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Summary

ENERGISED : IMPACT OF GUT MICROBIOTA ON IMMUNE CELLS ENERGY METABOLISM IN INFLAMMATORY BOWEL DISEASE

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IBD | Mechanisms & Personalised Medicine | Immunology | Gut Microbiota | Small Intestine & Nutrition

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Colonisation of germ-free mice with microbiota from Crohn's disease patients exacerbated DSS-induced colitis severity and reduced energy production and mitochondrial activity in colonic lamina propria T cells compared to mice colonised with healthy donor microbiota.

KEY POINTS

- Mice colonised with IBD patient microbiota exhibited exacerbated colitis severity compared to those colonised with healthy donor microbiota in a DSS colitis model.
- IBD-associated microbiota reduced both energy production and mitochondrial activity of colonic lamina propria T cells.
- Candidate metabolites identified through multi-omic correlation analyses were validated on human PBMCs using SCENITH, with several metabolites affecting cell energy metabolism.
- One metabolite increased ATP production of T cells by increasing maximal mitochondrial respiration output.
- The findings support the hypothesis that IBD-associated dysbiosis contributes to impaired immune cell energy metabolism and disease pathogenesis, with the long-term goal of developing novel microbiota-based therapeutic approaches for IBD.

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