



Press release, November 27, 2014

## **Diamyd-licensed technology enhances transplanted human beta cell mass in preclinical model of type 1 diabetes**

*Diamyd Medical (Nasdaq Stockholm First North, Ticker: DMYD B) informs that a new scientific paper in the December issue of the journal Diabetes shows that GABA enhances transplanted human beta cell mass in the NOD mouse model of type 1 diabetes. Diamyd Medical licenses exclusive rights from the University of California for the therapeutic use of GABA for the treatment of diabetes and other inflammation-related conditions.*

The paper shows that GABA (gamma amino butyric acid) enhances beta cell mass in the NOD mouse model of type 1 diabetes following transplantation of human pancreatic insulin producing cells by increasing beta cell proliferation, while decreasing apoptosis. This was associated with increased circulating human insulin and reduced glucagon levels. GABA administration also lowered blood glucose levels and improved glucose excursion rates.

The authors state in the paper that their findings suggest that GABA regulates human beta cell mass and may be beneficial for the treatment of diabetes or improvement of islet transplantation.

The paper “*GABA Promotes Human beta cell Proliferation and Modulates Glucose Homeostasis*” is published in the scientific journal *Diabetes*, volume 63, December 2014 and the abstract is available at <http://www.ncbi.nlm.nih.gov/pubmed/25008178>

### **About GABA**

GABA stands for gamma amino butyric acid and is produced in the body as glutamate is decarboxylated by the GAD enzyme. GABA is an important suppressive and “calming” neurotransmitter. Pre-clinical findings support the use of GABA as a synergistic component for treatment of autoimmune diabetes and beta cell regeneration as well as for controlling inflammation, such as in rheumatoid arthritis, metabolic syndrome and type 2 diabetes. Diamyd Medical has licensed Intellectual Proprietary Rights from University of California for these applications.

An investigator initiated study combining the Diamyd® diabetes vaccine and GABA in 75 children with new-onset type 1 diabetes was recently approved by the FDA. The aim of the study is to test whether the combination treatment can preserve the body’s residual capacity to produce insulin. The study is taking place in the US led by Professor Kenneth McCormick at the University of Alabama at Birmingham and is in the start-up phase.

### **About type 1 diabetes**

Type 1 diabetes is an autoimmune disease where the immune system attacks the patients’ own insulin-producing beta cells. By analyzing markers in the blood, it is possible to identify persons in whom this autoimmune process is ongoing, although has not yet caused clinical symptoms of diabetes. When clinical symptoms present, patients must be treated daily, for the rest of their lives, with insulin to sustain life. Finding a cure is of major importance for the world’s healthcare systems and the well-being of patients. The annual market for an easy-to-use, successful therapeutic is estimated at several billions of dollars.

### **About Diamyd Medical**

Diamyd Medical is dedicated to fighting type 1 diabetes and to working toward a cure for the disease. Diamyd Medical’s projects include development of combination regimens with the GAD-based diabetes vaccine Diamyd® for arresting the successive destruction of insulin-producing beta cells. Diamyd Medical licenses exclusive intellectual rights for the GAD molecule from the University of California. The company also has an

exclusive license from the University of California for therapeutic use of GABA for the treatment of diabetes and other inflammation-related conditions, including metabolic syndrome and rheumatoid arthritis.

Diamyd Medical owns 46% of the stem cell company Cellaviva AB, which is establishing a Swedish commercial bank for private family saving of stem cells in umbilical cord blood and other sources of stem cells. Stem cells are expected to be used in Personalized Regenerative Medicine (PRM), for example, to restore beta cell mass in diabetes patients where autoimmunity has been arrested. Diamyd Medical also has a 10% shareholding in the medical technology company Companion Medical, Inc., based in San Diego, in the US, and a minor shareholding and other financial interests in the US gene therapy company Periphagen Holdings, Inc.

Remium Nordic AB is the Company's Certified Adviser.

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