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Proteomic analysis of the interaction between probiotics isolated from breast milk and dendritic cells

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Probiotics are live microorganisms, which administered in adequate amounts confer a health benefit on the host. Modulation of the immune response seems to be the common mechanism associated to the consumption of probiotics. Presumably, probiotics must establish a close relationship with Dendritic Cells (DCs), which are able to recognize microbial products by extending their dendrites to the intestinal lumen. Recent studies have shown that DCs activity can be modified following administration of probiotics, especially of the genera *Lactobacillus* and *Bifidobacterium* using *in vitro* methodology. In this sense, the analysis of the host-probiotic interaction represents a dynamic and complex process, which can be studied through tools based on the "omic" sciences. The aim of the present study is to analyze the expression of differential proteins of the interaction between probiotics isolated from breast milk and DCs using proteomics techniques, whereby DCs were generated from peripheral blood monocytes from four healthy participants and were co-cultured with probiotics of the genera *Lactobacillus* and *Bifidobacterium* previously isolated from breast milk. After 3 hours of co-cultivation under optimum conditions, the proteins were extracted from each culture, thus generating 2D proteomic maps (SDS-PAGE) and a differential proteomic expression was found derived from the interaction of the co-cultures compared to single cultures. To the moment, our results suggest that the activity of DCs can be successfully regulated by interaction with probiotics.

Biography

Leobardo Emmanuel Alvarez De Leon is currently a Nursing student. He works in the Biomedicine Laboratory of the Nursing School of the UASLP under the guidance of Dr. Enrique Maldonado. His research is based on the search of proteins in the immune system with biomedical biotechnological interest.

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