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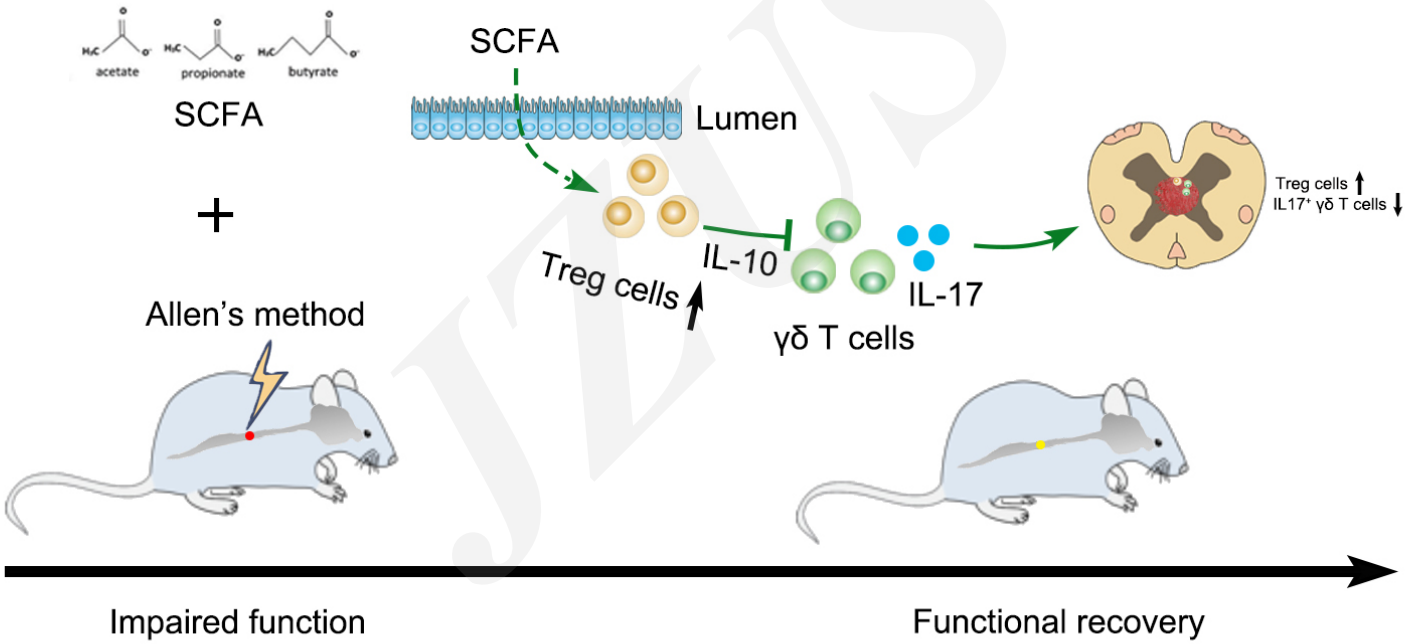
Short-chain fatty acids ameliorate spinal cord injury recovery by regulating the balance of regulatory T cells and effector IL-17$^+$ γδ T cells

Key words: short chain fatty acids; spinal cord injury; regulatory T cells; IL-17$^+$γδ T cells; neuroprotection; inflammation; motor function recovery

Research Summary

This article explored the effects of oral administration of exogenous SCFAs on motor function recovery and tissue repair in SCI from the behavioral to the cellular level.

Graphical Abstract *Short chain fatty acids can regulate Treg/17⁺γδT to inhibit the inflammatory respond and promote the recovery of the motor funtion of rats after spinal cord injury*



Innovation points

- **The potential of oral SCFAs in the treatment of SCI in a rat model. SCFAs can regulate Treg cells in the gut and promote their secretion of IL-10, affecting the balance of Treg and IL-17^{+}γδ T cells in the spinal cord, which in turn inhibits the inflammatory response and promotes the motor function of SCI rats.**

- **The study successfully performed the initial therapeutic assessment of a mixture of SCFAs in an in vivo SCI rat model.**

- **Treg cells migrate from the intestinal tract to the damaged region in SCI. The "gut-spinal-immune" axis may be one of the vital mechanisms regulating neural repair after SCI.**

Figure 4