



Bile acid metabolism and signaling in human and animal health: A One Health perspective

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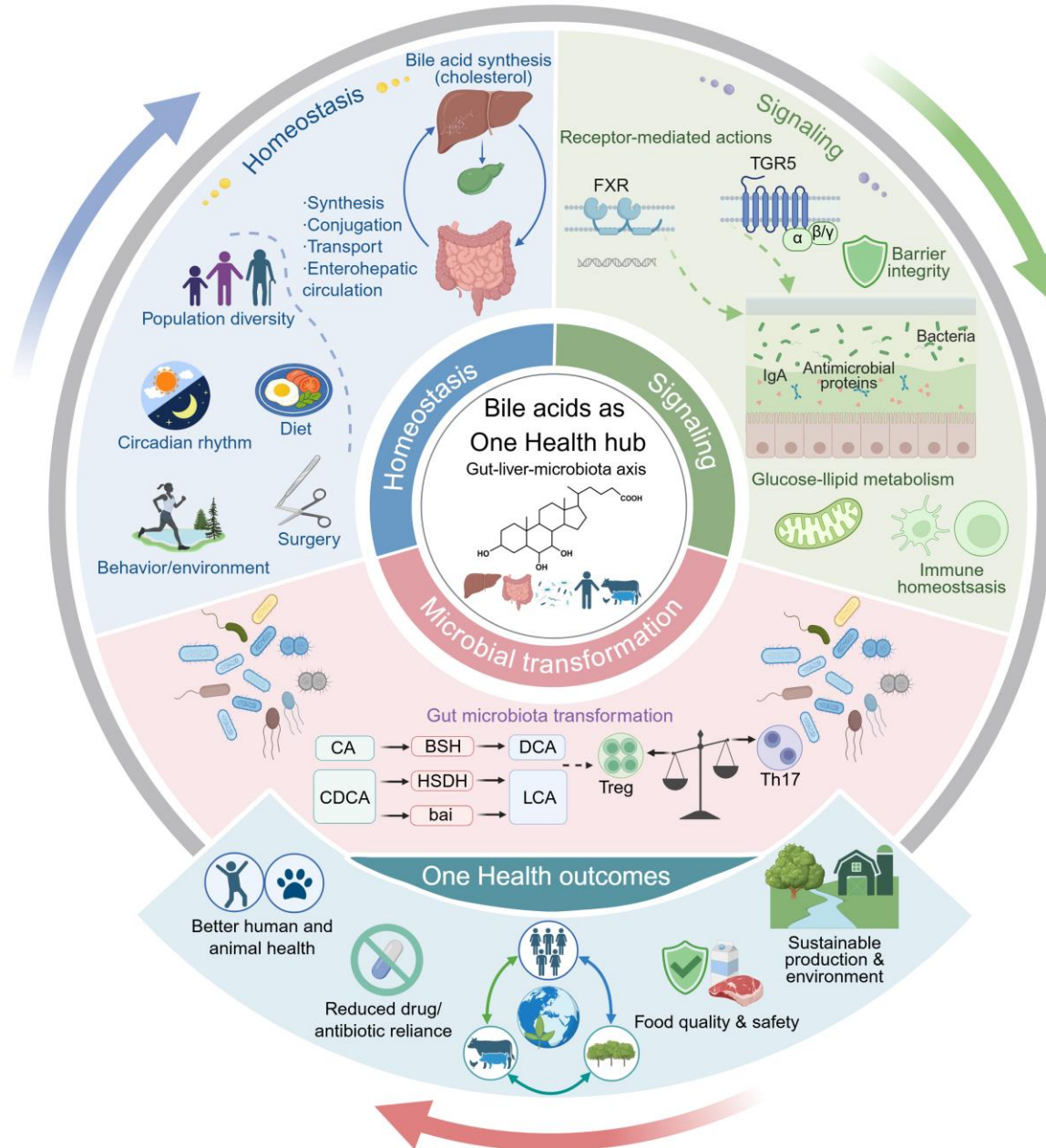
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Lei Li, Shuai Liu, Zhijun Cao, Yangchun Cao, Shengru Wu, Lu Deng, Junhu Yao, et al. 2026.
“Bile acid metabolism and signaling in human and animal health: A One Health perspective.”
iMetaOmics 3: e70123. <https://doi.org/10.1002/imo2.70123>



Introduction





BA metabolism and T cell immunity

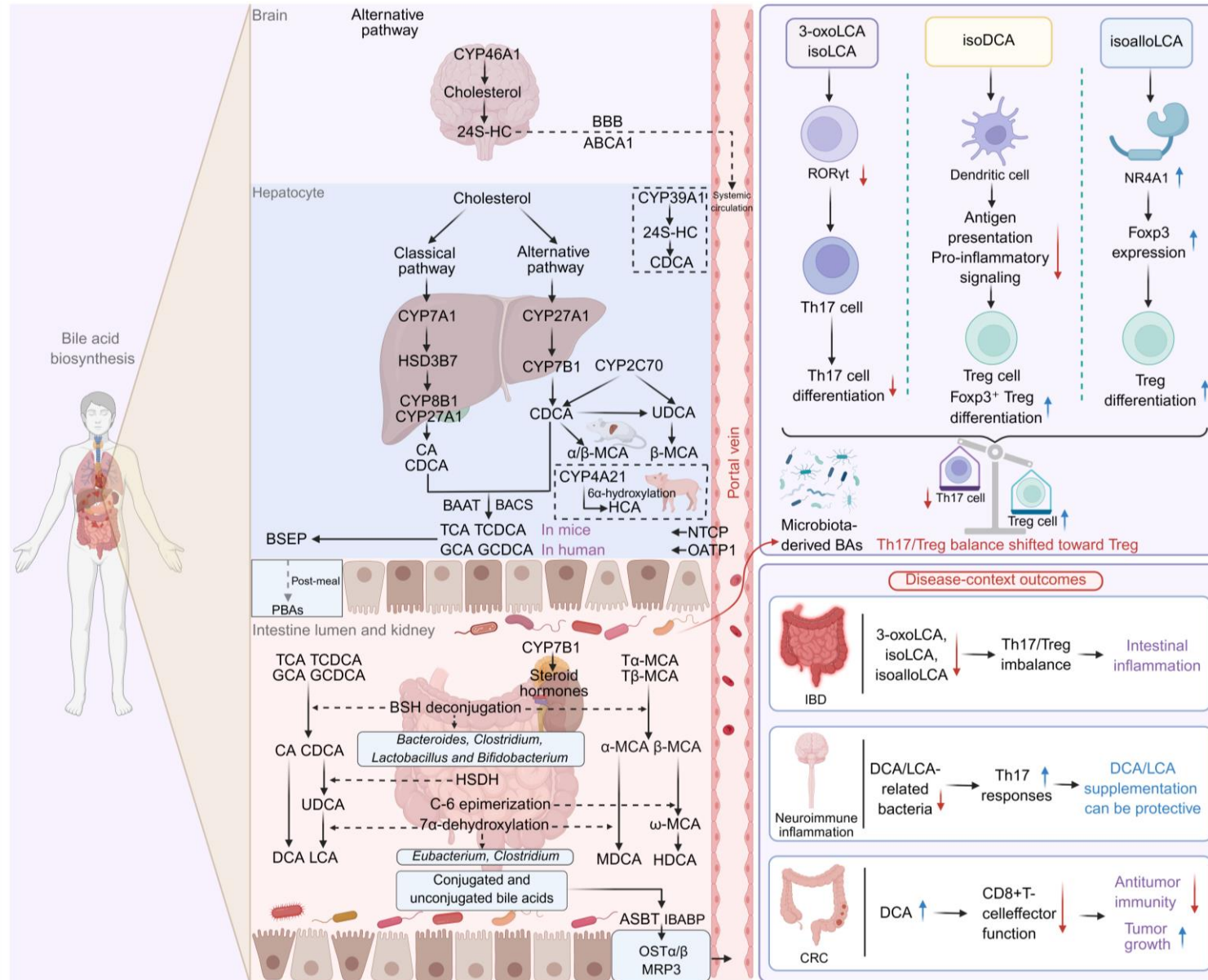


Figure 1 BA synthesis, circulation, microbial transformation, and T cell immune regulation



BA receptor signaling

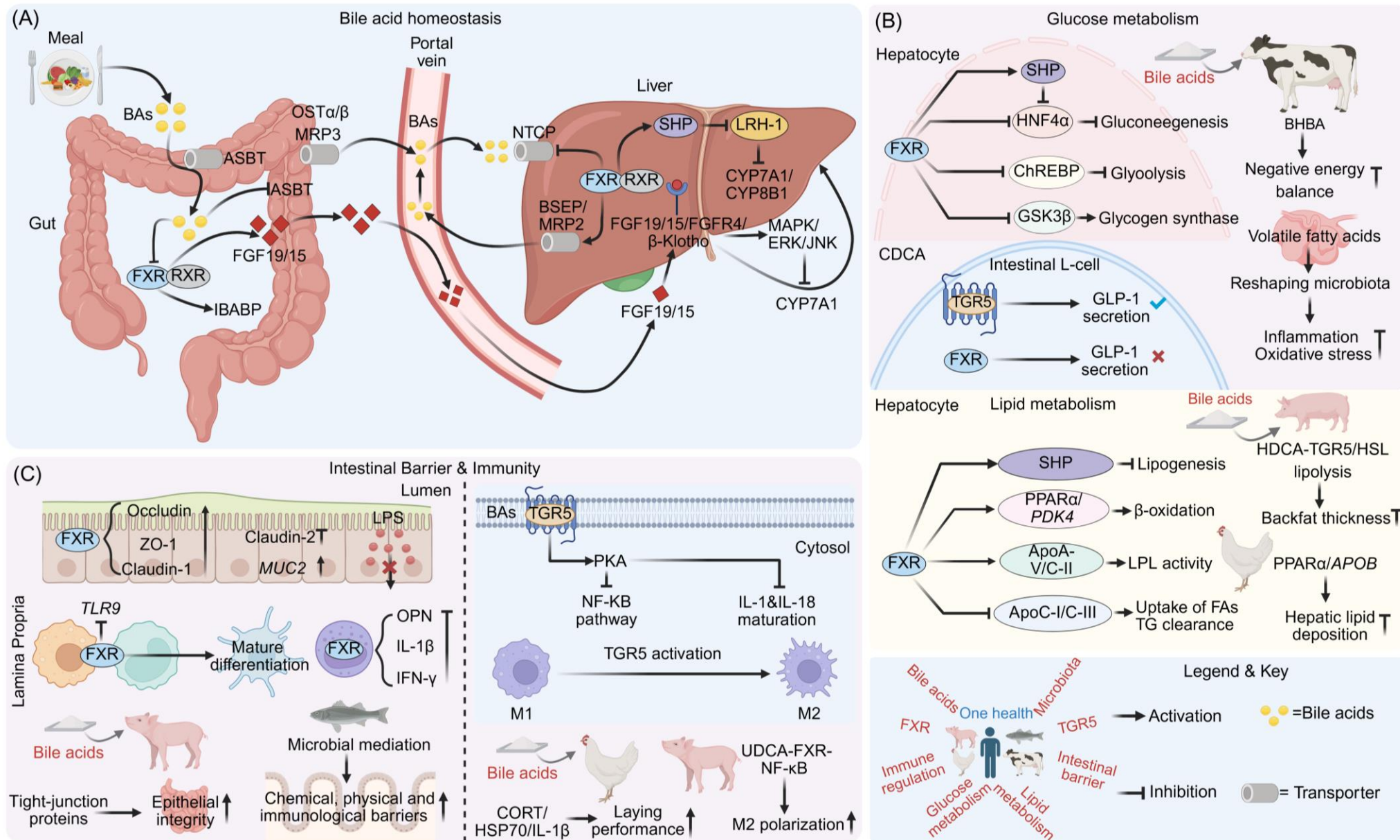


Figure 2 BA receptor-mediated regulation of metabolic, barrier, and immune homeostasis



Multiple factors dynamically shape BA metabolism

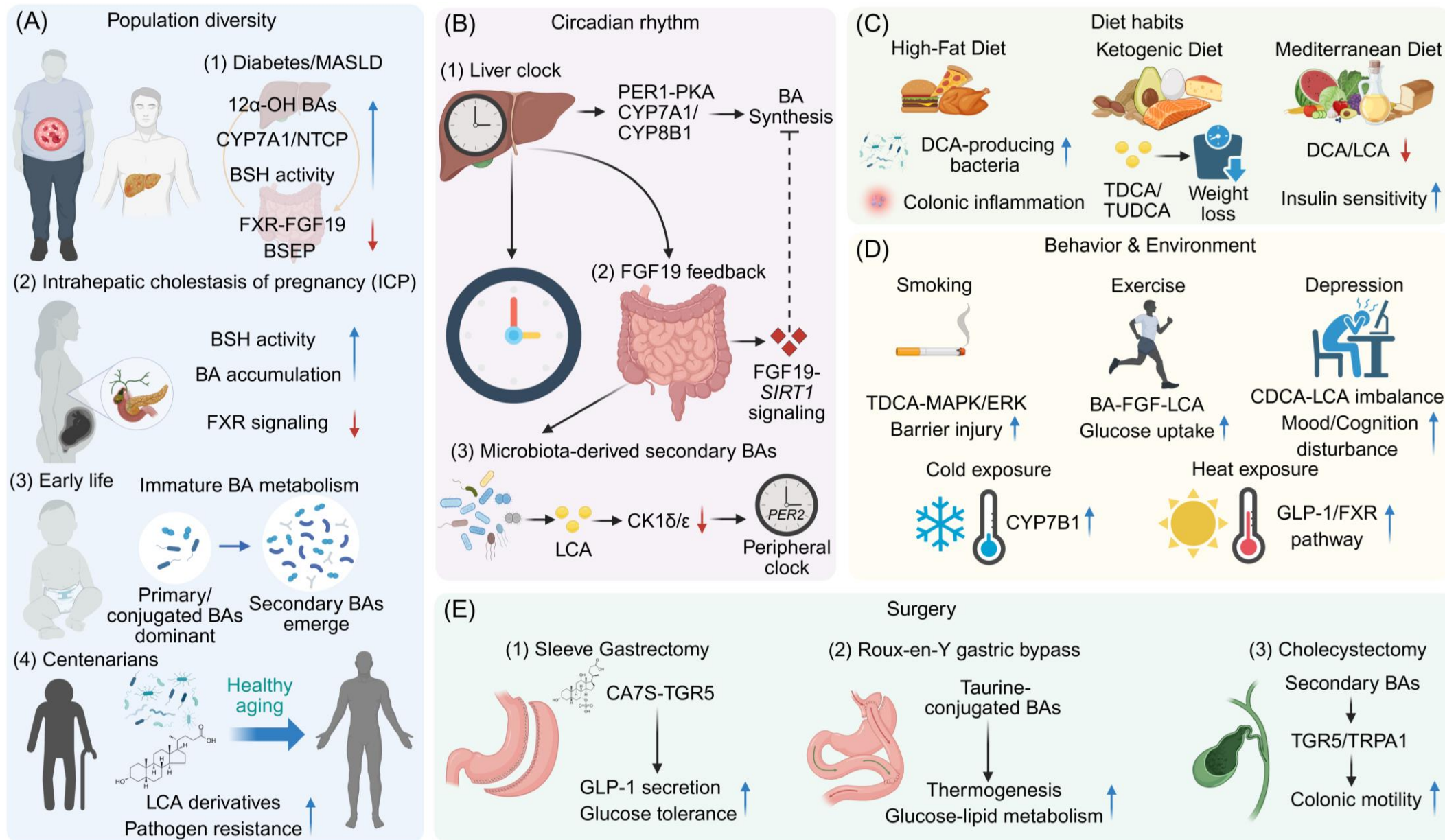


Figure 3 Multiple factors dynamically shape BA metabolism



Future perspectives of BA research

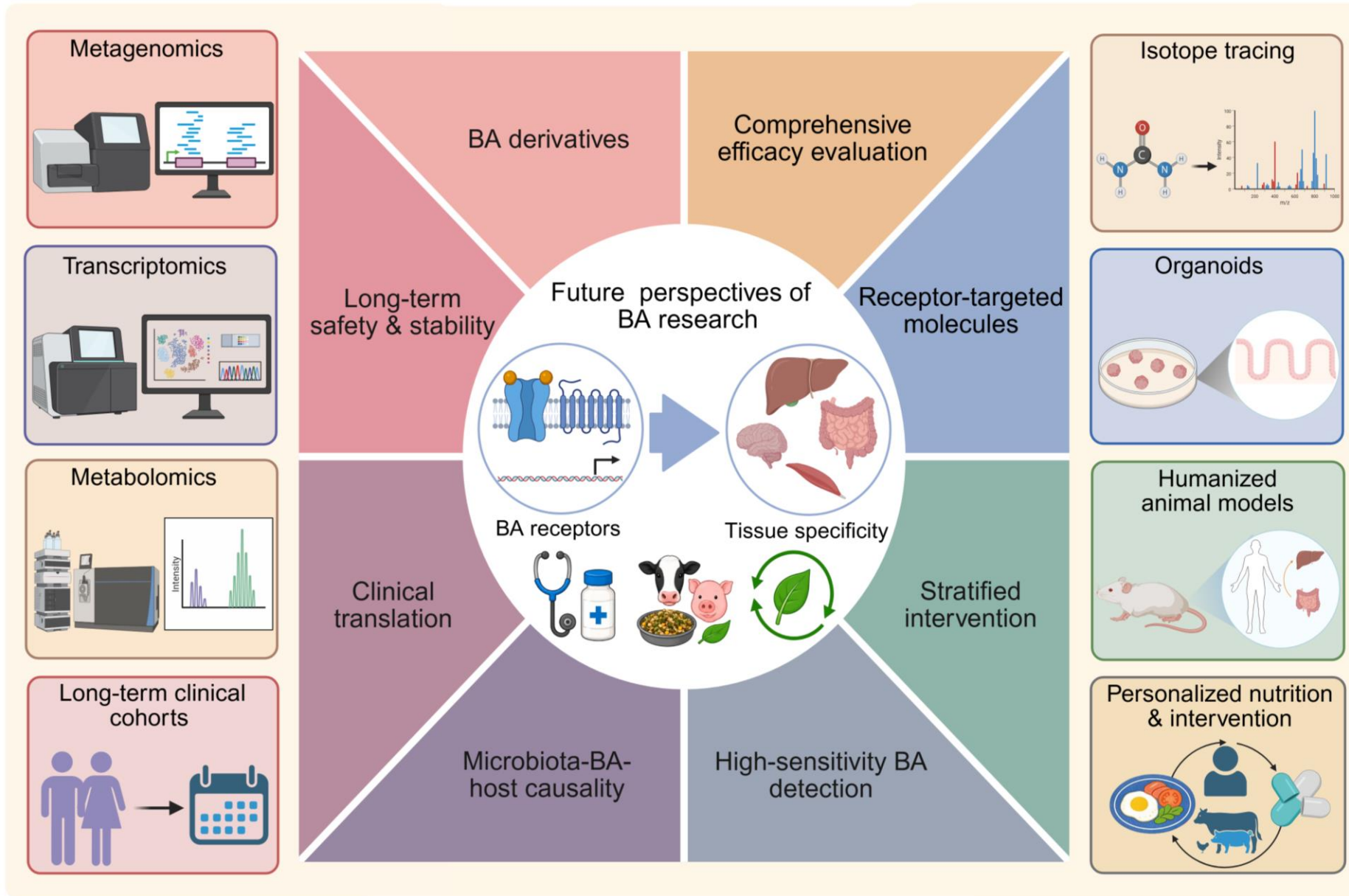


Figure 4 Future perspectives of BA research



Summary

- ❑ Bile acids act as host-microbiota co-metabolic hubs linking human, animal, and ecosystem health.
- ❑ Bile acids regulate glucose and lipid metabolism, intestinal barrier, and immune homeostasis through receptor signaling and microbiota-derived metabolites.
- ❑ Bile acids are dynamically influenced by population diversity, circadian rhythm, diet, behavior, environmental exposure, and surgery.
- ❑ Bile acids provide therapeutic and nutritional strategies for human disease intervention and animal health, further supporting food safety, sustainable development, and One Health benefits.

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