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## Probiotics and chronic liver diseases

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It has been proposed that alterations in the highly complex gut microbiome leads to intestinal barrier damage and the release of pro-inflammatory endotoxins to the portal circulation, which trigger variable injuries in the liver and subsequently in the rest of the body. In return, the liver influences intestinal function by producing bile (including bile acids), which are then modified by intestinal bacteria (gut-liver axis). We are improving our understanding of those interactions at the molecular level, but we are still far from mastering this knowledge. Multiple studies show that beneficial bacteria (probiotics) introduced in an abnormal environment (dysbiosis) can induce improvements in different clinical outcomes. Many hepatopathies have been associated with a decrease in the diversity of species living in the intestine and predominance of species considered pro-inflammatory. Research groups around the world are closer to elucidate which combination of microorganisms can be used to affect positively certain diseases in individuals. A review of the pathophysiology of diseases like alcoholic liver disease, NASH, viral hepatitis, inflammatory hepatopathies, hepatocellular carcinoma, hepatic fibrogenesis indicate a close relationship among dietary factors, microbiome and genetic predisposition. Modification of the intestinal milieu by antibiotics, probiotics, prebiotics (probiotic food), symbiotic (prebiotics and probiotics) and surgical procedures, can lead to regression of multiple manifestations of chronic liver and systemic inflammation. When we consider the heterogeneity of the studies and individual variations on gut microbiome, it is remarkable how fast we have developed the technology to obtain more consistent results in research and clinical practice. Different species of *Lactobacillus*, *Bifidobacterium* and *Saccharomyces* independently or in combinations have the most published data indicating decrease on multiple inflammatory markers. Most of the data available is done in pre-clinical settings, but human studies are confirming many of those concepts, including data on safety and effectiveness.

## Biography

Leopoldo R Arosemena is a Transplant Hepatologist at the Miami Transplant Institute of the University of Miami. He has obtained his Medical degree at Universidad Autonoma de Nuevo Leon, in Monterrey, Mexico. Subsequently, he was accepted by the University of Internal Medicine program, where he achieved "Excellence in Achievement and The Outstanding Presentation Award" as part of the Resident Scholarly Activity in 2003. Later, he has completed subspecialty fellowships in Hepatology, Transplant Hepatology, earning a "Certificate of Excellence in the Young Investigator's Forum" in Breckenridge, Colorado in 2004. He has also completed his training in Gastroenterology at the University of Miami. He was the Medical Director of the Broward General Medical Center Liver transplant program from 2010 to 2012. He has multiple publications, including a poster that received the "Presidential Award of the AASLD" at the 2009 in Liver Meeting. His main interest is in transplant hepatology and nutrition.

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