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Infection and Immunity Program

OTHER PROGRAM AFFILIATIONS



Cardiovascular Disease



Metabolic Disease
and Obesity

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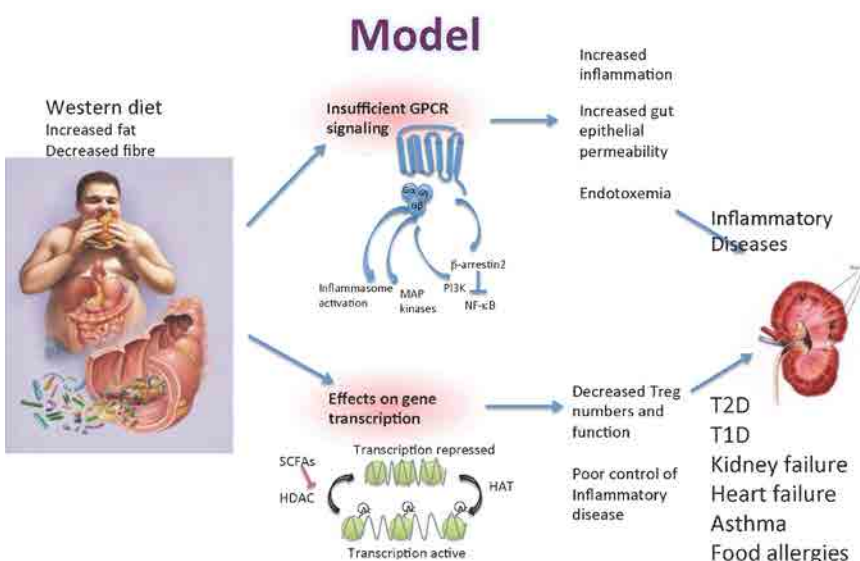
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The notion that diet and/or the gut microflora influences immunity and autoimmunity have not been taken in deep consideration, in part because precise molecular pathways had not been identified. Studies of inflammatory bowel disease and experimental colitis in mice have suggested that short-chain fatty acids (SCFAs), which are produced by gut bacteria during fibre fermentation in the gut, can have anti-inflammatory effects on the development of many inflammatory diseases. Our lab investigates the relationship between the immune system, the intestinal microflora and diet that cause inflammation and autoimmunity. Thus, we are trying to understand how microbial SCFAs regulate gut homeostasis, affect regulatory T cell (Treg) biology and subsequently affect inflammatory responses associated with autoimmune diabetes, insulin resistance, proteinuria and the incidence of obesity.

Research Projects

1. Effects of food and microbial SCFAs on inflammation: what are we eating?



Selected significant publications:

- Alison N. Thorburn, Craig I. McKenzie, Sj Shen, Dragana Stanley, Laurence Macia, Linda J. Mason, Laura K. Roberts, Connie H. Y. Wong, Raymond Shi, Remy Robert, Nina Chevallier, Jian K. Tan, Eliana **Mariño**, Rob J. Moore, Lee Wong, Malcolm J. McConville, Dedreia L. Tull, Lisa G. Wood, Vanessa E. Murphy, Joerg Mattes, Peter G. Gibson, Charles R. Mackay. 2015. Evidence that asthma is a developmental origin disease influenced by maternal diet and bacterial metabolites. *Nature Communications*. 6:7320.
- Macia L., Angelica T. Vieira, Jian Tan, Suzanne Luong, Lauren Binge, Mikako Maruya, Atsushi Hijikata, Alison Thorburn, Nina Chevallier, Eliana **Mariño**, Remy Robert, Mauro M. Teixeira, Lucíola da Silva Barcelos, Sidonia Fagarasa and Charles R. Mackay. 2015. Metabolite-sensing receptors GPR43 and GPR109A facilitate dietary fibre-induced gut homeostasis through regulation of the inflammasome. *Nature Communications*. 6: 6734.
- Eliana **Mariño**, Walters SN, Villanueva J, Richards JL, Mackay CR, Grey ST. 2014. BAFF regulates activation of self-reactive T cells through B-cell dependent mechanisms and mediates protection in NOD mice. *European Journal of Immunology*. 44(4):983-93.
- Eliana **Mariño**, Bernice Tan, Lauren Binge, Charles R. Mackay and Shane T. Grey. 2012. B cell cross-presentation of autologous antigen precipitates diabetes. *Diabetes*. 61:1-13.
- Eliana **Mariño**, Villanueva J, Walters S, Liuwantara D, Mackay F, Grey ST. 2009. CD4+ CD25+ T cells control autoimmunity in the absence of B cells. *Diabetes*. 58(7):1568-77. Epub. 2009 Mar 31. Commentary article: Smith SH and Tedder TF. Targeting B-cells mitigates diabetes in NOD mice: what is plan B? *Diabetes*. 2009.