It is now appreciated that peptide hormones encoded by the ghrelin gene, **GHRL**, have roles in many biological systems and cell types (1). In particular, the hormone ghrelin is a therapeutic target and clinical marker for a range of pathologies, including diet-induced and genetic obesity.

Here, we interrogated publicly-available transcriptome (RNA-seq) data to investigate the expression of **GHRL** in a battery of cells and tissues.

**RESULTS**

- High **GHRL** expression in monocytes and associated tissues
- Bariatric surgery reduces monocyte **GHRL** expression 12 weeks postoperatively
- The proinflammatory cytokine interferon-γ (IFN-γ) and insulin are dysregulated in obesity (4,7-8)

**Q:** Is reduced postoperative monocyte **GHRL** expression due to the altered levels or signalling of circulating molecules and an improved metabolic profile?

**Figure 1 (above),** Integrative Genomics Viewer (IGV) visualisation of the **GHRL** locus in monocytes validates expression of all canonical preproghrelin-coding exons (1-4).

**Figure 2 (left),** Box plot of **GHRL** expression in 35 cells and tissues, from the Human Protein Atlas (HPA) and ENCODE, reveals high expression in monocytes and associated tissues.

**Figure 3.** Monocyte **GHRL** expression is reduced 3 months after bariatric surgery (After) compared to levels pre-surgery (Before). Mean ± s.e.m. P value: paired Student’s t-test.

**Figure 4.** qRT-PCR demonstrating **GHRL** expression in the human THP-1 monocyctic leukaemia cell line treated with A. 50 ng/ml interferon-γ (IFN-γ) for 24 h (n=5 in each group), compared to vehicle-treated controls. B. THP-1 monocyctic leukaemia cell line treated with 0.01-1.0 nM insulin. Typical insulin levels are 0.09 nM before surgery and 0.03 nM after bariatric surgery (8). Mean ± s.e.m. **P** value ≤ 0.001 Mann–Whitney U test.

**CONCLUSIONS**

- While it is well-established that ghrelin plays a role in appetite regulation and energy balance, the function of **GHRL** in immune cells has remained enigmatic. Here, we present data that further supports its role in **cross-talk between the endocrine and immune systems**.
- We hypothesise that monocyte **GHRL**-derived hormones are critical mediators of the brain-gut axis (11) and monocyte-adipocyte cross-talk (12).
- Future longitudinal studies are needed to firmly establish a role for monocyte **GHRL**-derived peptides in successful bariatric surgery and obesity-associated pathologies, such as Prader-Willi syndrome and metabolic syndrome, in general.