The ZDSD Rat Emerges As the Rodent of Choice for Metabolic Syndrome Drug Discovery

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Indianapolis, IN (PRWEB) May 26, 2011 -- A new rat model, the ZDSD has been developed as the next generation translational model of obesity, metabolic syndrome and related complications, under the direction of Richard G. Peterson, PhD (developer of the “Gold Standard” ZDF rat) and EVP of Research and Development at PreClinOmics.

Currently >30 generations inbred and set in its phenotypic expression, the ZDSD rat is commercially available from PreClinOmics. The primary potential use of the ZDSD rat will be as a “pre-diabetic” model in the areas of drug discovery and development to demonstrate therapeutic efficacy to stay or reverse metabolic syndrome, the precursor to type II diabetes. The ZDSD rat can also be utilized as a screening model for type II diabetics, its co-morbidities and obesity therapeutics.

The ZDSD rat exhibits the following phenotypic characteristics:
• Early onset of polygenic obesity in the absence of high caloric diets by two months of age
• Hyperphagia
• Spontaneous diabetes starting at about 4 months of age
• Metabolic syndrome characteristic such as hypertension, insulin resistance and glucose intolerance, elevated cardiovascular markers, dyslipidemia
• Diabetic co-morbidities such as nephropathy and osteoporosis and wound healing
• Responds to various therapeutics

The search for new and more effective therapies for obesity, metabolic syndrome and related type II diabetes, cardiovascular diseases and end stage renal complications is currently hindered by the lack of good translational rodent models. In 2007 the FDA Guidance for Industry on Developing Products for Weight Management published “…Ideally, a therapeutic product intended to treat metabolic syndrome should normalize or improve all components of the syndrome, independent of weight loss… and ultimately be shown to prevent the development of type II diabetes and reduce cardiovascular morbidity and mortality.”

In October 2010, officials at the Centers for Disease Control and Prevention (CDC) issued a press release estimating that by the year 2050, 1 in 3 to 1 in 5 US adults could have diabetes if current trends continue. About 1 in 10 now have diabetes, and 90 to 95 percent of all diagnosed cases are type II diabetes. An estimated 57 million had pre-diabetes in 2007. These estimates indicate that, the numbers of people with diabetes will more than double by the year 2050. An estimated 285 million people worldwide had diabetes in 2010. The International Diabetes Federation expects the number to grow to 438 million by 2030. The annual direct and indirect medical care and treatment-costs for Americans with diabetes was estimated at $174 billion by the ADA in 2007.

The NIDDK Strategic Plan for the next 10 years states that “Animal model research has contributed substantially to the understanding of diabetes and obesity, but these models exhibit substantial differences when
compared to these diseases in humans. New small and large animal models, as well as in silico models, are needed that better represent the pathology and treatment of human diabetes and obesity.”

CEO Pesek stated, “We believe that with the expected increase in the occurrence of obesity, metabolic syndrome and related complications, the ZDSD rat with its ‘human like’ phenotype will be the rodent of choice for the discovery and development of new therapeutics to combat these devastating and expensive diseases. Why use many models when one has it all!” Unlike most of the standard rat models in use today, the ZDSD rat does not have mutations in leptin or its receptor.

Features identified in this model make it much more applicable to studying the basic mechanisms behind obesity, metabolic syndrome and diabetes, and in identifying treatments for these conditions. Data presented on the company’s web site www.preclinomics.com also demonstrate that it is responsive to diet variation and a broad spectrum of metabolism related therapeutics.

The ZDSD rat development was partly funded by phase I and II NIH grants under the direction of Dr. Richard G. Peterson, Ph.D.. Credited with developing the male and female Zucker Diabetic (ZDF) and ZSF1 rat models, Dr. Peterson has published extensively on the ZDF rat and aspects of its disease expression.

PreClinOmics, Inc, Indianapolis, IN is an established preclinical contract research company primarily focused in supporting drug discovery and development research in the therapeutic areas of metabolic syndrome, its related complications and polycystic kidney disease. Incorporated in 2001, the Company is AAALAC accredited and has extensive technical and analytical capabilities to support PK/PD, screening and efficacy studies and related analysis.

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