Physiogenex
THE METABOLIC DISEASES EXPERTS

Insulin resistant rat

First-in-class rat diet-induced model combining obesity, insulin resistance and dyslipidemia

Key benefits

- ✓ Provides a noteworthy competitive advantage for your lead/drug compound, in terms of insulin resistance, obesity, dyslipidemia, and hepatic steatosis
- ✓ Merges glucose and lipid disorders in a proprietary animal model, for robust differentiation of your compound's efficacy and unwanted effects.
- ✓ Tailor-made nutritional model obtained in 5 to 8 weeks, depending on your scientific needs
- ✓ Palatable diet leading to rapid weight gain to detect a statistically significant impact of your compound on body weight/food intake

ANIMAL MODEL

- Background Strain: Sprague Dawley (SD)
- Gender/Weight/Age: male rats, 240-260g, 7-8 weeks old
- Diet: the RD diet®
- Time on diet: 5-8 weeks
- Positive reference compounds: rosiglitazone

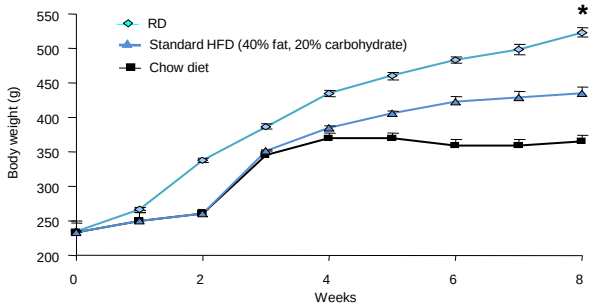
PHARMACOLOGICAL FEATURES

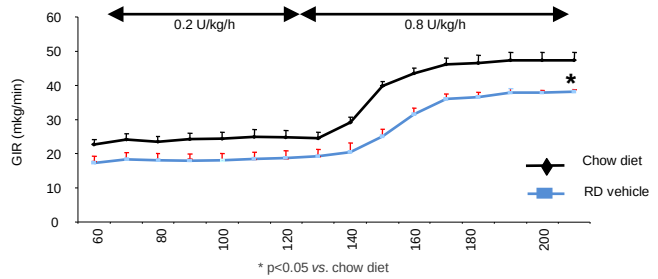
- Obesity (mainly visceral)
- Glucose intolerance
- Hyperinsulinemia
- Insulin resistance (hepatic and peripheral)
- Mild dyslipidemia
- Lipid intolerance
- Impairment of FFA metabolism
- Hepatic steatosis
- Accumulation of triglycerides in tissues (liver and muscle)

CHARACTERIZATION OF THE RD DIET®

- Treatment: Rosiglitazone (once a day) during 15 days at 10 mg/kg
- Normalization of fasting plasma glucose and insulin
- Partial reduction in insulin resistance
- Slight reduction in plasma FFA and TG
- Reduction in FFA turnover, due to slower plasma FFA appearance

Body weight variations of rats fed chow (control) standard high-fat diet and RD diet

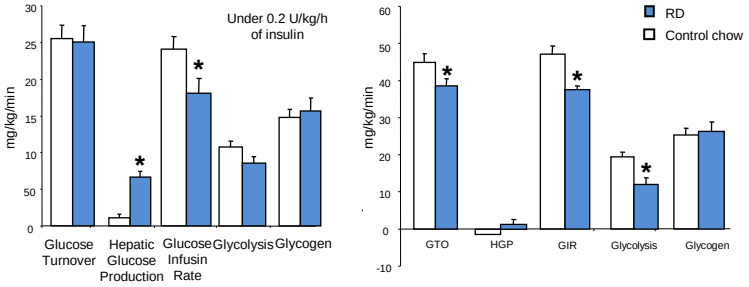




* p<0.05 *vs.* chow diet

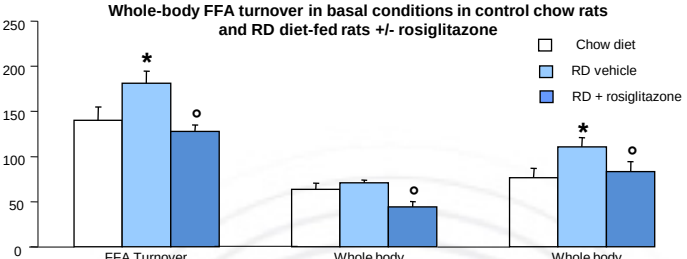
PHARMACOLOGICAL VALIDATION OF THE RD DIET®

Euglycemic hyperinsulinemic two-step clamp with ^{3}H-glc in chow controls and RD diet-fed rats

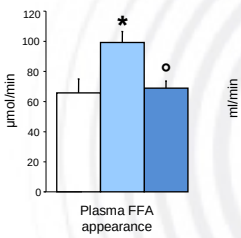


Liver weight and TG content in liver and muscle in control chow rats and RD diet-fed rats

Whole-body FFA turnover in basal conditions in control chow rats and RD diet-fed rats +/- rosiglitazone

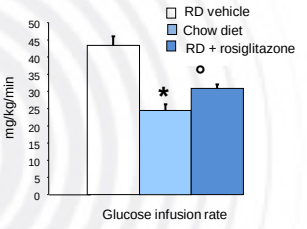


Whole-body FFA turnover in basal conditions in control chow rats and RD diet-fed rats +/- rosiglitazone



* p<0.05 *vs.* RD vehicle

Euglycemic hyperinsulinemic clamp in control chow rats and RD diet-fed rats +/- rosiglitazine



* p<0.05 *vs.* chow diet

REFERENCES

Issandou M, Bouillot A, Brusq JM, Forest MC, Grillot D, Guillard R, Martin S, Michiels C, Sulpice T, Daugan A. **Pharmacological inhibition of Stearoyl-CoA Desaturase 1 improves insulin sensitivity in insulin-resistant rat models.** Eur J Pharmacol 15;618 (1-3): 28-36, 20093

Prologue Biotech – 516, rue Pierre et Marie Curie
31670 Labège - FRANCE

Phone : +33 561 287 040
Fax : +33 561 287 043

www.physiogenex.com
business@physiogenex.com

Member of cardio metabolic