17th International Conference on
Childhood Obesity & Nutrition

March 14, 2024

Webinar

A Novel Receptor Agonist Reduces Body Weight and Improve Metabolic Profile

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Statement of the problem: The estimates for global levels of overweight and obesity (BMI ≥25kg/m^2), suggest that over 4 billion people may be affected by 2035, compared with over 2.6 billion in 2020. The rising prevalence of obesity is expected to be steepest among children and adolescents, rising from 10% to 20% of the world's boys during the period 2020 to 2035, and rising from 8% to 18% of the world's girls. (World Obesity Atlas 2023).

Methodology: Growth hormone (GH) and insulin-like growth factor 1 (IGF-1) signaling plays a major part in fuel metabolism and in the regulation of body composition. Obesity, particularly abdominal obesity, exerts a strong negative effect on the spontaneous pulsatile secretion of GH and IGF-1 which has been associated with adverse metabolic complications. GLP-1 (glucagon-like peptide-1) receptor agonists have been shown to be effective for weight loss in non-diabetic patients with obesity or overweight BMI when given as adjunctive therapy to diet and exercise. IGF-1 contributes to modulate glucagon secretion in which IGF-1 inhibits the ability of low glucose concentration to stimulate glucagon expression and secretion via a mechanism involving activation of the PI3K/Akt/FoxO1pathaway.

Findings and Conclusion: NA-931 and its analogs, NA-932 and NA-933 ("NA-931 compounds) are metabolites of IGF-1. Acting as receptor agonists targeting GLP-1, NA-931 compounds may provide enhanced therapeutic benefits when compared to corresponding mono-agonists of the individual receptors.NA-931 and its analogs produced significant reductions in BW in diet-induced obese (DIO) mice. Effect sizes were comparable to those observed in the tirzepatide control group. The NA-931 compounds have been shown to produce desirable changes to lipid profile, suggesting global cardiometabolic benefit. The triple IGF-1, GLP-1 and GIP incretin receptor agonists represent a promising therapeutic approach to metabolic disorders such as obesity, type 2 diabetes, and non-alcoholic steatohepatitis. Additional research on these drug candidates is ongoing.

Biography

Lloyd is a scientist with 25-year experience in drug development and clinical trials management. He is an inventor with a number of patents in drug therapeutics in the treatment of neurological and infectious diseases. Lloyd serves as the chairman of Biomed Industries, Inc., the parent company of Biomed Pharmaceuticals, Biomed AI and NeuroActiva, Inc.In his early career, he was employed as a research scientist at G.D. Searle, (a subsidiary of Pfizer), and was the director of R&D at Biomed Pharmaceuticals.

Received: February 24, 2024; **Accepted**: February 26, 2024; **Published**: March 14, 2024