Inmunonutrición Molecular

Dr. José Moisés Laparra Llopis (head)[1,*] , Lic Ms Cesar Jeri [1], Dra. Aurora García-Tejedor [2]

[1]Molecular Immunonutrition Group, Madrid Institute for Advanced Studies in Food (IMDEA-Food), Madrid, Spain

[2] Bioactivity and Nutritional Immunology Group (BIOINUT), Faculty of Health Sciences, Universidad Internacional de Valencia—VIU, Pintor Sorolla 21, 46002 Valencia, Spain

* Correspondence: moises.laparra@imdea.org

Crta. de, Carr. de Canto Blanco, nº8, E, 28049 Madrid

DESCRIPCIÓN DEL GRUPO

Objectives:

- Immunonutritional-based precision intervention strategies to selectively modulate innate immune responses preventing/treating the risk for severity of diseases affecting the gut-liver axis.

- Understanding of how tolerance and immunity regulate antitumoral responses, among other, this project aims at elucidating innate cell biology as a path forward to develop durable, long-lasting immune responses.

- To define the extent to which immunonutritional-based modulation can be translated into physiological benefits within the neuro-immunometabolic axis

Approach:

ImmunOmics for Precision Nutrition

The immune system represents a highly complex biological system, composed of different cell states and influenced by several dynamic molecular pathways interacting between them (**Figure 1**). This context makes necessary a holistic view to understand properties of individual effector cells working together in a cross-scale network. Therefore, the objective of our studies is to define immunometabolic links between food ingredients and innate –myeloid and lymphoid - biology (**Figure 2**). Myeloid cells comprise heterogeneous subsets of macrophages, which are affected by overnutrition and play key roles in hepatic lipid accumulation. Besides, innate lymphoid cells (ILCs) are key players in diet-induced obesity.
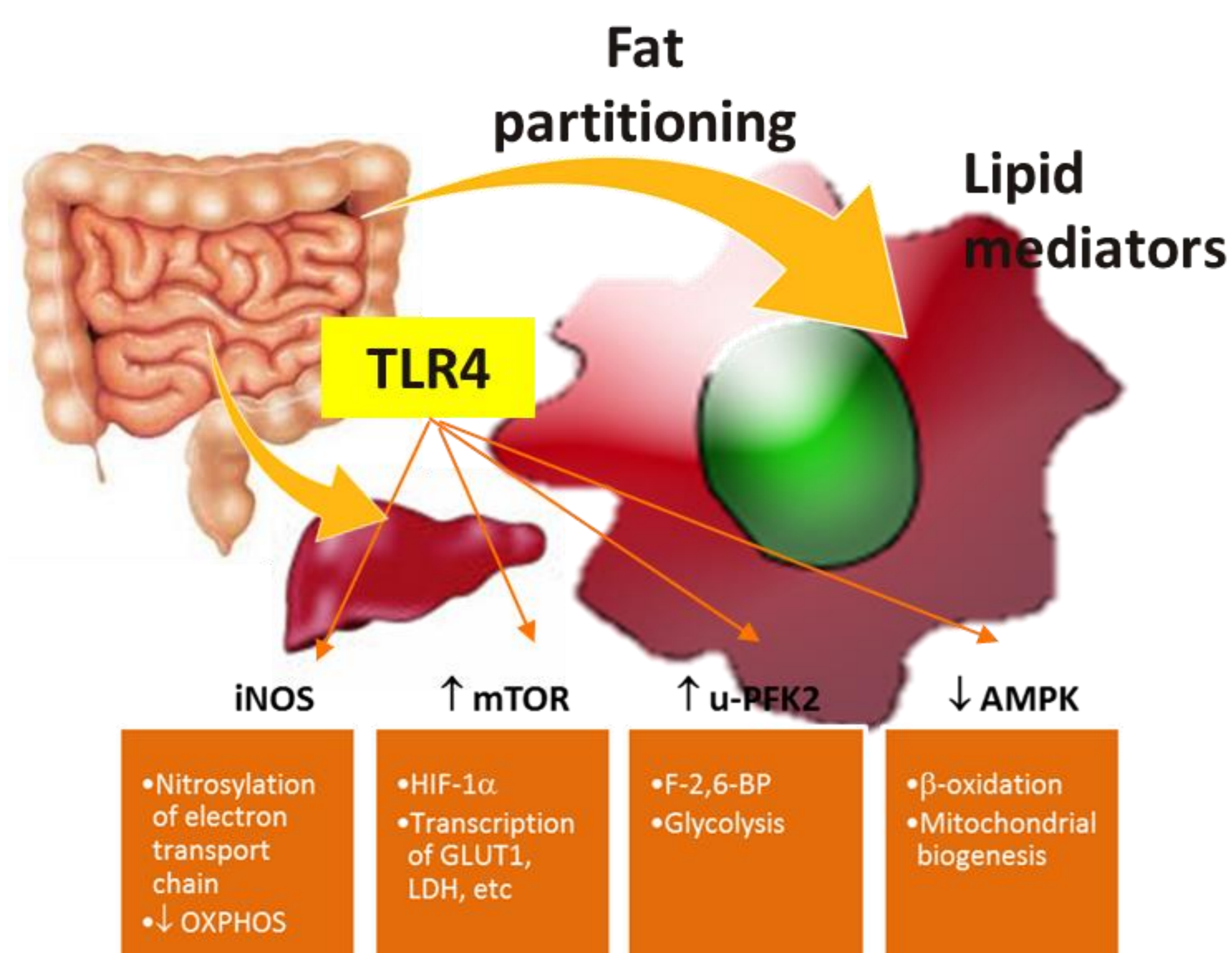

Figure 1, Schematic representation of different signaling networks affecting the biology of myeloid cells
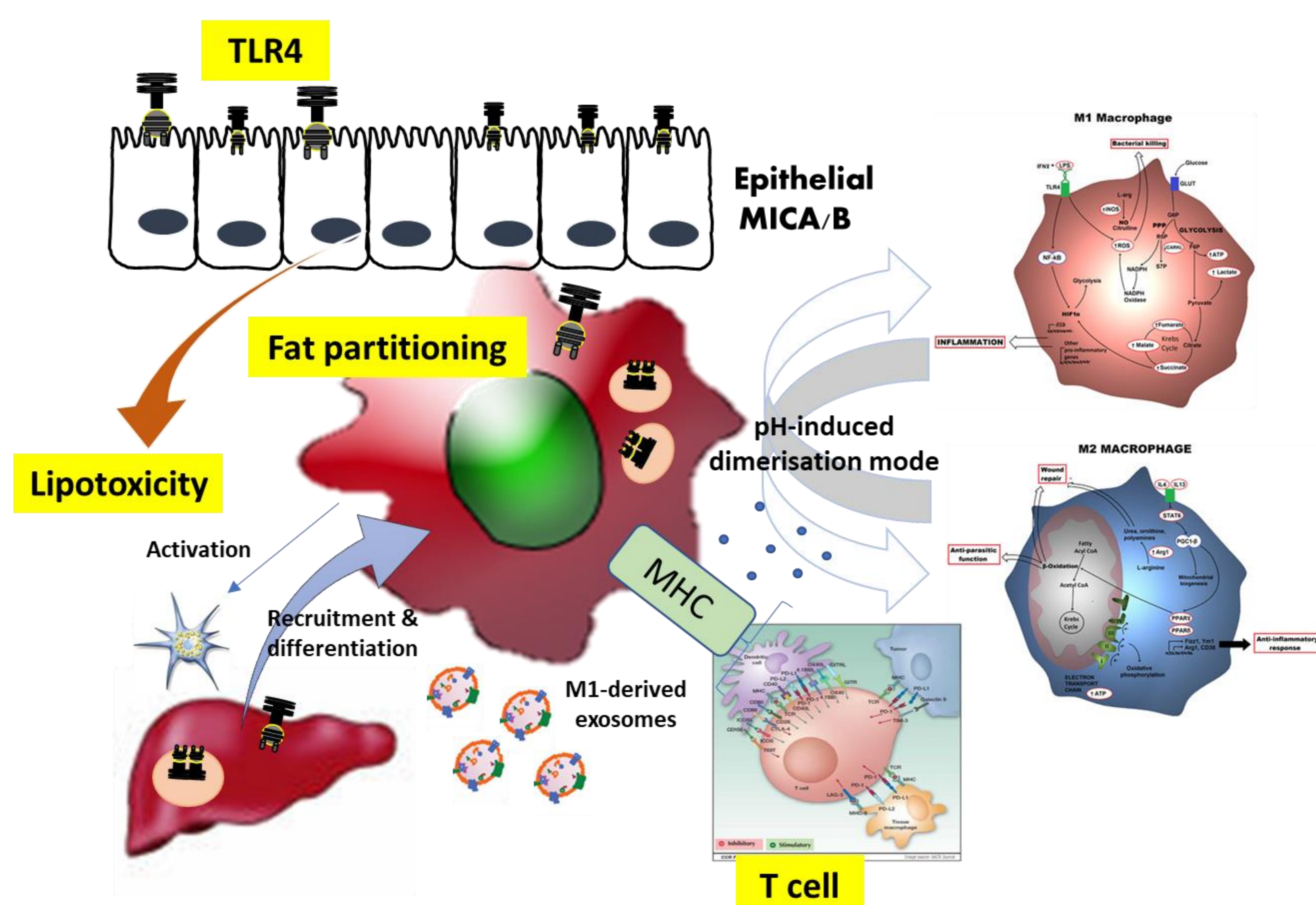

Figure 2, Representation of immune and metabolic interactions to selectively modulate functional subphenotypes of innate myeloid and lymphoid cells

PUBLICACIONES DEL GRUPO

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3. Lorca C, Laparra JM, et al. Industrial By-Products As a Novel Circular Source
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5. García-Tejedor A, Haros CM, Laparra JM. Chenopodium quinoa's Ingredients Improve Control of the Hepatic Lipid Disturbances Derived from a High-Fat Diet. Foods 2023, 12(17):3321. doi: 10.3390/foods12173321

FINANCIACIÓN