Biopartners Inc.  
Management Discussion and Analysis  
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## ITEM 1 - Overview

### Company Profile

Arch Biopartners Inc. (the “Company”) is a portfolio based biotechnology company focused on the development of innovative technologies that have the potential to make a significant medical or commercial impact. Arch works closely with the scientific community, universities and research institutions to advance and build the value of select preclinical technologies, develop the most promising intellectual property, and create value for its investors.

At present, the Company has five technology platforms in its portfolio under development (each within its own subsidiary):

- **AB569** – a new drug candidate for treating antibiotic resistant bacterial infections, primarily in the lungs and urinary tract. AB569 has a mechanism of action that differs from the mechanism of action of antibiotics. AB569 has orphan drug status in the U.S. and in Europe for the treatment of *Pseudomonas aeruginosa* infections in the respiratory tracts of patients with cystic fibrosis;
- **MetaBlok™** - a new drug candidate targeting sepsis, cancer metastasis and certain inflammation based diseases which cause organ damage or failure;
- **Arch Inflammation** - Novel treatments for chronic kidney and bowel diseases caused by non-infectious inflammation;
- **Borg: Peptide-Solid Surface Interface** - Binding of proprietary peptides to solid metal and plastic surfaces to inhibit biofilm formation and reduce corrosion; and,
- **MetaMx™** - proprietary synthetic molecules that target brain tumor initiating cells and invasive glioma cells.

The Company owns, or has exclusive licensing rights on, the intellectual property (“IP”) emanating from the programs listed above.

### Formation of Arch Biopartners

Arch Biopartners Inc. is incorporated under the Business Corporation Act (Ontario) with continuance under the Canadian Business Corporations Act. On May 7, 2010, the Company was restructured into a biotechnology firm following a reverse takeover transaction (“RTO”) involving three private Canadian biotechnology firms: Arch Biotech Inc., Arch Biophysics Ltd. and Arch Cancer Therapeutics Ltd. The Company formed Arch Bio Ohio Inc. in 2014 and Arch

Bio Ireland Ltd. in 2016 to facilitate future activity in the U.S. and Europe respectively. These five companies continue to operate as separate, 100% owned subsidiaries of the Company.

The listing of the Company's common shares moved from the Canadian Securities Exchange ("CSE") to the TSX Venture Exchange ("TSXV") on February 23, 2015 under the ticker "ACH". The ticker on the TSXV changed to "ARCH" on February 24, 2017.

The Company had 47,360,179 Common Shares outstanding as of May 7, 2010. As of the date hereinabove, the Company has 55,299,679 common shares outstanding. Please see ITEM 14 below for more information on the Company's outstanding shares, warrants and options

## **Technology Overview**

The Company currently has two products from its development portfolio that are expected to enter into a clinical stage during 2018. These are AB569 and Metablok.

### **I. AB569: Treatment for Drug Resistant Bacterial infections**

AB569 is a new drug candidate for treating antibiotic resistant bacterial infections, primarily in the lungs and urinary tract. It also has potential to be modified for use in other indications, including adaptation as a topical cream for bacterial skin infections.

AB569 has a mechanism of action that differs from the mechanism of action of antibiotics. AB569 has orphan drug status in the U.S. for the treatment of *Pseudomonas aeruginosa* infections in the respiratory tracts of patients with cystic fibrosis. AB569 has orphan medicinal product designation in Europe for the treatment of cystic fibrosis.

### **Respiratory *Pseudomonas aeruginosa* Infections**

Two deadly diseases, cystic fibrosis (CF) and chronic obstructive pulmonary disease (COPD), are exacerbated by airway bacterial infections that significantly impact the overall quality of patient's lives. There are approximately 40,000 CF patients and over 14 million individuals diagnosed with COPD in the United States. In both diseases, antibiotic resistant Gram-negative bacteria, such as *Pseudomonas aeruginosa* (*P. aeruginosa*), often constitute a significant and problematic cause of the pulmonary exacerbations that result in frequent hospitalizations of these patients.

In particular, the mucoid form of *P. aeruginosa* is a very challenging infection to treat due to its high resistance to both antibiotics and phagocyte-mediated killing. Once patients present with the mucoid form of *P. aeruginosa*, their overall lung function precipitously declines resulting in a poor prognosis.

CF patients are predisposed to lung infections due to abnormal mucus production in the lungs and airways. *P. aeruginosa* infects 40% of CF patients between the ages of 6 and 10 years of

age. By the age of 17, the frequency of infection increases to 60% and reaches approximately 70% of all CF patients between the ages of 25 and 34. Thus, there is an urgent clinical need for the development of novel effective treatments in this area.

AB569 constitutes an innovative, bactericidal method to treat mucoid and nonmucoid *P. aeruginosa* pulmonary infections, as well as other types of bacterial pulmonary infections, that are resistant to traditional antibiotics.

The World Health Organization has declared antibiotic resistance to be one of the biggest threats to global health and development today. According to WHO, while there are new antibiotics currently in development, none are expected to be effective against the most dangerous forms of antibiotic-resistant bacteria. The Company's AB569 is a non-antibiotic drug that could be a viable alternative or adjunct therapy to current standard of care antibiotics.

### **Exclusive License with University of Cincinnati on Patents relating to AB569**

In March 2016, the Company entered into an exclusive license agreement with the University of Cincinnati (UC) for the commercial rights to the U.S. patent and patent applications protecting AB569 as an antimicrobial treatment of bacterial infections, including antibiotic resistant infections in the lungs and urinary tract.

Pursuant to the license with UC, the maintenance of issued patents and new patent applications relating to AB569 are being managed by the Company's patent attorneys in the U.S. at the Company's expense.

### **Orphan Drug Designation for AB569 for *P. aeruginosa* lung infections in Cystic Fibrosis**

In November, 2015, Arch Biopartners received Orphan Drug Designation on AB569 from the U.S. Food and Drug Administration for the treatment of *P. aeruginosa* lung infections in cystic fibrosis (CF) patients.

The Orphan Drug Designation has been granted for the combination of two active ingredients of AB569: sodium nitrite and ethylenediaminetetraacetic acid (EDTA). AB569 is to be administered to patients as a nebulized (inhaled) solution. AB569 was invented at the University of Cincinnati in the lab of Dr. Daniel Hassett.

In pre-clinical studies, Dr. Hassett and his team demonstrated the potency of acidified sodium nitrite and EDTA in killing drug resistant bacteria including *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Burkholderia cepacia* under both aerobic and anaerobic planktonic (free-living) and biofilm (surface-attached) conditions. These bacteria are among the most common pathogens to chronically infect the lungs of patients with chronic obstructive pulmonary disease (COPD) or cystic fibrosis (CF).

The FDA Office of Orphan Products Development grants Orphan Drug Designation to drugs and biologics to encourage the development of new medicines for the safe and effective treatment of underserved, rare diseases or disorders that affect less than 200,000 patients in the U.S.

The Orphan Drug Designation qualifies Arch for a seven-year term of market exclusivity to sell AB569 in the U.S. following FDA approval of the drug. Additionally, as Arch takes AB569 through the regulatory and human trial process, the Orphan Drug Designation provides an accelerated review and approval process, potential grant funding, tax benefits and an exemption from certain user fees.

Earlier in February 2016, Arch formed an Irish based subsidiary named Arch Bio Ireland Ltd to sponsor and submit an orphan medicinal product application for AB569 to the European Medicines Authority (EMA). In April, 2016, the EMA Committee for Orphan Medicinal Products (COMP) issued a positive opinion recommending AB569 for designation as an orphan medicinal product for the treatment of patients with CF. Final approval from the European Commission for designation of AB569 as an orphan medicinal product in Europe was granted to Arch in early June, 2016.

### **Medical Advisory Board for AB569**

In 2016, Arch management formed a clinical and medical advisory board to support future planning and clinical development of AB569. The advisory board provides guidance and expertise on obtaining regulatory approvals, human trial design and patient enrolment to enable first-in-human trials for AB569 in patients with chronic lung infections.

The members of the clinical and medical advisory board are:

For Cystic Fibrosis (CF):

**Dr. Bruce Trapnell, MD**, Director, Translational Pulmonary Science Center, Cincinnati Children's Hospital Medical Center (CCHMC), Professor of Medicine and Pediatrics, University of Cincinnati (UC).

**Dr. Patricia Joseph, MD**, Professor of Medicine and Pediatrics, UC College of Medicine and Director of the Adult CF Center at the UC Medical Center.

**Dr. John P. Clancy, MD**, Professor, Cincinnati Children's Hospital Medical Center, **Director of the Pediatric CF Center**.

For Chronic Obstructive Pulmonary Disease (COPD):

**Dr. Ralph J. Panos, MD**, Chief of Medicine, Cincinnati Veterans Affairs Medical Center (CVAMC).

## Human Trial Plans for AB569

Between 2015 and 2017, the AB569 scientific team successfully completed pre-clinical *in vivo* and *in vitro* validation studies. In all studies, AB569 has demonstrated significant efficacy in destroying *P. aeruginosa* and other antibiotic resistant bacteria. This includes a recent study involving a chronic pulmonary infection model in mice performed at the University of Illinois.

The Arch team believes these results provide the scientific rationale for pursuing a human trial to test the safety and efficacy of AB569 for CF and/or COPD patients whose airways are chronically infected with *P. aeruginosa* and other types of bacteria.

In April, 2017, Arch announced that the Cincinnati Veterans Affairs Medical Center (CVAMC) will conduct an investigator initiated Phase I human trial to evaluate the safety and pharmacokinetic profile of AB569 as an inhalation drug candidate for treating antibiotic-resistant bacterial infections in the lungs.

Dr. Ralph Panos, Chief of Medicine at CVAMC and world-renowned COPD expert, is the lead investigator of the trial. Arch is funding the study, contributing AB569 clinical inhalation kits and other materials to support the trial. The AB569 inhalation kits were delivered to CVAMC during the month of January 2018 and final preparations are underway to enrol the first patient into the trial.

Clinical investigators at the CVAMC will evaluate single administration of nebulized AB569 in normal participants. The Phase I trial has been designed to determine the pharmacokinetic profile of plasma nitrite and nitrate metabolites, exhaled nitric oxide and circulating hemoglobin after a single inhalation of AB569. In addition, the trial also aims to determine the tolerance of nebulized AB569 in three escalating doses of acidified sodium nitrite and EDTA.

Dr. Hassett's team has also shown the potential of AB569 to be used for treating drug resistant urinary tract infections and as an effective catheter lock solution to inhibit infection and destroy bacterial biofilms commonly observed in dialysis patients.

The Company's sponsorship of the human trial application to the Internal Review Board of CVAMC and University of Cincinnati was facilitated through the Cincinnati Education and Research for Veteran's Foundation.

## Manufacturing of AB569 Clinical Inhalation Kits

In support of Arch Biopartners' GMP manufacturing campaign for AB569, Dalton Pharma Services (Dalton) in Toronto, Canada, provided formulation development, [cGMP powder and liquid filling](#), analytical method development and validation, and quality control release testing.

During August 2016, Arch engaged Catalent Inhalation, a division of Catalent Pharma Solutions (Catalent), to begin the manufacturing process for AB569 in preparation for the first human trials involving patients with antibiotic resistant lung infections.

Catalent Inhalation completed initial stability and formulation studies, which are both important production milestones in preparing a pharmaceutical product for human trials and eventual drug approval by the U.S. Food and Drug Administration and other health authorities.

## **II. MetaBlok™**

MetaBlok is a new drug candidate and potential treatment for inflammation, sepsis and cancer metastasis.

Management of Arch believes Metablok has the potential to be a major breakthrough in the treatment of diseases where inflammation plays a major role, as well as in sepsis and cancer metastasis. Arch is currently pursuing further clinical development of Metablok and expects to make additional disclosures as milestones toward a human trial are completed over the next few months.

MetaBlok was invented by Arch scientists Dr. Stephen Robbins, Dr. Donna Senger, Dr. Jennifer Rahn and their University of Calgary colleague, Dr. Paul Kubes. The inventors have assigned the Metablok intellectual property to the Company.

### **U.S. Patent Issuance for Metablok**

In October 2016, the U.S. Patent and Trademark Office (USPTO) issued U.S. Patent 9,464,114 titled, “Peptides that Block Leukocyte Recruitment and Methods of Use”. This is the first patent issued protecting the composition and method of use for Metablok.

### **Inflammation Based Disease**

Inflammation is a localized physical condition that involves the activation of the immune system in response to infection, tissue injury, or autoimmunity. Inflammation is involved in the pathogenesis of many diseases and contributes to organ dysfunction and failure, such as certain types of acute kidney injury.

### **Sepsis**

Sepsis represents a large unmet medical need in the world today. Sepsis alone occurs in 1 to 2% of all hospitalizations in the US. It affects at least 700,000 individuals per year.

Sepsis is a serious illness caused by the body’s immune response to an infection. White blood cells, or leukocytes, defend the body against toxins and infection. If the immune system activates

too many white blood cells to fight the infection, there is a risk of widespread, life threatening inflammation termed “Sepsis”.

Sepsis is known to cause organ damage. Blood clotting during sepsis inhibits blood flow to organs and thus reduces their intake of nutrients and oxygen. In severe cases, one or more organs fail. In the worst cases, infection leads to a dangerous drop in blood pressure, called septic shock. This can quickly lead to the failure of several organs such as lungs, kidneys and liver, causing death.

Permanent organ damage can occur in patients who survive sepsis. Under current standard of care, mortality rates are over 20% for sepsis and over 50% for septic shock.

### **Cancer Metastasis**

Cancer is a life threatening disease because of its ability to spread from its original tumour site to other tissues and organs in the body. This process of metastasis occurs through the bloodstream or lymphatic system.

Metastasis is of great importance since most of the cancer deaths are caused by spread of the primary cancer to other sites in the body. Recent evidence shows that 60% to 70% of patients have started the metastatic process by the time of diagnosis. Additionally, patients that do not have tumor spread at diagnosis are at risk for metastatic disease. New therapeutic treatments that protect patients against metastasis would be a major breakthrough in the treatment of cancer.

### **Human trial and Drug Application Plans for Metablok**

In pre-clinical studies, Arch scientists have demonstrated Metablok’s ability to prevent acute kidney injury by blocking the inflammatory response triggered by kidney ischemia/reperfusion. Currently, there are no specific or effective treatments to prevent acute kidney injury.

In November 2017, the Company engaged Nucro Technics in Scarborough, Ontario. Nucro-Technics performed initial toxicology, including a maximum tolerable dose and pharmacokinetic studies for Metablok, to support a pre- Investigational New Drug (IND) meeting with the U.S. Food and Drug Administration (FDA) planned for late Q1 or early Q2 in 2018.

Following the pre-IND meeting with the FDA, Arch intends to submit the IND application to enable a Phase I human clinical trial. Once approved, the Phase I trial will be designed to evaluate Metablok’s safety and pharmacokinetic profile in advance of future clinical trials to test its efficacy in treating or preventing acute kidney injury caused by inflammation.

Arch is currently arranging toxicology, chemistry, manufacturing and clinical planning to support the IND application to the FDA by approximately the end of the third quarter of 2018.

## ITEM 2 - Overall Performance

The Company has not yet generated revenue. During the year ended September 30, 2017 the Company spent approximately \$75,000 per month on patents, product development, operations, and governance. This spending rate of the Company during the last year has been greater than previous years due to increases in research expenses; a weaker Canadian dollar versus the U.S. dollar; and, the Company's support of an upcoming human trial for AB569.

The current operations of the Company do not show a buildup of capital expenditures or significant research and development expenses, as any facilities used for continuing research and development to date have been owned by third parties. Lab expenditures to date have been predominantly funded through various research grants.

Cash flow used by operating activities totaled \$760,169 and the Company reported a net loss of \$1,904,426 for the year ending September 30, 2017.

### *Comment Regarding Operating Segments*

The annual consolidated financial statements for the year ending September 30, 2017 include the accounts of the Company and its five subsidiaries. Each subsidiary is considered an operating segment. The Company and its subsidiaries represent one reporting segment as all activity is effectively in the same line of business.

## ITEM 3 - Selected Annual Information

The Company's fiscal year end is September 30. The following information has been prepared in accordance of Canadian GAAP and all values are in Canadian dollars.

	Sep 30 2017	Sep 30 2016	Sep 30 2015
Revenue	\$nil	\$nil	\$37,641
Loss before extraordinary items	1,904,426	1,021,228	839,004
<i>per share (basic and fully diluted)</i>	<i>0.035</i>	<i>0.019</i>	<i>0.016</i>
Net Loss	1,904,426	1,021,228	839,004
<i>per share (basic and fully diluted)</i>	<i>0.035</i>	<i>0.019</i>	<i>0.016</i>
Total assets	67,938	227,032	649,504
Long term liabilities	Nil	Nil	Nil
Shares (basic and fully diluted)	55,299,679	53,849,679	53,189,679

The Company shows revenue for the fiscal years ending September 30, 2015 as a result of industry related grants. The Company currently is developing technology and commercial products. Until these products are sold or licensed, the Company is primarily incurring expenses only.

The Company reported a net loss for the fiscal year ended September 30, 2017 of \$1,904,426 or \$0.035 loss per share based on 54,493,432 weighted average shares outstanding, versus a net loss of \$1,021,228 a year earlier.

The Company has not yet paid any dividends.

#### **ITEM 4 - Results of Operations**

The Company reported a *loss from operations* of \$1,901,426 for the year ended September 30, 2017 versus a *loss from operations* of \$1,015,228 for the year ending September 30, 2016.

The increase in net loss year over year is mostly explained by an increase in a non-cash charge of \$1,016,749 for stock based compensation in 2017 versus a charge of \$280,930 for the same item in 2016.

Contributing further to the year over year difference in net loss was an increase in research expense. Research expense for the year ended September 30, 2017 was \$459,405, up from \$162,183 a year earlier. The increase is the result of costs incurred to develop and manufacture AB569 as a clinical drug product under good manufacturing practice during the year ended September 30, 2017.

General marketing decreased to \$47,917 in 2016 versus \$84,785 a year earlier as an indirect result of the Company finishing the fiscal year with more focus on human trial development rather than marketing.

The remaining expenses associated with managing the Company including general and administrative expenses, wages and professional fees were similar to the prior year as the company maintained stable operating costs. The Company's net loss was \$1,006,572 for the year.

Management of the Company expects to maintain a controlled cost environment for progressing each of the technology development projects described in ITEM 2- Overall Performance. Management expects an increased pace of expenditures during 2018 in order to start human trials for AB569 and Metablok. If deemed necessary, management of the Company will access capital markets to raise more funds to complement existing resources. Please see ITEM 6 – Liquidity, for more information.

## ITEM 5 - Summary of Quarter Results

The following table sets forth, for each quarter ended on the date indicated, information relating to the Company's revenue, net income (loss) per common share as prepared under IFRS.

All values in CAD

Quarter Ending:	Sept 30 2017 Q4	Jun 30 2017 Q3	Mar 31 2017 Q2	Dec 31 2016 Q1	Sept 30 2016 Q4	Jun 30 2016 Q3	Mar 31 2016 Q2	Dec 31 2015 Q1
<b>Revenue</b>	-	-	-	-	-	-	-	37,641
Income (loss) BEFORE discontinued operations	(208,394)	(1,306,351)	(154,324)	(235,357)	(344,849)	(182,810)	(322,866)	(156,047)
Income (loss) BEFORE other items	(208,394)	(1,306,351)	(154,324)	(235,357)	(344,849)	(182,810)	(322,866)	(156,047)
Per share	(0.006)	(0.023)	(0.003)	(0.004)	(0.006)	(0.003)	(0.006)	(0.003)
<b>Results Surrounding Extraordinary/Other Items:</b>								
Discontinued Operations	-	-	-	-	-	-	-	-
Extraordinary/Other Items	-	-	-	-	-	-	-	-
<b>Income (Loss)</b>	(208,394)	(1,306,351)	(154,324)	(235,357)	(344,849)	(182,810)	(322,866)	(156,047)
Per share	(0.004)*	(0.023)**	(0.003)**	(0.004)**	(0.006)*	(0.003)*	(0.006)#	(0.003)#

## Based on 55,299,679 shares outstanding since Sept 2017

\*\* Based on 54,849,679 shares outstanding since March 2017

\*Based on 53,849,679 shares outstanding since June 2016

#Based on 53,189,679 shares outstanding since March, 2015

## ITEM 6 - Liquidity

The Company's primary source of cash flow is from the issuance of its own securities, as it has not yet generated positive cash flows from its operations. Economic downturn, a weak stock market, restriction of global capital similar to the global financial crisis of 2008-09 are examples that could make it more difficult for the Company to raise money in the future if it so requires. In 2018, management of the Company will consider accessing capital markets to raise more funds to complement existing resources and improve its cash position.

The Company's working capital deficit as at September 30, 2017, excluding loans and accrued interest owing to a shareholder, was approximately \$213,962. This working capital deficit is a calculated number and does not have a formal definition according to IFRS but management feels it provides useful information to the user of the financial statements.

The Company has taken the following steps to improve liquidity and working capital during 2016 and 2017 and subsequent to September 30, 2017:

- On January 26, 2018, the Company announced it intends to complete a non-brokered private placement offering of up to 2,500,000 common shares priced at \$0.50 per

common share for gross proceeds of up to \$1,250,000 (the "Offering"). The Offering is expected to close in two equal tranches of \$625,000 on February 2, 2018 and March 10, 2018 respectively and is subject to certain conditions including, but not limited to, the receipt of applicable regulatory approvals, including approval of the TSX Venture Exchange as well as the satisfaction of other customary closing conditions. All Common Shares issued in connection with the Offering will be subject to a hold period of four months and one day from the closing date.

- On October 24, 2017, the Company closed a non-brokered, unsecured convertible note financing for gross proceeds of \$500,000. The Note matures on October 31, 2020 and will be convertible, at the option of the holder, into common shares of the Company at a price per share of \$0.50, in the thirty-day period prior to the maturity of the Note. The Note bears interest of 5% per annum, which is payable in-kind by the Company with Common Shares to be issued at the then market price for the Common Shares and subject to TSX Venture Exchange approval in each instance. The holder has the option until July 31, 2020 to extend the term of the note another two years to October 31, 2022.
- Between August 4, 2017 and September 13, 2017, the Company raised \$200,000 with the closing of the non-brokered private placement the Company announced in a press release July 24, 2017. Pursuant to the terms of this offering, Arch issued 400,000 Units at a price of \$0.50 per Unit (the "Units"). Each Unit consists of one common share of the Company and one common share purchase warrant (the "Warrant"). Each Warrant entitles the holder to purchase one common share of the Company at an exercise price of \$0.50 per common share until two years after the closing date of the private placement.
- On February 28, 2017, the Company raised \$400,000 with the closing of the non-brokered private placement the Company announced in a press release February 21, 2017. Pursuant to the terms of this offering, Arch issued 1,000,000 common shares priced at \$0.40 per common share.
- During June 2016, the Company raised \$330,000 by closing a non-brokered private placement it announced in a press release June 14, 2016. Pursuant to the terms of this private placement, Arch issued 660,000 Units at a price of \$0.50 per unit (the "Units"). Each Unit consists of one common share of the Company and one common share purchase warrant (the "Warrant"). Each Warrant entitles the holder to purchase one common share of the Company at an exercise price of \$0.50 per common share until two years after the closing date of the private placement.
- Company management has secured loans from a director and a shareholder of the Company. The outstanding amount is approximately \$349,448 as at September 30, 2017. During January 2015 the Company agreed to pay 6% per annum paid semi-annually on these funds. These funds were used when the Company had insufficient working capital at various times to settle payables and ongoing expenses of the Company's operations. The

shareholder has indicated that they will not be calling the loan in the next twelve months, therefore the loan has been treated as a long-term liability.

## **ITEM 7 - Capital Resources**

The Company does not currently have any commitments to capital expenditures nor does it have any externally imposed capital requirements at this time.

Presently, the Company does not have sources of capital other than issuing new equity.

## **ITEM 8 - Off-Balance Sheet Arrangement**

### *Intellectual Property Transfer Agreements*

In 2010, the University of Calgary scientists in Arch contractually assigned ownership of current and future intellectual property relating to the Arch Biotech and Arch Cancer Therapeutics' research projects to the Company.

The scientists of Arch Biophysics Ltd, the University of Alberta and the Company executed a similar intellectual property assignment to the Company for the rights to the Peptide-Solid Surface Interface.

The Company has entered into an exclusive licensing contract with the University of Cincinnati on the intellectual property relating to AB569.

This intellectual property and license together represent one of the key assets of the Company.

### *Scientist Engagement Contracts*

Scientists managing the Company's technology development within the Company's subsidiaries have executed scientist engagement contracts with the Company. Pursuant to the contracts, the scientists are obliged, among other things, to work on the Company's respective research programs exclusively for the Company without detracting from their responsibilities as members of the university faculty.

## **ITEM 9 - Transactions with Related Parties**

The following were transactions with Related Parties subsequent to and during the year ending September 30, 2017 and during 2016:

- On August 4, 2017, An Independent Director of the Company participated as an insider in the private placement offering of units as described above and disclosed in a press release of the same date. The issuance of 60,000 Units to the insider is considered a related party transaction within the meaning of Multilateral Instrument 61-101 ("MI 61-101"). The Company is relying on the exemptions from the requirements of MI 61-101 in respect of any Insider Participation
- On April 18, 2017, the Company granted a total of 2,100,000 incentive stock options to its directors, officers and certain scientists pursuant to the Company's 2017 stock option plan. Each stock option is exercisable into one common share of the company for a period of seven years, exercisable at \$0.50 per share.
- On August 29, 2016, the Company granted a total of 300,000 incentive stock options to its directors as the only compensation for serving as a director for the year which began on March 30, 2016, the day of the company's last annual meeting of shareholders. Each stock option grant is for 50,000 options to each of the Board's six directors. Each stock option is exercisable into a common share of the company for a period of five years, exercisable at \$0.50 per share.
- On January 28, 2016, the Company granted a total of 300,000 incentive stock options to its directors as the only compensation for serving as a director for the year which began on March 30, 2015, the day of the company's last annual meeting of shareholders. Each stock option grant is for 50,000 options to each of the Board's six directors. Each stock option is exercisable into a common share of the company for a period of five years, exercisable at \$0.45 per share.
- Company management has secured loans from a director and a shareholder of the Company. The outstanding amount is approximately \$349,448 as at September 30, 2017. During January 2015 the Company agreed to extend this loan and to pay 6% per annum semi-annually on these funds. These funds were used when the Company had insufficient working capital at various times to settle payables and ongoing expenses of the Company's operations. The director and shareholder has indicated that they will not be calling the loan in the next twelve months, therefore the loan has been treated as a long-term liability.

## **ITEM 10 - Fourth Quarter ending September 30, 2017**

The Company recorded a *loss from operations* of \$208,394 for the quarter ended September 30, 2017 versus a *loss from operations* of \$344,849 for the same quarter in 2016. The losses are the sum total of all general and administrative expenses, including patent expense, professional fees,

research fees and regulatory fees associated with managing the Company in the ordinary course of its operations.

The majority of the decrease in losses is the result of \$134,563 in non-cash, share based compensation incurred for the fourth quarter last year where such expense was not incurred in the fourth quarter of 2017. Please see ITEM 9, “Transactions with Related Parties” for more detail concerning the annual stock option grant to the directors of the board of the Company.

Patent expense for the quarter ending September 30, 2017 decreased to \$42,842 from a total patent expense of \$88,023 in the fourth quarter last year due to a lighter amount of patent work performed by the Company’s patent team.

Research expense increased to \$124,416 in the fourth quarter, compared with \$47,851 a year earlier. The increase was the result of increased costs related to preparations for a first in human trial for AB569 that did not occur a year earlier. The majority of these research expenses are the result of the cost of manufacturing AB569 clinical inhalation kits to be used in the phase I trial at CVAMC mentioned above.

## **ITEM 11 - Proposed Transactions**

The Company does not have any proposed transactions as at the date hereinabove.

For more information regarding past transactions, please consult the Company’s public filings at [www.SEDAR.com](http://www.SEDAR.com)

## **ITEM 12 - Critical Accounting Estimates**

This section is not required as the Company is a Venture Issuer, as the term is defined in National Instrument 51-102. Comments on accounting estimates are disclosed in the notes to the annual financial statements.

## **ITEM 13 - Financial Instruments and Other Instruments**

Please refer to Note 3 – “Summary of Significant Accounting policies - *Financial Instruments*” and Note 5 – “Financial Instruments” in the Company’s audited annual financial statements for the year ending September 30, 2017.

## ITEM 14 - Other MD&A Requirements

The Company is authorized to issue an unlimited number of common shares, where each common share provides the holder to one vote. At of the date of this Management Discussion and Analysis there were 55,299,679 common shares issued and outstanding. In addition, the Company had the following convertible securities outstanding:

Type	Quantity	Exercise Price	Expiry Date
Stock Options	900,000	0.30	October 24, 2019
	100,000	0.40	October 24, 2019
	200,000	0.50	October 24, 2019
	50,000	0.40	April 16, 2018
	300,000	0.45	January 28, 2021
	350,000	0.50	August 29, 2021
	2,050,000	0.50	April 18, 2024
Warrants	665,500	0.50	June 22, 2018
	250,000	0.50	July 28, 2019
	60,000	0.50	August 4, 2019
	90,000	0.50	September 12, 2019

Please see ITEM 6 – Liquidity, for details regarding the warrants. Please see ITEM 9 – Transactions with Related Parties for more details on the options.

## Summary of Significant Accounting Policies

Please refer to Note 3 of the Company’s audited annual financial statements for the year ending September 30, 2017 for a summary of significant accounting policies and future accounting changes.

## Discussion on Disclosure and Internal Controls

**As a venture issuer, Arch Biopartners management is not required to certify or include representations about the design and maintenance of Disclosure Controls & Procedures or Internal Control over Financial Reporting and none of the following comments should be so interpreted; however, in the interest of full disclosure, management wishes to include the following comments on Internal Control over Financial Reporting and Disclosure Controls & Procedures.**

In assessing Disclosure Controls and Procedures and Internal Control over Financial Reporting, readers are cautioned that a control system can only provide reasonable, not absolute, assurance that the objectives of the control system are achieved. Due to the inherent limitations in all control systems, an evaluation of controls cannot provide absolute assurance that all control

issues, including instances of fraud, if any, have been detected. Inherent limitations include the possibility that the assumptions and judgments of management could ultimately prove to be incorrect under varying conditions and circumstances; or that isolated errors could prove to have a significant impact on the reliability of information.

Additionally, controls may be circumvented by the unauthorized acts of individuals, by collusion of two or more people, or by management override. The design of any system of controls is also based in part upon certain assumptions about the likelihood of future events, and it is not possible to provide complete assurance that a control system will succeed in achieving its stated goals under all potential future conditions.

## **Business Risks and Uncertainties**

An investment in the common shares of the Company should be considered highly speculative due to the nature of the business of the Company, consisting of research, development and commercialization of patents for industrial products, pharmaceuticals or therapies for the treatment related of human diseases, as well the Company's present stage of its development and its lack of operating history. In evaluating the business of the Company, readers should carefully consider the following risk factors. Additional risks not currently known to the Company as of the date hereof may also impair future business operations of Company. The list below is not a definitive list of all risk factors associated with the business of the Company.

### *Debt and Interest Risk*

The Company does not have any external debt at the moment. As previously mentioned, the Company has a loan of proximately \$349,000 outstanding from a director and a shareholder for working capital purposes.

Management of the Company does not consider this debt exposure to have material sensitivity to changes in interest rates.

### *Current Global Financial and Economic Conditions*

Current global financial and economic conditions remain extremely volatile. Several major international financial institutions and other large, international enterprises have either filed for bankruptcy or are being actively rescued by governmental intervention. Access to public and private capital and financing continues to be negatively impacted by many factors as a result of the global financial crisis and global recession. Such factors may impact the Company's ability to obtain financing in the future on favourable terms or obtain any financing at all. Additionally, global economic conditions may cause a long-term decrease in asset values. If such global volatility, market turmoil and the global recession continue, the Company's operations and financial condition could be adversely impacted.

### *Risks Related to Early Stage Development*

The Company is currently at an early stage of development and subject to start up risks, including start up losses, lack and uncertainty of revenues, unproven markets for its products, risks in the commercialization process, lack of profitability and the need to raise additional funding.

### *Risks Associated with Biomedical Research, Development and Product Commercialization*

The Company's growth and future success will be substantially dependent on its ability to develop, license or otherwise acquire new commercially viable patents and products and obtain related governmental approvals. Any failure in respect of the commercial viability of the Company's patents or failure to obtain related governmental approvals could result in a material adverse effect on the business, financial condition and results of operations of the Company. The business of the Company is subject to significant and material risks that cannot be eliminated or adequately mitigated, even with careful and prudent planning and evaluation, experience, knowledge and managerial and operational know-how. The Company will face a number of uncertainties. Development of intellectual property into commercially viable patents can oftentimes completely fail or be terminated at any stage in the research and development process, oftentimes after the expenditure of considerable financial resources.

Health Canada's Therapeutic Products Directorate (the "TPD") is the Canadian federal authority that regulates pharmaceutical drugs and medical devices for human use. The United States Food and Drug Administration (the "FDA") performs a similar function at the federal level in the United States. Prior to being given market authorization to sell products sold in the U.S. and Canada, respectively, the TPD and FDA must be presented with substantive scientific evidence of a product's safety, efficacy and quality. Member states of the European Union and other nations may impose similar regulatory pre-approvals before products can be brought to market. Obtaining FDA, TPD and other regulatory and governmental approvals is extremely time consuming, requires a material amount of capital and subjects products to thorough testing. The outcome of such regulatory applications can often times be unpredictable and yield unanticipated outcomes. The time involved, and the potential failure to obtain, FDA, TPD and other similar regulatory approvals could adversely affect the Company's business plan, product pipeline, financial condition and results of operations.

The Company may rely on the acquisition or licensing of other patents, products or technologies sourced from third parties. The use of such a strategy will draw down the Company's resources in connection with due diligence and expenses in identifying, evaluating and negotiating joint venture or acquisition agreements. In addition, the licensing of patents, products or technologies from third parties can involve significant counterparty contractual risk.

### *Significant Future Capital Requirements, Future Financing Risk and Dilution*

No assurances can be provided that the Company's financial resources will be sufficient for its future needs. Current projections for revenues from operations are insufficient to meet the Company's future capital requirements. As such, the Company will be required to undertake future financings that may be in the form of a sale of equity, debt secured by assets or forward purchase payments. No assurances can be made that the Company will be able to complete any of these financing arrangements or that the Company will be able to obtain the capital that it requires. In addition, the Company cannot provide any assurances that any future financings will be obtained on terms that are commercially favourable to the Resulting Issuer.

Any such future sale of Common Shares or other securities convertible into Common Shares will lead to further dilution of the equity ownership of existing shareholders.

### *No Anticipated Dividends*

The Company does not expect to pay dividends on its issued and outstanding Common Shares in the foreseeable future. If the Company generates any future earnings such cash resources will be retained to finance further growth and current operations. The board of directors of the Company will determine if and when dividends should be declared and paid in the future based on the financial position of the Company and other factors relevant at the particular time. Until the Company pays dividends, which it may never do, a shareholder will not be able to receive a return on his or her investment in the Common Shares unless such Common Shares are sold. In such event, a shareholder may only be able to sell his or her Common Shares at a price less than the price the shareholder originally paid for them, which could result in a significant loss of such shareholder's investment.

### *Negative Cash Flow and Absence of Profits*

The Company has not earned any profits to date and there is no assurance that it will earn any profits in the future. The Company expects to continue to incur significant operating losses as continued development and clinical trials occur. Such losses are anticipated to have an adverse effect on shareholders' equity and working capital. The Company will need to generate significant revenues in order to achieve and maintain profitability and there can be no guarantees that profitability, if ever achieved, will be sustained.

The Company's ability to generate revenue in the future is dependent, in large part, on completing product development, obtaining regulatory approvals and successful commercialization and marketing of the Company's patents for pharmaceuticals or therapies for the treatment related of human diseases. The Company cannot provide any assurances that the products it may develop or license will ever successfully commercialize or achieve revenues

from sales. There can be no assurance that future revenues will be sufficient to generate the required funds to continue in the biotechnology industry.

### *Limited Operating History*

The Company is in the early stage of development. As such, the Company is subject to many risks common to such enterprises, including under-capitalization, cash shortages, limitations with respect to personnel, financial and other resources and the lack of revenues. There is no assurance that the Company will be successful in achieving a return on shareholders' investment and the likelihood of success must be considered in light of its early stage of operations.

### *Management of Growth*

The Company may be subject to growth-related risks including pressure on its internal systems and controls. The Company's ability to manage its growth effectively will require it to continue to implement and improve its operational and financial systems. The inability of Company management to deal with this growth could result in a material adverse impact on its business, operations and prospects. While management believes that it will make the necessary investments in infrastructure to process anticipated volume increases in the short term, the Company may experience growth in the scope of its operating and financial systems, resulting in increased responsibilities for the Company's personnel, the hiring of additional personnel and, in general, higher levels of operating expenses. In order to manage its current operations and any future growth effectively, the Company will also need to continue to implement and improve its operational, financial and management information systems and to hire, train, motivate, manage and retain its employees. There can be no assurance that the Company will be able to manage such growth effectively, that its management, personnel or systems will be adequate to support the Company's operations.

### *Risks Related to Pre-Clinical and Clinical Trials*

Extensive preclinical and clinical trials (collectively "**Clinical Trials**") are required to commercialize the Company's pipeline of products, which involves, among other things, demonstrating safety and efficacy. Clinical Trials are capital intensive undertakings, take years to complete and can oftentimes yield unintended outcomes, including, among other things, harmful side effects that may delay or bar regulatory approval or limit commercial use of the product, if approved. The Company's future success will depend, to a significant degree, on obtaining successful outcomes to Clinical Trials. In general, Clinical Trials are risky, time consuming endeavours and can oftentimes result in complete failure after material expenditures are made, especially where a novel use or chemical is proposed or tested, which can also increase the risk of harmful side effects. The Company's developmental pipeline may never evolve into commercially viable products if adverse outcomes or failures arise in connection with Clinical Trials. The scope, duration and number of Clinical Trials will vary according to the relevant

governmental agency. Failure to obtain regulatory approval or successful commercialization of the product pipeline could result in a material adverse effect on the business and financial condition of the Company.

#### *Risks Related to Marketplace Acceptance of the Resulting Issuer's Products*

The Company's product pipeline may appear promising but may ultimately fail to reach a defined market. Additionally, the Company's products may have limited or no commercial success. Market acceptance of the Company's products will be impacted by several factors, none of which (collectively or individually) can necessarily be eliminated, adequately mitigated or managed, even with careful and prudent planning and evaluation, experience, knowledge and managerial and operational know-how. Such factors include, but are not limited to, the following (in no particular order): (i) timing of regulatory approvals, (ii) competition from more established firms, (iii) safety of the proposed product as compared to existing treatments, including the availability of alternatives, (iv) scope of approved use and marketing approval, (v) costs to produce the product and (vi) price.

#### *Risks Related to Intellectual Property (Licenses, Patents and Proprietary Rights)*

The patent positions of other persons are oftentimes uncertain and tend to involve an examination of increasingly complex legal and factual questions. The patent situation outside the U.S. and Canada is even more uncertain. The business of the Company will be characterized by a significant amount of potential litigation risk in relation to patent defence and patent infringement claims. The success of the Company will depend upon its ability to protect its own intellectual property while simultaneously conducting its affairs in a manner that does not infringe upon the proprietary rights of others. Existing patent holders, or others, may seek to oppose or challenge some or the Company's entire portfolio of patents or may actively attempt to circumvent the Company's patents. Additionally, the Company may discover that existing patents may impede its ability to capitalize on the outcomes of its research projects. The Company can provide no assurances that it can successfully defend its patents and can provide no comfort that a court will ultimately uphold their validity. The costs of litigation, if any, may be material and may quickly strain the limited financial resources of the Company. In addition to cost any litigation could be time-consuming and place severe operational strains upon senior management team and technical personnel. The loss of actual litigation, if any, could result in monetary damages being levied against the Company or subject the Company to an interlocutory or permanent injunction.

#### *Risks Related to Competition and Technological Change*

The biotechnology industry is extremely competitive and is subject to rapid and significant technological change that, among other things, places immense pressure on the business of the Company. The Company competes against other, more established research teams and firms who

may be examining the same subject matter being researched by the Company. A large number of the Company's competitors, which include, among others, major pharmaceutical and chemical companies, specialized contract research organizations, research-and-development firms, universities and other research institutions will have superior financial and operational resources and more experience in research and development. Competitors may develop new treatments or technologies that compete with the Company's products or even render the Company's technologies obsolete.

#### *Risks Related to Product Liability Claims*

Product liability claims may arise against the Company in connection with the testing and administration of pharmaceuticals, whether in Clinical Trials or commercially, and may arise regardless of whether the Company's product is actually at fault. In general, product liability claims may produce product recalls, result in protracted litigation and could cause adverse publicity, any of which outcomes could adversely affect the regulatory approval process and/or cause a long term decline in the value of the Common Shares. The defense of product liability claims (which oftentimes comes in the form of a class proceeding) can be extremely time consuming and costly, even against bogus claims, and may place significant strains on the financial resources of the Company. The Company does not carry any product liability insurance at this time but intends to do so as its business develops and its product pipeline is commercialized. However, product liability insurance coverage is very expensive, is oftentimes difficult to obtain, may not be available on commercially reasonable terms or may be capped at certain thresholds, which may result in uninsurable risks to the Company. The Company can provide no assurances that product liability insurance, if any, will be obtained or if obtained will be adequate in scope.

#### *Key Personnel*

The Company's business involves a high degree of risk, which a combination of experience, knowledge and careful evaluation may not be able to be managed or overcome. As such, the Company's success is dependent on the services of its senior management and the members of its Scientific Advisory Board. The loss of one or more of the Company's key employees or consultants could have a material adverse effect on the Company's operations and business prospects. In addition, the Company's future success will depend on its ability to attract and retain skilled technical, management and marketing personnel. There can be no assurance that the Company will be successful in attracting and retaining such personnel and the failure to do so could have a material adverse effect on the Company's business, its operating results as well as its overall financial condition.

#### *Foreign Exchange Risk*

The majority of expenses are now in Canadian dollars. Less than 30% of the Company's expenses are denominated in US dollars.

At the present time, the Company does not use any foreign exchange risk management tools such as currency forward or options contracts.