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Antibodies are essential to the humoral immune response against pathogens and constitute one of the first lines of defense against re-infection, and they can persist over time even in the absence of antigens. The cellular basis of serological memory is represented by: 1) memory B cells and 2) plasma cells. While we have in-depth knowledge on the role of humoral responses against pathogens, the contribution of memory B cells and plasma cells to auto-reactive responses is not completely understood.

Our research is focused in understanding the innate mechanisms that contribute in the regulation of the human B cells, and how these mechanisms are implicated in both protective as well as autoimmune responses.

Three main research activities will be developed in the lab:

1. Understanding the innate mechanisms that control human B cell responses
2. Dissecting the role of B cells in autoimmunity and immunodeficiencies by studying human monogenic autoimmune diseases
3. Developing a B cell selection platform with high-throughput culture methods and molecular sequencing approaches, such as single cell PCR and next-generation sequencing of antibodies from different species (i.e., rabbit, llama)

Selected Publications

Loss of immune tolerance to IL-2 in type 1 diabetes.

Pérol L, Lindner JM, Caudana P, Nunez NG, Baeyens A, Valle A, Sedlik C, Loirat D, Boyer O, Créange A, Cohen JL, Rogner UC, Yamanouchi J, Marchant M, Leber XC, Scharenberg M, Gagnerault MC, Mallone R, Battaglia M, Santamaria P, Hartemann A, Traggiai E, Piaggio E.

Nat Commun. 2016 Oct 6;7:13027.

ATP-gated ionotropic P2X7 receptor controls follicular T helper cell numbers in Peyer's patches to promote host-microbiota mutualism.

Proietti M, Cornacchione V, Rezzonico Jost T, Romagnani A, Faliti CE, Perruzza L, Rigoni R, Radaelli E, Caprioli F, Preziuso S, Brannetti B, Thelen M, McCoy KD, Slack E, Traggiai E, Grassi F. *Immunity. 2014 Nov 20;41(5):789-801.*

Dependence of immunoglobulin class switch recombination in B cells on vesicular release of ATP and CD73 ectonucleotidase activity.

Schena F, Volpi S, Faliti CE, Penco F, Santi S, Proietti M, Schenk U, Damonte G, Salis A, Bellotti M, Fais F, Tenca C, Gattorno M, Eibel H, Rizzi M, Warnatz K, Idzko M, Ayata CK, Rakhmanov M, Galli T, Martini A, Canossa M, Grassi F, Traggiai E.

Cell Rep. 2013 Jun 27;3(6):1824-31.

[Click here](#) for additional publications.

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