

The novel plant-based active principle TOTUM•448 decreases hepatic steatosis and inflammation in diet-induced NAFLD mice

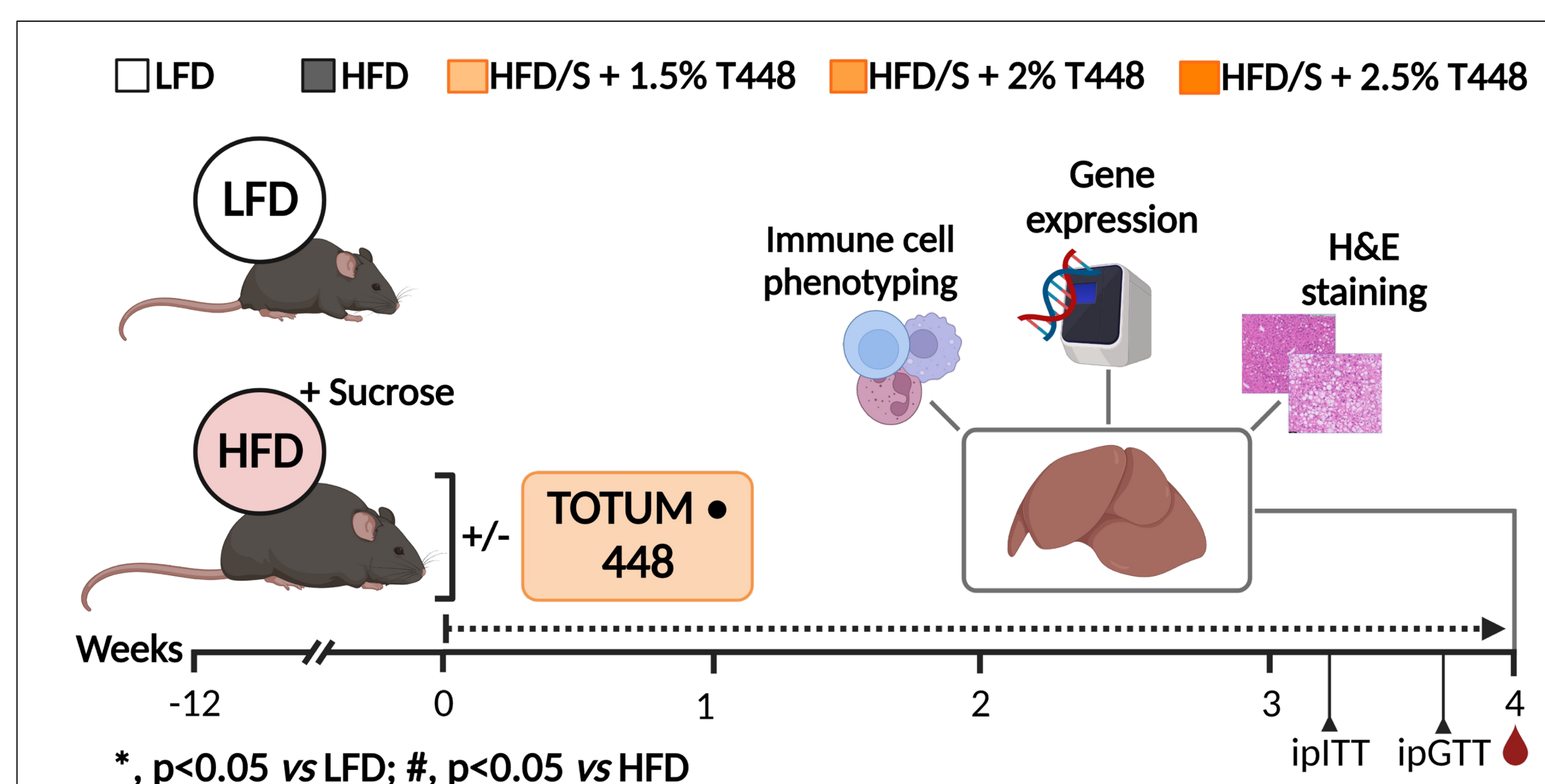
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Background

The increasing worldwide prevalence of obesity-associated non-alcoholic fatty liver disease (NAFLD) urges the development of new therapeutic strategies. TOTUM•448 is a unique patented combination of plant extracts designed to reduce hepatic steatosis, a risk factor for NAFLD and type 2 diabetes. In the present study, we investigated the effects of TOTUM•448 on steatohepatitis and metabolic homeostasis in dietary-induced obese mice.

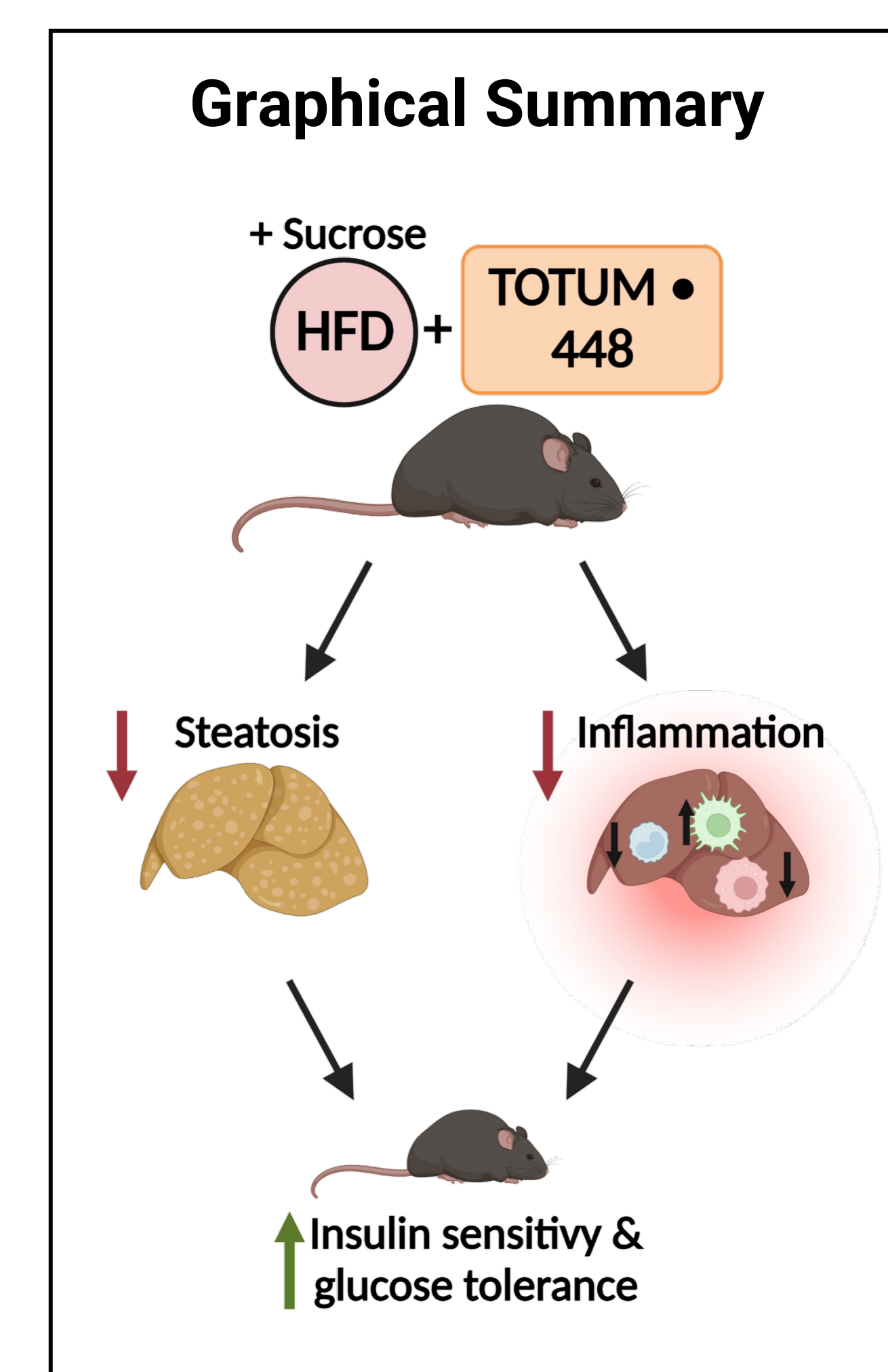
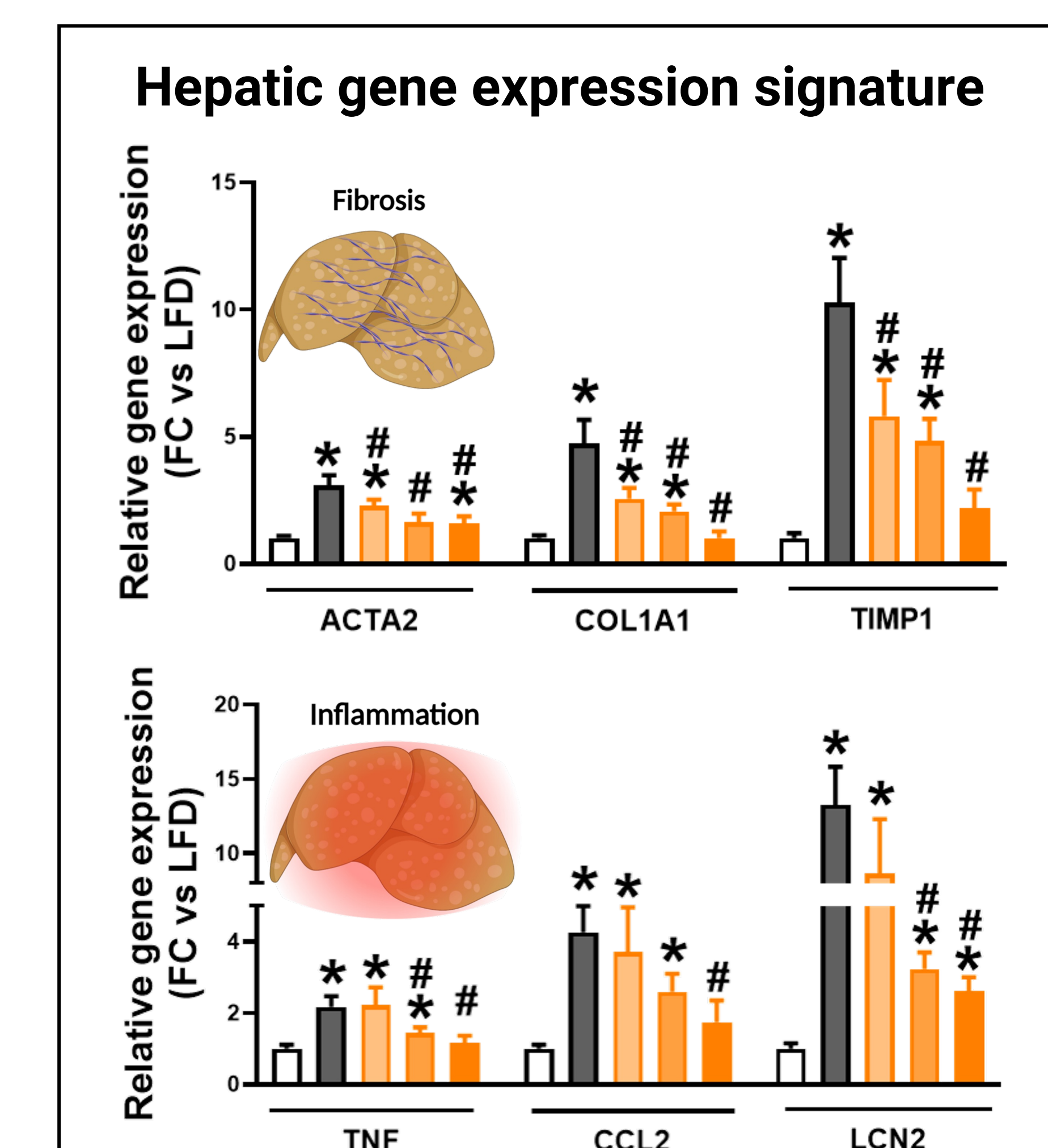
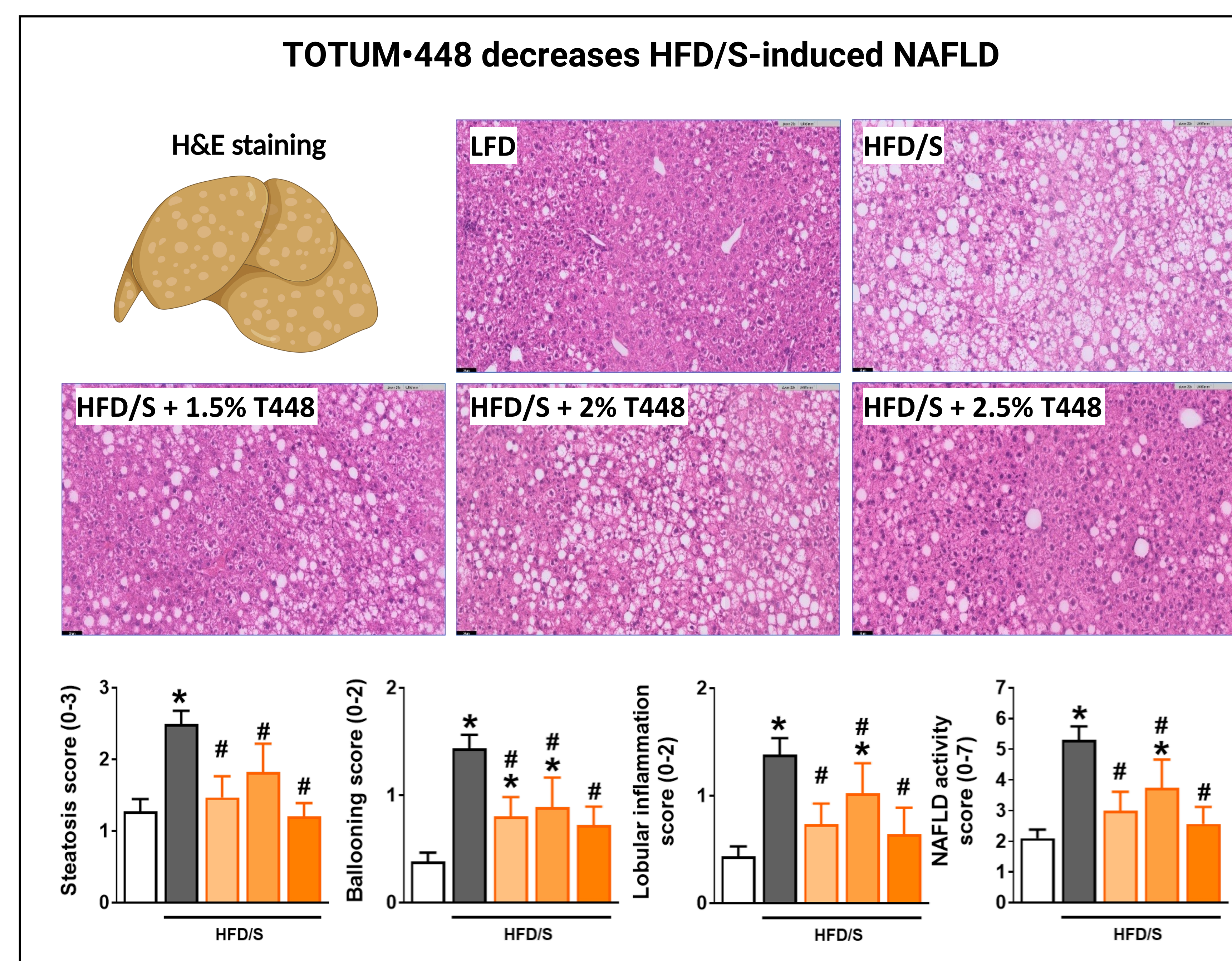
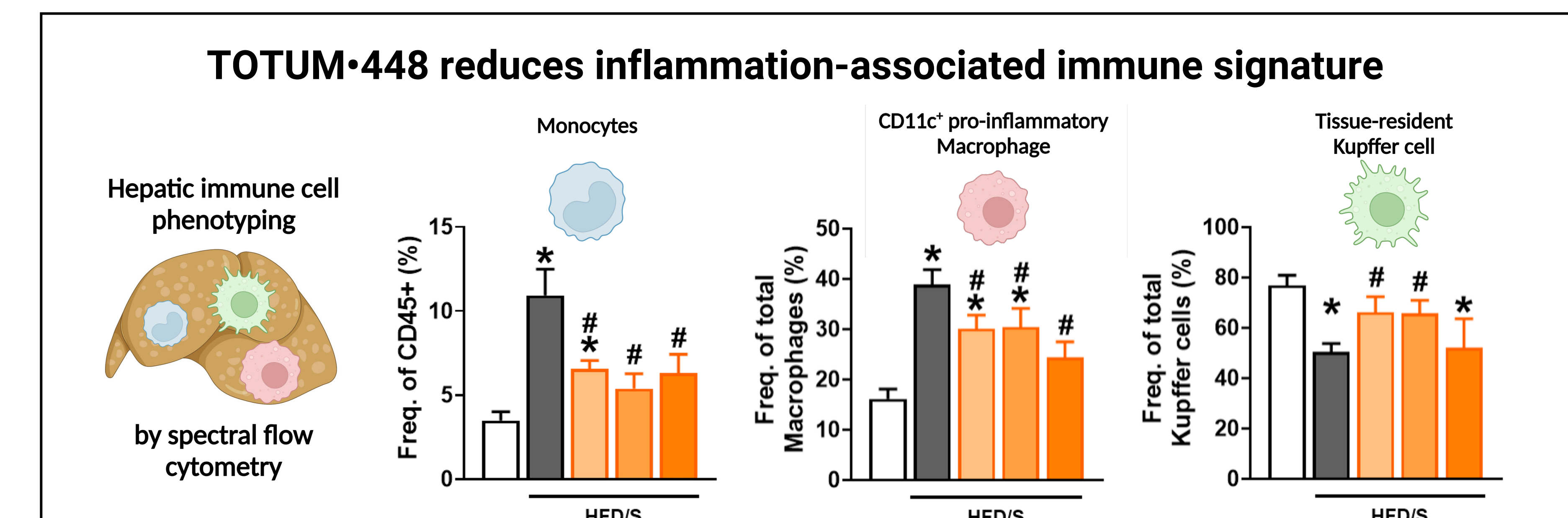
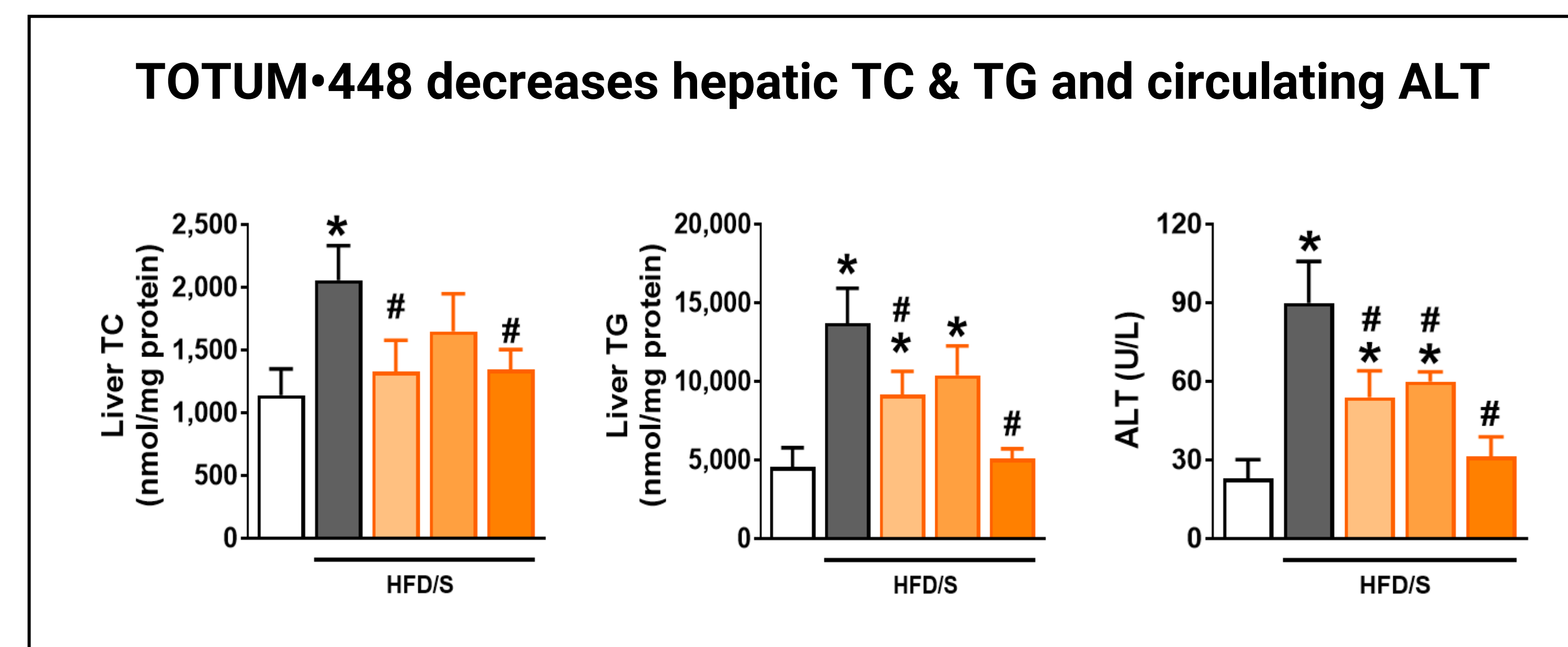
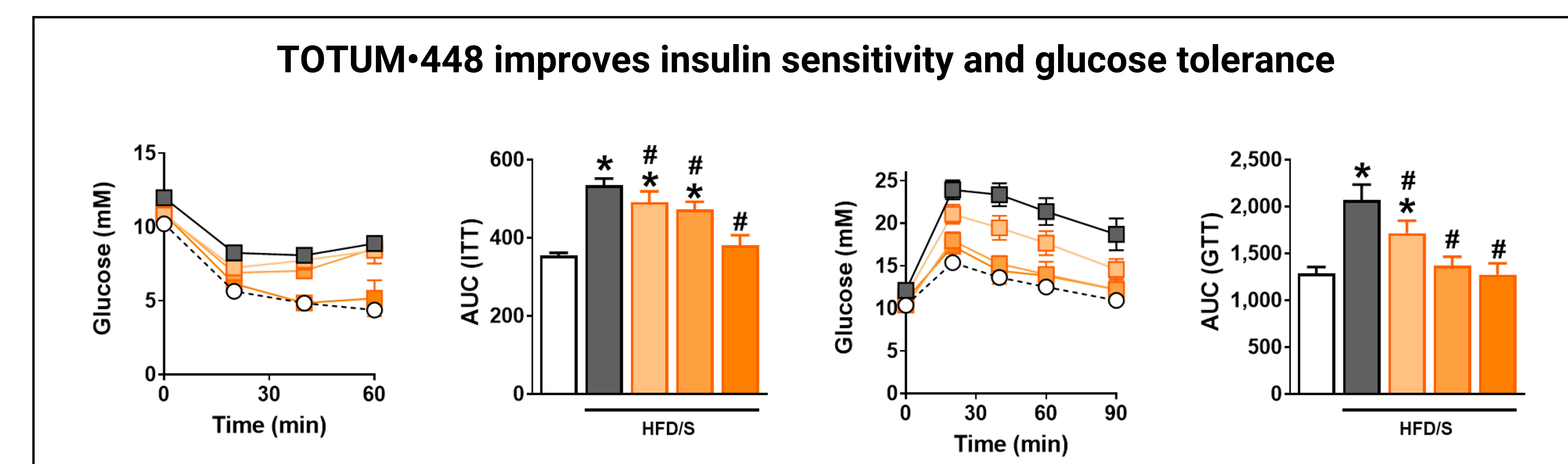
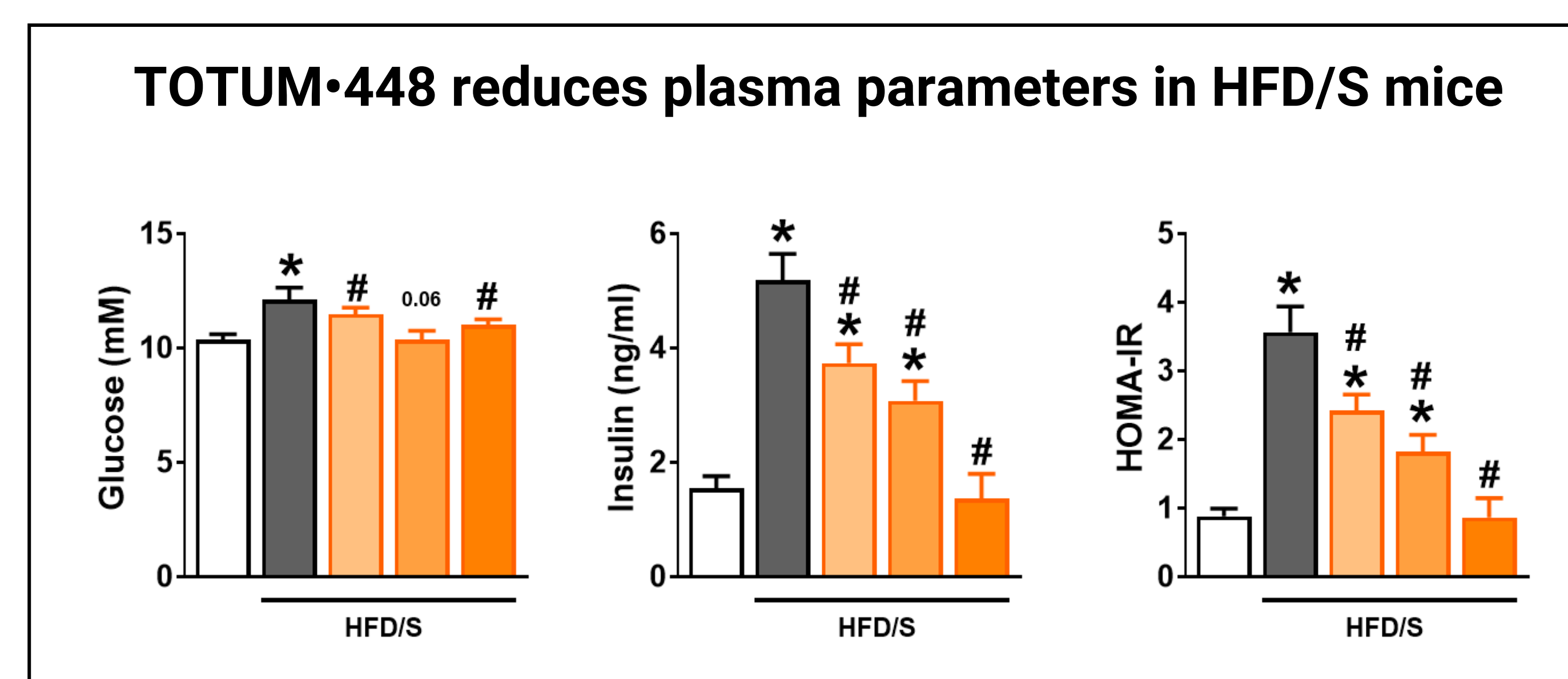
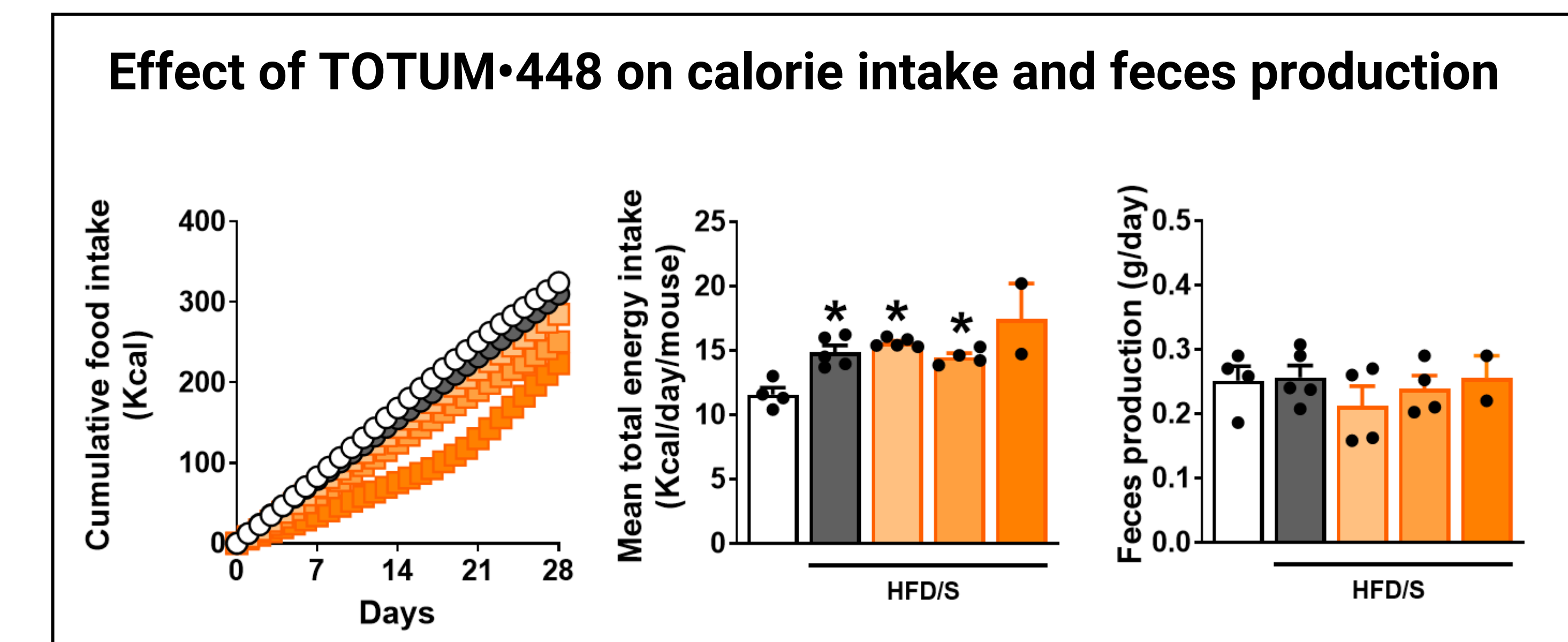
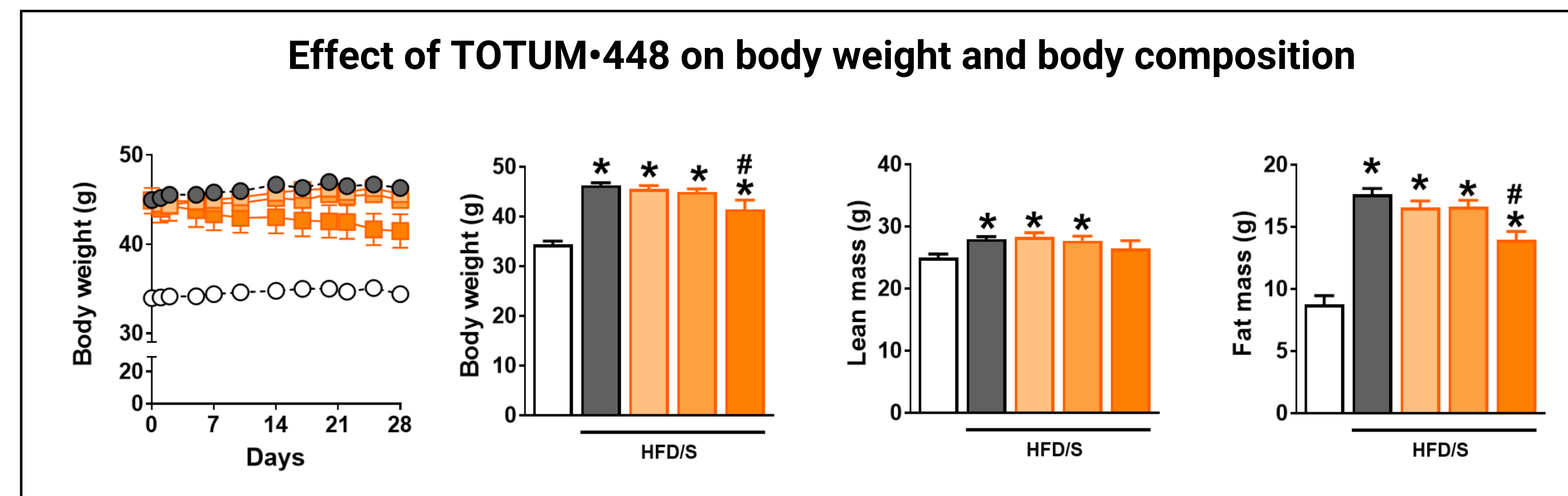
Methods

Male C57Bl6/J mice were fed a high-fat diet (HFD, 45% kcal from fat) in addition to free access to sucrose-containing drinking water (10% w/v) for 12 weeks. After group randomization, HFD was supplemented with or without TOTUM•448 (1.5, 2, 2.5% w/w) for 4 additional weeks. Body weight/composition and calorie intake were monitored throughout the treatment period. Whole-body metabolic homeostasis was assessed by glucose/insulin tolerance tests. Hepatic steatosis, expression of key genes involved in liver inflammation and fibrosis, and tissue-specific immune cell composition and phenotypes were determined by histology/biochemical assays, RT-qPCR and flow cytometry, respectively.



Conclusion

TOTUM•448 decreases hepatic steatosis and inflammation in obese mice, a dual effect likely contributing to improved whole-body insulin sensitivity and glucose homeostasis. Altogether, supplementation with TOTUM•448 may constitute a promising novel nutritional approach for preventing/treating NAFLD.



Financial disclosure

V. CHAVANELLE, Y. OTERO, M. VALLIER, S.L. PELTIER and P. SIRVENT are all employees of Valbiotis. S.L. PELTIER and P. SIRVENT are listed as co-inventors on TOTUM•448 patent and possess company stock. None of the other authors have any potential conflict of interest. This work was supported in part by Valbiotis. Study design, collection of the data, analysis and interpretation of the results was performed by Guigas' group at the Leiden University Medical Center, in agreement with Valbiotis.

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