

## Introduction and Experiment Design

- IMG-1 is a novel biologic therapeutic for the treatment of diabetes and its associated complications
- IMG-1 has been shown to successfully treat Type I mice and rats (STZ models, see poster 1215-P and suppress hepatic glucose production and lower insulin resistance in a diet-Induced Obese mouse model using in a hyperinsulinemic-euglycemic clamp assay (see poster 1214-P) - To test its efficacy in a Type 2 Diabetic model and its ability to treat the associate cardiovascular complications associated with this disease we used Zucker Diabetic Fatty (ZDF) rats



- Animals were divided into three groups:
- IMG-1 PO 200 µg QD
- IV 10 µg QD
- Untreated Control
- Blood Glucose, Blood Pressure and Body Weight were measured throughout



Figure 1. Weights were measured every week. The rate of growth were similar between all three groups (IV n=8, PO n=8 and untreated controls n=7).

Figure 2. Fasting blood glucose (FBG) levels were assessed in the ZDF throughout the experiment. ZDF rats treated with IMG-1 showed a marked decrease in blood glucose levels as early as 3 days post treatment regardless of the modality administered, (average FBG levels of 179mg/dl for IV administered IMG-1 and 135mg/dl PO administrated IMG-1 vs FBG levels of 281mg/dl and

### IMG-1 Normalizes Blood Glucose Levels by Inhibiting Glucagon Levels in ZDF Rats

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# IMG-1 Anti-Diabetic Affect



258mg/dl in the untreated and metformin treated groups respectively), with all IMG-1 treated animals having normal FBG levels (levels below 200 mg/dl) by day 7. Untreated controls had significantly elevated FBG levels throughout the study with average levels exceeding 400 mg/dl (481 mg/dl and 468 mg/dl respectively) at the end of the study (A). HbA1c (B), insulin (C), and glucagon (D)

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levels were measured in all animals at the three time points. Though there were no significant difference in insulin levels between untreated and IMG-1 treated groups there was a significant decrease in the both HbA1c and glucagon levels in both IV and PO IMG-1 treated animals.



IMG-1 (IV)

#### IMG-1 Has a Favorable Cardiovascular Profile

Figure 3. The effect of IMG-1 on diabetes associated cardiac complications were assayed. Blood pressure monitored twice-weekly (A). Within 3 days of treatment rats treated with IMG-1 started exhibiting lower blood pressure. Cholesterol levels of ZDF rats were assessed

Untreated

48 hrs following a single dose injection of 20µg IMG-1, after receiving IMG-1 PO or left untreated (n=4) (B). IMG-1 treated animals had significantly decreased levels of cholesterol compared to the untreated cohort.

IMG-1 (PO)

#### Summary

- IMG-1 represents a novel therapeutic for Type 2 Diabetes and its cardiovascular complications
- Appear to be effective both PO and IV
- IMG-1 normalizes blood glucose levels
- IMG-1 decreases hemoglobin A1c
- IMG-1 glucagon levels, but does not affect insulin
- IMG-1 normalizes blood pressure and cholesterol
- IMG-1 functions independently of the animals' weight