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MANF Therapeutics Announces Publication in Society for Neuroscience eNeuro Journal of Human Ocular Distribution and Animal Photoreceptor Protection Data for MANF

NEW YORK, May 21, 2018 (GLOBE NEWSWIRE) -- Via OTC PR Wire -- MANF Therapeutics, Inc., a wholly-owned subsidiary of Amaranthus Bioscience Holdings, Inc. (OTCPK:AMBS) in pre-clinical development advancing the orphan-drug designated therapeutic protein mesencephalic astrocyte-derived neurotrophic factor (MANF) as a disease-modifying treatment for orphan ophthalmological conditions, Glaucoma and Parkinson's disease, today announced the publication of [a peer-reviewed article in the Society for Neuroscience's scientific journal eNeuro entitled "Photoreceptor Protection by Mesencephalic Astrocyte-Derived Neurotrophic Factor \(MANF\)"](#) wherein the authors from the University of Miami Bascom Palmer Eye Institute, Delian Medical University in China and Jiangxi Medical School in China describe the success of studies completed evaluating mesencephalic astrocyte-derived neurotrophic factor (MANF) as a potential therapy in the treatment of photoreceptor-related disorders. MANF has received orphan drug designations from the US FDA for MANF in the treatment of retinitis pigmentosa and retinal artery occlusion. IND-enabling studies are expected to be re-initiated in the 2nd half of 2018.

Key Findings from the Publication

- Müller cells are the major MANF-expressing cells and the major source of MANF in the retina;
- The potency of MANF as a neurotrophic factor for photoreceptors is highlighted by the significant protection of photoreceptors;
- rhMANF protects the function of photoreceptors, as indicated by the significantly preservation of ERGs in the *rd10* mice.
- This is a study of high translational value to examine the neuroprotective potential of a novel neurotrophic factor mesencephalic astrocyte-derived neurotrophic factor (MANF) in the retina. MANF is expressed in the retina at high level during postnatal development and then declines as the retina matures. Recombinant MANF protects rod and cone photoreceptor cells and preserves electroretinograms (ERGs). These results suggest a role of MANF in the retinal development and provide preclinical evidence for further development of MANF as a neuroprotective agent as a potential treatment for retinal degenerative disorders.

Link to the article: <https://doi.org/10.1523/ENEURO.0109-18.2018>

[The ophthalmics therapeutic market is expected to reach \\$35B by 2025 according to GrandView Research](#), Inc. Glaucoma-alone affects approximately 4 million people in the United States, with a total drug market size of approximately \$3B. With its unique mechanism of action, MANF potentially addresses key unmet medical needs in a variety of retinal conditions.

About MANF Therapeutics, Inc.

MANF (mesencephalic-astrocyte-derived neurotrophic factor) is believed to have broad potential because it is a naturally-occurring protein produced by the body to reduce/prevent apoptosis (cell death) in response to injury or disease, via the unfolded protein response. By administering exogenously produced MANF the body, Amaranthus is seeking to use a regenerative medicine approach to assist the body with higher quantities of MANF when needed. Amaranthus is the frontrunner and primary holder of intellectual property around MANF, and is initially focusing on the development of MANF-based protein therapeutics.

In April 2017, Amaranthus incorporated the wholly-owned subsidiary MANF Therapeutics, Inc. to focus on the preclinical and clinical development of MANF. MANF's lead indication is retinitis pigmentosa, and additional indications including Parkinson's disease, diabetes and Wolfram's syndrome are envisioned. Further applications for MANF may include Alzheimer's disease, traumatic brain injury, myocardial infarction, antibiotic-induced ototoxicity and certain other orphan diseases.

About Amaranthus Bioscience Holdings, Inc.

Amaranthus Bioscience Holdings ([AMBS](#)) is a JLABS alumnus biotechnology company developing treatments and diagnostics for diseases in the areas of neurology, regenerative medicine and orphan diseases through its subsidiaries. AMBS' wholly-owned subsidiary Elto Pharma, Inc. has development rights to eltoprazine, a Phase 2b-ready small molecule indicated for Parkinson's disease levodopa-induced dyskinesia, Alzheimer's aggression and adult attention deficit hyperactivity disorder, commonly known as ADHD. AMBS acquired the rights to the Engineered Skin Substitute program, a regenerative medicine-based approach for treating severe burns with full-thickness autologous skin grown in tissue culture that is being pursued by AMBS' wholly-owned subsidiary Cutanogen Corporation. AMBS' wholly-owned subsidiary MANF Therapeutics, Inc. owns key intellectual property rights and licenses from a number of prominent universities related to the development of the therapeutic protein known as mesencephalic astrocyte-derived neurotrophic factor ("MANF"). MANF Therapeutics, Inc. is developing MANF-based products as treatments for brain and ophthalmic disorders. MANF was discovered by the Company's Chief Scientific Officer John Commissiong, PhD. Dr. Commissiong discovered MANF from AMBS' proprietary discovery engine PhenoGuard. The Company also re-acquired rights to the Alzheimer's blood diagnostic LymPro Test , MSPrecise and NuroPro.

For further information please visit www.Amaranthus.com, or connect with the Amaranthus on [Facebook](#), [LinkedIn](#), [Twitter](#) and [Google+](#).

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