

The Use of a Human *In Vitro* Fermentation Model to Study the Role of Omega 3 and Conjugated Fatty Acids on Gut Microbiota Modulation

Ana Sofia Salsinha^{1,2}, André Cima¹, Helena Araújo-Rodrigues^{1,2}, Cindy Dias¹, Luís Miguel Rodríguez-Alcalá¹, João B. Relvas² and Manuela Pintado¹

1 - Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina –Laboratório Associado, Escola Superior de Biotecnologia, Rua de Diogo Botelho, 1327, 4169-005 Porto, Portugal

2 - Instituto de Investigação e Inovação em Saúde (i3S) and Instituto de Biologia Molecular e Celular (IBMC), Universidade do Porto – Rua Alfredo Allen, 208, 4200-135 Porto, Portugal

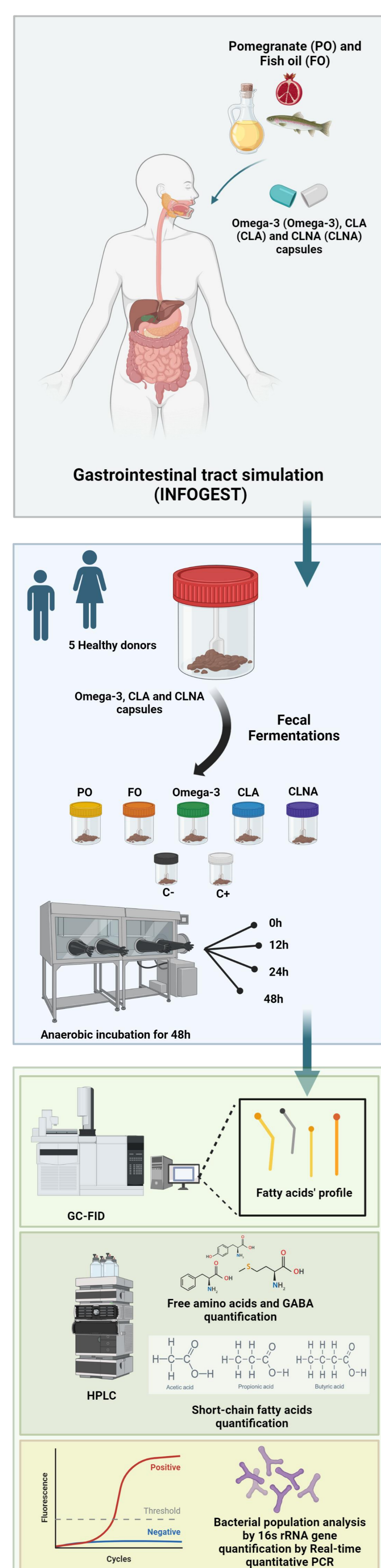
Correspondence should be addressed to M.Pintado mpintado@ucp.pt and A.S.Salsinha asalsinha@ucp.pt



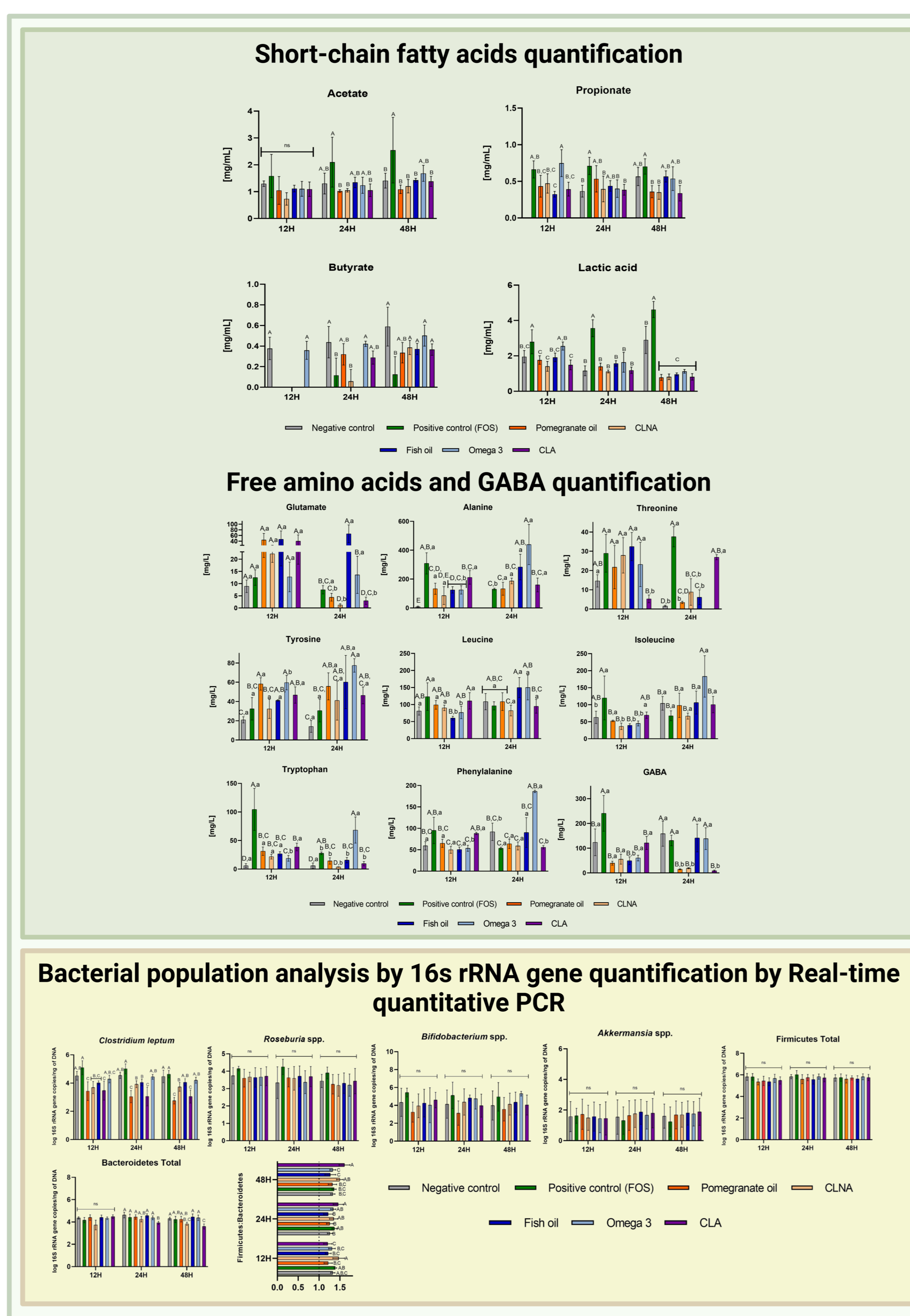
Introduction & Objectives

Omega 3 has been showing promising results on adults' microbiota modulation: a decrease in *Faecalibacterium*, associated with an increase in Bacteroidetes and butyrate-producing bacteria, as well as restoration of the Firmicutes: Bacteroidetes ratio. Regarding conjugated fatty acids, Conjugated linoleic acid (CLA) supplementation has been associated with the increase of beneficial bacteria (e.g., *Lachnospirillum*, *Roseburia*, among others) and a lower abundance of pro-inflammatory bacteria (e.g. *Tyzzrella* and *Alistipes*). Considering this potential and since there is still a lack of knowledge regarding this theme, by using an *in vitro* human fermentation model, we assessed the effect of different PUFAs (omega 3, conjugated linoleic and linolenic acids) on microbiota modulation of healthy human donors. Using for that different sources of PUFAs (dietary oils – Fish and Pomegranate oil – and soft-gel capsules – Omega 3, CLA and Xanthigen®, here defined as CLNA).

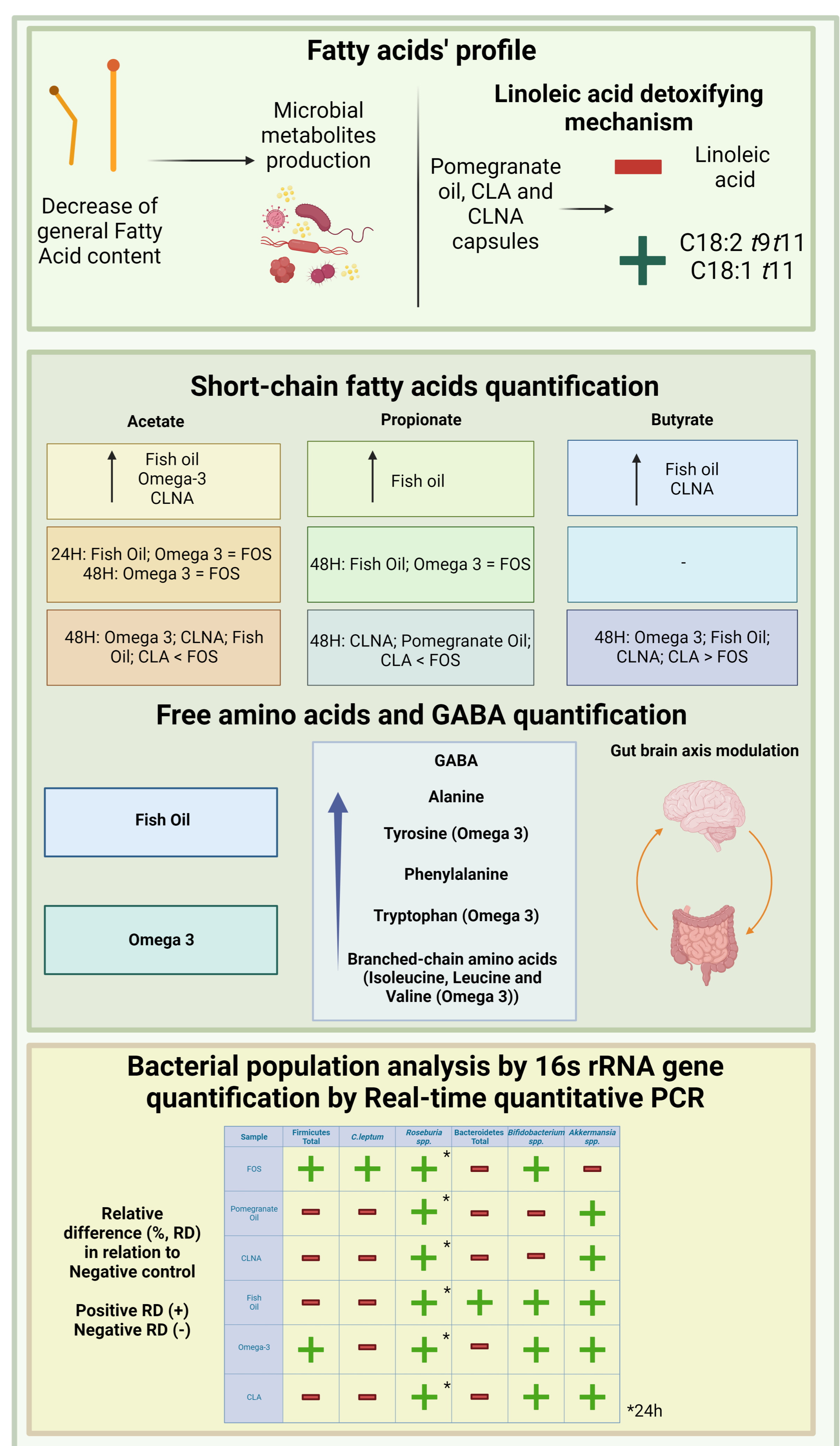
Experimental Design



Results



Major conclusions



Acknowledgments

Author Ana Sofia Salsinha would like to thank Fundação para a Ciência e Tecnologia (FCT) for her PhD grant (SFRH/BD/136857/2018). The authors would also like to thank the scientific collaboration under the FCT project UID/Multi/50016/2020. SymbNET project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 952537.