

**P013** Markers Of Glucose Sensing Pathways In Rat Duodenal Afferents  
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Background: Feedback inhibition of gastric emptying is triggered by glucose in the duodenum, and is pathologically increased in diabetes. Functional data strongly implicates vagal afferent pathways in this mechanism, however the localisation and molecular identity of the intestinal glucosensor is currently unknown. Aim: To localise candidate molecules in glucose sensing pathways and their association with afferents in the duodenal mucosa. Methods: Dual-label immunohistochemistry was performed in 8 rats. Markers identified were GLUT2 (glucose transporter), SUR1 (sulfonylurea receptor component of the pancreatic  $K_{ATP}$  channel), PGP9.5 (general marker for nerve fibres), and CGRP (primary afferents). Results: We confirmed GLUT2 and SUR1 labelling in specific populations of pancreatic islet cells. GLUT2 was also identified in the basolateral membrane of the proximal duodenal epithelium. PGP9.5 labelled nerve fibers in the duodenal lamina propria that also selectively labelled for SUR1, and are probably extrinsic vagal or spinal sensory afferents as they also labelled for the sensory peptide CGRP. Conclusions: These observations suggest that glucose may activate duodenal sensory nerves by closing  $K_{ATP}$  potassium channels – a similar mechanism to that in hypothalamus, but a novel mechanism for peripheral nerves. Funding: University of Adelaide.