



Molecular and Cellular Mechanisms Underlying Probiotic Activity

Guest Editor:

Dr. Daniela Fiocco

Department of Clinical and
Experimental Medicine,
University of Foggia, Via Napoli,
20, 71122 Foggia, Italy

daniela.fiocco@unifg.it

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Message from the Guest Editor

Basic and clinical studies have been providing increasing evidence that probiotic microorganisms can improve host health. Indeed, many scientific papers document that probiotics can balance the gut microbiota, reinforce the barrier function of gut mucosa, modulate the immune response, exert antitumor and anti-oxidant activity, and participate in gut–brain signaling. However, information on the mechanisms of action of probiotics and postbiotics remains limited and current research must now focus on the specific molecular players involved in the host–microbe crosstalk and underlying the health-promoting effects.

Most of the key probiotic effectors identified so far are secreted metabolites and/or molecules located on the microbial cell surface. The molecular and cellular mechanisms underlying the beneficial effects of probiotics deserve deeper investigation, and this will be fundamental to implement the application of probiotics in clinical settings, to increase reproducibility of the studies, and to select targeted strains with specific attributes. This Issue will present the recent progress on this topic, collecting original research and review articles.





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1. Department of
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delle Marche, Via Ranieri 65,
60100 Ancona, Italy
2. International Research Center
for Food Nutrition and Safety,
Jiangsu University, Zhenjiang
212013, China

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