



Bacterial indole-3-butyric acid promotes fish PUFA synthesis

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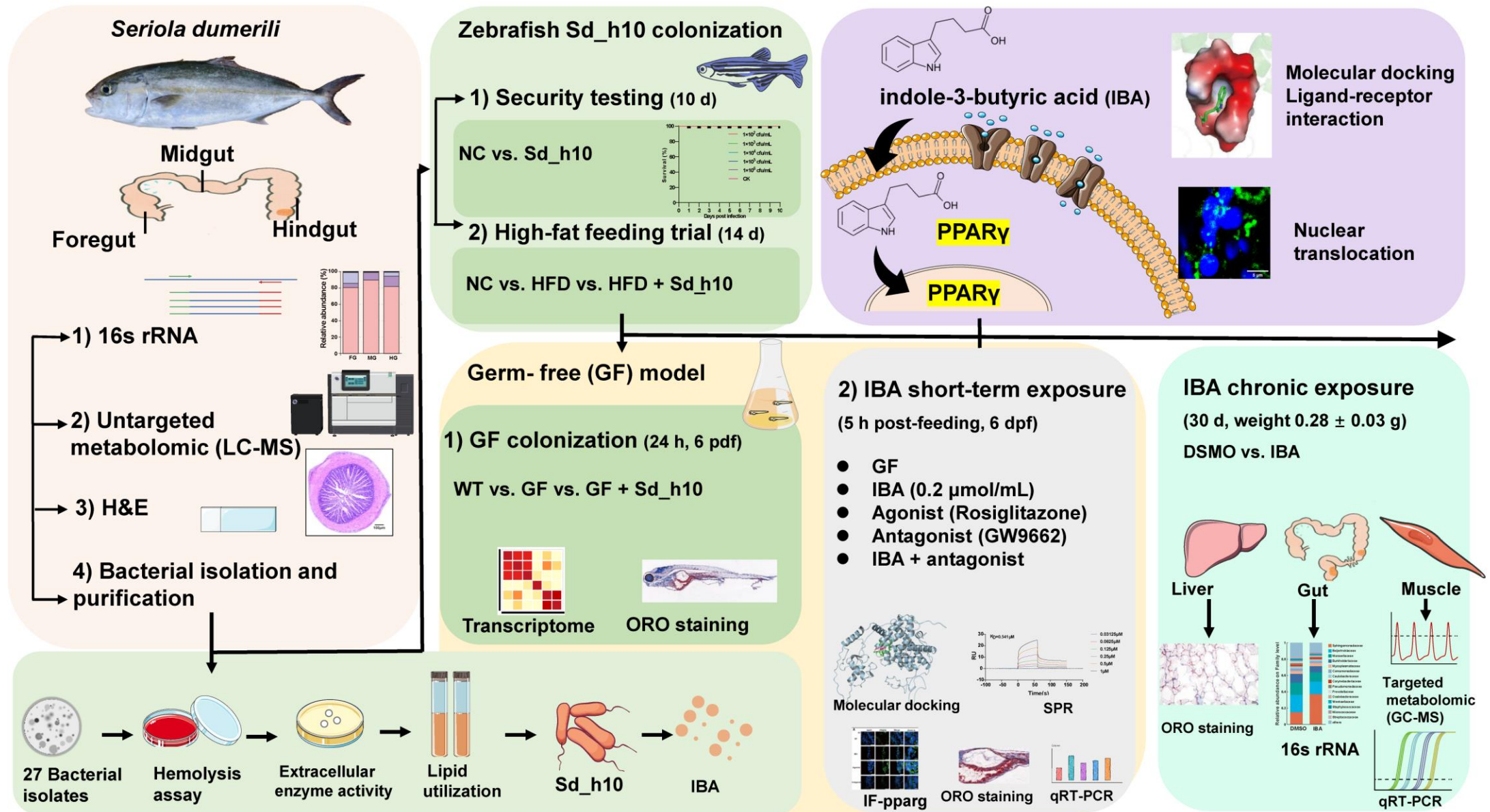


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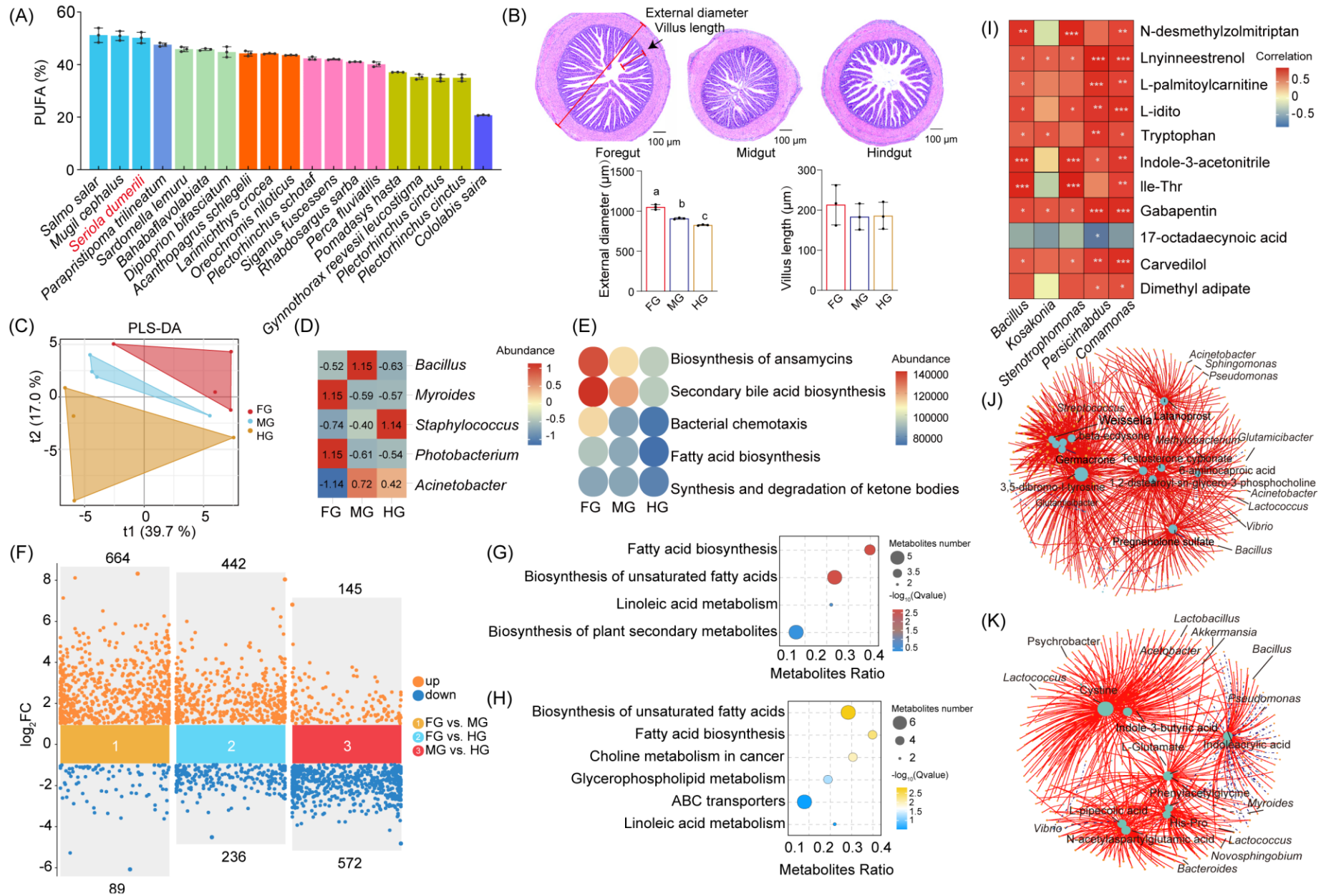
<https://doi.org/10.1002/imo2.70136>



Introduction and Highlights

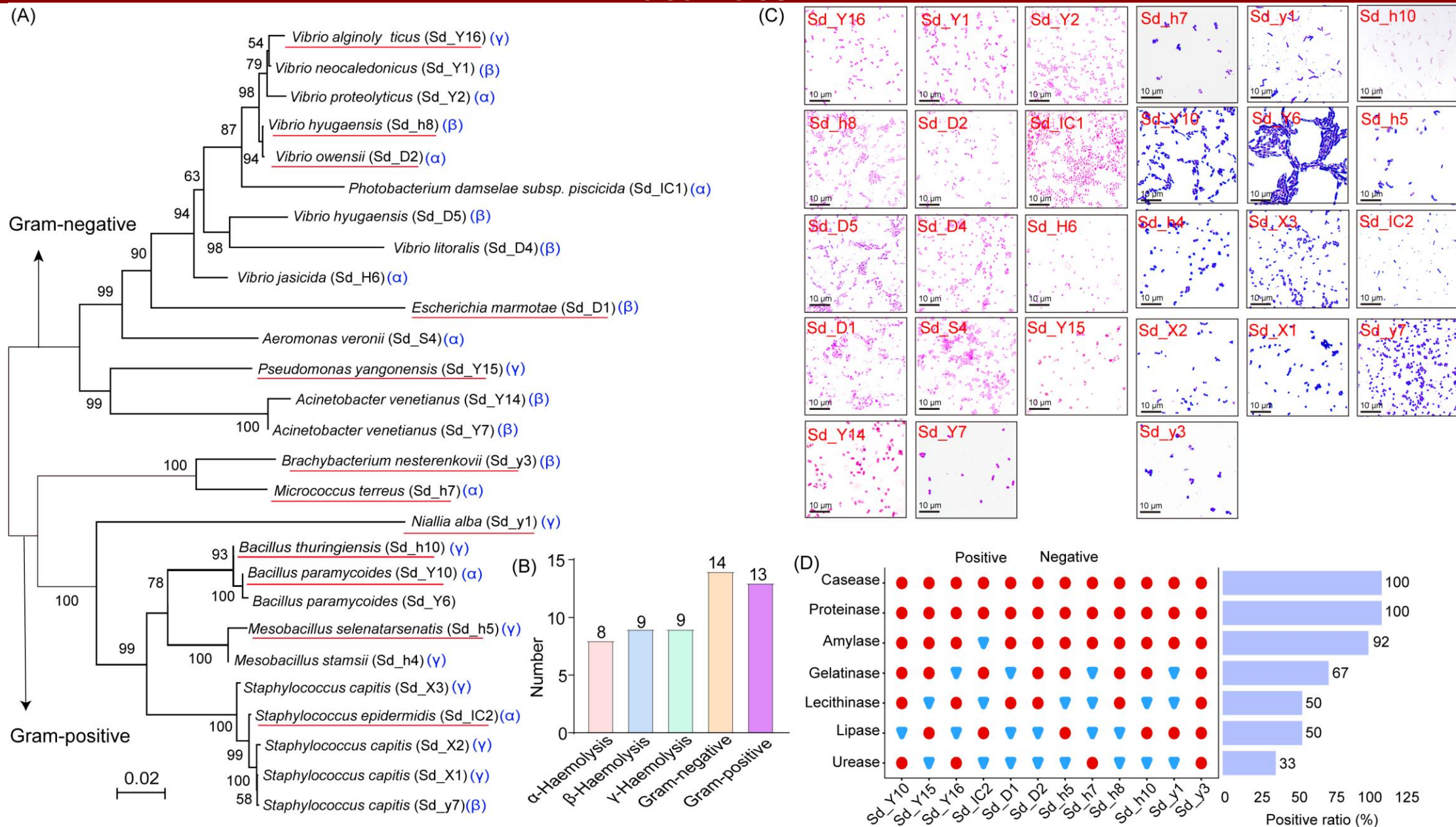


The gut of high-PUFA marine fish model exhibits distinct microbiota–metabolite features



Segmental differences in gut microbiota composition contrast with conserved lipid metabolic functions in *S. dumerili*.

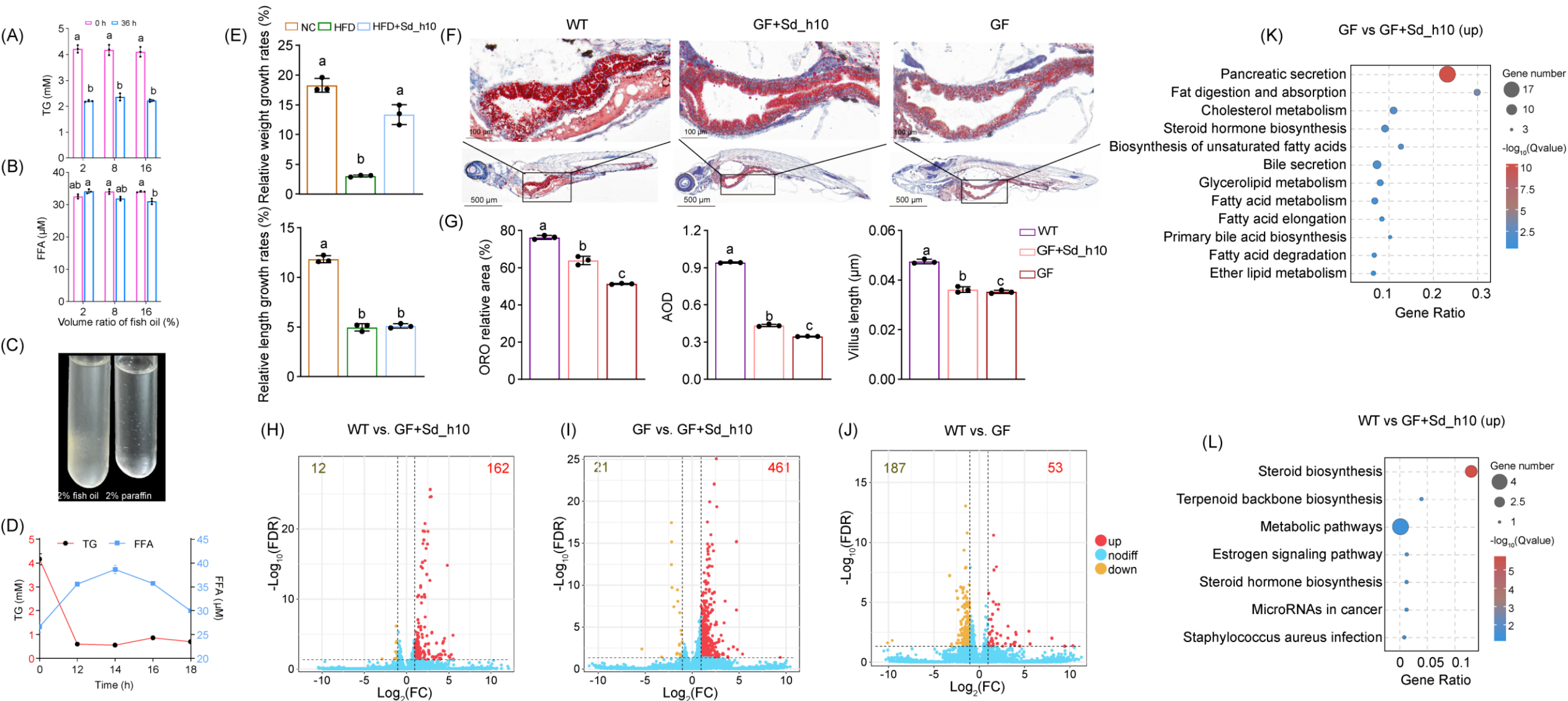
Isolates exhibit heterogeneous hemolytic phenotypes and diverse extracellular enzyme activities



Gut isolates display heterogeneous hemolytic phenotypes but share broad extracellular enzymatic capabilities.



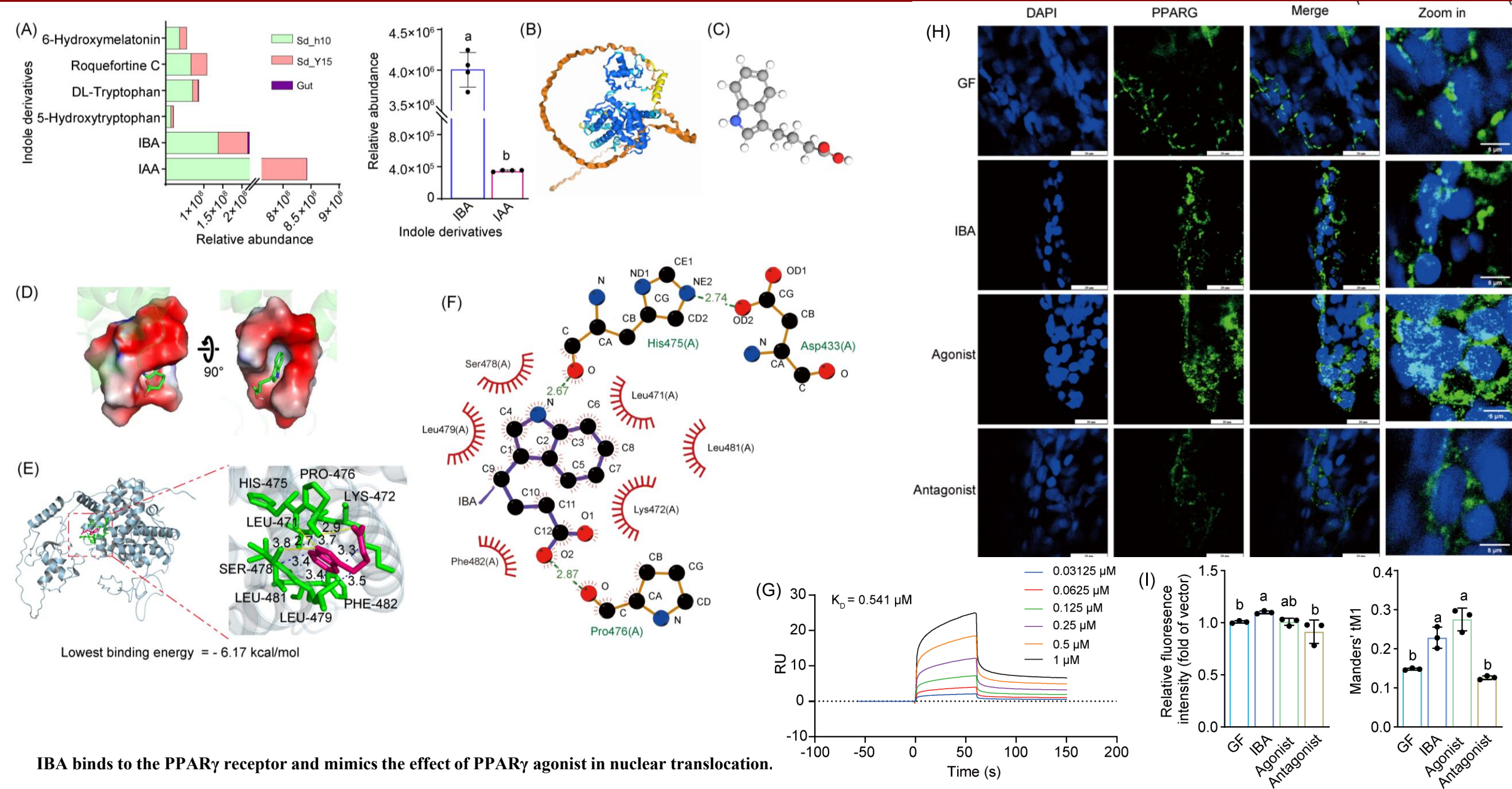
Sd_h10 promotes lipid utilization and modulates lipid metabolism in zebrafish



Sd_h10 improves lipid utilization *in vitro* and modulates larval zebrafish lipid accumulation and lipid metabolic transcription.



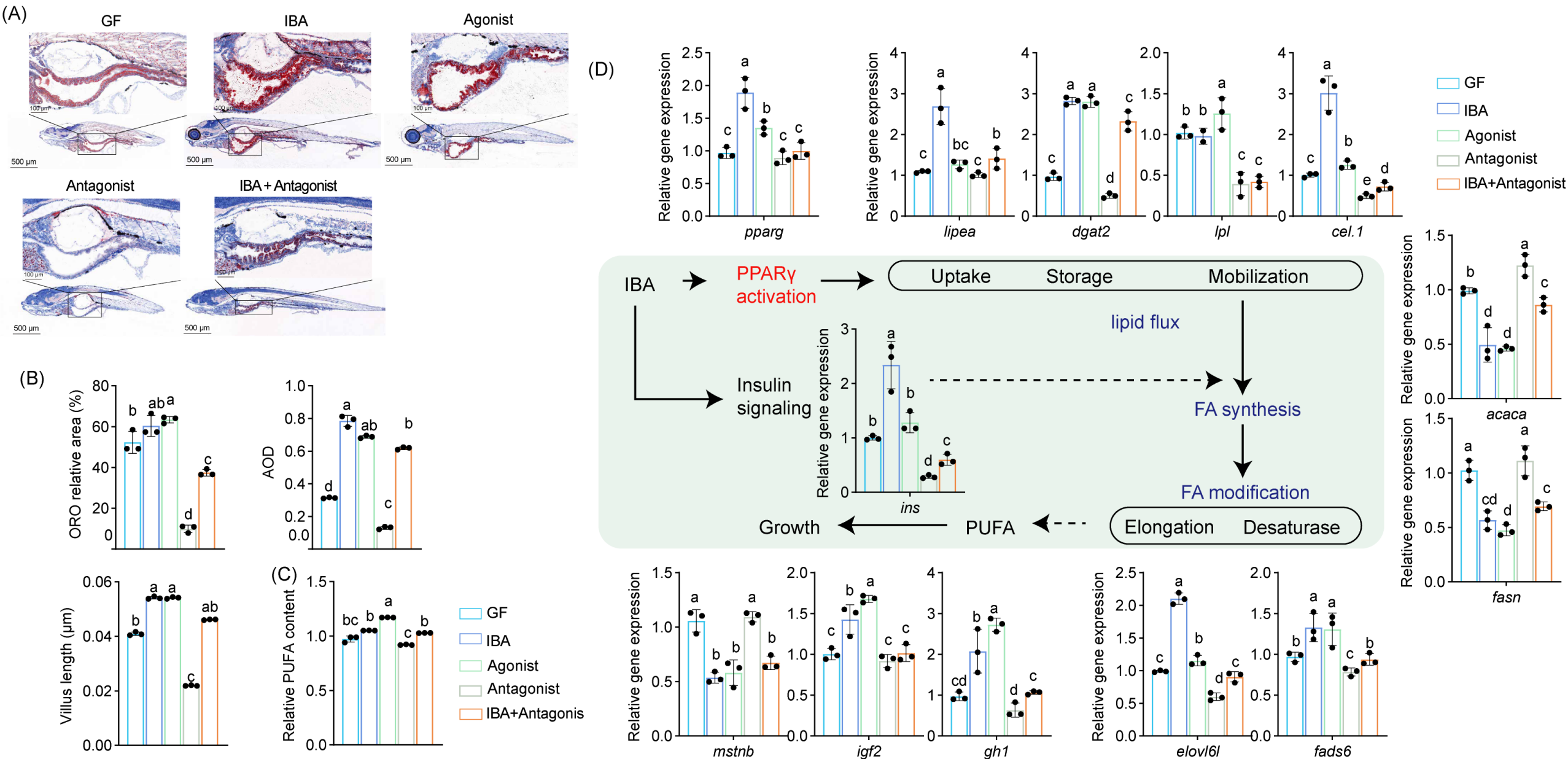
IBA potentially interacts with PPAR γ and promotes its nuclear translocation



IBA binds to the PPAR γ receptor and mimics the effect of PPAR γ agonist in nuclear translocation.



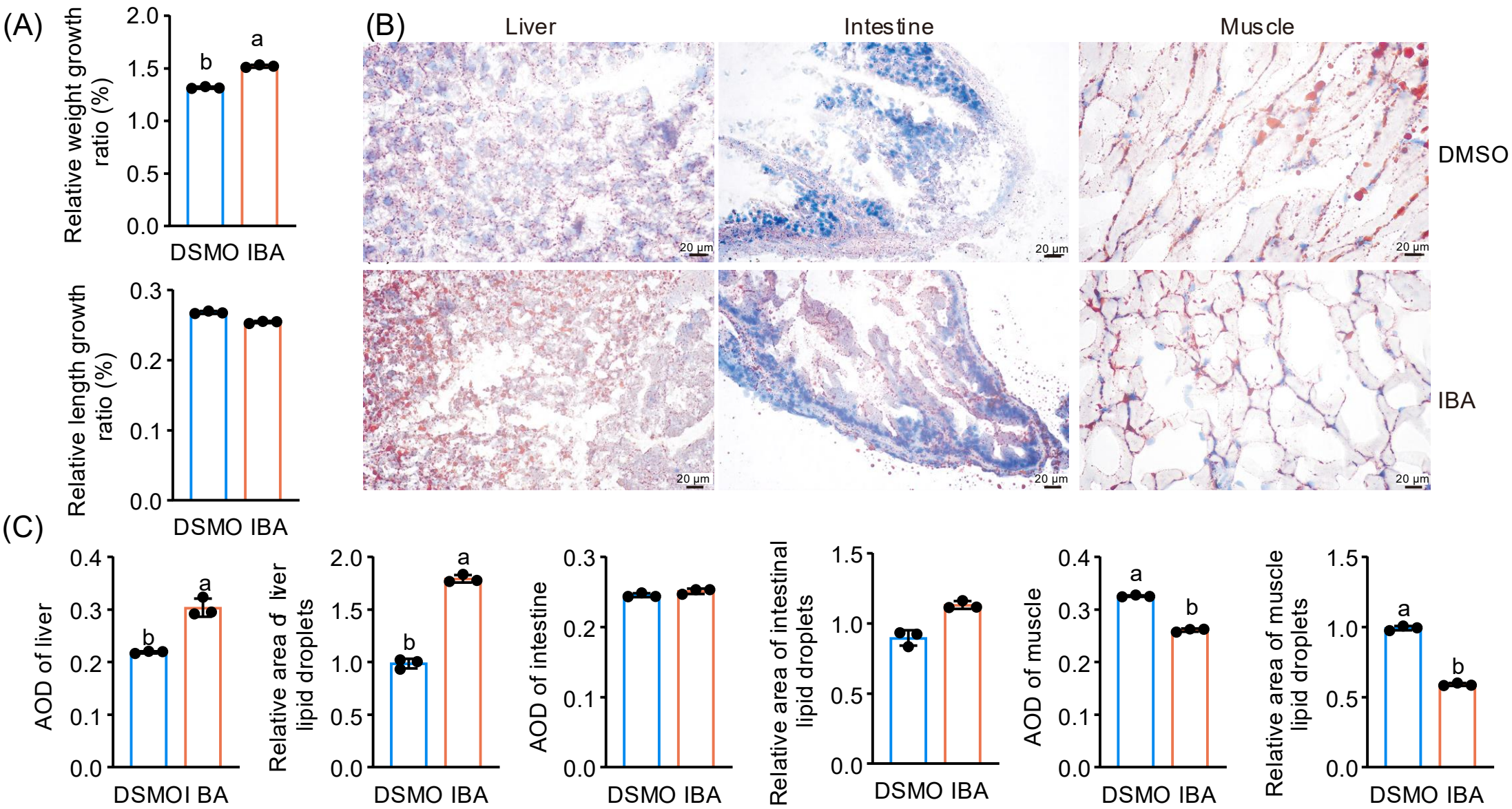
IBA promotes lipid accumulation and exerts PPAR γ Agonist-like effects



IBA exhibits similar effects on lipid accumulation and PUFA production as PPAR γ agonists.



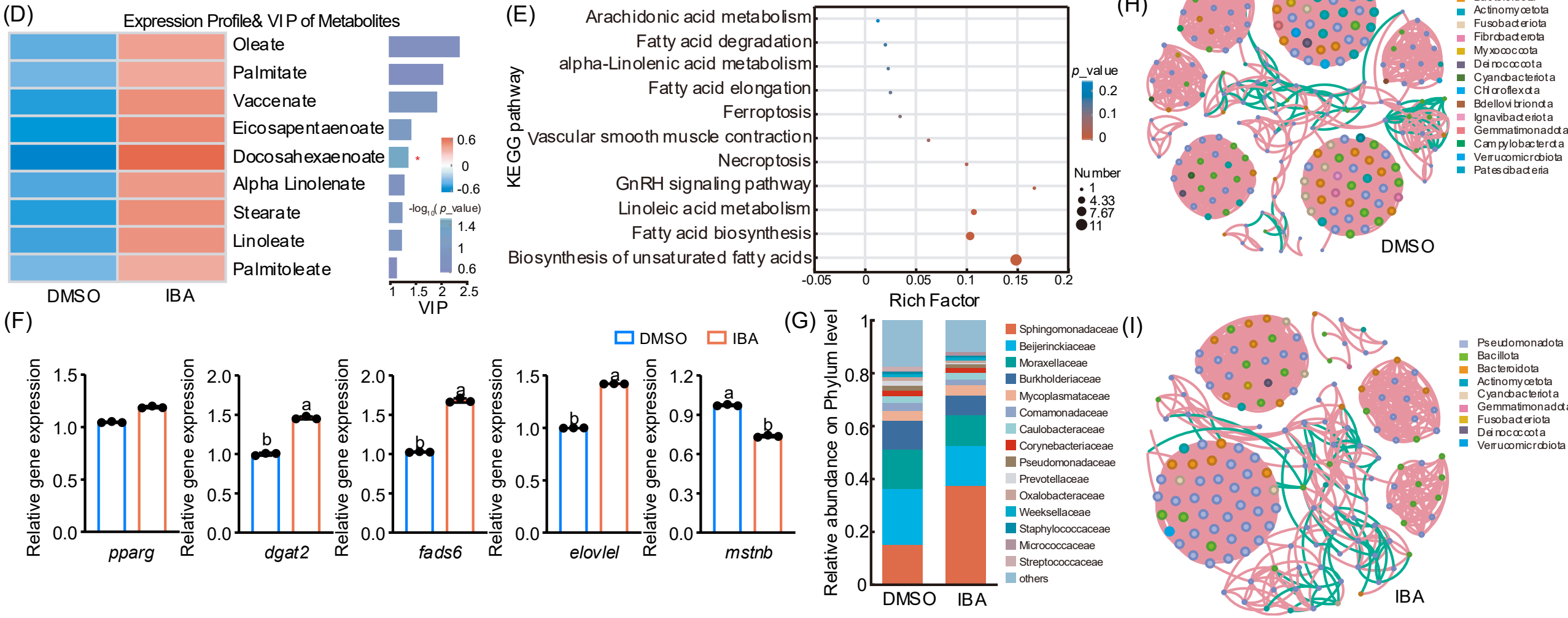
Chronic IBA supplementation promotes growth and induces tissue-specific lipid change



Chronic IBA supplementation promotes growth and lipid metabolism and alters intestinal microbial community composition and interactions.



Chronic IBA supplementation modulates gut microbiota and metabolic profiles



Chronic IBA supplementation promotes growth and lipid metabolism and alters intestinal microbial community composition and interactions.



Summary

- ❑ Sd_h10 exhibits strong lipid-utilizing capacity and promotes host lipid metabolism.
- ❑ Sd_h10-derived IBA may interact with PPAR γ and modulate PPAR γ -associated lipid metabolic signaling.
- ❑ Sd_h10-derived IBA may act as a potential link between the gut microbiota and host lipid metabolism.

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