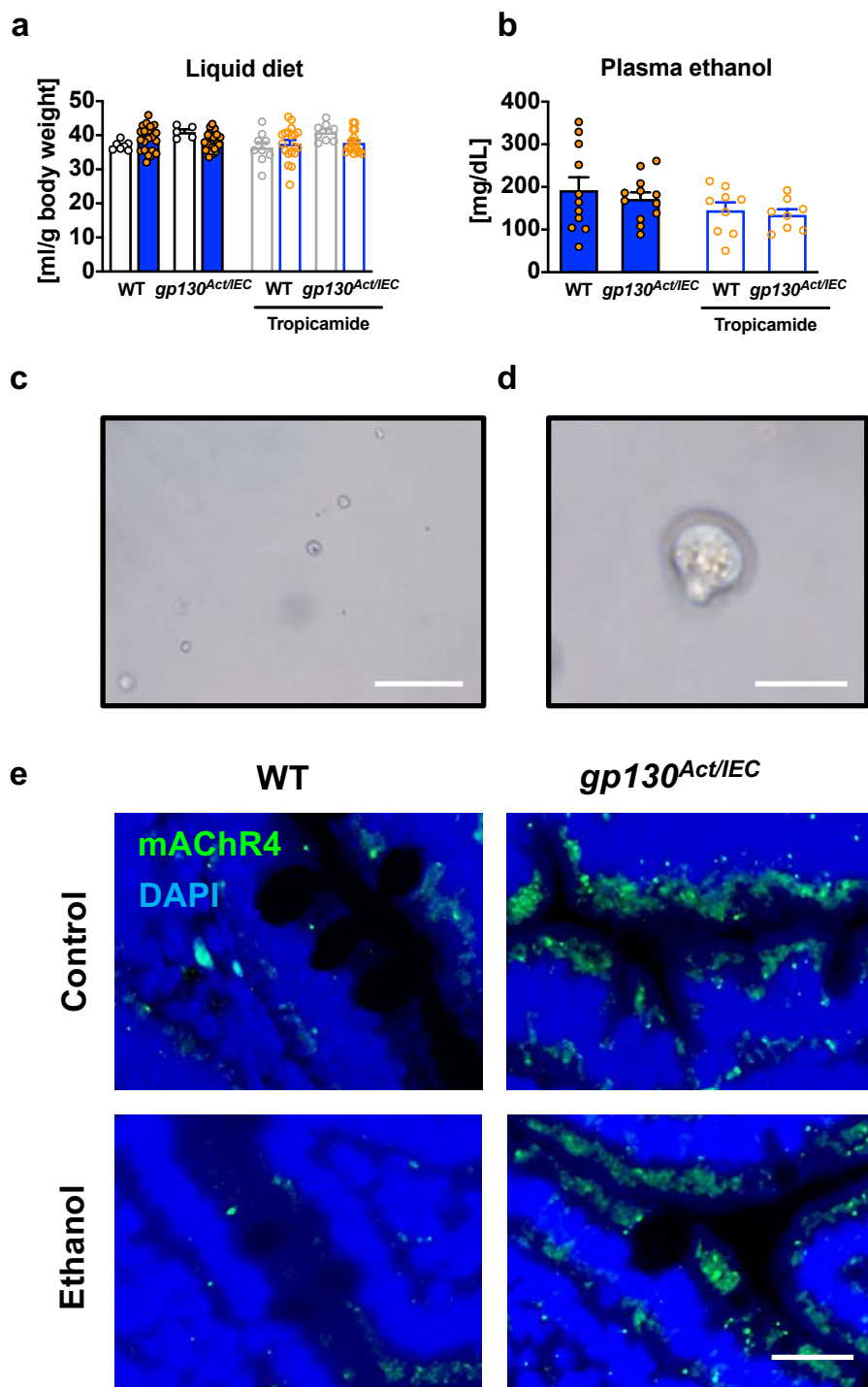
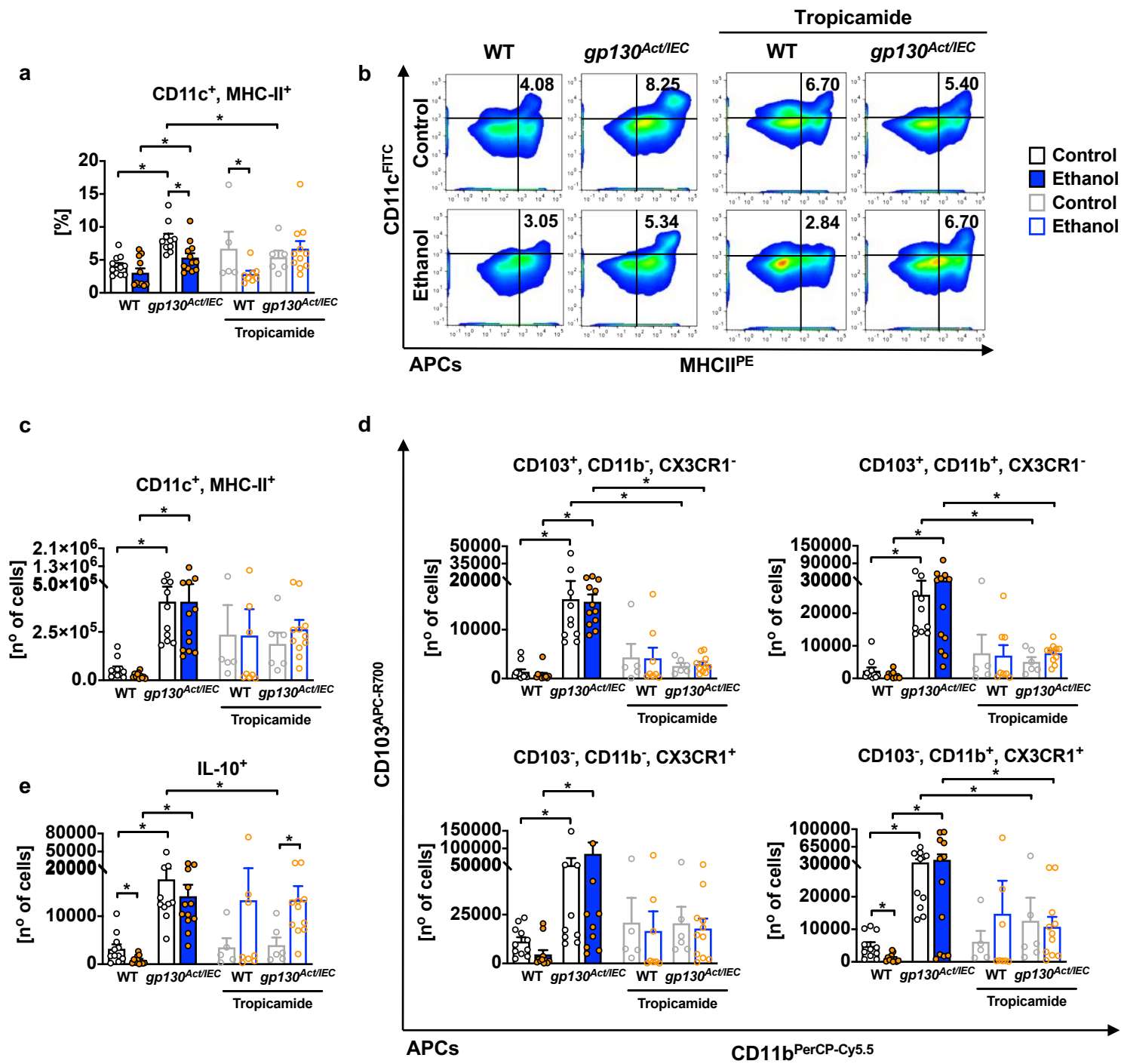


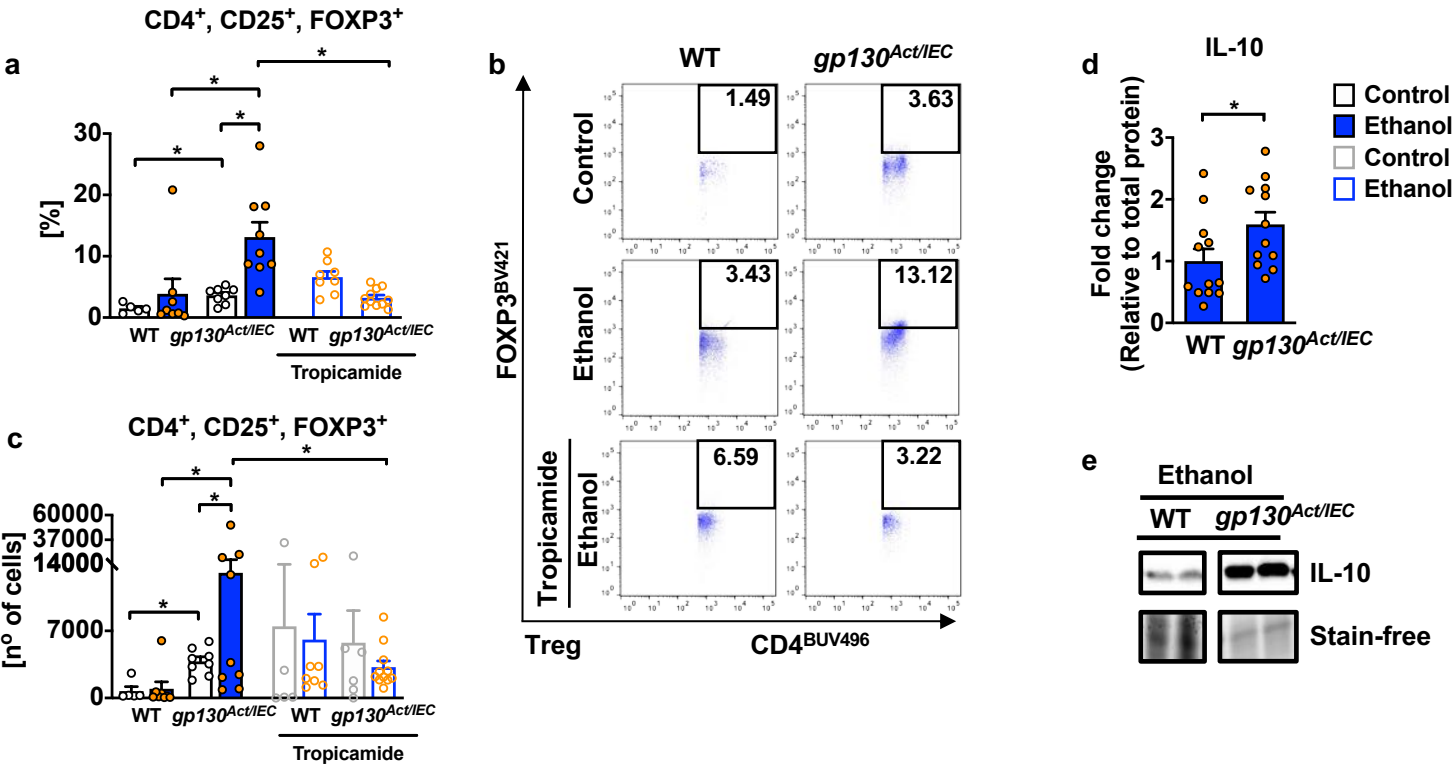
Extended Data Figure 1



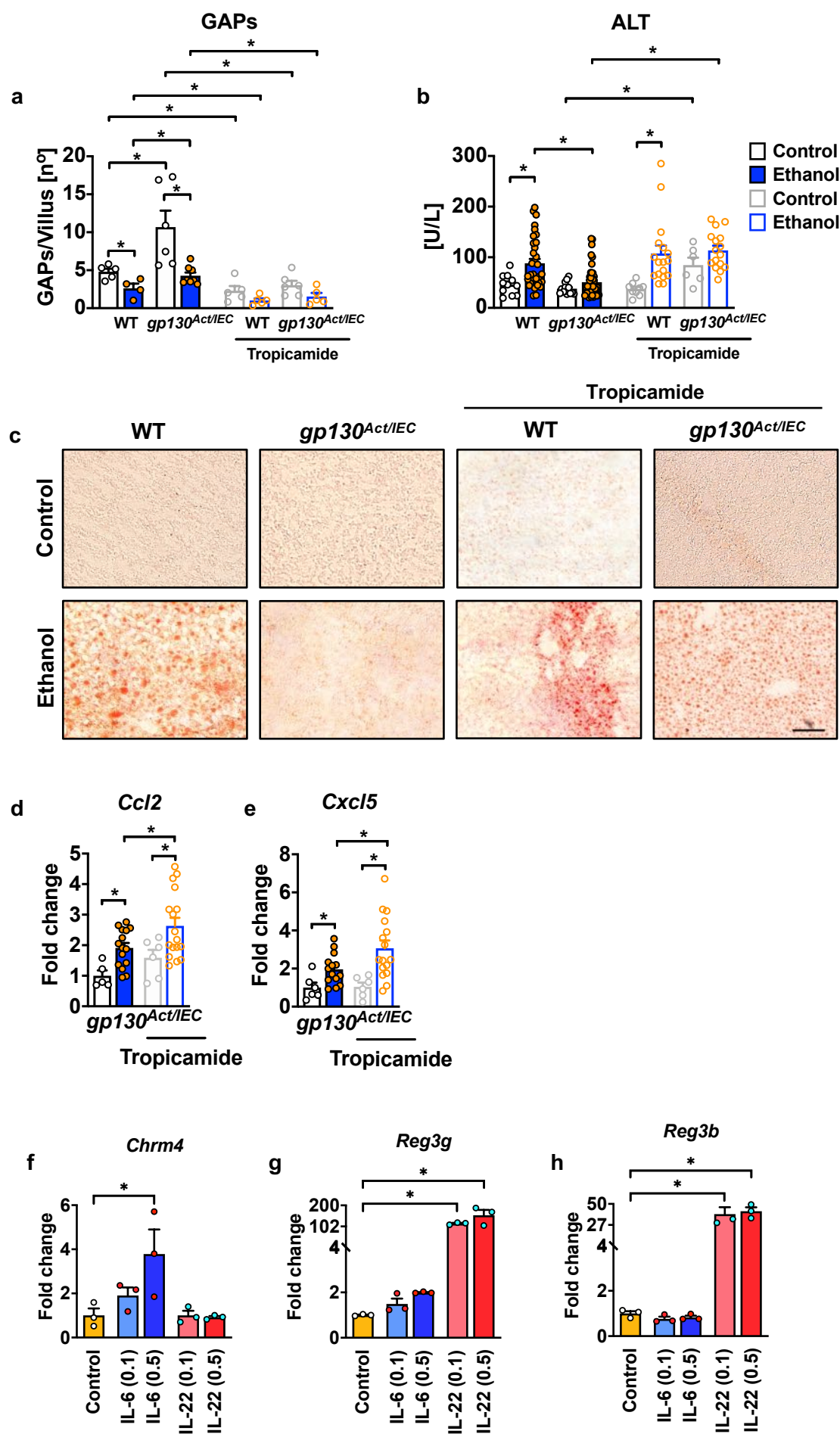
Extended Data Figure 2



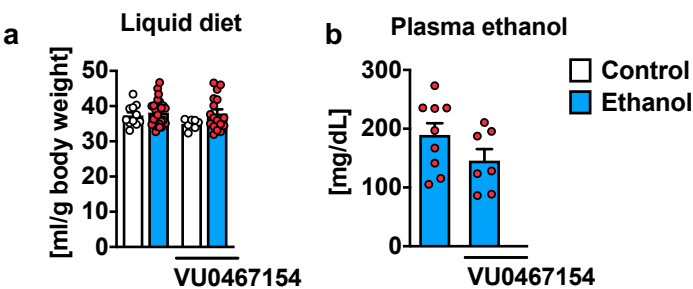
Extended Data Figure 3



Extended Data Figure 4



Extended Data Figure 5



This schematic diagram illustrates the intestinal mucosal barrier and the adaptive immune response. The diagram shows the Lumen, Bacteria, Luminal antigens, Outer mucus layer, Inner mucus layer, Goblet cell, Mucin, Nucleus, Paneth cells, IEC (Intestinal Epithelial Cell), and Lamina propria. Key components and processes include:

- gp130^{Act/IEC}**: A receptor on the IEC surface that interacts with **Reg3** and **IL-23**.
- Ethanol** and **Tropicamide**: Substances that interact with **mAChR4** on the IEC surface.
- VU0467154**: A substance that interacts with **mAChR4** and **Reg3**.
- Reg3**: A protein that interacts with **gp130^{Act/IEC}** and **IL-23**.
- mAChR4**: A receptor on the IEC surface that interacts with **ACh** (Acetylcholine) and **GAP** (G-protein-coupled protein).
- ACh**: Acetylcholine, a neurotransmitter that interacts with **mAChR4**.
- GAP**: G-protein-coupled protein, a signaling molecule that interacts with **mAChR4**.
- IL-22**: A cytokine that interacts with **Reg3** and **IL-23**.
- IL-23**: A cytokine that interacts with **gp130^{Act/IEC}** and **IL-22**.
- ILC3**: An Intestinal Lymphoid Cell (ILC3) that interacts with **IL-22** and **IL-23**.
- Adaptive immune response**: The overall process involving the interaction of these components.
- CD103⁺ CD11b⁺ CX3CR1⁻** and **CD103⁻ CD11b⁺ CX3CR1⁺**: Markers for different types of ILC3s.