

# Investigating the GLP-1 Receptor Pools Responsible for Mediating the Weight Loss and Glucose Lowering Effects of Oral Exendin-4

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Building Interdisciplinary  
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## BACKGROUND

Oral formulations of Glucagon Like Peptide 1 (GLP-1) demonstrate comparable weight loss and glucose lowering effects to injectables. Women show greater weight loss on GLP-1 analogs than men, underscoring the need to understand the sex specific responses for personalized treatments.

## HYPOTHESIS

*GLP1R pools within in the intestine are responsible for the glucose lowering and weight loss effects of orally administered exendin-4.*

## METHODS

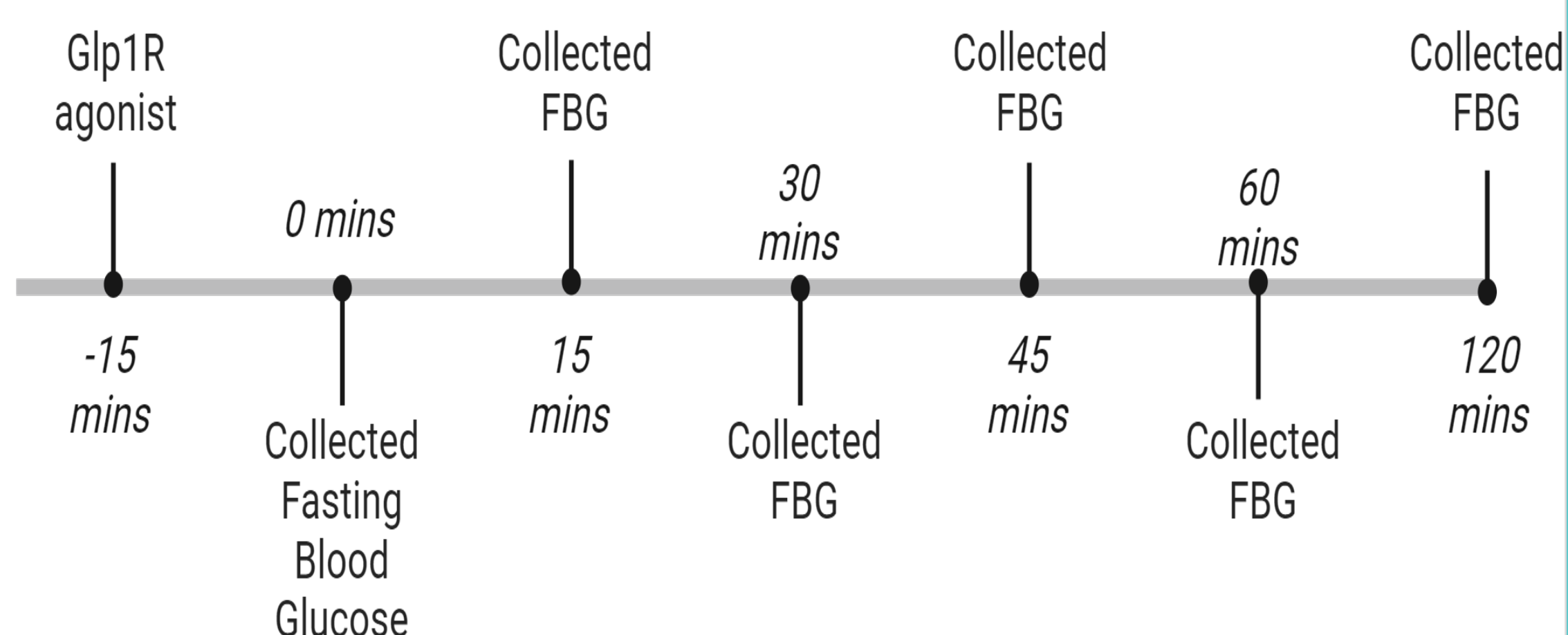


Figure 1. Schematic of Methods

## RESULTS

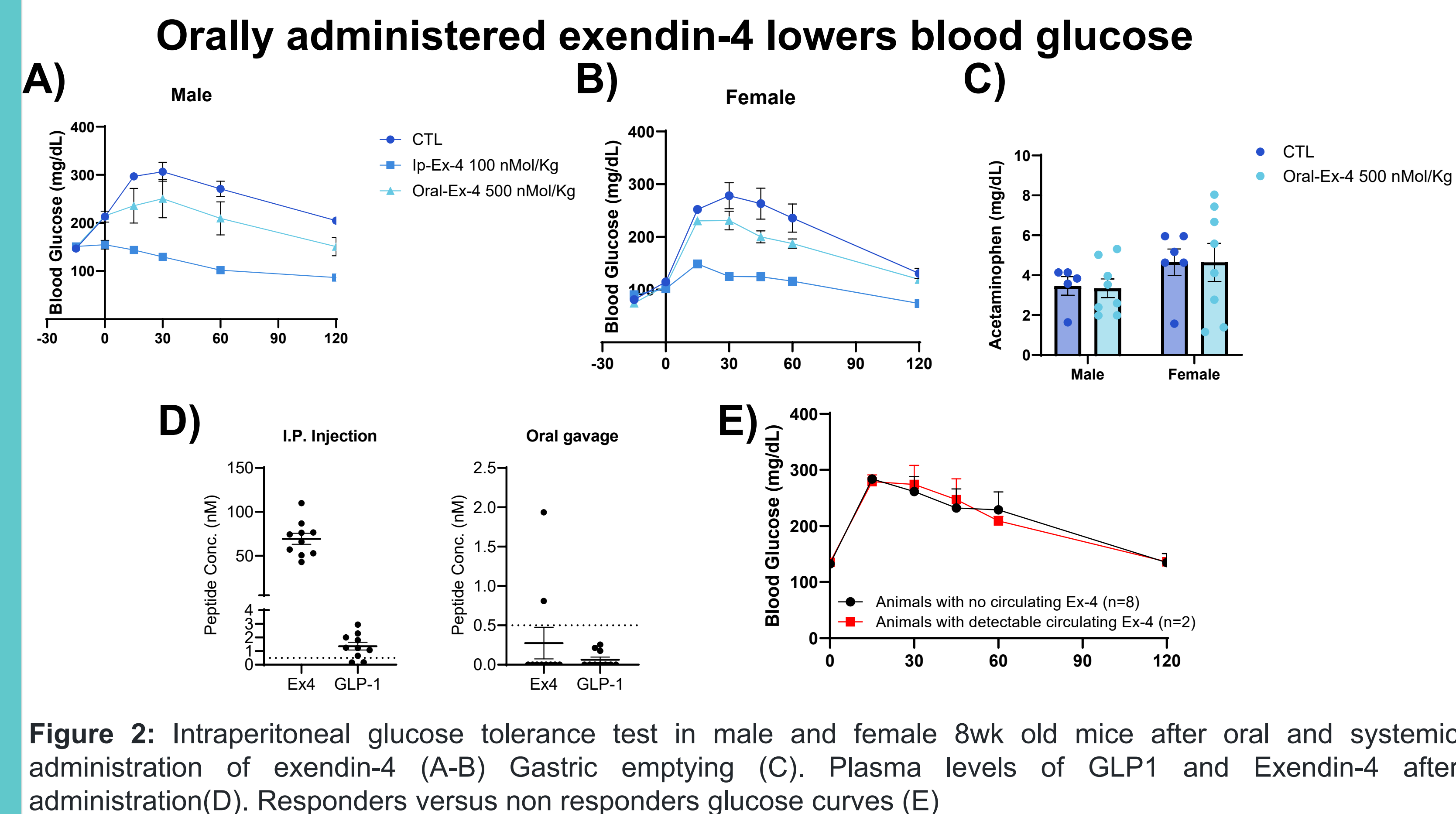


Figure 2: Intrapertoneal glucose tolerance test in male and female 8wk old mice after oral and systemic administration of exendin-4 (A-B) Gastric emptying (C). Plasma levels of GLP1 and Exendin-4 after administration(D). Responders versus non responders glucose curves (E)

## Orally administered exendin-4 does not impact food intake

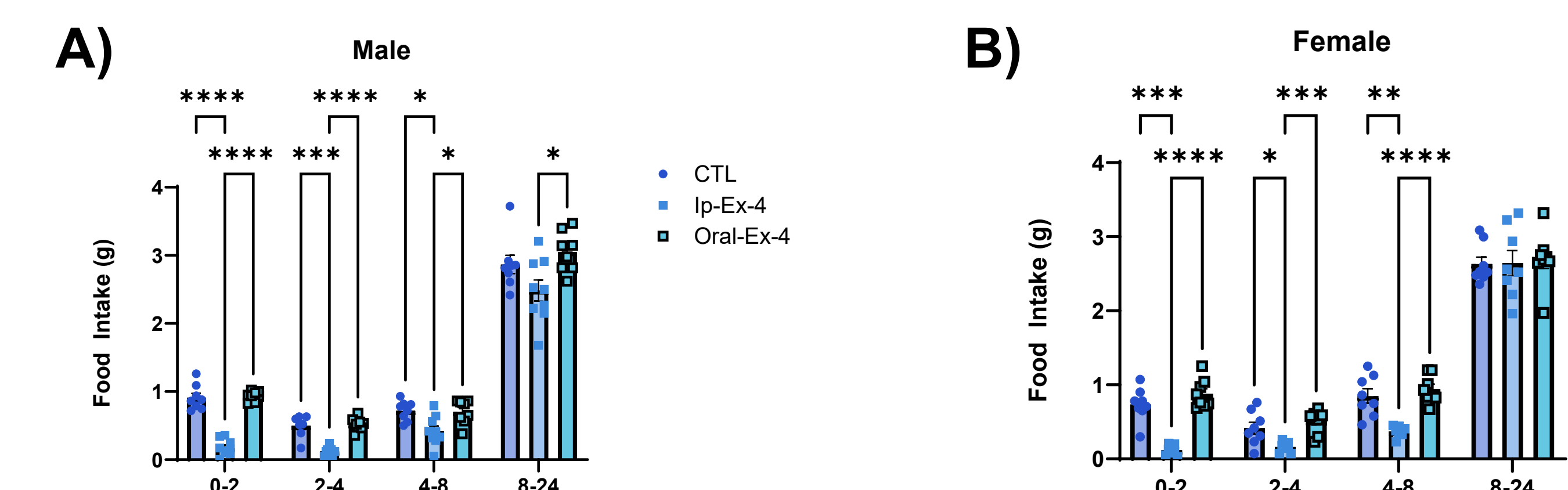


Figure 3: Interval food intake of male and female 8wk old mice after oral and systemic administration of exendin-4 (A-B) after a 16 hour fast \* p < 0.05, \*\* p < 0.005, \*\*\* p < 0.01, \*\*\*\* p < 0.001.

## GLP1R within the intestinal epithelium and enteric nervous system are not needed for the glucose lowering effects of administered exendin-4

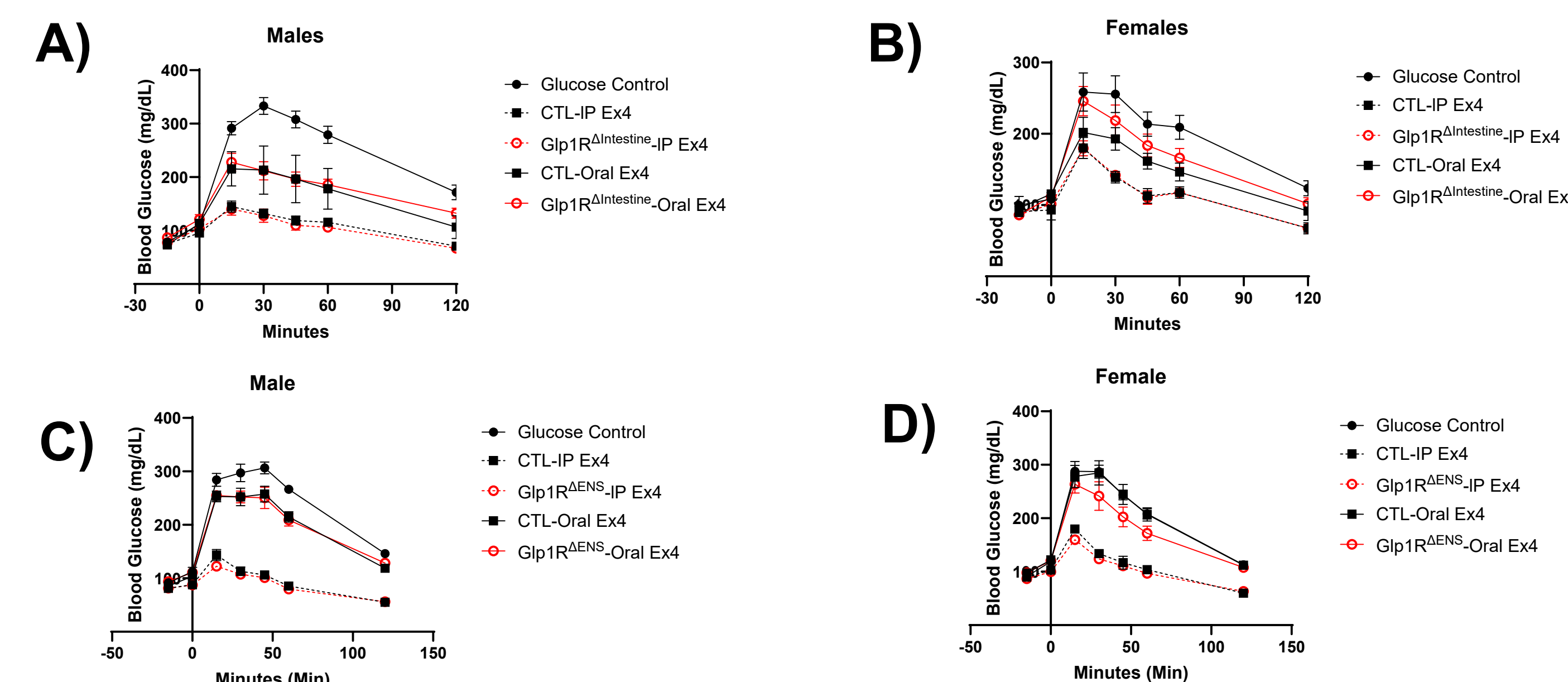


Figure 4: Intrapertoneal glucose tolerance test in male and female 8wk old GLP1R villin cre mice(A & B) and GLP1R wnt Cre male and female mice (C & D).

## GLP1R within the vagus nerve are needed for the glucose lowering effects of administered exendin-4 in males but not females

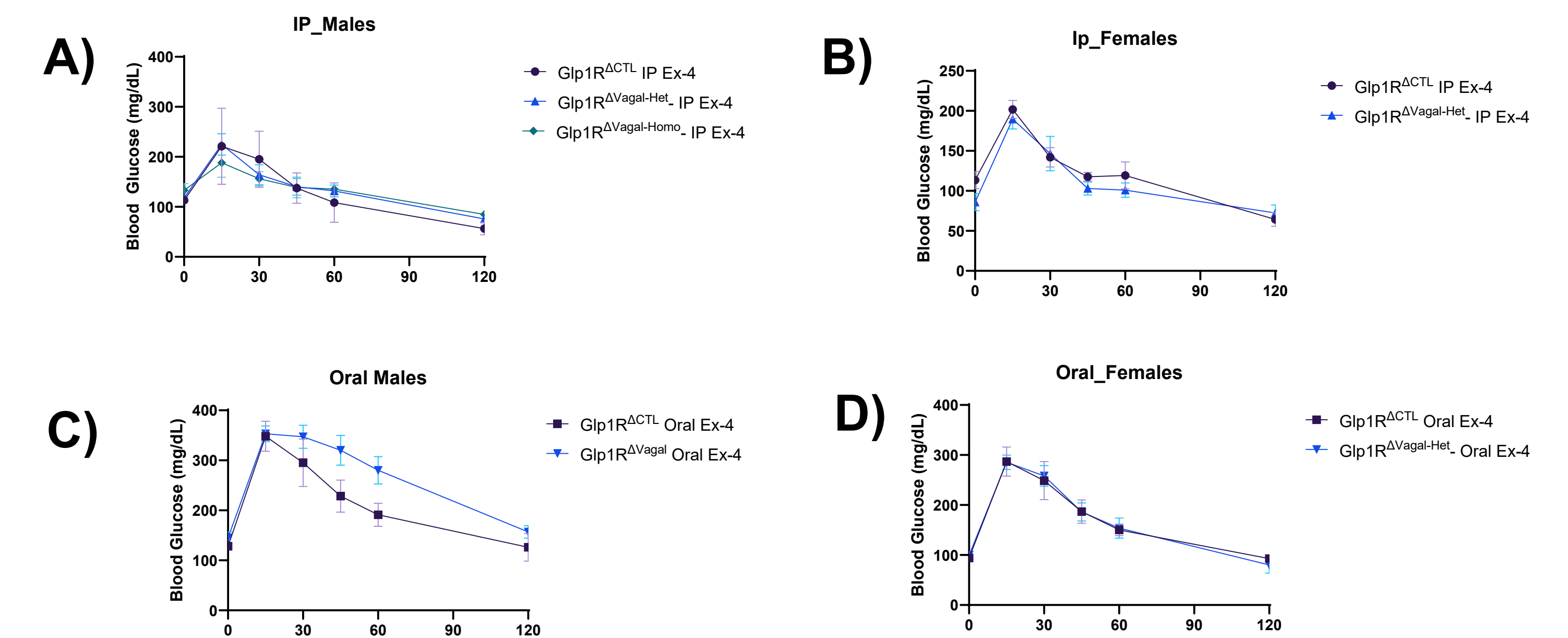
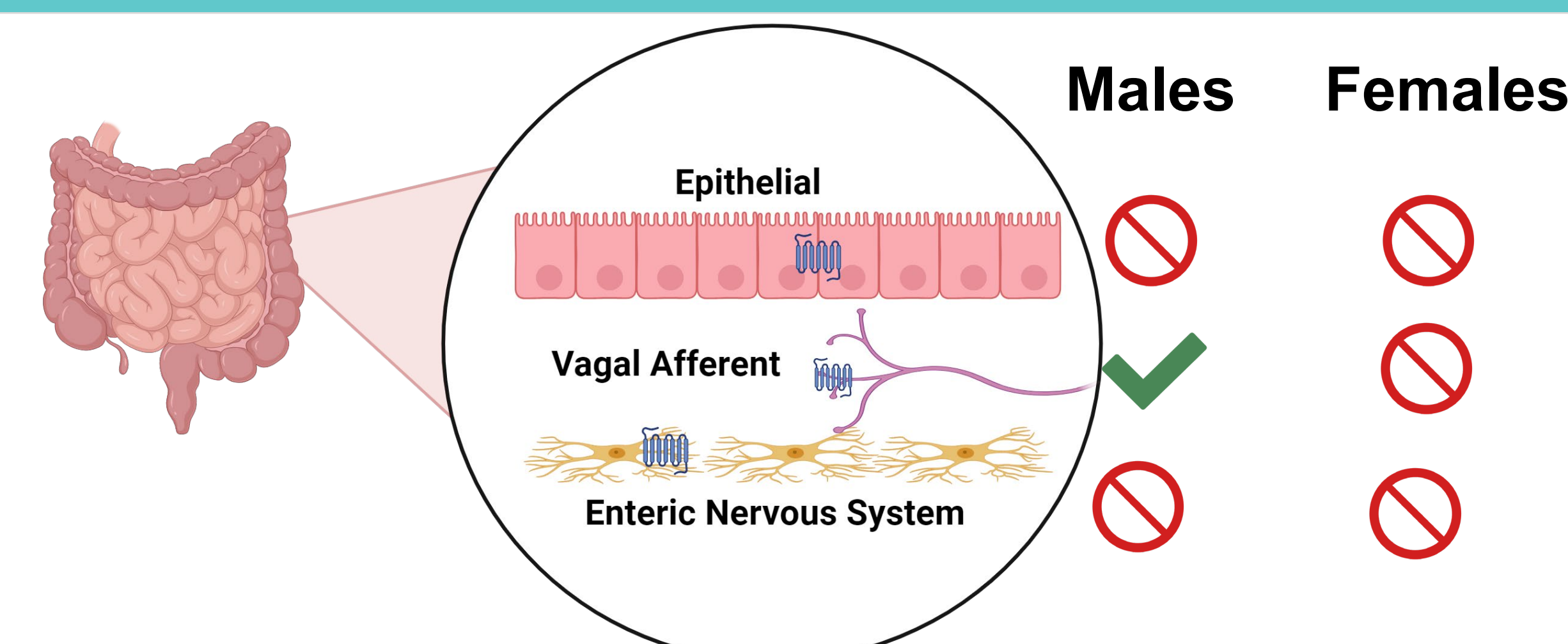


Figure 4: Intrapertoneal glucose tolerance test in male and female 8wk old GLP1R vagal mice after IP administration of exendin-4 (A & B) and oral administration(C & D).

## CONCLUSION



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