

BKS.Cg-*Dock7^m* +/+ *Lepr^{db}*/J (Stock Number 000642) is a well established model for screening novel compounds for efficacy in type 2 diabetes. This strain exhibits well characterized responses to clinically relevant compounds such as Rosiglitazone¹ and Metformin². Early onset of sustained hyperglycemia and predictable disease progression supports low cost, high throughput protocols.

This study is designed to reliably answer the question “How does my compound compare to rosiglitazone in improving glucose control?” Not only can we provide an answer to this question, but at the lowest possible cost and in the shortest time possible. Turnaround time to study report is typically 12 weeks from the time we receive a purchase order and the safety data on your compound.

This Standard Protocol for Type 2 Diabetes has been developed to facilitate your study design. The protocol can nevertheless be fully customized as needed to meet your specific objectives.

Base Study Design

Twenty-four eight week old BKS.Cg-*Dock7^m* +/+ *Lepr^{db}*/J (000642) mice will be imported into The Jackson Laboratory—West facility. Following seven days acclimation, mice will be randomly assigned to groups according to body weight and blood glucose levels.

Mice will be dosed daily via one of the route options for 28 days.

Group (n=8)	Treatment	Route options	Schedule	Duration (days)
1	Vehicle	PO, IP, SC	Daily	28
2	Positive control	PO, IP, SC	Daily	28
3	Test article 1	PO, IP, SC	Daily	28

Body weights will be measured weekly. Fed blood glucose will be measured on day 0, and day 27 by glucometer.

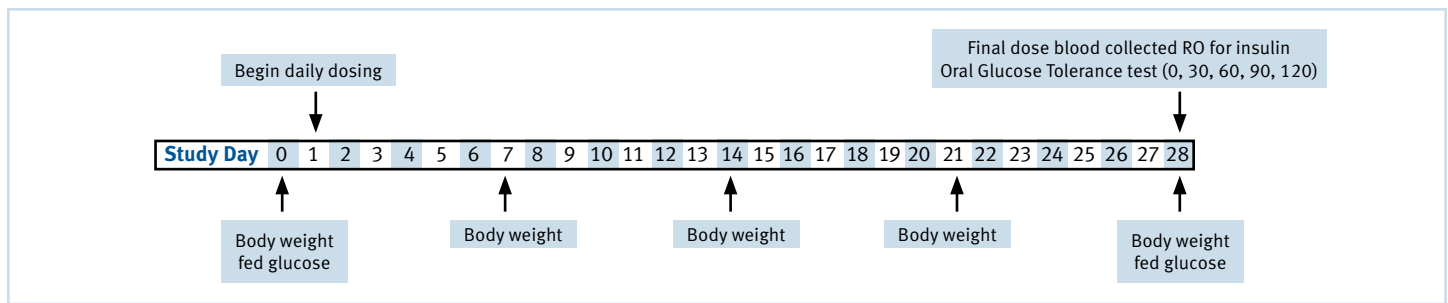
On day 28 mice will undergo a glucose tolerance test (GTT). Mice will be fasted between four and 16 hours depending on client preference. At t=0, blood glucose will be measured by tail nick, mice will be then given 1g/kg glucose by PO or IP based on client preference. Blood glucose will be measured at 30, 60, 90 and 120 minutes post administration (client may select alternate time points, up to a total of five measurements). Blood will be collected at t=0 and t=30 for analysis of glucose by enzymatic assay and insulin.

Procedures (all groups)

Measurement	Day	Total # measurements per animal
Body weight	0, 7, 14, 21, 28	5
Non-fasted blood glucose	0, 27	2
Fasted blood glucose	28	1
Oral glucose tolerance	28	1
Insulin	28	2
Serum glucose by enzymatic assay	28	2

The base study may be expanded to include two additional test cohorts for a total study size of 40 animals.

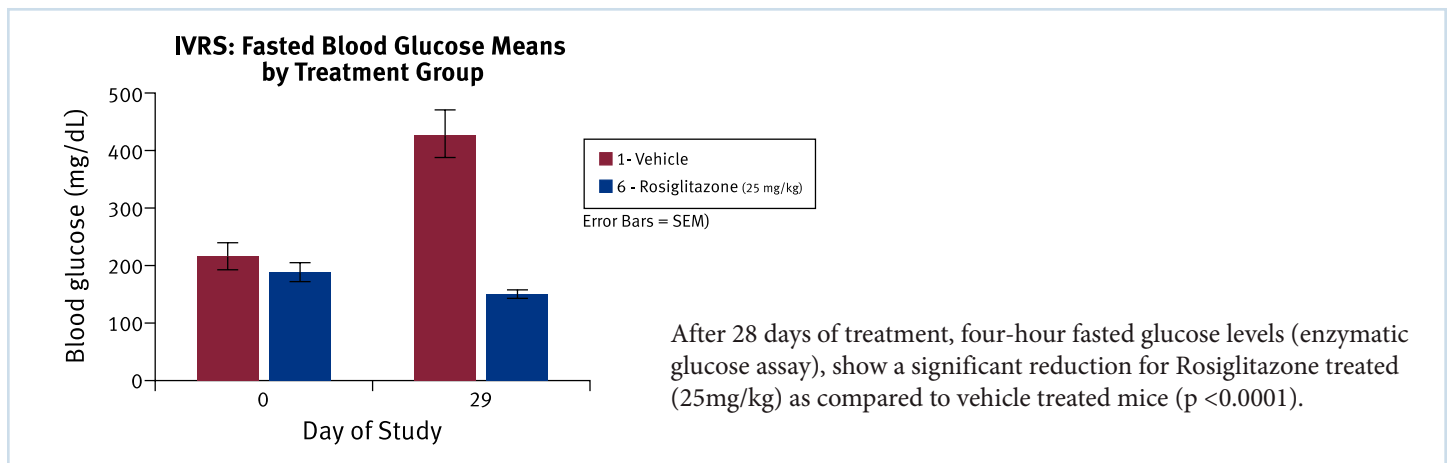
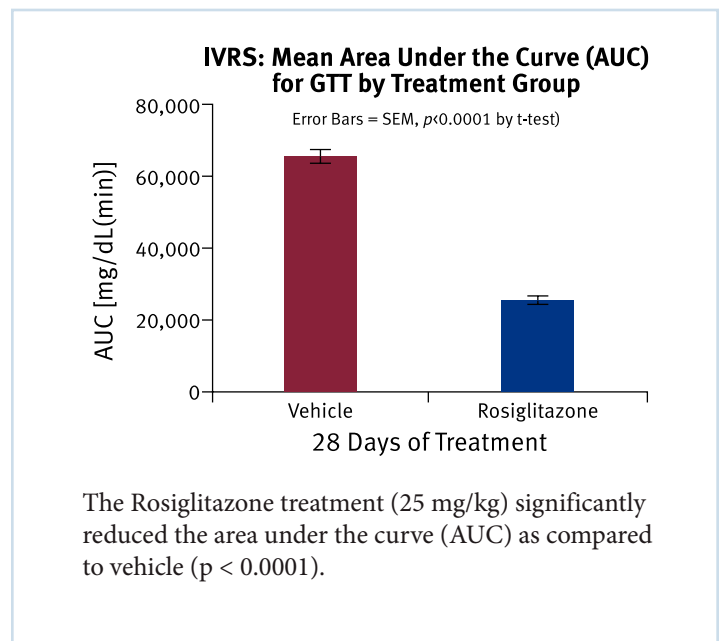
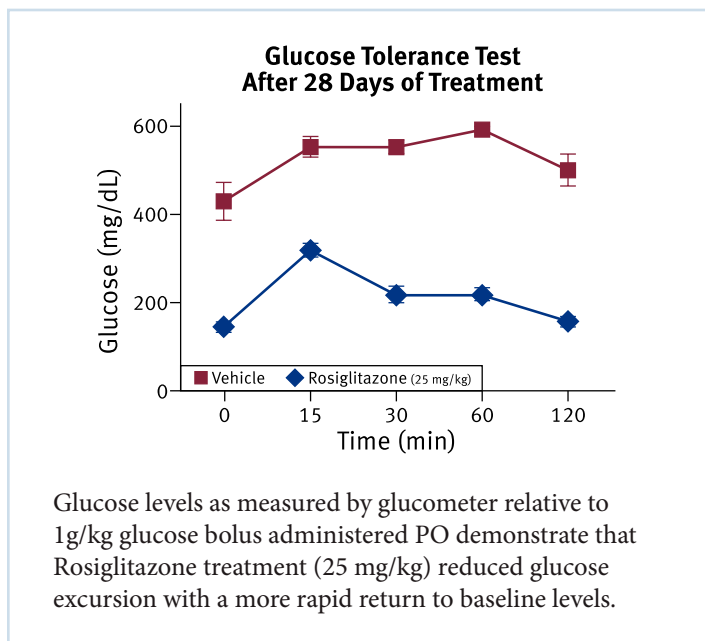
Study timeline



Deliverables

Written report providing the following data:

- Change in body weight
- Fed glucose
- Fasted glucose
- Fasted insulin
- Fasted insulin x fasted glucose (surrogate for insulin resistance)
- AUC for GTT and associated curve
- Glucose measured by enzymatic assay for zero and 30 minute GTT time points



Study Specifications

We'll need the following information from you to start the study:

- Study Specifications (see below)
- Purchase Order Referencing Your Quote Number
- Materials Safety Data Sheets (MSDS)

Please provide the following information:

		Customer Requirments
Dosing route	PO, IP, or SC; once daily only	
GTT fast duration	4 - 16 hrs; 16 hr fast is recommended	
GTT glucose admin route	PO or IP	
GTT time points (max. 5)	0, 30, 60, 90,120 are commonly used	

Standard vehicles include Saline, PBS, Carboxymethyl cellulose/Tween suspension, DMSO
 Standard reference compound for this study design: Rosiglitazone 25 mg/kg

Group (n=8)	Treatment	Name	Dose Concentration
1	Vehicle		
2	Positive Control		
3	Test Article 1		
4	Test Article 2		
5	Test Article 3		

The Study Directors at JAX® *In Vivo* Services will assist you with this standard protocol for type 2 diabetes or with developing a customized protocol tailored to meet your needs.

1. Combs TP, *et al.* 2002. Induction of adipocyte complement-related protein of 30 kilodaltons by PPARgamma agonists: a potential mechanism of insulin sensitization. *Endocrinology* 143:998-1007.
2. Tang T, Reed MJ. 2001. Exercise adds to metformin and acarbose efficacy in *db/db* mice. *Metabolism* 50:1049-1053.

Contact us today:



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