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Nemus Bioscience Reports Nanoemulsion of NB1111 Superior to First-Line Therapy, Latanoprost, in Lowering Intraocular Pressure in Validated Normotensive Animal Model Testing

Prodrug of THC Outperformed Latanoprost at Multiple Timepoints in Multiple Dosing Study

NB1111 Formulation Extends Pharmaceutical Activity Time to Support Once-Daily to Twice-Daily Topical Dosing

LONG BEACH, CA, March 18, 2019 (GLOBE NEWSWIRE) -- via NEWMEDIAWIRE – Nemus Bioscience, Inc. (OTCQB: NMUS), a biopharmaceutical company focused on developing bioengineered cannabinoid-based therapeutics to address global medical indications, announced today that NB1111, its prodrug of tetrahydrocannabinol (THC-valine-hemisuccinate; THCVHS), was statistically superior in lowering intraocular pressure (IOP) compared to the prostaglandin-based therapy, latanoprost, the current standard-of-care for treating glaucoma, across multiple timepoints during a seven-day course of repeated dosing using a validated rabbit normotensive ocular model. The experiments were performed by researchers at the University of Mississippi.

A proprietary nanoemulsion formulation developed by the University and used in these experiments extended the pharmaceutical activity time beyond eight-hours, supporting potential human dosing of once- to twice-daily, depending on time of administration. These results are part of a portfolio of data from multiple sources that highlight the numerous beneficial attributes of Nemus' cannabinoid-based prodrug as a potential treatment for glaucoma and other eye diseases. These data to-date have demonstrated:

- THCVHS is a true prodrug of THC and is converted *in vitro* and *in vivo* to THC
- The patented bioengineering associated with THCVHS results in a superior capability to enter both the anterior and posterior compartments of the eye, which permits interaction with cannabinoid receptors involved in regulating IOP, while THC alone is not capable of effectively entering the eye.
- The scientific literature shows that the eye possesses an elevated density of cannabinoid receptors in all compartments, especially on organs that regulate IOP and tissues that comprise the retina
- THC derived from THCVHS, by activating cannabinoid receptors, results in increased fluid drainage from both the normal and glaucomatous eye via enhanced channel opening through vessel dilation and anti-inflammatory/anti-fibrotic activities
- THCVHS in a standard eyedrop lowered IOP significantly better than pilocarpine and timolol, established glaucoma drugs, with an average decline of 45% in a high-IOP

animal model
- THCVHS in a solid lipid nanoparticle (SLN), a precursor to the nanoemulsion formulation, was able to attain higher concentrations of the drug into the eye, especially the posterior compartment where retinal ganglion cells that comprise the optic nerve reside
- THC in *ex vivo* testing, using human donor cells, resulted in a significant decline in biomarkers associated with inflammatory and fibrotic reactions as well as reduced neovascularization biomarkers, pointing to potential utility in treating diseases that cause damage to the retina, like macular degeneration and diabetic retinopathy
- Literature shows that THC has direct neuroprotective activity on retinal ganglion cells across multiple species of animals, including primates. Nerve death is the central disease process associated with irreversible vision loss in glaucoma

“The current experiment demonstrated that both single and multiple applications of a nanoemulsion formulation of NB1111 significantly lowered IOP when compared to latanoprost,” noted Soumyajit Majumdar, PhD, Professor of Pharmaceutics and Drug Delivery and Associate Dean for Research and Graduate Programs in the School of Pharmacy at the university, and lead scientist of the ophthalmic research of NB1111. “NB1111 has been shown in animal studies to deliver superior IOP-lowering capability when compared to the major generic medications currently approved for glaucoma: latanoprost, timolol and pilocarpine. Our approach, using direct ocular delivery, is consistent with the American Academy of Ophthalmology recommendation against cannabis use to manage glaucoma. We look forward to continuing ocular research in other disease processes using THCVHS, as well as human testing of this prodrug.”

“We plan on submitting this data to an upcoming peer-reviewed ophthalmology meeting while continuing to advance the final formulation for NB1111 based on these pivotal studies conducted by the University and the discovery work by Dr. Mahmoud ElSohly, professor at the National Center for Natural Products Research at the University of Mississippi School of Pharmacy and co-inventor of THCVHS. In addition to preparing for first-in-human clinical trials, Nemus also plans on conducting direct retinal neuroprotection studies utilizing NB1111 as well as the cannabidiol analog, CBD-valine-hemisuccinate,” stated Brian Murphy, MD, CEO and Chief Medical Officer of Nemus. “The underlying principle of this work is to leverage bioengineered cannabinoids to develop a therapeutic portfolio based on precision medicine: delivering the needed cannabinoid directly to the target tissue to optimize both safety and efficacy.”

About Glaucoma

Glaucoma is a leading cause of blindness with more than 70 million patients affected worldwide. The market for glaucoma drugs is projected to be approximately $6.6 billion in 2023 but could rise further with the introduction of innovative therapies into Asian markets like China and India. (MarketScope). Lowering intraocular pressure is the current mainstay of therapy. Newer innovative therapeutics, particularly cannabinoid-based drug candidates, look to prevent vision loss through direct neuroprotection of the retinal ganglion cells that comprise the optic nerve.

About the University of Mississippi

The University of Mississippi, the state's flagship institution, is among the elite group of R-1:

Doctoral Universities - Highest Research Activity in the Carnegie Classification. The university has a long history of producing leaders in public service, academics, research and business. Its 15 academic divisions include a major medical school, nationally recognized schools of accountancy, law and pharmacy, and an Honors College acclaimed for a blend of academic rigor, experiential learning and opportunities for community action.

About Nemus Bioscience, Inc.

The Company is a biopharmaceutical company, headquartered in Long Beach, California, focused on the discovery, development, and commercialization of bioengineered cannabinoid-based therapeutics for significant unmet medical needs in global markets. With proprietary technology licensed from the University of Mississippi, Nemus is developing novel ways to deliver cannabinoid-based drugs for specific indications with the aim of optimizing the clinical effects of such drugs while limiting potential adverse events. Nemus' strategy is to explore the use of proprietary biosynthetic compounds, alone or in combination with corporate partners.

Nemus is part of the Emerald Health group, which comprises multiple companies focused on developing pharmaceutical, botanical, and nutraceutical products providing wellness and medical benefits by interacting with the human body's endocannabinoid system.

For more information, visit www.nemusbioscience.com.

FORWARD LOOKING STATEMENTS

This press release contains forward-looking statements, including statements regarding our product development, business strategy, product milestones, EHS commitment to purchase shares in the open market, timing of clinical trials and commercialization of cannabinoid-based therapeutics. Such statements and other statements in this press release that are not descriptions of historical facts are forward-looking statements that are based on management's current expectations and assumptions and are subject to risks and uncertainties. If such risks or uncertainties materialize or such assumptions prove incorrect, our business, operating results, financial condition and stock price could be materially negatively affected. In some cases, forward-looking statements can be identified by terminology including "anticipated," "contemplates," "goal," "focus," "aims," "intends," "believes," "can," "could," "challenge," "predictable," "will," "would," "may" or the negative of these terms or other comparable terminology. We operate in a rapidly changing environment and new risks emerge from time to time. As a result, it is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements the Nemus may make. Risks and uncertainties that may cause actual results to differ materially include, among others, our capital resources, uncertainty regarding the results of future testing and development efforts and other risks that are described in the Risk Factors section of Nemus' most recent annual or quarterly report filed with the Securities and Exchange Commission. Except as expressly required by law, Nemus disclaims any intent or obligation to update these forward-looking statements.

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