Lexaria Files New Patent Application for Enhancement of Delivery of Lipophilic Agents Across the Blood-Brain Barrier and Methods for Treating Central Nervous System Disorders

Kelowna, British Columbia – June 29, 2018 – Lexaria Bioscience Corp. (OTCQX: LXRP) (CSE: LXX) (the "Company" or "Lexaria") a drug delivery platform innovator, announces it has filed an important new patent application with the United States Patent and Trademark Office ("USPTO") for innovation in treatment options related to central nervous system disease or disorders including viral infection, cancer, neurodegenerative disorders, ADHD, anxiety, depression, OCD, schizophrenia, Alzheimer's, Huntington's, Parkinson's, neuropathic pain and more.

In recent laboratory testing, Lexaria's breakthrough discovery evidenced greatly enhanced drug delivery to brain tissue. Nicotine *in-vivo* (animal) studies showed that up to 560% more nicotine was delivered to brain tissue utilizing DehydraTECH™ than concentration-matched controls lacking DehydraTECH™ enhancements. The study provided evidence of surprising effectiveness in crossing the blood-brain barrier ("BBB") which the Company is investigating more extensively, leading to Lexaria's patent application titled: "Enhancement of Delivery of Lipophilic Active Agents Across the Blood-Brain Barrier and Methods for Treating Central Nervous System Disorders."

It is well documented that nicotine – while addictive – does not cause cancer. It is the tar and other chemicals formed when cigarettes are combusted that cause cancer. Thus, an efficient delivery mechanism of minute quantities of nicotine that does not require combustion could lead to greatly reduced death and disease through the avoidance of smoking, while also potentially aiding reduced chemical dependence on nicotine until such time as addictive-avoidance behaviours can be empowered.

Lexaria's surprising discovery of the DehydraTECH™ apparent effectiveness in crossing the BBB also opens the door to possibilities of delivering other therapeutic drugs in the treatment of intractable diseases.

The BBB, while providing effective protection to the brain against circulating toxins, also creates major difficulties in the pharmacological treatment of brain diseases. Most charged molecules, and most molecules over 700 Daltons in size, are unable to pass through the barrier, and smaller molecules may be conjugated in the liver. These factors create major difficulties in the pharmacological treatment of diseases of the brain and central nervous system ("CNS"), such as Alzheimer's disease, Parkinson's disease, bacterial and viral infections and cancer.

Many therapeutic agents for the treatment of diseases and disorders of the brain and CNS are sufficiently hydrophilic to preclude direct transport across the BBB. Furthermore, these drugs and agents are susceptible to degradation in the blood and peripheral tissues that increase the dose necessary to achieve a therapeutically effective serum concentration. However, as described above, although lipophilicity is generally associated with molecules that are easily able to cross the blood-brain barrier, lipophilicity is not the leading characteristic for molecules that transverse the blood-brain barrier. Seelig and colleagues studied the association of different factors with the ability of molecules to diffuse across the blood-brain barrier, including lipophilicity, Gibbs Adsorption Isotherm, a Co CMC Plot, and the surface area of the drug to water and air (Seelig et al. (1994) *Proc. Nat. Acad. Sci. (USA)* 91:68-72). Their results showed that barrier permittivity is based on a complex interaction between relative size and the surface activity of the molecule, in which the surface activity includes the molecular properties of both hydrophobic and charged residues (Seelig et al. (1994) *Proc. Nat. Acad. Sci. (USA)* 91:68-72).

Prior methods for delivering drugs across the BBB involve three general categories: (1) liposome-based methods, where the therapeutic agent is encapsulated within the carrier; (2) synthetic polymer-based methods, where particles are created using synthetic polymers to achieve precisely-defined size characteristics; and (3) direct conjugation of a carrier to a drug, where the therapeutic agent is covalently bound to a carrier such as insulin. Liposomes are attractive for transporting drugs across the BBB because of their large carrying capacity. However, liposomes are generally too large to effectively cross the BBB, are inherently unstable, and their constituent lipids are gradually lost by absorption by lipid-binding proteins in the plasma. Synthetic polymers have run into difficulties having the drug carried across the cell only to be trapped in an endothelial cell or a lysosome, instead of the desired result of being ejected into the brain parenchyma.

Direct conjugation of pharmacological agents with the substances that can be transported across the BBB, such as insulin, has also been attempted. Insulin and insulin-like growth factors are known to cross the blood brain barrier by specialized facilitated diffusion systems. (Reinhardt et al. (1994) Endocrinology 135(5): 1753-1761). Specific transporters also exist for glucose and for large amino acids such as tryptophan. However, the specificity of the insulin transporter has proved to be too high to allow pharmacological agents covalently linked to insulin to cross into the brain. Similar results have been obtained with glucose and amino acid conjugates, whose uptake has been observed to obey the same general principles as other low-molecular weight substances, with only uncharged molecules below 700 Da achieving significant access to the brain.

Lexaria's application requests patent protection for the delivery of cannabinoids, terpenes and terpenoids, non-steroidal anti-inflammatory drugs (i.e., NSAIDs), vitamins, nicotine,

phosphodiesterase type 5 (PDE5) inhibitors, estrogen, progestin, testosterone, scopolamine and more, utilizing Lexaria's already-patented DehydraTECH™ methodology combined with any of a wide variety of emulsifiers, starches, oils, flavorings and foods.

With approximately 50 patents now granted or pending worldwide, the Company's policy has evolved to continue to issue news releases on material patent filings and issuances, but not on every patent-related development.

About Lexaria

Lexaria Bioscience Corp. has developed and out-licenses its disruptive delivery technology that promotes healthier ingestion methods, lower overall dosing and higher effectiveness of lipophilic active molecules. Lexaria has multiple patents pending in over 40 countries around the world and has patents granted in the USA and in Australia for utilization of its DehydraTECH™ delivery technology. Lexaria's technology provides increases in intestinal absorption rates; more rapid delivery to the bloodstream; and important taste-masking benefits, for orally administered bioactive molecules including cannabinoids, vitamins, non-steroidal anti-inflammatory drugs (NSAIDs), nicotine and other molecules.
www.lexariabioscience.com

For regular updates, connect with Lexaria on Twitter (https://twitter.com/lexariacorp)

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FORWARD-LOOKING STATEMENTS

This release includes forward-looking statements. Statements which are not historical facts are forward-looking statements. The Company makes forward-looking public statements concerning its expected future financial position, results of operations, cash flows, financing plans, business strategy, products and services, competitive positions, growth opportunities, plans and objectives of management for future operations, including statements that include words such as "anticipate," "if," "believe," "plan," "estimate," "expect," "intend," "may," "could," "should," "will," and other similar expressions are forward-looking statements, including but not limited to: that any additional stock warrants or stock options will be exercised. Such forward-looking statements are estimates reflecting the Company's best judgment based upon current information and involve a number of risks and uncertainties, and there can be no assurance that other factors will not affect the accuracy of such forward-looking statements. Factors which could cause actual results to differ materially from those estimated by the Company include, but are not limited to, government regulation, managing and maintaining growth, the effect of adverse publicity,

litigation, competition, the patent application and approval process and other factors which may be identified from time to time in the Company's public announcements and filings. There is no assurance that existing capital is sufficient for the Company's needs or that it will be able to raise additional capital. There is no assurance that Lexaria will successfully complete any other contemplated or existing technology license agreements; or that results from any studies will be favorable or in any way support future business activities of any kind. Scientific R&D is often unpredictable and unanticipated results could emerge from any study and have a material impact. There is no assurance that any planned corporate activity, scientific study, R&D, business venture, or initiative will be pursued, or if pursued, will be successful. There is no assurance that any of Lexaria's postulated uses, benefits, or advantages for the patented and patent-pending technology will in fact be realized in any manner or in any part. No statement herein has been evaluated by the Food and Drug Administration (FDA). Lexaria Energy Foods, Ambarii, DehydraTECH™ technology and ViPova™ products are not intended to diagnose, treat, cure or prevent any disease.

The CSE has not reviewed and does not accept responsibility for the adequacy or accuracy of this release.