An Orally Active Small Molecule with Anti-Diabetic Activity

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Gateway to Discovery, Innovation, and Products.
Overview

• Novel prototype compound

• High selectivity and sensitivity for IR

• Synergistic with Insulin

• Dramatic hypoglycemic effect in mice
• Vast majority (90-95%) have Type 2 diabetes
• Most (~85%) take pills and/or insulin
• 33% are insulin dependent
• Currently 26M Americans

• Comprises approximately 7% of total US healthcare spending in 2010 (~$194B)
• 275M people worldwide
Easier and Effective Treatment

- 95% of diabetes patients do their own care
- 1/3 of patients regularly miss insulin or do not adhere to their regimen
- Injection issues
- ~50% said they would be more likely to follow treatment if discomfort could be relieved
- According to the NIH, every percentage point drop in HbA1c blood tests results in 40% reduction in microvascular complications – eye, kidney, nerve disease
Injection Perception
DDN as an Insulin Mimetic

- Non-peptidyl small molecule
- Low risk of hypoglycemia
- Highly specific – does not bind IGF receptors
- No intolerable side effects when administered to animals for 2 weeks
Synergistic Function with Insulin

- Interacts directly with the IR tyrosine kinase domain (intracellular)
- Insulin binds extracellular domain
- Sensitizes insulin’s activity – does not compete
- Increases glucose uptake in adipose, muscle and liver tissues
Hypoglycemic Effect in Mice

- \( db/db \) mice – insulin resistant
- Time to lower glucose comparable to insulin
- Long lasting drug potential
- No significant effect on plasma insulin levels
- \(~25\%\) lower blood glucose at hour 5
• PCT application filed September 27, 2011
• Compound claims
• Method and composition claims
• National Stage is March 27, 2013
• PK/PD experiments currently underway
• Lead compound development work
• Longer term toxicity studies
Promising Lead Compound

• Novel prototype compound
• Potential to generate powerful therapeutic
• Help create diabetes patients who are happier and healthier