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Centro Singular de Investigación en Química Biolóxica e Materiais Moleculares

Conferencia:

How the immune system detects lipids

Patricia Barral

King´s College London – Reino Unido

24/09/15

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Aula de Seminarios do CIQUS

12:15 h

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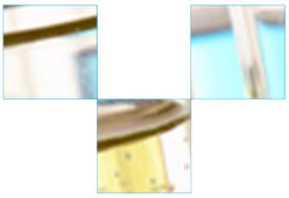

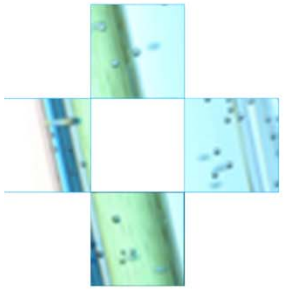

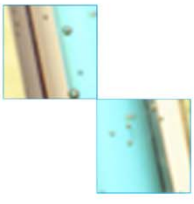

XUNTA DE GALICIA
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How the immune system detects lipids

Our research aims to understand the cellular and molecular mechanisms that underlie the initiation of immunity and how those contribute to human health and disease. We specifically focus on immune responses to lipids (both endogenous and from microbes) exploring how the immune system handles lipids, which are the mechanisms that mediate lipid recognition by immune cells and which are the consequences for human health when these processes are dysregulated.

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EDUCATION AND QUALIFICATIONS

- **PhD in Biochemistry**. Universidad Complutense de Madrid (Spain). February 2005.
- **Masters Degree in Biochemistry**. Universidad Complutense de Madrid (Spain). November 2000
- **BSc Biochemistry,** Universidad Complutense de Madrid (Spain). June 2000.

RESEARCH EXPERIENCE

- April 2013-present: **Lecturer.** Division of Immunology, Infection & Inflammatory Disease. King's College London. (London, UK)
- January 2007-February 2013: **Postdoctoral fellow.** Lymphocyte Interaction Laboratory. London Research Institute, Cancer Research UK. (London, UK).
- June 2005-December 2006: **Postdoctoral fellow.** Biochemistry and Molecular Biology Department. Universidad de Santiago de Compostela (Spain).
- January 2001-May 2005: **PhD Student.** Biochemistry and Molecular Biology Department. Universidad Complutense de Madrid (Spain).
- September-December 2002: **Visitor PhD Student.** Biochemistry and Molecular Biology Department. Queen´s Medical Centre (Nottingham, UK).
- February-December 2000: **Undergraduate Research Student.** Biochemistry and Molecular Biology Department. Universidad Complutense de Madrid (Spain).
- July-September 1999: **Undergraduate Research Student.** Molecular Genetics lab. Centro Oncologico de Galicia (A Coruña, Spain)
- July-September 1998: **Undergraduate Research Student.** Biochemistry lab. Centro Oncologico de Galicia (A Coruña, Spain)

AWARDS AND HONOURS

- Marie Curie Intra-European Postdoctoral Fellowship (February 2009-February 2011)
- Postdoctoral Fellowship from the Spanish Ministry of Education (September 2007-January 2009)
- Cancer Research UK Postdoctoral Fellowship (January 2007- August 2007)
- PhD Extraordinary Prize. Universidad Complutense de Madrid (2005)
- Predoctoral Fellowship from the Spanish Ministry of Education (March 2001- March 2005)
- Short-term Fellowship from the Spanish Ministry of Education (September-December 2002)

PATENTS

- Products and methods for stimulating an immune response. (US61/049814). Pub no. WO/2009/133378 (05.11.2009). Inventors: Batista FD, Cerundolo V, Eckl-Dorna J, **Barral P**.

SELECTED PRESENTATIONS IN CONFERENCES

- *Gordon Research Conference in Immunochemistry & Immunobiology.* Les Diablerets (Switzerland) 2012.
- *Keystone Symposia: NK and NKT cell Biology.* Breckenridge (Colorado, USA). 2011.
- *Gordon Research Conference in Immunochemistry & Immunobiology.* Les Diablerets (Switzerland) 2010.
- *Gordon Research Conference in Immunochemistry & Immunobiology.* Oxford (UK) 2008.
- *XXIV European Congress of Allergy and Clinical Immunology.* Munich (Germany). 2005.
- *XI International Palinological Congress.* Granada (Spain). 2004.
- *XXIII European Congress of Allergy and Clinical Immunology*. Amsterdam (Netherlands). 2004.
- *2nd European Association of Allergy and Clinical Immunology Davos Meeting.* Davos (Switzerland). 2003.

SELECTED PUBLICATIONS

- **Barral P**, Btk- friend or foe in autoimmune diseases? **J Leuk Biol** 94:859 (2013)
- Chapman JR, **Barral P**, Vannier JB, Borel V, Tomas-Loba A, Sartori AA, Adams IR, Batista FD, Boulton SJ. RIF1 is essential for 53BP1-dependent non-homologous end joining and suppression of DNA double strand break resection. **Molecular Cell** 49:858 (2013)
- **Barral P***, Sanchez-Niño MD, van Rooijen N, Cerundolo V, Batista FD*. The location of splenic NKT cells favors their rapid activation by blood-borne antigen. **EMBO J** 31:2378 (2012) **Corresponding author*.
- Thaunat O, Granja AG, **Barral P**, Filby A, Montaner B, Collinson L, Martinez-Martin N, Harwood NE, Bruckbauer A, Batista FD. Asymmetric segregation of polarized antigen on B cell division shapes presentation capacity. **Science** 335:475 (2012)
- Chang PP, **Barral P**, Fitch J, Ma CS, Pratama A, Kallies A, Hogan J, Cerundolo V, Tangye SG, Bittman R, Nutt SL, Brink R, Godfrey DI, Batista FD, Vinuesa CG. Identification of Bcl-6-dependent NKT follicular helper cells that provide cognate help for B cell responses. **Nat Immunol** 13:35 (2012)
- **Barral P**, Polzella P, Bruckbauer A, van Rooijen N, Besra GS, Cerundolo V, Batista FD. $CD169^{+}$ macrophages present lipid antigens to mediate early activation of iNKT cells in lymph nodes. **Nat Immunol** 11:303 (2010)
- Treanor B, Depoil D, Granja AG, **Barral P**, Weber M, Dushek O, Bruckbauer A, Batista FD. The membrane skeleton controls diffusion dynamics and signalling through the B cell receptor. **Immunity** 32:187 (2010)
- Cerundolo V, **Barral P**, Batista FD. Synthetic iNKT cell-agonists as vaccine adjuvants - finding the balance. **Curr Opin Immunol** 22:417 (2010). *Review*
- **Barral P**, Eckl-Dorna J, Harwood NE, De Santo C, Salio M, Illarionov P, Besra GS, Cerundolo V, Batista FD. B cell receptor-mediated uptake of CD1d-restricted antigen augments antibody responses by recruiting invariant NKT cell help in vivo. **PNAS** 105:8345 (2008)
- **Barral P**, González-Serrano A, Pérez-Gil J, Batanero E, Villalba M, Rodríguez R. A recombinant functional variant of the olive pollen allergen Ole e 10 expressed in baculovirus system. **J Biotechnol** 121:402 (2006)
- **Barral P**, Villalba M, Rodríguez R, Batanero E. The role of major olive pollen allergens Ole e 1, Ole e 9 and Ole e 10 on mice sensitization. **Ann Allergy Asthma Immunol** 96:466 (2006)
- **Barral P,** Suárez C, Batanero E, Alfonso C, Alché J de D, Rodríguez-García MI, Villalba M, Rivas G, Rodríguez R. An olive pollen protein with allergenic activity, Ole e 10, defines a novel family of carbohydrate-binding modules and is potentially implicated in pollen germination. **Biochem J** 390:77 (2005)
- Quiralte J, Llanes E, **Barral P**, Arias de Saavedra JM, Saenz de San Pedro B, Villalba M, Florido JF, Rodríguez R, Lahoz C, Cardaba B. Ole e 2 and Ole e 10: new clinical aspects and genetic restrictions in olive pollen allergy. **Allergy** 60:360 (2005)
- **Barral P**, Batanero E, Villalba M, Rodríguez R. Expression of the major olive pollen allergen Ole e 10 in the yeast *Pichia pastoris*: evidence of post-translational modifications. **Protein Expr Purif** 44:147-154 (2005)
- **Barral P**, Batanero E, Palomares O, Quiralte J, Villalba M, Rodríguez R. A major allergen from pollen defines a novel family of plant proteins and shows intra- and interspecies cross-reactivity. **J Immunol** 172:3644-3651 (2004)
- **Barral P**, Tejera ML, Treviño MA, Batanero E, Villalba M, Bruix M, Rodríguez R. Recombinant expression of Ole e 6, a Cys-enriched pollen allergen, in *Pichia pastoris* yeast: detection of partial oxidation of methionine by NMR. **Protein Expr Purif** 37:336-43 (2004)
- Treviño MA, García-Mayoral MF, **Barral P**, Villalba M, Santoro J, Rico M, Rodríguez R, Bruix M. NMR solution structure of Ole e 6, a major allergen from olive tree pollen. **J Biol Chem** 279:39035-39041 (2004)
- Batanero E, **Barral P**, Villalba M, Rodríguez R. Biodegradable poly (DL-lactideglycolide) microparticles as a vehicle for allergen-specific vaccine. **J Immunol Methods** 259:87-94 (2002)