Managements' Discussion and Analysis
(Expressed in Canadian Dollars)

# KANE BIOTECH INC.

Years ended December 31, 2012 and 2011

# KANE BIOTECH INC.

**Management's Discussion and Analysis**

The following management's discussion and analysis ("MD&A") covers information up to April 4, 2013 and should be read in conjunction with the annual audited financial statements for the year ended December 31, 2012. Except as otherwise noted, the financial information contained in this MD&A and in the financial statements has been prepared in accordance with IFRS. All amounts are expressed in Canadian Dollars unless otherwise noted. Additional information regarding the Company is available on SEDAR at www.sedar.com and on the Company's website at www.kanebiotech.com.

## OVERVIEW

Kane Biotech Inc. ("Kane" or the "Company") is a biotechnology company engaged in the development and commercialization of products that prevent and remove microbial biofilms. Biofilms develop when bacteria and other microorganisms form a protective matrix that acts as a shield against attack. When in a biofilm, bacteria become highly resistant to antibiotics, antimicrobials, biocides and host immune responses. This resiliency contributes to numerous human health problems such as wound care, recurrent urinary tract infections, medical device associated infections and tooth decay. According to the National Institutes of Health (NIH), USA, biofilms are estimated to be responsible for 80% of all human bacterial infections and cost industry, governments and hospitals in the billions of dollars each year. As such, there is significant interest in safe and effective products that can combat the biofilm problem.

Kane has a portfolio of products and intellectual property acquired from leading research institutions and the Company's own biofilm research expertise. These products that prevent and remove microbial biofilms, among other uses, have been developed from the Company's ability to screen for factors affecting biofilm formation.

The Company is listed on the TSX Venture Exchange under the symbol "KNE"

### Corporate Update

On February 7, 2013 Kane Biotech announced it has granted an aggregate of 2,740,000 stock options at an exercise price of $.14 per common share to directors, management, employees and consultants of the Company. The options pursuant to the Corporation's stock option plan are subject to TSX Venture Exchange acceptance. In accordance with securities regulatory requirements, any shares issued pursuant to the exercise of such options will be subject to resale restriction for a period of four months from the date of grant.

In addition, the Company has extended the service agreement with Pure Advertising and Marketing Inc. for investor relations services in 2013. Pure is an established investor relations firm based in Vancouver, BC and works with junior companies in articulating a company's inherent value to the investment community and strategic partners. The services agreement for investor relations, subject to TSX Venture Exchange approval, is a 12 month term where either party may terminate the agreement at any time on 6 months prior written notice.

On February 1, 2013 the Company launched its marketing field test for StrixNB™ in Manitoba in conjunction with Pet Dental Health Month. Manitoba pet owners will be the first in Canada to have access to this easy-to-use companion animal oral care product that has the potential to change the way we care for our pets' teeth.

On December 14, 2012, Kane Biotech announced the closing of its previously announced non-brokered private placement offering units at a price of $0.08 per Unit. Each Unit is comprised of one common share of the Corporation and one Share purchase warrant. Each Warrant entitles the holder thereof to purchase one Share at a price of $0.15 per Share for a period of 12 months from the date of issuance of the Warrant. At the closing the Corporation issued 18,035,000 Units for aggregate gross proceeds of $1,442,800. The Common Shares and Warrants forming the Units issued pursuant to the Offering will be subject to a hold period of four months and a day in accordance with applicable securities laws. Certain persons assisted the Corporation by introducing potential subscribers for the Offering and will be entitled to receive: (i) a finder's fee, payable in cash, equal to 8% of the total subscription proceeds received from subscribers introduced to the Corporation by such finder; and (ii) Share purchase warrants equal to 8% of the number of Units sold pursuant to the Offering to subscribers introduced to the Corporation by such finder. Each Compensation Warrant shall entitle the holder thereof to purchase one Share at a price of $0.08 per Share for a period of 12 months form the date of issuance of the Compensation Warrant. The net proceeds of the Offering will be used for the Corporation's research and development program and for working capital purposes. The Offering is subject to the final approval of the TSX Venture Exchange.

On November 28, 2012 the Company announced the appointment of Dr. Arvind K. Joshi, M.D. F.R.C.S. (C), F.A.C.O.G., M.B.A., C.H.E. to its Board of Directors. Dr. Arvind K. Joshi is Chief Executive Officer at St. Mary's Hospital Centre in Montreal, a McGill University affiliated institution. He has held this position since 1997. He is an associate professor at McGill University. He is a past Board member of the corporation of Bishop's University in Lennoxville, Quebec, and of the Board of Governors of Concordia University. He is also a member of the Board of Directors of the Association *Québécoise d'etablissements de santé et de services sociaux* representing the McGill RUIS. He chairs and sits on several committees at various levels.

On November 27, 2012 Kane Biotech announced it received approval from the Therapeutic Products Directorate of Health Canada for the application of KBI Antibacterial Hard Surface Disinfectant (KBI) in Hospitals, Food Processing Industries, Institutional/Industrial and Barn Facilities.

On November 20, 2012 the Company announced it received a Notification Number from the Low Risk Veterinary Health Products (LRVHPs) program for the marketing of StrixNB™ in Canada. With the issuance of this number, the Company has cleared the final requirements and moves closer to market launch of StrixNB™ for the pet market in Canada.

On November 15, 2012 the Company announced that it has successfully completed the veterinary clinic testing of its StrixNB™ Pet Oral Care product. The test results demonstrated the removal as well as prevention of dental plaque and tartar along with an appreciable reduction of bad breath in dogs. During testing, veterinarians found 92% of dogs receiving StrixNB™ showed a significant improvement in their dental and oral hygiene including the freshening of breath. The Company will continue to work with veterinarians on an ongoing basis to build additional case study profiles and market information.

On November 6, 2012 Kane Biotech announced the issuance of Patent No. 2006265707 entitled "Antimicrobial compositions for inhibiting growth and proliferation of a microbial biofilm on medical devices" by the Australian patent office. This patent covers the Company's Aledex® technology for the antibiofilm-antimicrobial coating of medical devices to prevent hospital-acquired infections. This was the fourth patent issued for Kane Biotech's Aledex® technology.

On October 25, 2012 the Company announced the signing of a non-exclusive licensing agreement with Avmor Ltd for the manufacturing, distribution and sales of its Antibacterial Hard Surface Disinfectant (KBI) for the Canadian market. Avmor is Canada's leading manufacturer of professional cleaning solutions for the janitorial, sanitation and foodservice markets.

On October 16, 2012 the Company announced the issuance of Patent No. 5073169 entitled "Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms" by the Japan patent office. This patent covers the Company's unique DispersinB® biofilm technology.

On October 10, 2012 Kane Biotech announced that it has successfully developed the manufacturing process and completed the pilot scale production of its StrixNB™ Pet Oral Care product. Four separate pilot manufacturing runs were conducted during the scale up following the required quality control procedures. The successful pilot production confirms the scale up feasibility for commercial production of StrixNB™ which moves the Company closer to market launch. The pilot scale manufacturing was conducted by the Richardson Centre for Functional Foods and Nutraceuticals in Winnipeg, Manitoba.

On October 2, 2012 the Company announced that it amended the terms of its 19,926,328 warrants which are currently outstanding, by extending the exercise period thereof by six months from October 15, 2012 to April 15, 2013. The TSX Venture Exchange has granted its approval for the extension to the term of the warrants. The Company will send a notice to all holders of the warrants notifying them of the extension. The warrants were issued in the private placement completed by the Company on April 15, 2011. Each warrant entitles the holder to purchase one common share of the Company at a price of $0.17 per share.

On October 1, 2012 the Company announced that a Cooperative Research and Development Agreement had just been signed with the US Army Institute of Surgical Research in Fort Sam Houston, Texas. This agreement replaced the original agreement that was previously signed with the Walter Reed Army Institute of Research. The primary objective of this collaboration on "Treatments to Prevent Biofilm Formation for Promoting Wound Healing" is to develop an antibiofilm-antimicrobial wound gel formation and test the said gel formulation to address the needs of the United States Army Dental and Trauma Research Detachment's programs so that it can be readily translated into clinical testing for improving the outcomes of wounded casualties. The collaboration includes conducting research using wound infections to test the efficacy of the wound gel containing antimicrobial peptide KSL-W and DispersinB® antibiofilm enzyme in killing biofilm-embedded bacteria by disrupting biofilms formed on the wound surface.

On September 24, 2012 Kane Biotech announced the issuance of Patent No. 4999842 entitled "Antimicrobial compositions for inhibiting growth and proliferation of a microbial biofilm on medical devices" by the Japan patent office. This patent covers the Company's Aledex® technology for the antibiofilm-antimicrobial coating of medical devices to prevent hospital-acquired infections. This was the third patent issued for Kane Biotech's Aledex® technology.

On September 19, 2012 the Company announced that veterinary clinic testing of its StrixNB™ pet oral product is underway. The objective of the testing is to demonstrate the StrixNB™ formulation as an effective oral care product for the companion animal market. The formulation developed for this initial application is a water additive concentrate that is added to the pet's daily drinking water. The testing is being conducted by veterinarians through their veterinary clinics.

On September 17, 2012 the Company announced the appointment of Gord Froehlich to its Board of Directors and the resignation of Dr. Essam Hamza from the Board of Directors due to personal reasons. Gord is currently the President and CEO of Kane Biotech Inc.

On August 28, 2012 Kane Biotech presented its unique biofilm technologies for oral and wound care applications at the fourth annual Kansas City Animal Health Investment Forum. The Kansas City Animal Health Investment Forum is held each year in August as one of the only opportunities in the world exclusively for animal health companies to present to venture capital, angel investors and private industry looking for new partnership opportunities.

On July 9, 2012 the Company announced that it has granted an aggregate of 1,032,500 stock options at an exercise price of $.15 per common share to the management and employees of the Company. The options are set to expire five years from the date of grant and are subject to TSX Venture Exchange acceptance and the terms of Kane Biotech's stock option plan. In accordance with securities regulatory requirements, any shares issued pursuant to the exercise of such options will be subject to resale restriction for a period of four months from the date of the grant.

In addition the Company has increased the retainer fee to $7,500 per month from $5,000.00 per month for the remainder of the service agreement with Pure Advertising and Marketing Inc. for investor relations services in 2012.

On June 27, 2012 Philip Renaud (Chairman), Dr. Geoffrey Grant, Dr. Essam Hamza and Richard Cherney were elected as directors of the Company. All four individuals were current members of the board of directors of Kane Biotech Inc. and had let their names stand for re-election at the Annual and Special Meeting of shareholders.

On May 30, 2012 the Company announced it filed the PCT (Patent Cooperation Treaty) on its bone tissue regeneration technology with the World Intellectual Property Organization (WIPO). The experimental results from a collaborative research study demonstrate the osteogenic (bone regenerating) activity of the Company's CSP (competence stimulating peptide) technology based fusion polypeptide. The bone regenerating activity of the fusion peptide was confirmed by the experiments to determine: (i) osteoblast (bone cell) precursor stem cell adhesion and proliferation, (ii) osteoblast differentiation based on alkaline phosphatase activity, and (iii) calcium mineralization estimation using alizarin red staining method. The CSP-based fusion polypeptide promoted cell adhesion and osteogenic activity significantly better compared to CSP alone and a known osteogenic peptide (control) tested in this study.

On May 15, 2012 Kane Biotech announced that it had completed a pilot animal study on its pet oral care product. The results of the study showed (i) a reduction in dental plaque, (ii) a reduction in calculus, and (iii) a reduction in gingivitis. Furthermore, no difference in food or water consumption and in body weights was observed, suggesting that all dogs were considered in good health.

On May 1, 2012 Kane Biotech announced that it has developed a pet oral care formulation with both the antimicrobial and antibiofilm activity called StrixNB™. StrixNB not only inhibits biofilm (dental plaque) formation but also kills bacteria embedded in preformed dental plaque. The Company has successfully completed a number of studies on StrixNB including: (i) the in vitro efficacy against growth and plaque formation of Streptococcus mutans, Streptococcus sobrinus, Streptococcus gordonii, Streptococcus sanguis and Aggregatibacter actinomycetemcomitans. The formulation was effective against growth as well as plaque formation of all test organisms, (ii) comparison of anti-plaque efficacy with that of commercial pet oral care products with StrixNB exhibiting a superior performance, and (iii) palatability testing of the formulation on dogs of various ages, breeds and weights confirming that the product is palatable and acceptable.

On April 17, 2012 the Company announced it had successfully completed its contract with the United States Army Dental and Trauma Research Detachment (USADTRD) to develop an antibiofilm-antimicrobial wound gel formulation comprising Kane Biotech's DispersinB antibiofilm enzyme and the US Army's antimicrobial peptide. The wound gel reduced over 95% of biofilm-embedded wound associated bacteria as compared to the commercial wound gel which showed only a 50% reduction. The superior performance is due to synergy between DispersinB and the antimicrobial peptide.

On January 17, 2012 Kane Biotech announced it has renewed the service agreement with Pure Advertising and Marketing Inc. for investor relations services in 2012. The services agreement is a 12 month renewable term where either party may terminate the agreement at any time on 6 months prior written notice. Pure Advertising and Marketing will receive a monthly retainer fee of $5,000.00.

**Intellectual Property**

| Patent # | Title | Jurisdiction |
|---|---|---|
| 2,452,032 | Synergistic Antimicrobial Compositions and Methods of Inhibiting Biofilm Formation | Canada |
| 6,923,962 | Signal Peptides, Nucleic Acid Molecules and Methods for Treatment of Caries | United States |
| 7,144,992 | Synergistic Antimicrobial Compositions and Methods for Reducing Biofilm Formation | United States |
| 7,294,497 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | United States |
| 7,314,857 | Synergistic Antimicrobial Compositions and Methods of Inhibiting Biofilm Formation | United States |
| 7,597,895 | Signal Peptides, Nucleic Acid Molecules and Methods for Treatment of Caries | United States |
| 7,833,523 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | United States |
| 540731 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | New Zealand |
| 555378 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | New Zealand |
| 2,003,284,385 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | Australia |
| 564904 | Antimicrobial Compositions for Inhibiting Growth and Proliferation of Microbial Biofilms | New Zealand |
| 7,989,604 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | United States |
| ZL 200680024157.1 | Compositions for Inhibiting Growth and Proliferation of Microbial Biofilm on Medical Devices | China |
| 4932731 | Signal Peptides, Nucleic Acid Molecules and Methods for Treatment of Caries | Japan |
| 4999842 | Antimicrobial Compositions for Inhibiting Growth and Proliferation of Microbial Biofilms | Japan |
| 2,006,265,707 | Antimicrobial Compositions for Inhibiting Growth and Proliferation of Microbial Biofilms | Australia |
| 5073169 | Compositions and Methods for Enzymatic Detachment of Bacterial and Fungal Biofilms | Japan |
| 2,332,733 | Signal Peptides, Nucleic Acid Molecules and Methods for Treatment of Caries | Canada |

The Company has 18 issued and 24 pending patents. Successful development of products to prevent and remove microbial biofilms may be dependent upon the ability to obtain these patents; however, there is no guarantee they will be obtained, and, if obtained, it may not be possible to successfully defend against any subsequent infringements to these patents. Currently the Company is unaware that it has infringed upon any existing patents issued to third parties and success may, in part, depend on operating without such infringement.

| Trademark | Jurisdiction |
|---|---|
| Kane® | United States |
| DispersinB® | Canada |
| | United States |
| | Europe |
| StrixNB™ | United States |
| Aledex® | United States |

## Research and Development

### DispersinB® Technology

The Company's technology for the wound care market is DispersinB®. Chronic wounds are a serious debilitating complication of vascular disease, diabetes and prolonged immobility and are a huge unmet clinical need that costs the US health care system $20 billion per year. The current global market for wound care management technology is estimated at US $4.5 billion per year. The DispersinB® technology also has potential applications in coating medical devices to prevent device related hospital acquired infections and Cystic Fibrosis associated infections. Kane has demonstrated in vitro and in vivo efficacy of central venous catheters coated with the combination of DispersinB® and Triclosan against blood stream infection associated bacteria. Furthermore, the in vivo efficacy of DispersinB® against a biofilm embedded Methicillin Resistant Staphylococcus aureus (MRSA) strain infection in a chronic wound mouse model has also been confirmed.

The Company has created a Master Cell Bank for manufacturing clinical grade DispersinB®, completed manufacturing of clinical grade DispersinB® and the manufacturing of the DispersinB® wound spray. Biocompatibility testing of the wound spray has also been completed and confirms that DispersinB® wound spray is non cytotoxic, non irritant, non mutagenic, non genotoxic, non sensitizing, and non-toxic in rabbits as determined by a 13-week sub chronic toxicity study.

The Company formulated a DispersinB®-Gentamycin Wound Gel Spray containing a thermo reversible gelling agent that makes the liquid spray become a gel when applied at body temperature. Gentamycin is an FDA approved broad-spectrum antibiotic and is used in currently marketed wound care products. This wound spray is developed for both human and veterinary applications. The *in vitro* efficacy of the wound spray was tested against wound-infection associated bacteria and it demonstrated broad-spectrum antibiofilm-antimicrobial activity. A pilot *in vivo* efficacy study using mouse wound model of *Staphylococcus aureus* biofilm infection was conducted in collaboration with the Texas Tech University Health Sciences Center. In this study, the efficacy of Gentamycin alone was compared with that of DispersinB-Gentamycin combination, and the combination was more effective than Gentamycin alone.

The Company successfully completed the contract with the United States Army Dental and Trauma Research Detachment (USADTRD) to develop an antibiofilm-antimicrobial wound gel formulation comprising DispersinB antibiofilm enzyme and the US Army's antimicrobial peptide. The wound gel reduced over 95% of biofilm-embedded wound associated bacteria as compared to the commercial wound gel which showed only a 50% reduction. The superior performance is due to synergy between DispersinB and antimicrobial peptide. This wound gel is intended for treating combat wound associated infections.

### Aledex® Technology

The Company's product for the prevention of catheter associated infections is Aledex®. Kane has both in vitro and in vivo data that demonstrates the product's ability to inhibit the activity of numerous catheter associated pathogens, and protect against urinary catheter related infections. Approximately 30 million urethral catheters are sold in North America annually and indwelling urinary catheters are used in approximately 15% to 25% of short term care patients and all patients in intensive care units. Additionally, in the US alone, more than 150 million intravascular catheters are used and over 5 million central venous lines are inserted. This results in about 250,000 catheter related infections each year. Kane has also demonstrated the antimicrobial and anti-biofilm activity of Aledex® combination against dental plaque and oral bacteria associated with periodontal disease.

Kane has completed the testing on the durability of Aledex® coated silicone Foley catheters and in addition confirmed the broad spectrum activity and durability in artificial urine of the finished Aledex® coated silicone Foley catheters.

### StrixNB™ Technology

Kane's StrixNB™ technology is being used for the development of novel oral care products. The Company has both the in vitro and in vivo efficacy data to show that the product is effective against bacteria associated with dental plaque, tartar build-up and periodontal diseases. The Company has completed a number of studies for the pet oral care market indicating that the formulation has effects on growth as well as plaque formation. Also, it is superior to tested commercially available products and is palatable and acceptable to dogs.

The pet oral care market in the US is estimated at $450 million per year and dental disease is the number one oral disease in dogs and cats and over 95% of all dogs and cats will have dental disease. Bacteria in the mouth cavity form plaque and as the plaque builds up, bacteria cause tartar build-up,, gum infection (gingivitis) and periodontitis.

The Company has demonstrated the efficacy of StrixNB™ against Halitosis (bad breath)-associated oral bacteria such as

*Porphyromonas gingivalis*, *Fusobacterium nucleatum* and *Prevotella intermedia*

The Company participated in a collaborative NSERC-Engage Grant Program funded study with Dr. Caroline Hoemann (Professor, Ecole Polytechnique, Montreal) to confirm the osteogenic activity of CSP and CSP-P15 fusion peptide (synthetic and recombinant) using bone marrow stem cells in an *in vitro* system. The study demonstrated the osteogenic (bone regenerating) activity of the Company's CSP technology based fusion polypeptide. The CSP-based fusion polypeptide promoted significantly better cell adhesion, proliferation and osteogenic activity than CSP alone and to a known osteogenic peptide (control) tested in this study.

**KBI Disinfectant Technology**

The Therapeutic Products Directorate of Health Canada issued a Drug Identification Number or DIN (02374463) for KBI Antibacterial Disinfectant. The DIN provides approval to manufacture and market KBI Antibacterial Disinfectant for the Canadian household domestic use market.

The Company submitted a revised supplemental DIN (Drug Identification Number) application on "KBI Antibacterial Disinfectant" to Health Canada for review and approval of additional sites of use. The Company received approval from the Therapeutic Products Directorate of Health Canada for the application of KBI Antibacterial Hard Surface Disinfectant in Hospitals, Food Processing Industries, Institutional/Industrial and Barn Facilities.

The Company has a number of Material Transfer Agreements in place with universities and research institutions to conduct third party research with its technology. In addition, the Company has Confidential Disclosure Agreements in place with a number of companies in the Medical Device, Wound Care, Hard Surface Disinfectant and Oral Care markets. Discussions that take place under these Confidential Disclosure Agreements allow for confidential dialogue and direction on the best design of Kane's research activities. The Company views guidance from market leaders and potential partners as an important external validation of the market potential for its products.

**OUTLOOK**

The strategic direction of the Company is centered on developing solutions to biofilm related problems. In order to advance these programs, management expects Kane to continue incurring operating losses. Based on current projections and strategic plans, total expenses are expected to be similar in fiscal 2013 as compared to fiscal 2012.

The Company has taken measures to conserve cash and has substantially reduced the overall use of capital in the near term due to the challenges posed by current economic conditions and their negative impact on the Company's capitalization and ability to raise capital. With these measures the Company believes its cash resources are sufficient to support the Company's activities through 2013.

The Company's future operations are completely dependent upon its ability to generate product sales, negotiate collaboration or licence agreements with upfront payments, obtain research grant funding, or other strategic alternatives, and/or secure additional funds. While the Company is striving to achieve the above plans, there is no assurance that such sources of funds will be available or obtained on favourable terms. If the Company cannot generate product sales, negotiate collaboration or licence agreements with upfront payments, obtain research grant funding, or if it cannot secure additional financing on terms that would be acceptable to it, the Company will have to consider additional strategic alternatives which may include, among other strategies, exploring the monetization of certain tangible and intangible assets as well as seeking to outlicense assets or potential asset divestitures.

The ability of the Company to continue as a going concern and to realize the carrying value of its assets and discharge its liabilities and commitments when due is dependent on the successful completion of the actions taken or planned, some of which are described above, which management believes will mitigate the adverse conditions and events which raise doubt about the validity of the going concern assumption used in preparing these financial statements. There is no certainty that these and other strategies will be sufficient to permit the Company to continue as a going concern.

The Company may decide to accelerate, terminate or reduce its focus in certain research areas, or commence research in new areas as a result of the Company's research progress and the availability of financial resources. These decisions are made with the goals of managing the Company's cash resources and optimizing the Company's opportunities. Management is not presently aware of any factors that would change its strategy over the next year. See also note 2(c) to the accompanying financial statements.

## RISKS AND UNCERTAINTY

The Company operates in a highly competitive environment that involves significant risks and uncertainties, some of which are outside of the Company's control. The Company is subject to risks inherent in the biotechnology industry, including:

### Risks Related to the Company's Financial Condition

- The Company has not derived any revenue to date from the commercial sale of its antibiofilm products. In light of the length of time and expense associated with bringing new products through commercialization, obtaining regulatory approval and bringing products to market, operating losses are expected to continue.
- The Company has relied on equity financing to support operations and will continue to need significant amounts of additional capital that may not be available to the Company on favourable terms, and may be dilutive.
- The Company may fail to obtain additional financing and be unable to fund operations and commercialize its product candidates.

The Company intends to raise additional financing, as required, through research, partnering and licensing arrangements, the exercise of warrants and options, and through equity financing. However, there can be no assurance that these financing efforts will be successful or that the Company will continue to be able to meet ongoing cash requirements. It is possible that financing will not be available or, if available, may not be on favourable terms. The availability of financing will be affected by the results of scientific and clinical research, the ability to obtain regulatory approvals, market acceptance of the Company's products, the state of the capital markets generally (with particular reference to pharmaceutical, biotechnology and medical companies), the status of strategic alliance agreements, and other relevant commercial considerations.

### Risks Related to the Company's Business and Operations

- The Company is in various stages of development of products and is dependent on the successful commercialization of products to prevent and remove microbial biofilms. Delays may cause the Company to incur additional costs which could adversely affect the Company's liquidity and financial results.
- The Company's business is subject to significant government regulation and failure to achieve regulatory approval of its products would negatively affect the business.
- The Company relies on contract manufacturers as part of its product development strategy, and it would be negatively affected if it is not able to maintain these relationships and/or the contract manufacturers failed to maintain appropriate quality levels.
- Even if product candidates receive all of the required regulatory approvals, there is no guarantee of market acceptance or commercialization of the resulting product candidates, which will be determined by the Company's sales, marketing and distribution capabilities and the positioning and competitiveness of its products compared with any alternatives.
- The Company's industry is characterized by rapid change and a failure by the Company to react to these changes could have a material adverse effect on its business.
- If the Company fails to hire or retain needed personnel, the implementation of its business plan could slow and future growth could suffer.

### Risks Relating to the Intellectual Property

- Failure to protect intellectual property, or infringement on the intellectual property rights of others, may impede the Company's ability to operate freely.
- The Company is dependent on strategic partners, including contract research organizations, as part of its product development strategy, and it would be negatively affected if it is not able to initiate or maintain these relationships.

Kane views patents and other means of intellectual property protection as essential to the Company's core business by protecting the Company's proprietary technology from infringement by competitors. To that end, patents will continue to be filed by the Company to ensure the highest level of protection possible is obtained for its products and technologies. The Company requires all employees, consultants, and parties to collaborative research agreements to execute confidentiality agreements upon the commencement of employment, consulting relationships or a collaboration with the Company. These agreements require that all information developed or made known during the course of the engagement with the Company is to be kept confidential. The Company also maintains agreements with scientific staff and all parties contracted in a scientific capacity, providing that all inventions resulting from work performed for Kane, using Kane's property, or relating to Kane's business and conceived or completed during the period covered by the agreement are the exclusive property of the Company.

**Risks Relating to the Company's Common Shares**

- The Company has not paid, and does not intend to pay any cash dividends on its common shares and therefore, its shareholders may not be able to receive a return on their shares unless they sell them.
- The market price and trading volume of the Company's common shares may be volatile. In addition, variations in future earnings estimates by securities analysts and the market prices of the securities of the Company's competitors may also lead to fluctuations in the trading price of the common shares.
- The significant costs that the Company will incur as a result of being a public company in Canada could adversely affect its business.

To date, no dividends have been declared or paid on the common shares, and it is not expected that dividends will be declared or paid in the immediate or foreseeable future. The policy of the Board of Directors of the Company is to reinvest all available funds in operations. The Board of Directors may reassess this policy from time to time. Any decision to pay dividends on the common shares of Kane will be made by the Board of Directors based on the assessment of, among other factors, earnings, capital requirements and the operating and financial condition of the Company.

## SELECTED ANNUAL FINANCIAL INFORMATION

The following is selected financial information about the Company, for its 2012, 2011 and 2010 fiscal years:

| Years ended December 31, | 2012 | 2011 | 2010 |
|---|---|---|---|
| Research expenses | $ (686,286) | $ (586,194) | $ (492,186) |
| General and administrative expenses | (777,616) | (649,053) | (483,163) |
| Investment income | 12,801 | 20,188 | 6,666 |
| Loss and comprehensive loss for the year | (1,459,495) | (1,221,149) | (973,254) |
| Loss per share | (0.02) | (0.02) | (0.03) |
| Total assets | 2,524,800 | 2,470,808 | 1,254,364 |
| Total liabilities | 176,726 | 92,725 | 90,748 |
| Deficit | (9,945,829) | (8,486,334) | (7,265,185) |
| Total capital stock, warrants and contributed surplus | 12,293,903 | 10,864,417 | 8,428,801 |

## SELECTED QUARTERLY FINANCIAL INFORMATION

The selected financial information provided below is derived from Kane's unaudited quarterly financial statements for each of the last eight quarters:

| | Q4-2012 | Q3-2012 | Q2-2012 | Q1-2012 | Q4-2011 | Q3-2011 | Q2-2011 | Q1-2011 |
|---|---|---|---|---|---|---|---|---|
| Investment income | $ 350 | $ 2,666 | $ 4,073 | $ 5,712 | $ 7,098 | $ 8,338 | $ 4,232 | $ 520 |
| Loss for the period | (416,425) | (390,747) | (348,131) | (304,192) | (298,934) | (341,301) | (224,322) | (356,480) |
| Loss per share | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | - | (0.01) |

It is important to note that historical patterns of expenditures cannot be taken as an indication of future expenditures. The amount and timing of expenditures, and therefore liquidity and capital resources, may vary substantially from period to period depending on the business and research activities being undertaken at any one time and the availability of funding from investors and prospective commercial partners.

The Company's ongoing quarterly losses relate primarily to the execution of research programs, the commercialization of its research and general and administrative expenses such as professional fees, investor relations, and stock-based compensation. The operations of the Company are not subject to any material seasonality or cyclical factors.

RESULTS OF OPERATIONS

### Research

Research expenditures include costs associated with the Company's research programs, the major portion of which are salaries paid to research staff, laboratory rent, consumables, and consulting. The Company is in the development and commercialization stage and devotes a significant portion of its financial resources to research and market-ready product development activities.

The changes in research expenditures for the years ended December 31, 2012 and 2011 are reflected in the following table:

| Years ended December 31, | 2012 | 2011 | Increase (decrease) |
|---|---|---|---|
| Compensation related costs | | | |
| Wages, consulting fees and benefits | $ 326,769 | $ 319,018 | $ 7,751 |
| Stock compensation related costs | 49,842 | 115,365 | (65,523) |
| Consumables | 49,062 | 35,079 | 13,983 |
| Contract research and scientific consulting | 127,740 | 111,426 | 16,314 |
| License fees | 9,917 | 29,759 | (19,842) |
| Laboratory rent and occupancy costs | 78,736 | 33,556 | 45,180 |
| Other research costs | 167,672 | 66,327 | 101,345 |
| Less: Government assistance and lab work recoveries | (123,452) | (124,336) | 884 |
| Research | $ 686,286 | $ 586,194 | 100,092 |

Research expenditures for year ended December 31, 2012 were higher as compared to 2011. This increase can be attributed to the following factors:

- Compensation related costs are higher, as compared to the prior year, as direct payroll expenses increased due to cost of living and merit increases in 2012. Stock compensation related costs reduced from 2011 to 2012 due to the 2011 grant of stock options being for past and future performance and the 2012 grant being only for past performance.
- Consumables are higher than the prior year which results from expected fluctuations in usage and are offset by increased lab work cost recoveries.

- The increase in contract research and scientific consulting is primarily due to the change from manufacturing clinical grade DispersinB® in 2011 to 2012's development of the regulatory pathway for wound care, canine clinical study and disinfectant product testing.
- The decrease in license fees is due to a non-recurring 2011 patent issuance license fee payment.
- Laboratory rent and increased occupancy costs are due to the Company's relocation to new premises commencing in January 2012.
- Other research costs include derecognition expense related to intellectual property. In the year, the Company recorded derecognition expenses of $141,177 (2011 - $40,883) for intellectual property no longer pursued.
- Government assistance and lab work cost recoveries is primarily due to the completion of a provincial commercialization contribution program and lab work for the US Army DispersinB® project.

The Company expects increased levels of research expenditures for the year if additional funding is obtained.

**General and Administration**

General and administration expenses include those costs not directly related to research activities. This includes expenses associated with management services, commercialization activities and professional fees such as legal, audit and investor and public relations.

The changes in general and administration expenditures for years ended December 31, 2012 and 2011 are reflected in the following table:

| Years ended December 31, | 2012 | 2011 | Increase (decrease) |
|---|---|---|---|
| Compensation related costs | | | |
| Wages, consulting fees and benefits | $ 428,950 | $ 311,667 | $ 117,283 |
| Stock compensation related costs | 35,475 | 131,859 | (96,384) |
| Business development costs | 187,869 | 100,430 | 87,439 |
| Other administration costs | 125,322 | 105,096 | 20,226 |
| General and Adminstration | $ 777,616 | $ 649,052 | $ 128,564 |

The net increase in costs for the years ended December 31, 2012 as compared to 2011 can be attributed to the following factors:

- Wages, consulting fees, and benefits are higher, as compared to the prior year, due mainly to the addition of a business development manager to commercialize the company's products, the payment of directors fees and IFRS financial reporting related consulting costs.
- Stock compensation related costs reduced from 2011 to 2012 due to the 2011 grant of stock options being for past and future performance and the 2012 grant being only for past performance.
- During the year, efforts continued in the pursuit of potential commercialization partnerships and financing arrangements.
- The increase in other administration costs is primarily due to relocation related expenses and legal costs. Finance Income (costs)

**Finance Income (Costs)**

The change in investment income for the years ended December 31, 2012 and 2011 are reflected in the following table:

| Years ended December 31, | 2012 | 2011 | Increase (decrease) |
|---|---|---|---|
| Finance income | $ 12,801 | $ 20,188 | $ (7,387) |
| Finance expense | (4,985) | (786) | (4,199) |
| Foreign exchange loss, net | (3,544) | (3,934) | 390 |

**Loss and comprehensive loss for the year**

The loss and comprehensive loss for the years ended December 31, 2012 and 2011 is reflected in the following table:

| Years ended December 31, | 2012 | 2011 | Increase (decrease) |
|---|---|---|---|
| Loss and comprehensive loss for the period | $ (1,459,495) | $ (1,221,149) | $ (238,346) |
| Loss per share | $ (0.02) | $ (0.02) | $ 0.00 |

The Company's loss increased compared to the prior year. This primarily resulted from the increase in commercialization related expenses, derecognition expense related to intellectual property not pursued and IFRS transition expenses. The Company expects to incur a loss in the year as it continues its research and commercialization programs.

## LIQUIDITY AND CAPITAL RESOURCES

Since inception, the Company has financed its operations from public and private sales of equity, the exercise of warrants and stock options, investment income on funds available for investment and government grants and tax credits. As at December 31, 2012, the Company had cash totaling $1,415,015 compared with $1,319,386 at the previous year-end.

### Cash used in operating activities

Cash used in operating activities totaled $1,155,292 for the year ended December 31, 2012, compared to $940,305 for the same period in fiscal 2011 as a result of an increase in actual cash outflows from ongoing research programs and general and administrative activities, net of non-cash items such as stock-based compensation, depreciation, and the write-down of patents in 2012 and offset by deferral of payments and changes in other accrual accounts.

### Cash from financing activities

For the year ended December 31, 2012, cash provided by financing activities totaled $1,344,168 (2011 - $2,188,393) comprising net proceeds from private placements of common shares and warrants.

### Cash used in investing activities

Cash used in investing activities totaled $93,247, for the year ended December 31, 2012. This amount represents patent costs and acquisition of property and equipment. In the previous fiscal period, cash used in investing activities, for patent costs and acquisition of property and equipment totaled $116,224.

**Shares, options, and warrants**

| | April 4, 2013 | December 31, 2012 | December 31, 2011 |
|---|---|---|---|
| Common shares issued and outstanding | 78,631,229 | 78,631,229 | 60,596,229 |
| Options outstanding | 6,887,500 | 4,222,500 | 3,815,000 |
| Warrants outstanding | 38,876,128 | 38,876,128 | 24,624,435 |

On December 14, 2012, the Company closed a private placement offering (the "2012 Offering") of 18,035,000 units (a "Unit") at a price of $0.08 per Unit, for aggregate gross proceeds to the Company of $1,442,800 from the sale. Each Unit was comprised of one common share of the Company (a "Share") and one Share purchase warrant (a "Warrant"). Each whole Warrant entitles the holder to purchase one Share at a price of $0.15 for a period of12 months from the date the warrant was issued. Net proceeds of the Offering shall be used for research and development, product commercialization and working capital purposes

A summary of the Company's capital stock may be found in Note 8 of the accompanying financial statements.

The Company believes it has sufficient resources available to satisfy operating requirements through 2013. The Company's management may consider financing alternatives and may seek to raise additional funds for operations from current stockholders and other potential investors. This disclosure is not an offer to sell, nor a solicitation of an offer to buy the Company's securities. If the Company should pursue such financing, there would be no assurance that funding would be available or obtained on favourable terms.

As disclosed in note 2 to the accompanying financial statements there is substantial doubt about the use of the going concern assumption. The financial statements do not reflect adjustments in the carrying values of the Company's assets and liabilities, expenses, and the balance sheet classifications used, that would be necessary if the going concern assumption were not appropriate. Such adjustments could be material

**CONTRACTUAL OBLIGATIONS**

The Company periodically enters into long-term contractual agreements for the lease of laboratory facilities, equipment and certain purchased services. The following table presents commitments arising from agreements currently in force over the next five years.

| | Payments due by Period | | | |
|---|---|---|---|---|
| | Within 1 year | 2-3 years | 4-5 years | Total |
| Facility lease agreements | $ 6,769 | $ - | $ - | $ 6,769 |
| Accounts payable and accrued liabilities | 176,726 | - | - | 176,726 |
| Investor relations service agreement | 90,000 | - | - | 90,000 |
| Licence maintenance fees | 10,000 | 20,000 | 20,000 | 50,000 |
| | $ 283,495 | $ 20,000 | $ 20,000 | $ 323,495 |

## GUARANTEES

The Company periodically enters into research and licence agreements with third parties that include indemnification provisions customary in the industry. These guarantees generally require the Company to compensate the other party for certain damages and costs incurred as a result of claims arising from research and development activities undertaken on behalf of the Company. In some cases, the maximum potential amount of future payments that could be required under these indemnification provisions could be unlimited. These indemnification provisions generally survive termination of the underlying agreement. The nature of the indemnification obligations prevents the Company from making a reasonable estimate of the maximum potential amount it could be required to pay. Historically, the Company has not made any indemnification payments under such agreements and no amount has been accrued in the accompanying financial statements with respect to these indemnification obligations.

## RELATED PARTY TRANSACTIONS

Related party transactions incurred during the years ended December 31, 2012 and 2011 are as follows:

| | December 31, 2012 | December 31, 2011 |
|---|---|---|
| Business and adminstrative services | - | 104,068 |
| Legal services | 3,486 | - |
| Facility rent | - | 27,750 |

During 2012 the Company engaged in legal services with a Director of the Company.

During 2011 the Chief Financial Officer's services were provided through the business and administrative services agreement with Genesys Venture Inc. (the "GVI Agreement"), a company controlled by the former Chairman of the Board of Directors. In addition, intellectual property, accounting, payroll, human resources and information technology services were provided to the Company through the GVI Agreement. Commencing in 2012 these services were provided by independent third parties or the company's employees. Key management personnel compensation is disclosed in note 9 to the accompanying financial statements.

## OFF-BALANCE SHEET ARRANGEMENTS

Other than as described above, the Company does not have any off-balance sheet arrangements.

## CONTROLS

As a result of the Company's limited administrative staffing levels, internal controls which rely on segregation of duties in many cases are not appropriate or possible. Due to resource constraints and the present stage of the Company's development, the Company does not have sufficient size and scale to warrant the hiring of additional staff to correct this potential weakness at this time. To help mitigate the impact of this potential weakness, the Company is highly reliant on the performance of compensating procedures and senior management's review and approval. During the period the Company made no material changes to its systems of internal controls over financial reporting.

As a venture issuer, the Company is not required to certify the design and evaluation of the Company's disclosure controls and procedures (DC&P) and internal controls over financial reporting (ICFR), and as such has not completed such an evaluation.

Investors should be aware that inherent limitations on the ability of certifying officers of a venture issuer to design and implement on a cost effective basis DC&P and ICFR as defined in NI 52-109 may result in additional risks to the quality, reliability, transparency and timeliness of interim and annual filings and other reports provided under securities legislation.

## CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The preparation of financial statements in conformity with International Financial Reporting Standards ("IFRS") requires the Company to select from possible alternative accounting principles and to make estimates and assumptions that determine the reported amounts of assets and liabilities at the balance sheet date, and reported costs and expenditures during the reporting period. Management believes that the estimates and assumptions upon which the Company relies are reasonable based upon information available at the time these estimates and assumptions are made. Estimates and assumptions may be revised as new information is acquired, and are subject to change.

In addition to the going concern assumption described above, management believes that its most critical accounting policies and estimates relate to the following areas, with reference to notes contained in the accompanying financial statements:

### Research and development costs

The Company's accounting policy over research and development costs may be found in Note 3(d)(i) in the Company's financial statements. Research expenditures are expensed as incurred. Development expenditures are deferred when they meet the criteria for capitalization in accordance with IFRS GAAP, and the future benefits could be regarded as being reasonably certain. Related tax credits are accounted for as a reduction to research and development expenditures on the condition that the Company is reasonably certain that these credits will materialize.

### Patents and trademarks

The Company's accounting policy over patents and trademarks may be found in Notes 3(d)(ii) in the Company's financial statements. Patents and trademarks are reviewed for impairment on an ongoing basis whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. If any such indication exists, then the asset's recoverable amount is estimated. An impairment exists when the carrying value of an asset exceeds its recoverable amount, which is the higher of its fair value less costs to sell or its value in use. The fair value less costs to sell calculation is based on available data from observable market prices, less incremental costs. The value in use calculation is based on a discounted cash flow model. These calculations require the use of estimates and forecasts of future cash flows. Qualitative factors, including market size and market growth trends, strength of customer demand and degree of variability in cash flows, as well as other factors, are considered when making assumptions with regard to future cash flows and the appropriate discount rate. A change in any of the significant assumptions of estimates used to evaluate the underlying assets could result in a material change to the results of operations.

Impairment losses recognized in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed, to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of amortization, if no impairment had been recognized. Write-downs as a result of impairment are recognized in research expense in the statement of comprehensive loss.

### Technology licenses

The Company's accounting policy over technology licences may be found in Notes 3(d)(iii) in the Company's financial statements. Technology license costs are initially recorded based on the fair value of the consideration paid. They are amortized over their expected useful lives commencing in the period in which the licence becomes available for use, which is no later than when the related product is launched commercially and sales of the licensed products are first earned. The carrying amounts of technology license costs do not necessarily reflect present or future fair values and the ultimate amount recoverable will be dependent upon the successful development and commercialization of products based on these rights. Technology licences are reviewed for impairment on an ongoing basis whenever events or changes in circumstances indicate that the carrying amount may not be recoverable, and are subject to an annual impairment test until commercialization of the related product.

**Stock-based compensation**

The Company's accounting policy over stock-based compensation may be found in Notes 3(f)(ii) and 6(c) in the Company's financial statements. Where the Company issues warrants and stock options (to its employees, directors and officers), a fair value is derived using the Black-Scholes pricing model. The application of this pricing model requires Management to make assumptions regarding several variables, including the expected life of the options and warrants, the price volatility of the Company's stock over a relevant timeframe, the determination of a relevant risk-free interest rate and an assumption regarding the Company's dividend policy in the future.

A summary of all of the Company's significant accounting policies and estimates may be found in Note 3 to the financial statements.

## FORWARD-LOOKING STATEMENTS

This Management's Discussion and Analysis contains forward-looking statements which may not be based on historical fact, including without limitation statements containing the words "believes," "may," "plan," "will," "estimate," "continue," "anticipates," "intends," "expects," and similar expressions. Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause the actual results, events or developments to be materially different from any future results, events or developments expressed or implied by such forward-looking statements. Such factors include, among others, the Company's stage of development, lack of product revenues, additional capital requirements, risks associated with the completion of clinical trials and obtaining regulatory approval to market the Company's products, the ability to protect its intellectual property and dependence upon collaborative partners. These factors should be considered carefully and readers are cautioned not to place undue reliance on such forward-looking statements. The forward-looking statements are made as of the date hereof, and the Company disclaims any obligation to update any such factors or to publicly announce the result of any revisions to any of the forward-looking statements contained herein to reflect future results, events or developments.

Actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking statements contained in this MD&A. Such statements are based on a number of assumptions which may prove to be incorrect, including, but not limited to, assumptions about:

- general business and economic conditions;
- interest rates and foreign exchange rates;
- the timing of the receipt of regulatory and governmental approvals for the Company's research and development projects;
- the availability of financing for the Company's research and development projects, or the availability of financing on reasonable terms;
- the Company's costs of trials;
- the Company's ability to attract and retain skilled staff;
- market competition;
- tax benefits and tax rates;
- the Company's ongoing relations with its employees and with its business partners.

Management cautions you that the foregoing list of important factors and assumptions is not exhaustive. Events or circumstances could cause actual results to differ materially from those estimated or projected and expressed in, or implied by, these forward-looking statements. You should also carefully consider the matters discussed under "Risk Factors" in this MD&A. The Company undertakes no obligation to update publicly or otherwise revise any forward-looking statements or the foregoing list of factors, whether as a result of new information or future events or otherwise.