

Innovative pulse and cereal-based food fermentations for human health and sustainable diets

Short-chain fatty acids (SCFA): the intestinal site of administration matters

Riet Rosseel



KU LEUVEN

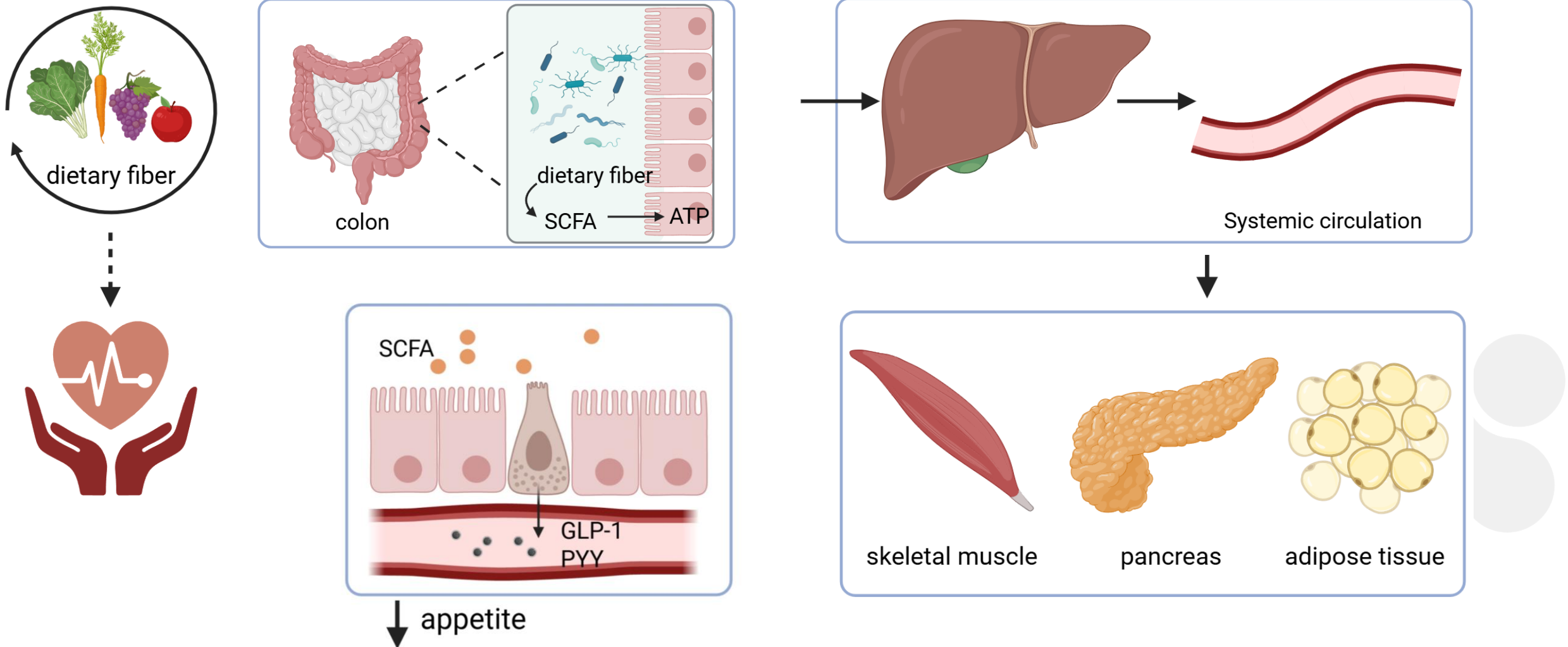


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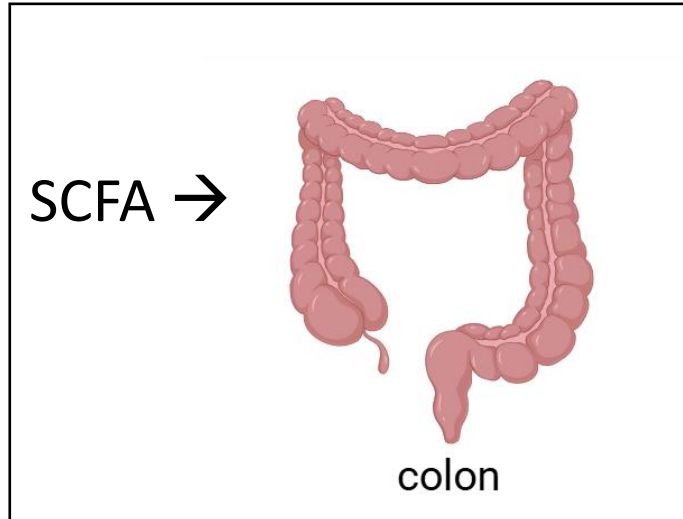


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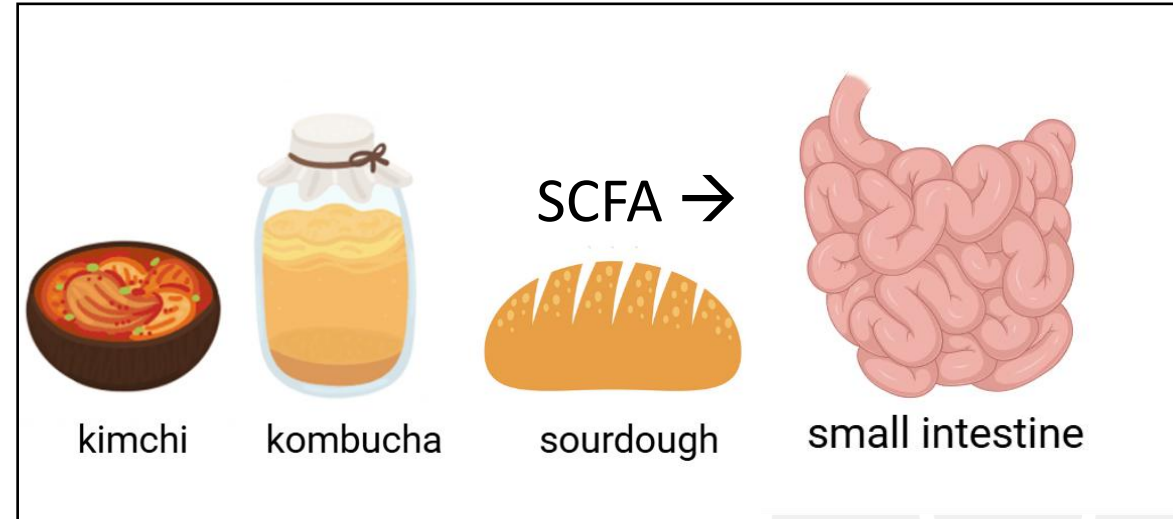
Introduction to short-chain fatty acids (SCFA)



Previous research administered:



However:



SCFA administration in the small intestine versus colon affects:

- Release of GLP-1 and PYY and their effects on appetite and glucose homeostasis
- Circulating SCFA concentrations

Targeted-delivery capsules filled with SCFA



Small intestine (SI)

- Uncoated capsules



Colon (Co)

- Coated
- With pH-dependent polymer
- Dissolves at pH > 7 (terminal ileum)

Additional visit:



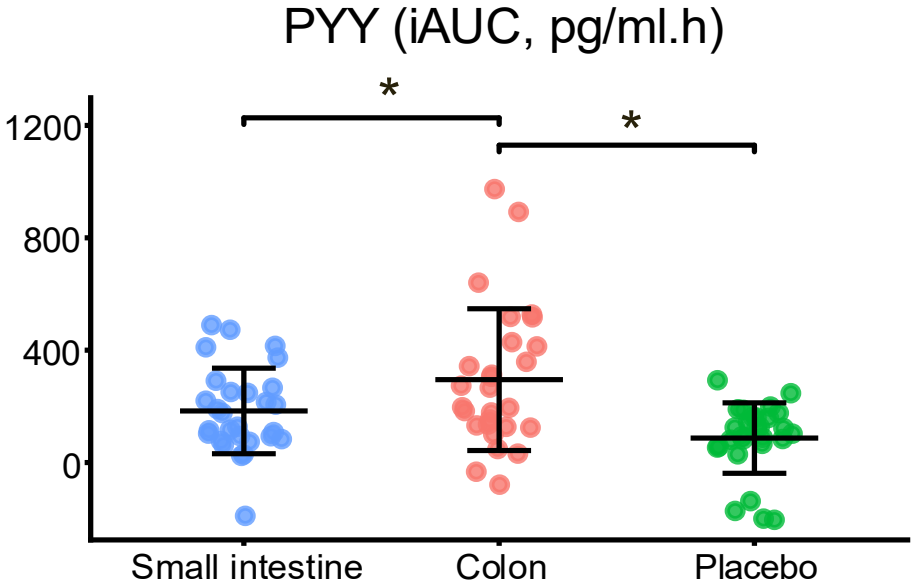
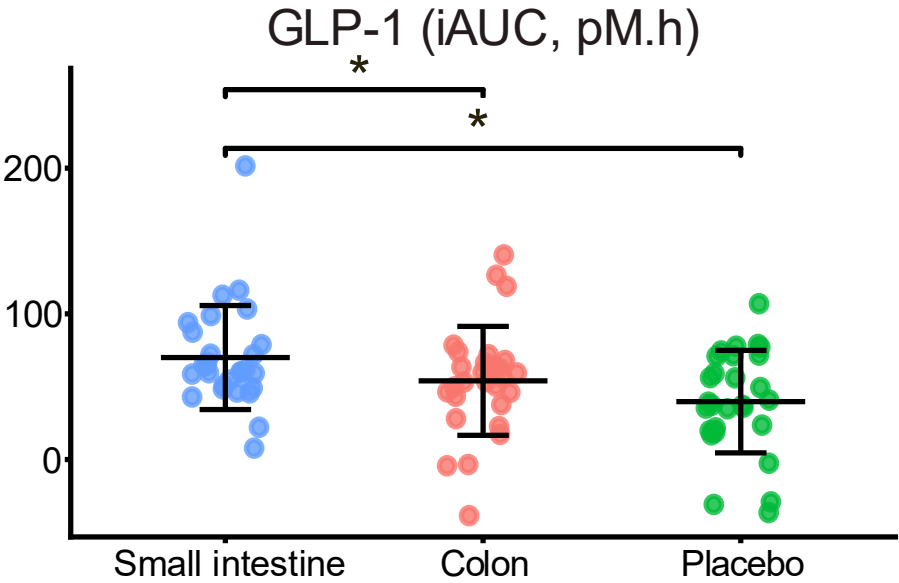
Placebo (PI)

- Filled with microcrystalline cellulose
- Correction for meal-induced GLP-1 & PYY release



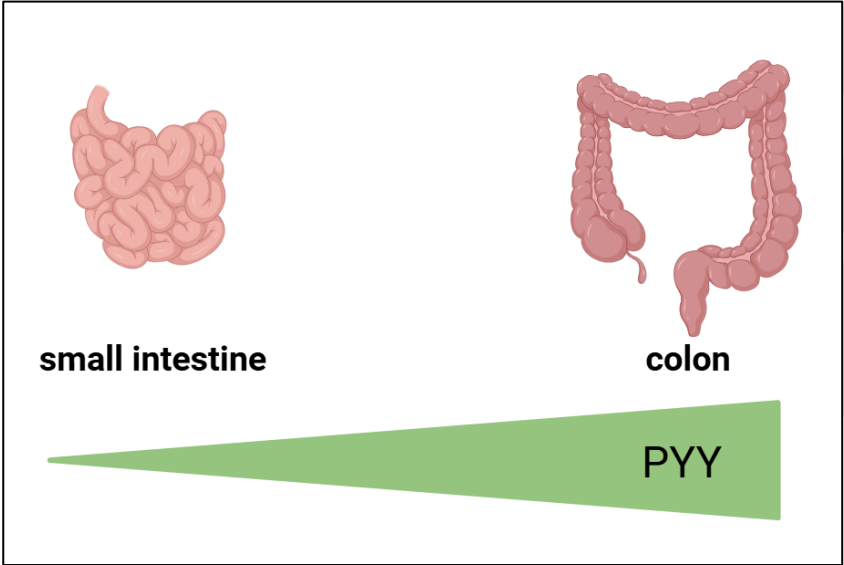
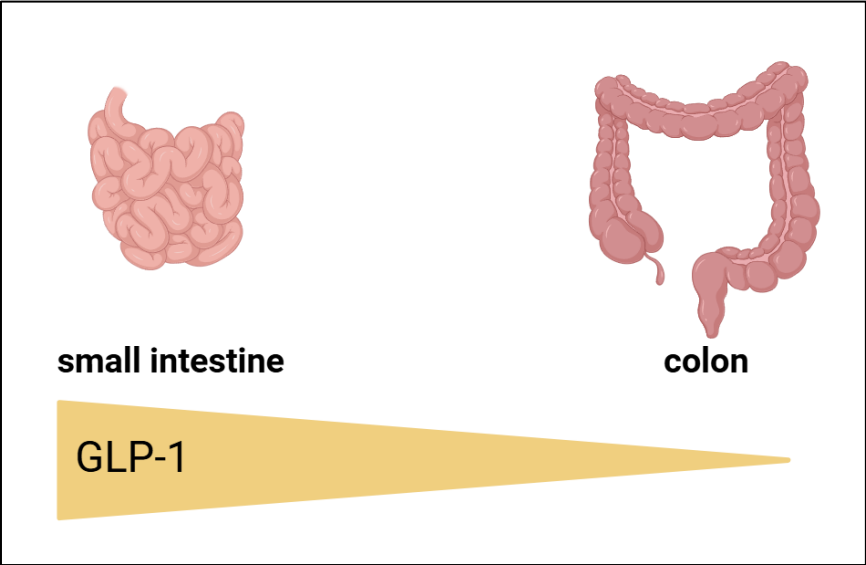
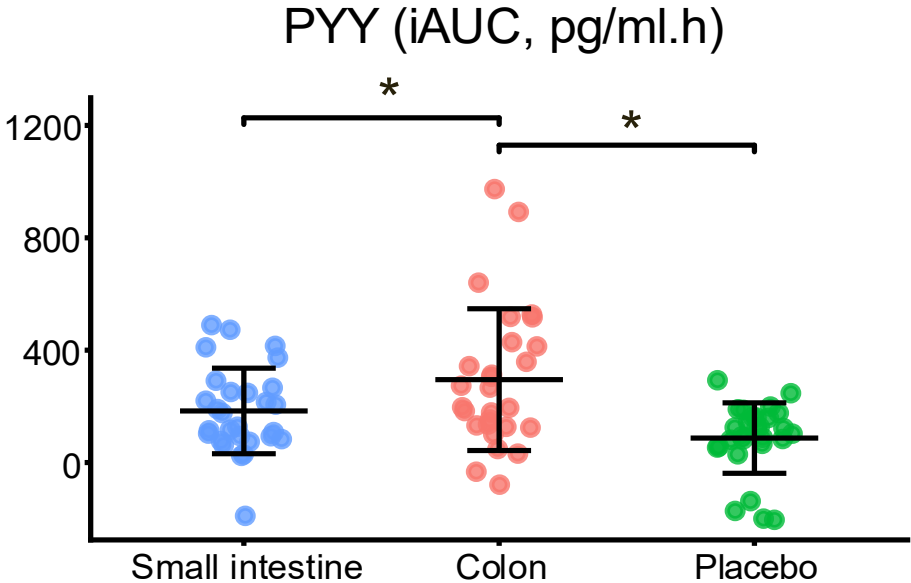
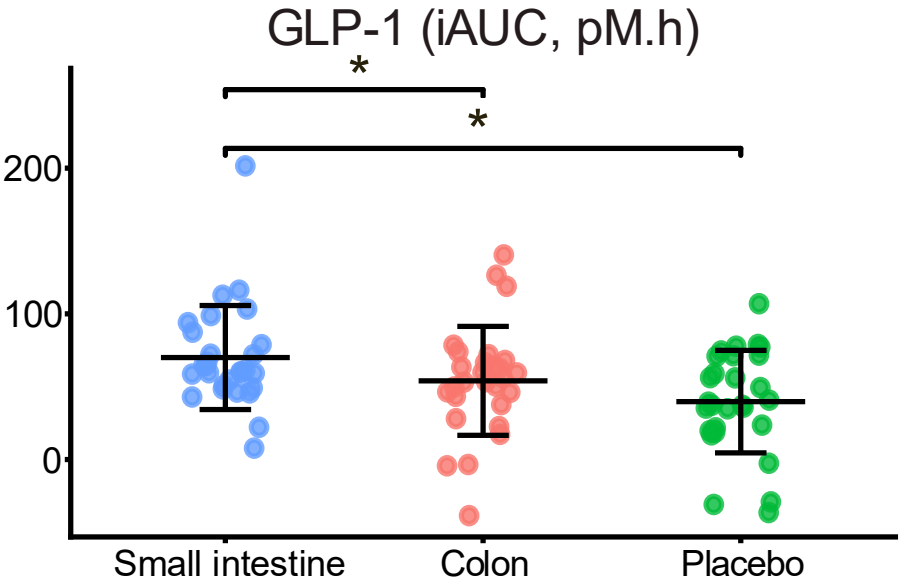
GLP-1 and PYY release

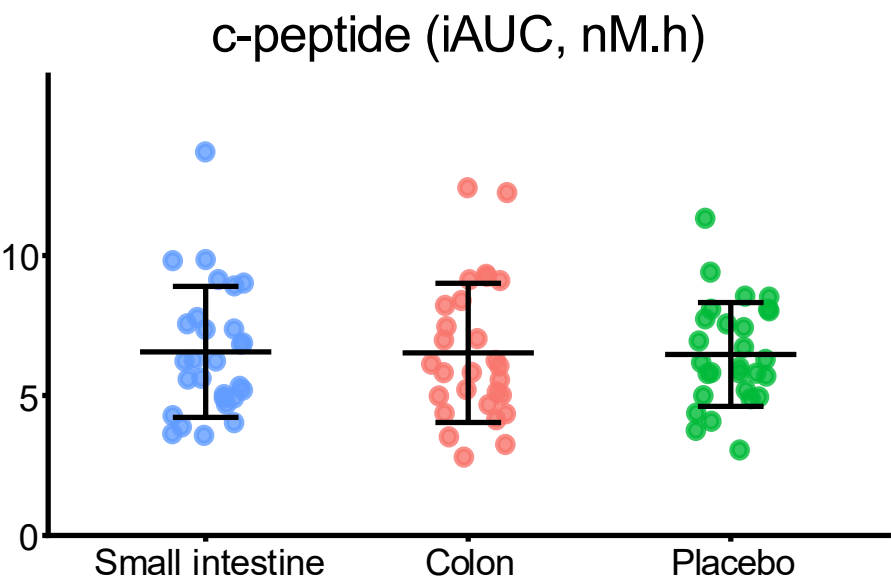
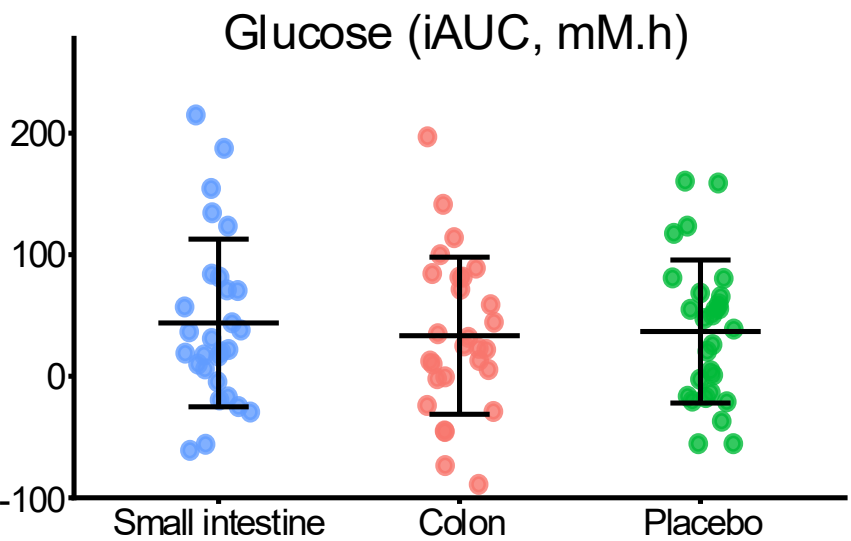
N = 28



GLP-1 and PYY release

N = 28

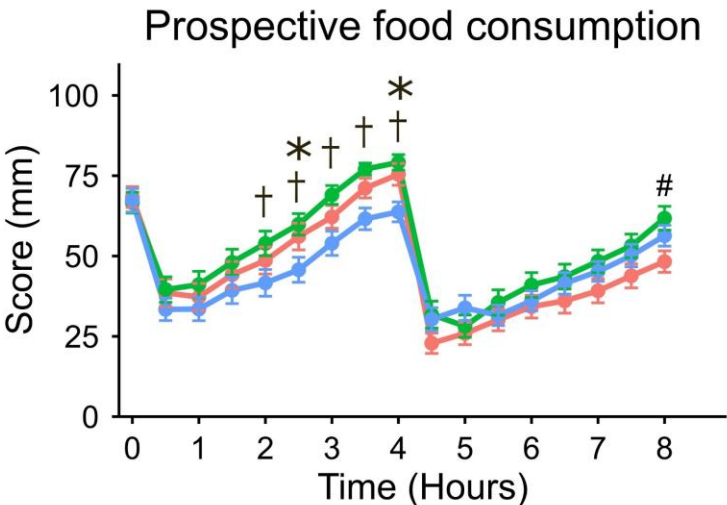
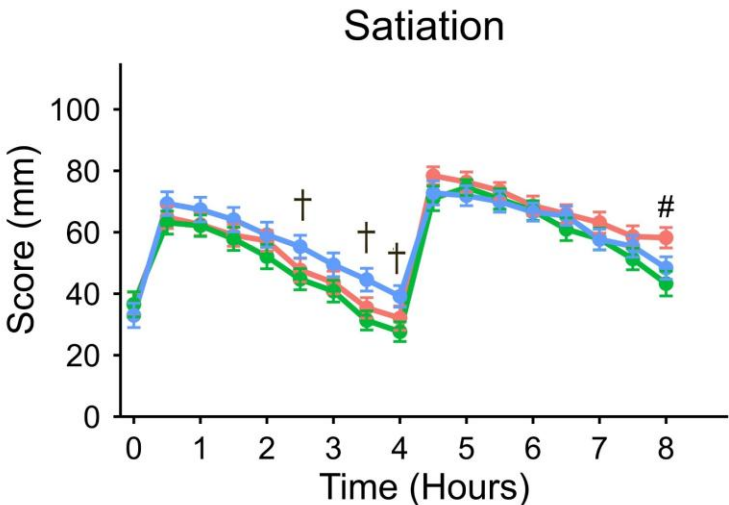
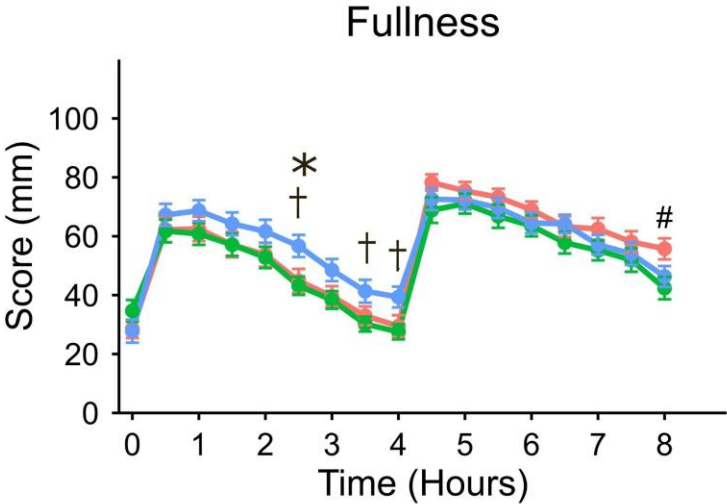
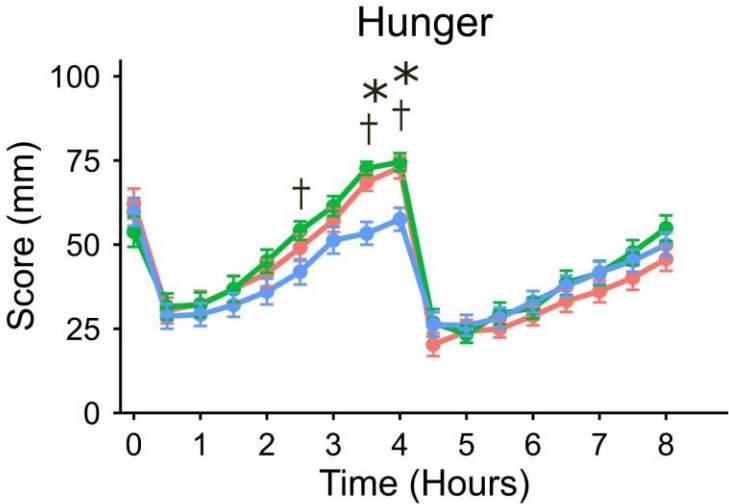




Subjective appetite

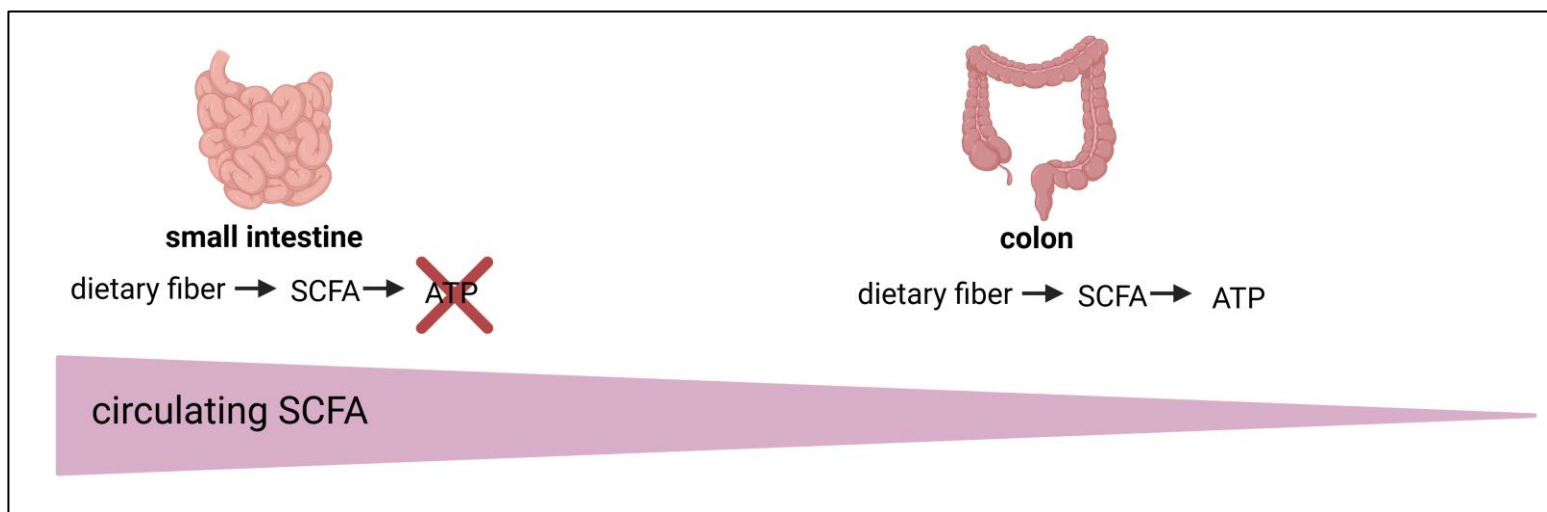
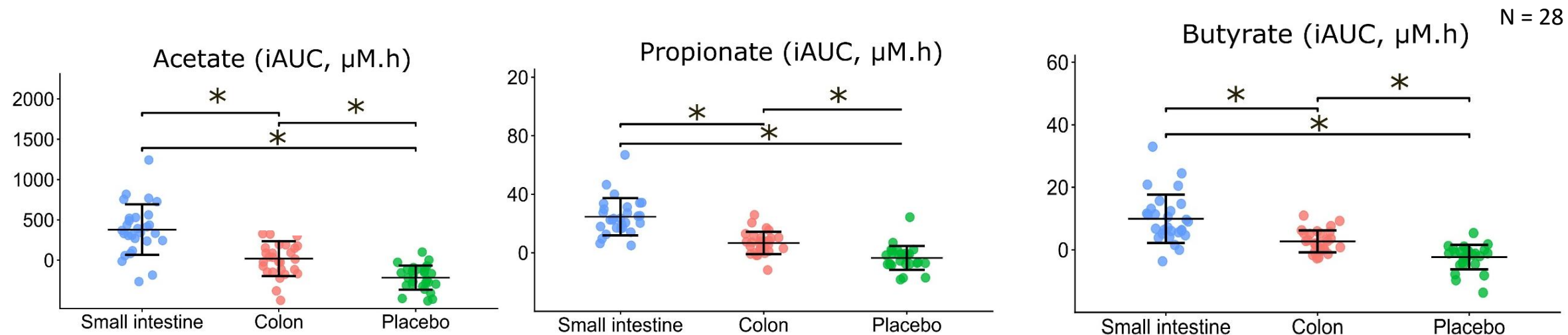
N = 28

†: SI vs. PI
#: Co vs. PI
*: SI vs. Co



Capsule Type — Small intestine — Colon — Placebo

Circulating SCFA concentrations



Conclusion

- GLP-1 release was higher after small intestinal administration whereas PYY release was higher after colonic administration
- Circulating SCFA concentrations were higher following small intestinal administration
- The intestinal site of SCFA administration should be considered to pursue their health effects



Wanna know more?
Visit my poster at the KU Leuven booth 😊

Thanks for your attention!

- Thanks to:

- Prof. Kristin Verbeke
- Dr. Tessa Dehau
- Greet Vandermeulen
- Jiaxin Liu



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