

葡甘露聚糖促进卵圆形拟杆菌改善 肠屏障功能和胰岛素抵抗

聂启兴¹, 孙永敢¹, 胡文兵², 陈春华¹, 林琼妮¹, 聂少平^{1,*}

¹南昌大学食品科学与资源挖掘全国重点实验室,
中国-加拿大食品科学与技术联合实验室,
江西省生物活性多糖重点实验室

²江苏科技大学粮食学院



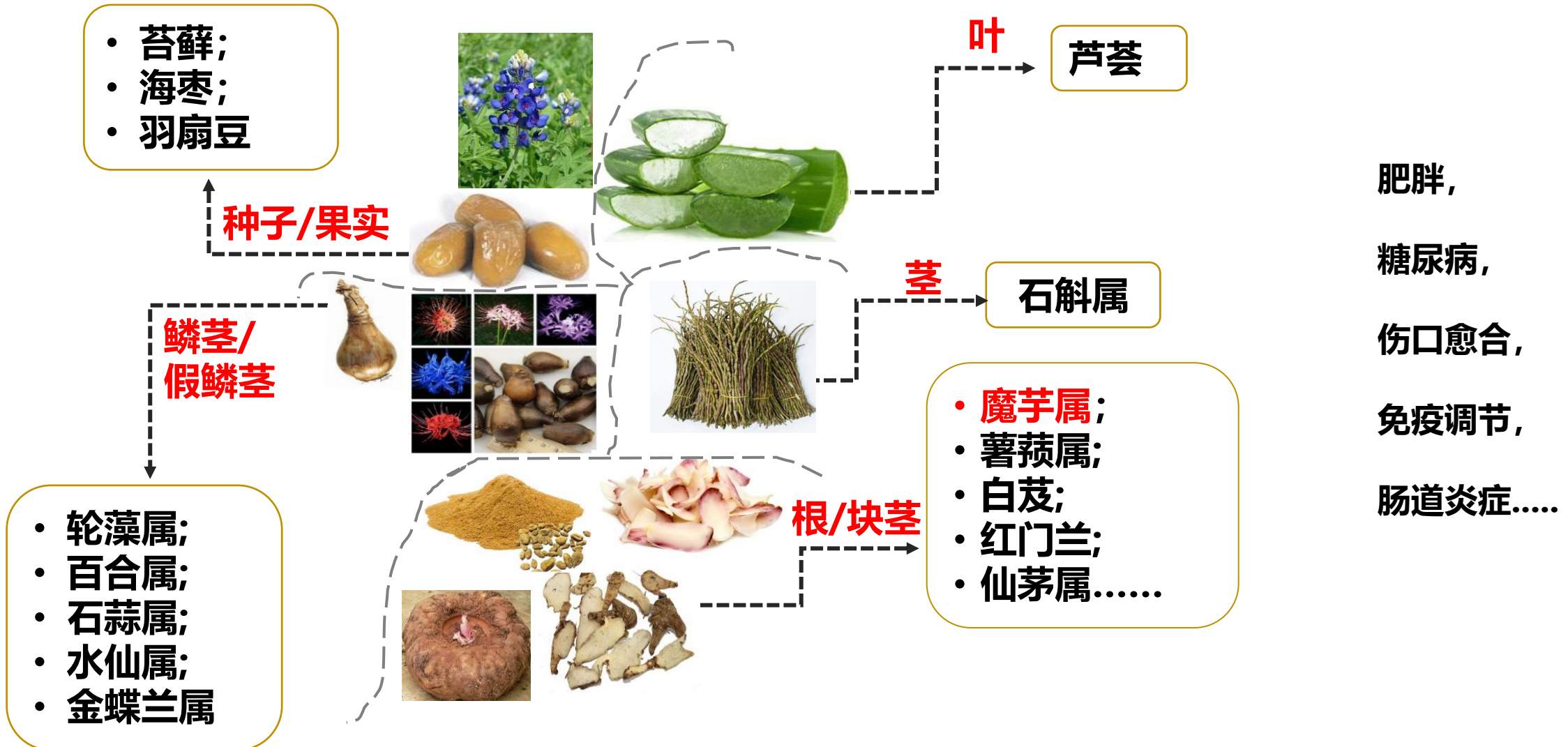
Qixing Nie, Yonggan Sun, Wenbing Hu, Chunhua Chen, Qiongni Lin, Shaoping Nie. 2023. Glucomannan promotes *Bacteroides ovatus* to improve intestinal barrier function and ameliorate insulin resistance. *iMeta*. 2023;e163.

<https://doi.org/10.1002/imt2.163>



背景

葡甘露聚糖来源广泛，具有多种生物活性



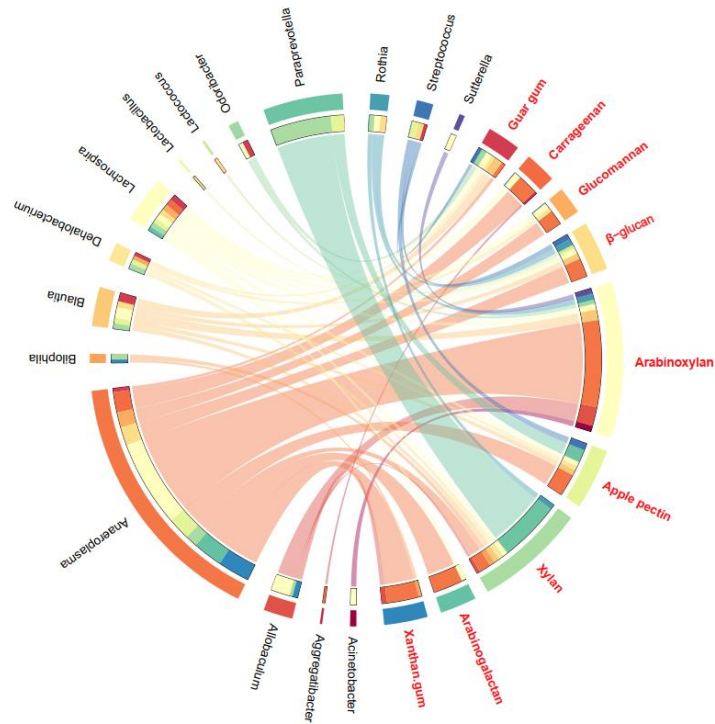
背景

活性多糖选择性影响肠道共生菌发挥功能

Targeted modification of gut microbiota and related metabolites via dietary fiber

Qixing Nie, Yonggan Sun, Mingzhi Li, Sheng Zuo, Chunhua Chen, Qiongni Lin, Shaoping Nie *

State Key Laboratory of Food Science and Technology, China-Canada Joint Lab of Food Science and Technology, Key Laboratory of Bioactive Polysaccharides of Jiangxi Province, Nanchang University, Nanchang 330047, China



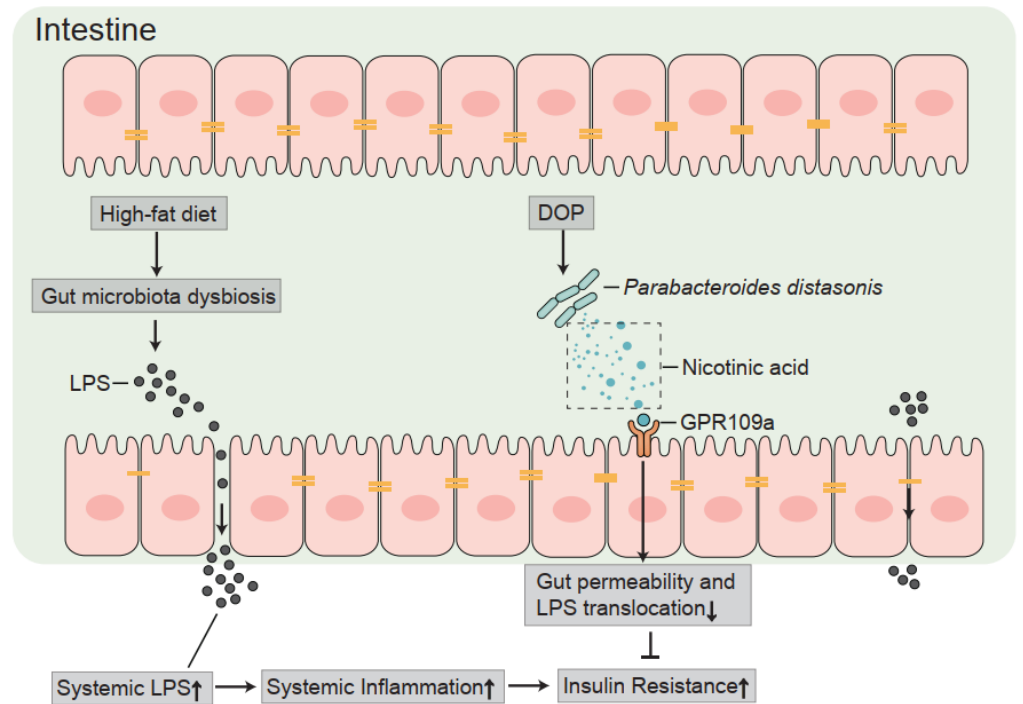
不同膳食纤维对肠道菌具有差异化的影响，魔芋葡甘露聚糖能够显著富集卵圆形拟杆菌

Nie Q, et al. *Carbohydrate Polymers*, 2023

Article

<https://doi.org/10.1038/s41467-023-43622-3>

Parabacteroides distasonis ameliorates insulin resistance via activation of intestinal GPR109a



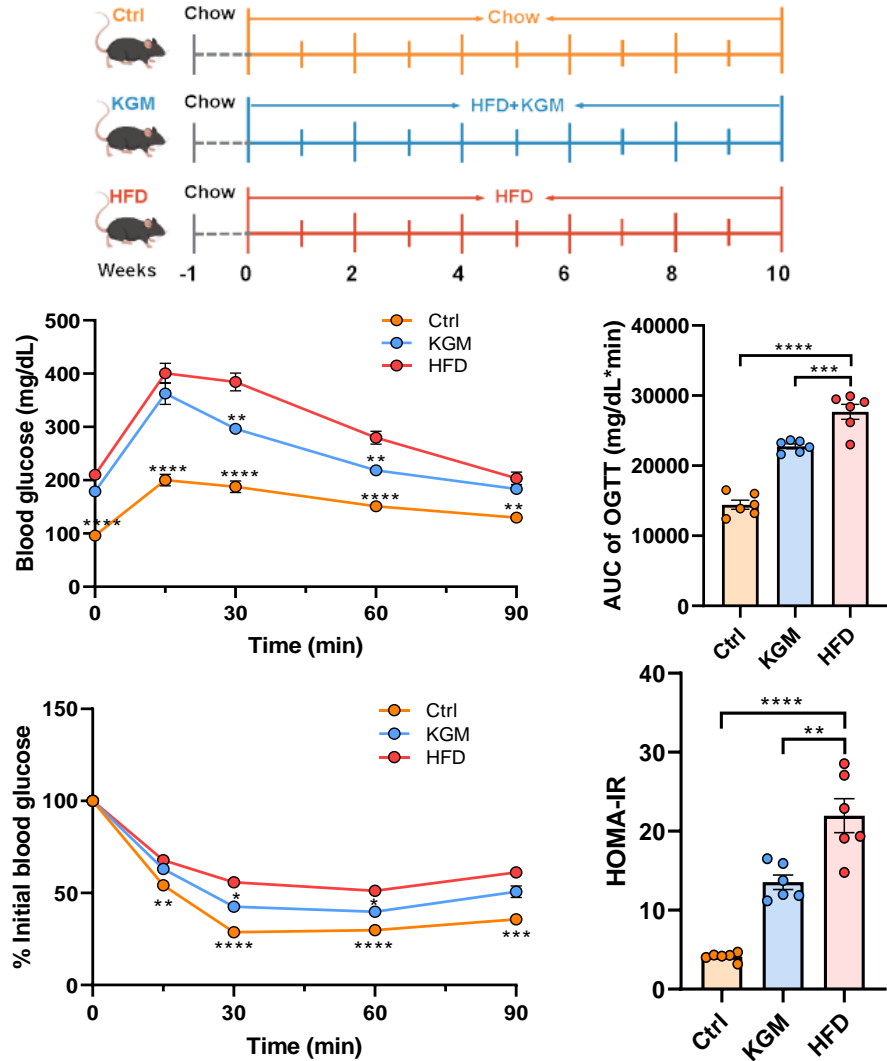
铁皮石斛多糖通过促进*Parabacteroides distasonis*产生烟酸，激活肠GPR109a受体，改善肠屏障功能缓解胰岛素抵抗

Sun Y, Nie Q, et al. *Nature communications*, 2023

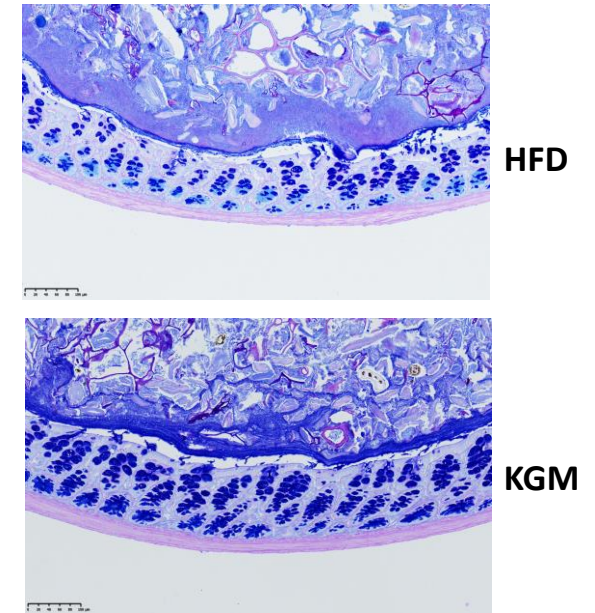
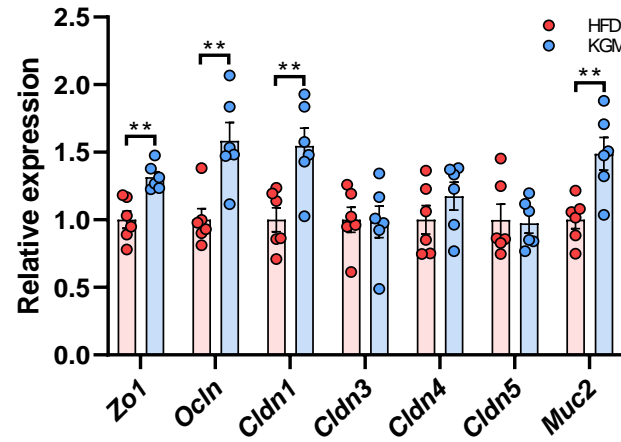
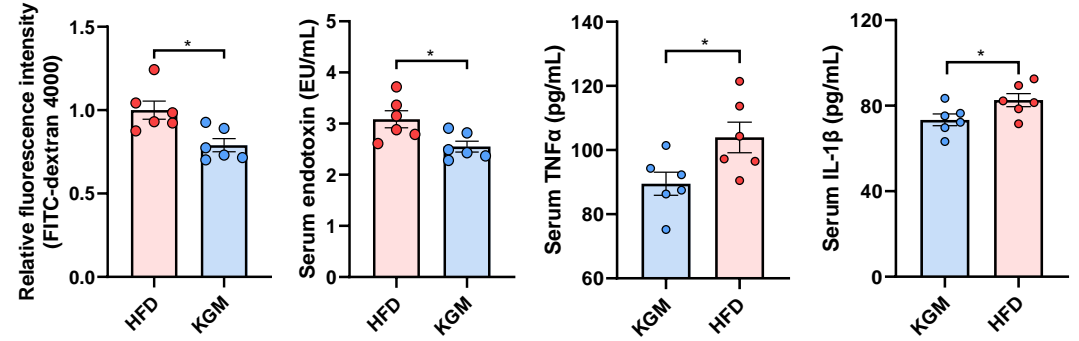


魔芋葡甘露聚糖缓解胰岛素抵抗

改善胰岛素抵抗



改善内毒素水平与炎症状态

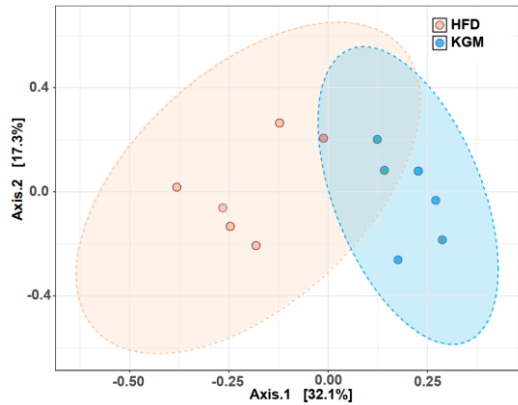


肠屏障相关基因表达

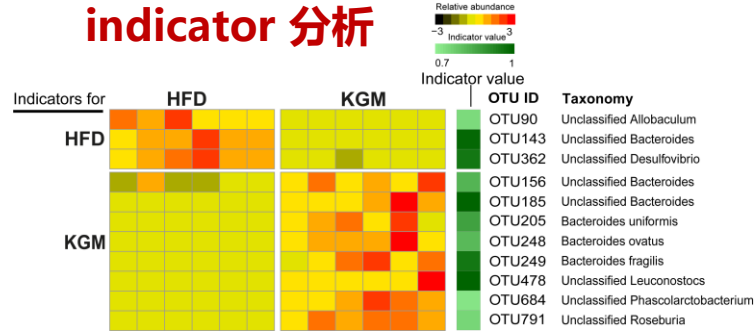


魔芋葡甘露聚糖影响肠道菌群组成

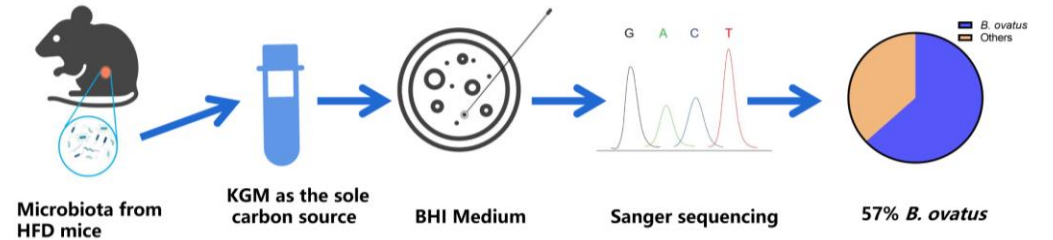
PCoA分析



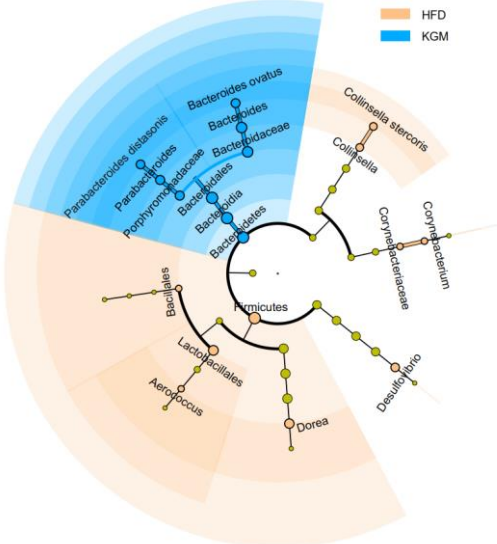
indicator 分析



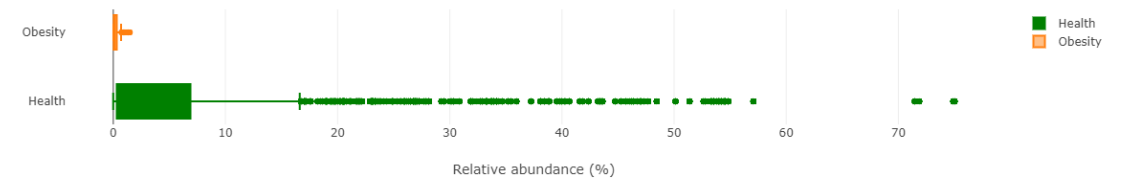
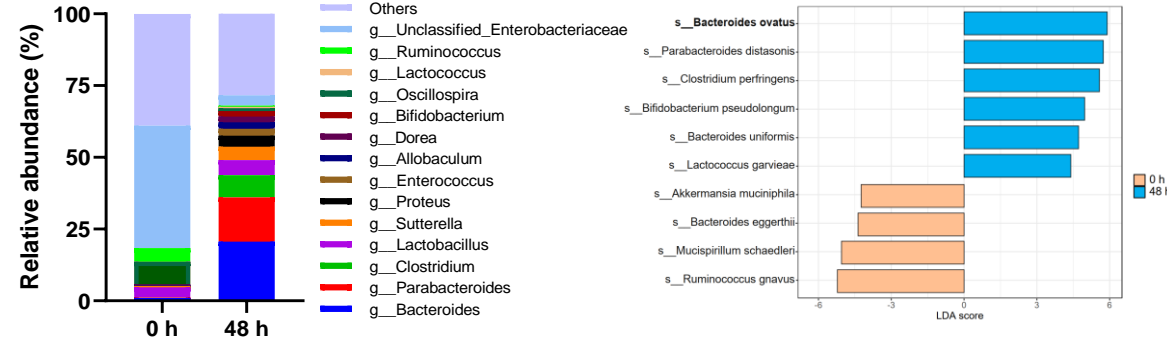
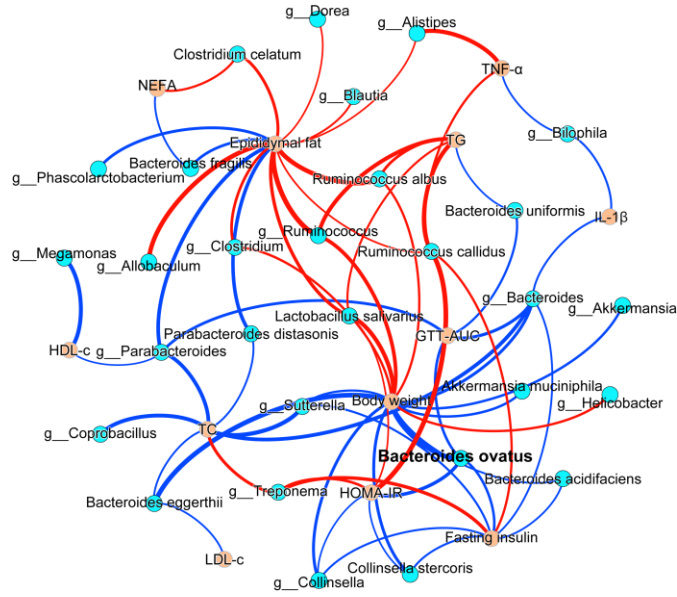
体外菌株筛选



LEfSe分析



相关性分析

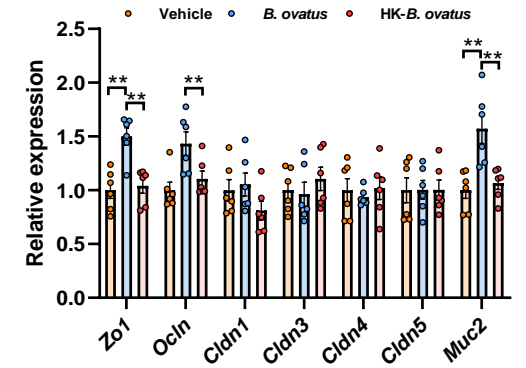
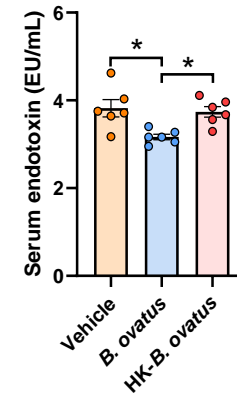
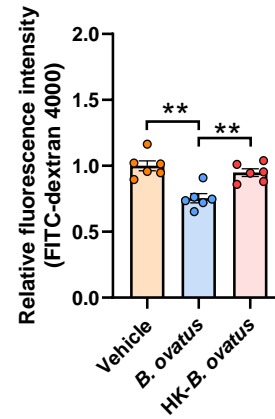
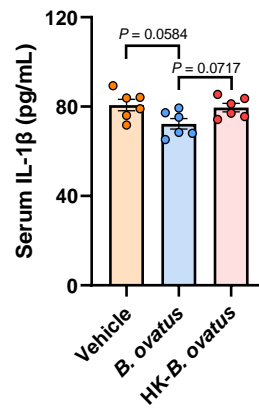
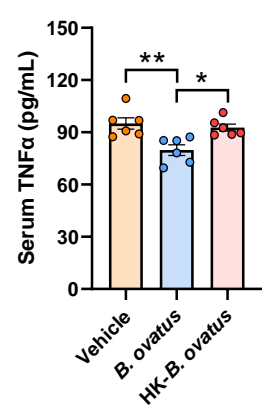
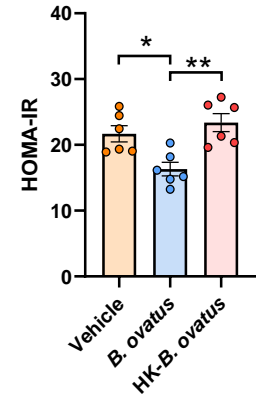
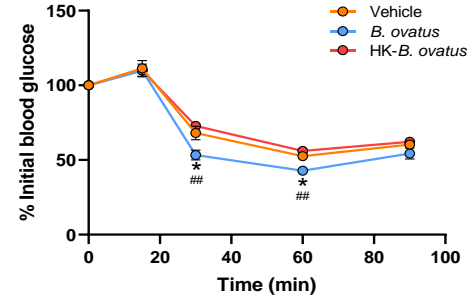
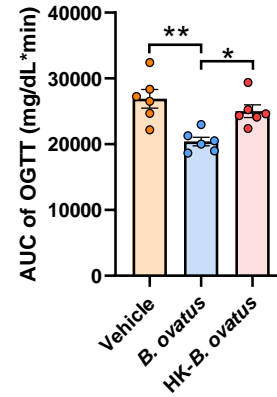
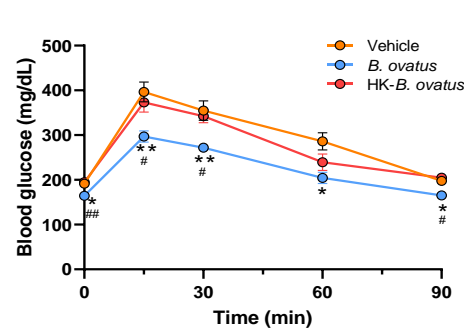
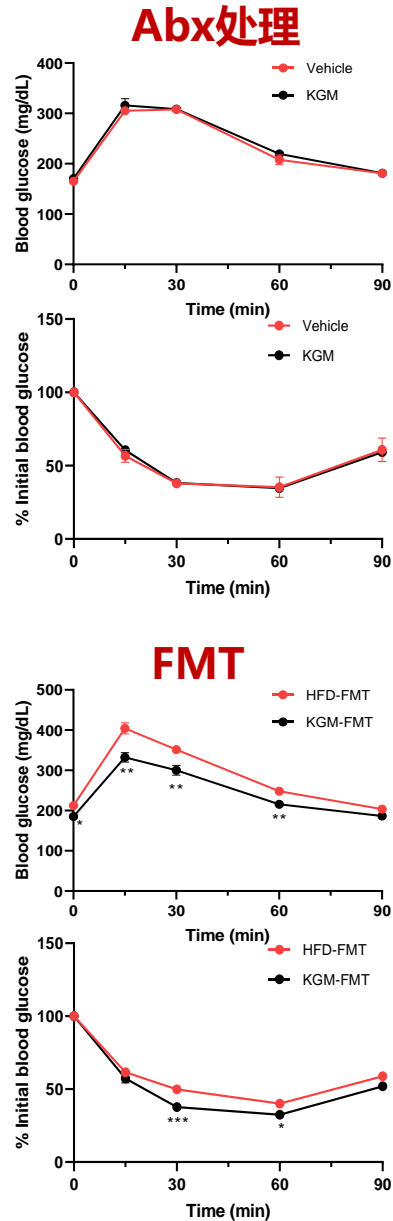


小鼠体内肠道菌群变化

体外发酵菌群变化



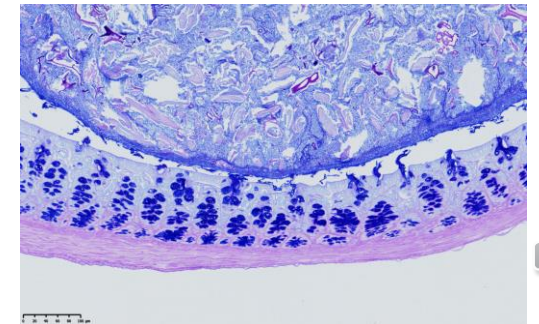
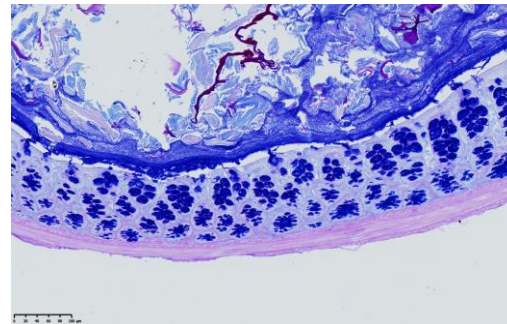
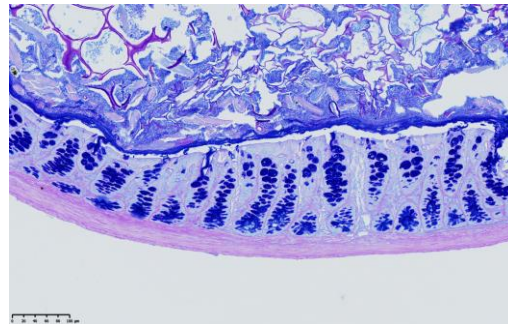
Bacteroides ovatus 干预改善胰岛素抵抗



Vehicle

B. ovatus

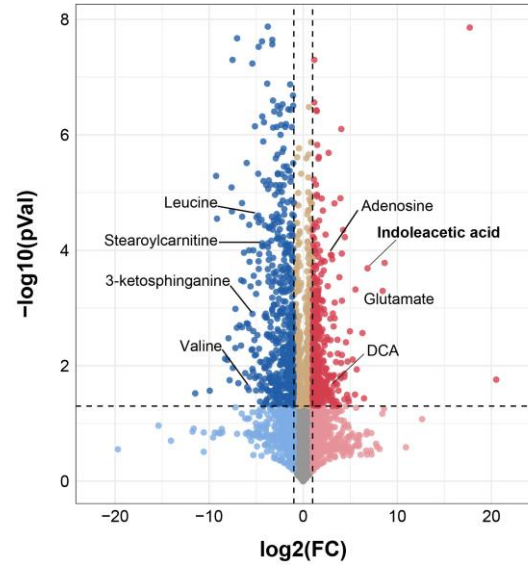
HK-*B. ovatus*



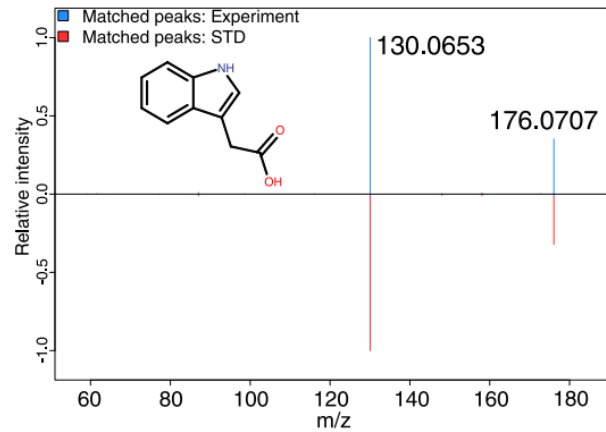
正文

*Bacteroides ovatus*产生吲哚乙酸

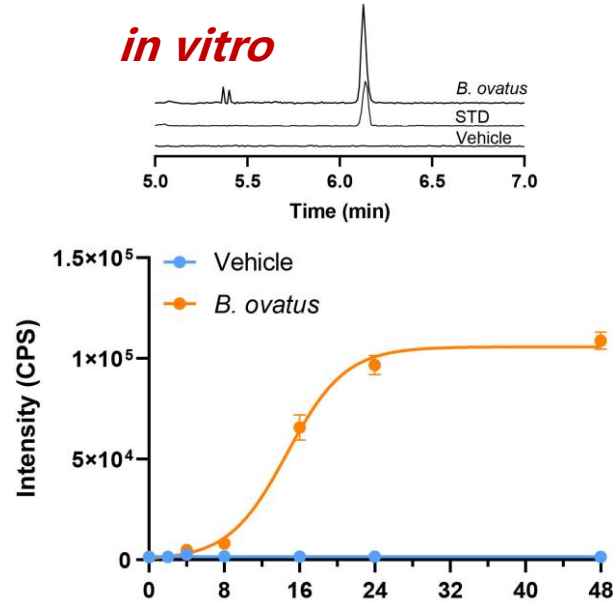
火山图



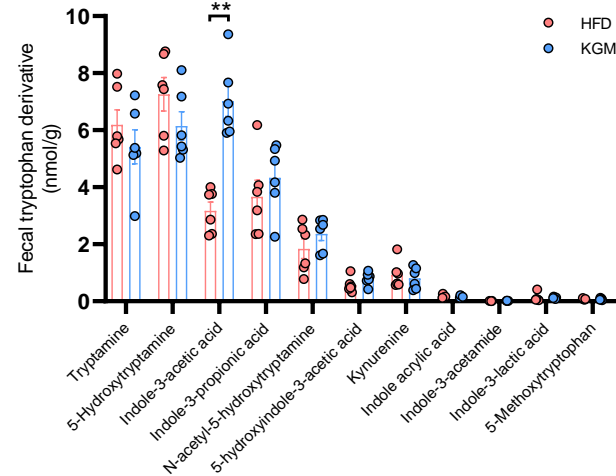
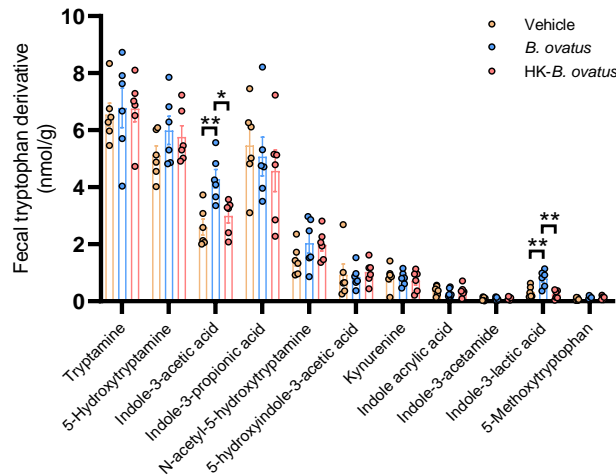
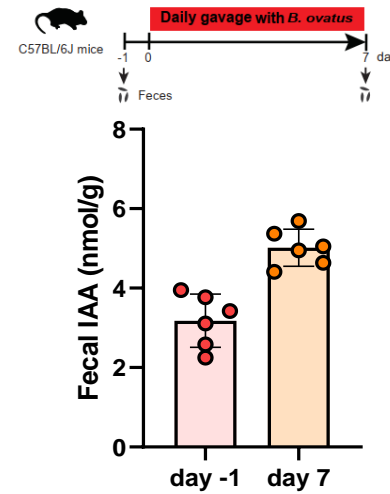
镜像图



in vitro



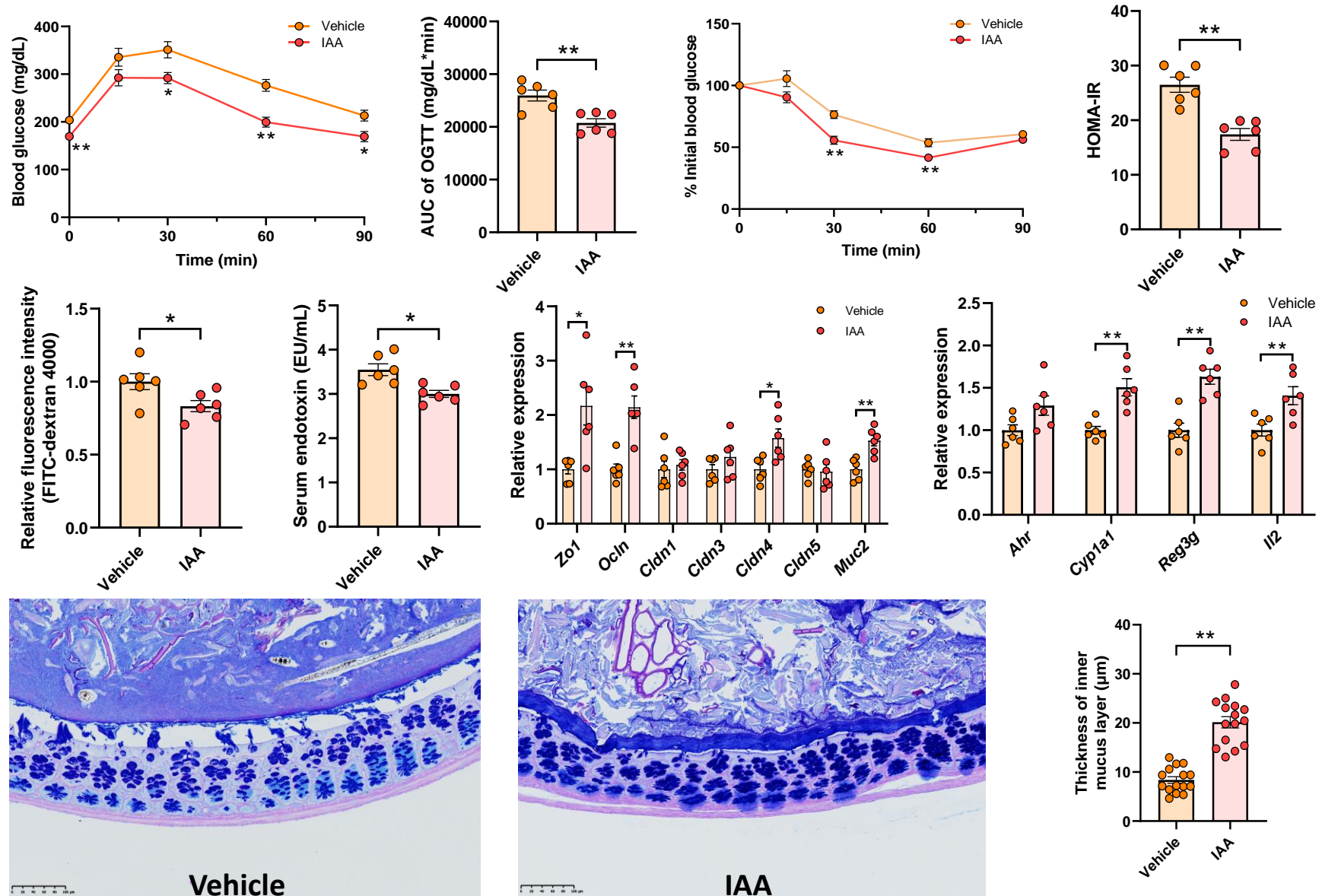
in vivo



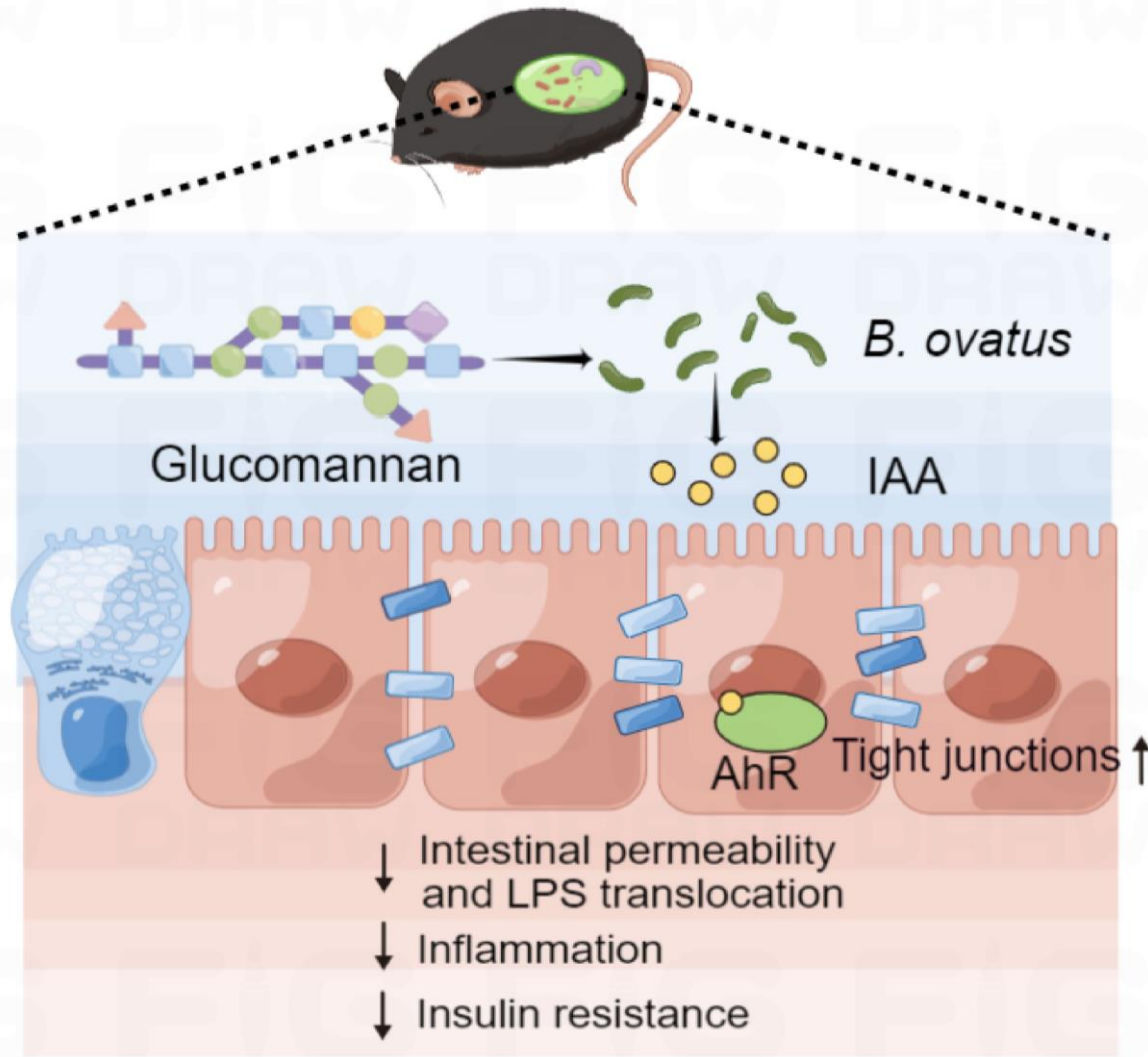
靶向定量 (Glucomannan 和 *Bacteroides ovatus* 干预)



吲哚乙酸干预改善胰岛素抵抗

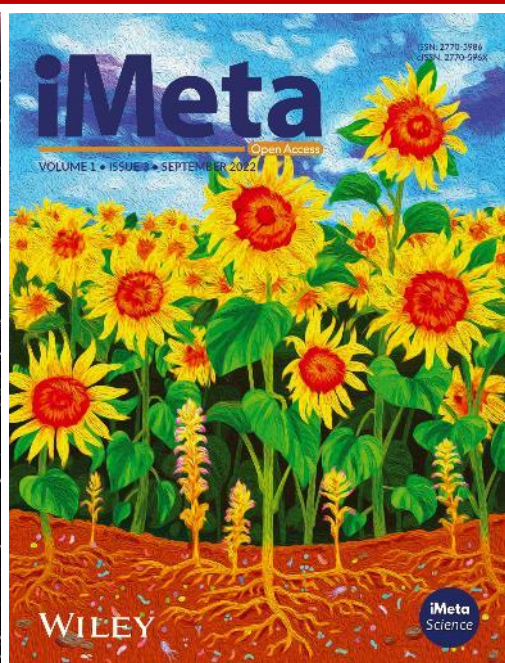


总结



Qixing Nie, Yonggan Sun, Wenbing Hu, Chunhua Chen, Qiongni Lin, and Shaoping Nie. 2023. Glucomannan promotes *Bacteroides ovatus* to improve intestinal barrier function and ameliorate insulin resistance. *iMeta*. 2023;e163. <https://doi.org/10.1002/imt2.163>





“iMeta”是由威立、肠菌分会和本领域数百位华人科学家合作出版的开放获取期刊，主编由中科院微生物所刘双江研究员和荷兰格罗宁根大学傅静远教授共同担任。目的是发表原创研究、方法和综述以促进宏基因组学、微生物组和生物信息学发展。目标是发表前10%(IF > 15)的高影响力论文。期刊特色包括视频投稿、可重复分析、图片打磨、青年编委、前3年免出版费、50万用户的社交媒体宣传等。2022年的三月、六月和九月期已正式在线出版发行!



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