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Amarantus Forms Subsidiaries "Elto Pharma" to Focus on CNS Disorders and "MANF Therapeutics" to Focus on Ophthalmology

SAN FRANCISCO, April 17, 2017 /PRNewswire/ --

- *Eltoprazine has successfully completed proof-of-concept Phase 2 human clinical studies in Adult ADHD, Alzheimer's Aggression and Parkinson's LID*
- *Elto Pharma to complete portfolio review of indication priorities in preparation for independent fundraising and continued clinical development*
- *MANF has received Orphan Drug Designations from the FDA in Retinitis Pigmentosa and Retinal Artery Occlusion*
- *MANF Therapeutics to evaluate strategic options to complete Investigational New Drug (IND) enabling pre-clinical studies ahead of a first-in-man clinical trial*

Amarantus Bioscience Holdings, Inc. (OTCPK: AMBS), a US-headquartered biotechnology company focused on developing products for Regenerative Medicine, Neurology and Orphan Diseases, today announced that it has formed a wholly-owned subsidiary named Elto Pharma, Inc. for the purpose of creating investment vehicles focused exclusively on the further development of Eltoprazine, Amarantus' mid-stage central nervous system (CNS) symptomatic treatment for Adult Attention Deficit and Hyperactivity Disorder (Adult ADHD), Alzheimer's Aggression and Parkinson's disease Levodopa-induced Dyskinesia (PD-LID). Concurrently, Amarantus has formed the wholly-owned subsidiary MANF Therapeutics, Inc. for the purpose of the continued pre-clinical development of the internally discovered MANF program in development for the treatment of ophthalmological disorders, including the orphan indications retinitis pigmentosa (RP) and retinal artery occlusion (RAO), in addition to Glaucoma and Parkinson's disease. The Company's PhenoGuard protein discovery engine that led to MANF's discovery will also be an asset of MANF Therapeutics.

XPress Group International (XPress) invested $100,000 in Amarantus to facilitate these activities, and the continued development of Amarantus' strategic restructuring plan. The $100,000 XPress investment was provided on substantially the same terms as the secured convertible note previously issued to XPress in November 2016 (described here on Form 8-K: https://www.otcmarkets.com/edgar/GetFilingHtml?FilingID=11675536). Heng Fai Chan, the controlling shareholder of Amarantus, is the sole shareholder of XPress.

Eltoprazine has completed Phase 2 clinical studies in Adult ADHD, Alzheimer's Aggression and PD-LID. A brief summary of the data in each indication is below. Going forward, Elto Pharma will conduct an analysis of the competitive landscape, commercial opportunity and investor appetite for each indication ahead of selecting the lead indication to pursue for

further funding and renewed clinical development.

MANF has completed safety and efficacy animal proof of concept studies in RP, RAO, Glaucoma and Parkinson's disease. A brief summary of the data in each indication is provided below. Going forward MANF Therapeutics will be focused on the most attractive source of funding to complete cGMP manufacturing for human grade MANF to initiate clinical trials, as well as other IND-enabling studies.

Eltoprazine Trial Data in Adult ADHD, Alzheimer's Aggression and PD-LID

Adult Attention Deficit and Hyperactivity Disorder

The Phase 2 human clinical trial demonstrated that at both 5mg and 10 mg, the study met its Primary endpoint as measured by change from baseline in ADHD-RS-IV score in 5mg (p=0.003) and 10mg (p=0.037) doses which were statistically significantly superior to placebo with approximately 25% greater efficacy compared to placebo. Total ADHD-RS-IV scores improved by 13.6, 17.9 and 17.4 points from baseline for placebo, 5mg and 10mg of Eltoprazine, respectively. Inattention, Hyperactivity, and Impulsivity ADHD-RS-IV subscales were also analyzed.

- For the Inattention subscale, both 5mg and 10mg groups showed a statistically significant benefit over placebo (0.003 and 0.039, respectively).
- For the Hyperactivity subscale, the 5mg dose showed a statistically significant benefit in favor of Eltorprazine treatment compared to placebo (p=0.008); the 10mg dose was superior to placebo, however the difference was not statistically significant (p=0.130).
- For the Impulsivity subscale, no significant benefit was observed for either drug dose compared to placebo.
- Both 5mg and 10mg demonstrated significantly greater improvement over placebo for CGI-I scores (p=0.023 and 0.004, respectively).
- The percentage of subjects who were considered improved by the investigator was 57.9% for placebo, 68.4% for 5mg, and 81.1% for 10mg. The percentage difference was significant between 10mg and placebo (0.029), but it was not between 5mg and placebo (p=0.342).

A link to the press release announcing the Phase 2 data is provided here: http://www.prnewswire.com/news-releases/amarantus-announces-positive-phase-2a-data-for-eltoprazine-in-adult-adhd-243482091.html

Alzheimer's Aggression

The data for Eltoprazine demonstrate a significant improvement in eltoprazine-treated patients in the severely aggressive eltoprazine-treated population (25.1 to 16.9) versus placebo (22.5 to 21.5), $p<0.05$ as measured by the Social Dysfunction and Aggression Scale at the end of the four week treatment regimen, which followed a washout from previous psychoactive treatments and a 3-week placebo-lead-in period. A link to the press release announcing the AD Aggression clinical data is provided here: http://www.amarantus.com/news/press-releases/detail/2033/amarantus-announces-positive-phase-2-data-for-eltoprazine

Parkinson's Levodopa-induced Dyskinesia

The Eltoprazine study in 22 subjects with long standing PD-LID was a randomized, four-way crossover design in which patients received a single dose of placebo and eltoprazine, at 2.5, 5 and 7.5 mg, in combination with a challenge dose of levodopa (1.5 times usual dose), on four different days, separated by an interval of a week. Data from the study demonstrated that eltoprazine significantly reduced peak dose dyskinesia at both the 5 ($p<0.05$) and 7.5 mg ($p<0.05$) doses using the Combined Dyskinesia Rating Scale. The 5 mg dose also showed a significant anti-dyskinetic effect on other measures of dyskinesia, including the Rush dyskinesia rating scale. Importantly, there were no adverse effects on levodopa efficacy at any dose level as evidenced by United Parkinson's Disease Rating Scale (UPDRS Part III) observation. Additionally, all dose levels of eltoprazine were well tolerated with no major adverse effects reported.

A link to the publication of the PD LID clinical data is provided here:

https://academic.oup.com/brain/article/138/4/963/280283/Eltoprazine-counteracts-l-DOPA-induced-dyskinesias

MANF Preclinical Data in RP, RAO, Glaucoma and Parkinson's

Retinitis Pigmentosa

MANF has demonstrated positive pre-clinical data in a number of models of retinitis pigmentosa including, a chronic degenerative genetic disorder. The data demonstrates that MANF has the ability to protect rods and cones, as well as improve visual acuity via improvement in cellular electrical signaling.

- S334ter model (University of Miami)
- Rd1 model (Buck Institute on Aging)
- CRX model (Buck Institute on Aging)
- Light-induced damage model (EyeCRO)

Retinal Artery Occlusion and Glaucoma

MANF has demonstrated the ability to protect rods, cones and retinal ganglion cells in acute injury models, including ischemia/reperfusion models, consistent with data in other ischemia-related indications (such as cardiovascular ischemia and cerebral ischemia).

- Retinal Ischemia model (Iris Pharma)
    - Electronography b-wave amplitude increases

Parkinson's disease

MANF has demonstrated the ability to protect and restore the function of dopaminergic neurons in various models of Parkinson's disease, as well as the ability to deliver the drug appropriately to the right location of the brain using Convection Enhanced Delivery.

- 6-OHDA (UCLA)
- Pig distribution model (University of Bristol)

About Eltoprazine

Eltoprazine is a small molecule 5HT1A/1B partial agonist in clinical development for the treatment of Parkinson's disease levodopa-induced dyskinesia (PD-LID), adult attention deficit hyperactivity disorder (ADHD) and Alzheimer's aggression. Eltoprazine has been evaluated in over 680 human subjects to date, and has a well-established safety profile. Eltoprazine was originally developed by Solvay Pharmaceuticals for the treatment of aggression. The Eltoprazine program was out-licensed to PsychoGenics by Solvay. PsychoGenics licensed Eltoprazine to Amarantus following successful proof-of-concept trials in PD-LID and adult ADHD.

About Mesencephalic Astrocyte-derived Neurotrophic Factor (MANF)

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

MANF's lead indication is retinitis pigmentosa, and additional indications including Parkinson's disease, diabetes and Wolfram's syndrome are currently pursued. Further applications for MANF may include Alzheimer's disease, traumatic brain injury, myocardial infarction, antibiotic-induced ototoxicity and certain other rare orphan diseases currently under evaluation.

About Amarantus BioScience Holdings, Inc.

Amarantus BioScience Holdings (AMBS) is a biotechnology company developing treatments and diagnostics for diseases in the areas of neurology, regenerative medicine and orphan diseases. AMBS acquired the rights to the Engineered Skin Substitute program (ESS), 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 Elto Pharma, Inc. has development rights to eltoprazine, a Phase 2b-ready small molecule indicated for Parkinson's disease levodopa-induced dyskinesia, adult ADHD and Alzheimer's aggression. AMBS also owns key intellectual property rights, and has licenses from a number of prominent universities related to the development of the therapeutic protein known as mesencephalic astrocyte-derived neurotrophic factor (MANF) and 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. AMBS also a minority interest in Avant Diagnostics, Inc. via the sale of its wholly-owned subsidiary Amarantus Diagnostics, Inc. that occurred in May 2016.

For further information please visit http://www.Amarantus.com.

Forward-Looking Statements

Certain statements, other than purely historical information, including estimates, projections,

statements relating to our business plans, objectives, and expected operating results, and the assumptions upon which those statements are based, are forward-looking statements. These forward-looking statements generally are identified by the words "believes," "project," "expects," "anticipates," "estimates," "intends," "strategy," "plan," "may," "will," "would," "will be," "will continue," "will likely result," and similar expressions. Forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. Our ability to predict results or the actual effect of future plans or strategies is inherently uncertain. Factors which could have a material adverse effect on our operations and future prospects on a consolidated basis include, but are not limited to: changes in economic conditions, legislative/regulatory changes, availability of capital, interest rates, competition, and generally accepted accounting principles. These risks and uncertainties should also be considered in evaluating forward-looking statements and undue reliance should not be placed on such statements.

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