

<b>BIOGRAPHICAL SKETCH</b>
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<b>NAME</b>  Marta Vives-Pi	<b>POSITION TITLE</b> <ul style="list-style-type: none"> <li>• Head of the Immunology of Diabetes Unit/Principal Investigator/ IGTP, Badalona, Spain</li> <li>• Professor of Immunology / Universitat Autònoma de Barcelona, Bellaterra, Spain</li> </ul>		
<b>EDUCATION/TRAINING</b>			
<b>INSTITUTION AND LOCATION</b>	<b>DEGREE</b>	<b>YEAR(s)</b>	<b>FIELD OF STUDY</b>
Faculty of Science / Universitat Autònoma Barcelona	Biologist	1987	Biology
Faculty of Medicine / Universitat Autònoma Barcelona	Ph.D.	1992	Type 1 Diabetes and Autoimmunity

**A. Positions and Honors****Positions 2019**

- 2000 - present. Group Leader (Immunology of Diabetes), Immunology Section, Germans Trias i Pujol Research Institute, Badalona
- 2000 - present. Associate Professor of Immunology. Universitat Autònoma de Barcelona (UAB), Bellaterra
- 2017- present. Co-founder and Scientific Director (SEO) of Ahead Therapeutics SL, Barcelona, [www.aheadtherapeutics.com](http://www.aheadtherapeutics.com)

**Previous Positions**

- 1993-1997. Post-doctoral researcher, Juvenile Diabetes Research Foundation (Grants 394143 and 396161)
- 1996-2000. Principle Investigator, Spanish Ministry of Health
- 1998-1999. Assistant Professor of Immunology at the Faculty of Medicine, UAB, Bellaterra, Spain
- 2000-2018. Head of the Specific Pathogen Free Unit, Animal Facility, IGTP, Badalona, Spain
- 2006-2017. Member of the Ethical Animal Care Advisory Committee, Hospital Germans Trias i Pujol, Badalona, Spain

**Honors**

- 1994. Award to the best PhD Thesis of the academic course 1992-93 at the Universitat Autònoma de Barcelona
- 2003-2004 Recognition of Quality as Professor and Researcher in Health Sciences, Generalitat de Catalunya, Catalan Government
- 2010 Recognition of Quality as Professor, ANECA, Spanish Ministry of Education and Science

**Networks**

- 2013-2018. Member of the management committee of COST Action BM1305 'Action to Focus and Accelerate Cell-based Tolerance-inducing Therapies (A FACTT). <http://www.afactt.eu/>
- 2015-2020. Member of the Network CIBERDEM (Centro de Investigación Biomédica en Red de Diabetes y Enfermedades Metabólicas Asociadas) at the Spanish Ministry of Science (<https://www.ciberdem.org>), Madrid, Spain

- 2018-present. Head of the Consolidated Research Group #2017 SGR 103 (Advanced Immunotherapies for Autoimmunity), Generalitat de Catalunya (Catalan Government)

#### Membership

- 1989 – present. Spanish Society of Immunology ([www.inmunologia.org](http://www.inmunologia.org))
- 1991. The Cell Transplant Society
- 1995–present. Catalan Society of Immunology
- 2005 – present Spanish Society of Diabetes ([www.sediabetes.org](http://www.sediabetes.org))
- 1993– present. Immunology of Diabetes Society

#### Advisory committees

- 2012. INSERM, Agence Nationale de la Recherche, France
- 2014-2017. ANEP (programa I+D Ministerio Educación y Ciencia), Spain

### B. Selected peer-reviewed publications 2015-2020 (in chronological order).

1. Pujol-Autonell, Serracant-Prat A, Cano-Sarabia M, Ampudia RM, Rodríguez-Fernández S, Sanchez A, Izquierdo C, Stratmann T, Puig-Domingo M, Maspoch D, Verdaguer J, **Vives-Pi M**. Use of autoantigen-loaded phosphatidylserine-liposomes to arrest autoimmunity in type 1 diabetes. *PLOS ONE* 10(6):e0127057, **2015**
2. **Vives-Pi M**, Pujol-Autonell I. 'What potential is there for liposomal-based nanotherapy for the treatment of Type 1 diabetes?' *Nanomedicine (Lond)*. 10(9):2955-2958, **2015**
3. **Vives-Pi M**, Rodriguez-Fernández S, Pujol-Autonell I. How apoptotic  $\beta$ -cells direct immune response to tolerance or to autoimmune diabetes. A review. *Apoptosis*. 20(3):263-72, **2015**
4. Carrascal J, Carrillo J, Arpa B, Egia-Mendikute L, Rosell-Mases E, Pujol-Autonell I, Planas R, Mora C, Mauricio D, Ampudia RM, **Vives-Pi M**, Verdaguer J. B-cell anergy induces a Th17 shift in a new anti-beta cell transgenic model, the 116C-NOD mouse. *Eur J Immunol*. 46:593-608, **2016**
5. Lord P, Spiering R, Aguillon JC, Anderson AE, Appel S, Benitez-Ribas D, ten Brinke A, Broere F, Cools N, Cuturi MC, Diboll J, Geissler EK, Giannoukakis N, Gregori S, van Ham M, Lattimer S, Marshall L, Harry RA, Hutchinson JA, Isaacs JD, Joosten I, van Kooten C, Lopez Diaz de Cerio A, Nikolic T, Barbaros Oral H, Sofronic-Milosavljevic L, Ritter T, Riquelme P, Thomson AW, Trucco M, **Vives-Pi M**, Martinez-Caceres E, Hilken CMU. Minimum information about tolerogenic antigen-presenting cells (MITAP): a first step towards reproducibility and standardisation of cellular therapies. *Peer J* 4:e2300; DOI 10.7717/peerj.2300, **2016**
6. Pujol-Autonell I, Mansilla MJ, Rodríguez-Fernandez S, Cano-Sarabia M, Navarro-Barriuso J, Ampudia RM, Rius A, Garcia-Jimeno S, Perna-Barrull D, Martinez-Caceres E, Maspoch D, **Vives-Pi M**. Liposome-based immunotherapy against autoimmune diseases: therapeutic effect on multiple sclerosis. *Nanomedicine* 12:1231-1242, **2017**
7. Stojanović I, Dimitrijević M, **Vives-Pi M**, Mansilla MJ, Pujol-Autonell I, Rodríguez-Fernandez S, Jelínková Jelínková L, Funda DP, Gruden-Movsesijan A, Sofronić-Milosavljević L, Hilken CMU, Martinez Caceres E, Miljković D. Cell-based tolerogenic therapy, experience from animal models of multiple sclerosis, diabetes and rheumatoid arthritis. *Curr Pharm Des*. 23(18):2623-2643, **2017**
8. Gieras A, Gehbauer C, Perna-Barrull D, Engler JB, Diepenbruck I, Glau L, Joosse SA, Kersten N, Klinge S, Mittrucker HW, Friese MA, **Vives-Pi M**, Tolosa E. Prenatal administration of betamethasone causes changes in the T cell receptor repertoire influencing development of autoimmunity. *Frontiers in Immunology*, 8:1505. **2017**
9. Fonolleda M, Murillo M, Vázquez F, Bel J, **Vives-Pi M**. Remission phase in paediatric type 1 diabetes. New understanding and emerging biomarkers. *Hormone Research in Pediatrics*, 88:307-315, **2017**
10. Fuchs A, Gliwinski M, Grageda N, Spiering R, Abbas AK, Appel S, Berglund D, Blazar, Bluestone JA, ten Brinke A, Brusko, Cuturi MC, Geissler E, Giannoukakis N, Golab, Hafler, Hester, Hippen, Di Ianni, Ilic, Isaacs J, Iwaszkiewicz-Grzes, Jaeckel, Joosten I, Klatzmann, Koenen, Van Kooten, Korsgren,

- Kretschmer, Levings, Marek-Tzonkowska N, Martinez-Llordella M, Miljkovic D, Mills K, Miranda J, Piccirillo, Putnam AL, Ritter T, Sakaguchi S, Sanchez-Ramon S, Sawitzki, Sofronic-Milosavljevic L, Sykes, Tang, **Vives-Pi M**, Waldmann, Witkowski, Wood, Gregori S, Hilkens C, Lombardi G, Lord P, Martinez-Caceres E, Trzonkowski P. Minimum information about T regulatory cells (MITREG): a step towards reproducibility and standardisation. *Frontiers in Immunology* 8:1844, **2018**
11. Rodriguez-Fernandez S, Pujol-Autonell I, Brianso F, Perna-Barrull D, Cano-Sarabia M, Garcia-Jimeno S, Villalba A, Sanchez A, Aguilera E, Vázquez F, Verdaguer J, Maspoch D, **Vives-Pi M**. Phosphatidylserine-Liposomes Promote Tolerogenic Features on Dendritic Cells in Human Type 1 Diabetes by apoptotic Mimicry. *Frontiers in Immunology* 9:253, **2018**
  12. Perna-Barrull D, Rodriguez-Fernandez S, Pujol-Autonell I, Gieras A, Ampudia RM, Villalba A, Glau L, Tolosa E, **Vives-Pi M**. Prenatal betamethasone interferes with immune system development and alters target cells in autoimmune diabetes. *Scientific Reports* 9:1235, **2019**
  13. Villalba A, Fonolleda M, Murillo M, Rodriguez-Fernandez S, Ampudia RM, Perna-Barrull D, Raina MB, Quirant-Sanchez B, Planas R, Teniente-Serra A, Bel J, **Vives-Pi M**. Partial remission and early stages of pediatric type 1 diabetes display immunoregulatory changes. A pilot study. *Translational Res*, 2019 Mar 15. 210:8-25, **2019**
  14. Egia-Mendikute L, Arpa B, Rosell-Mases E, Corral M, Carrascal J, Carrillo J, Mora C, Chapman H, Panosa A, **Vives-Pi M**, Stratmann T, Serreze D, Verdaguer J. B-lymphocyte phenotype determines T-lymphocyte subset differentiation in autoimmune diabetes. *Front Immunol* 10:1732, **2019**
  15. Piquer-Garcia I, Campderros L, Taxerås SD, Gavaldá-Navarro A, Pardo R, Vila M, Pellitero S, Martínez E, Tarascó J, Moreno P, Villarroya J, González L, Rodriguez-Fernandez S, **Vives-Pi M**, Lerin C, Elks C, Stephens JM, Puig-Domingo M, Villarroya F, Villena JA, Sánchez-Infantes D. A role for Oncostatin M in the impairment of glucose homeostasis in obesity. *J Clin Endocrinol Metab* **2019** Oct 13. pii: dgz090
  16. Rodriguez-Fernandez S, Murillo M, Villalba A, Perna-Barrull D, Cano-Sarabia M, Gomez-Muñoz L, Aguilera E, Maspoch D, Vazquez F, Bel J, **Vives-Pi M**. Impaired phagocytosis in dendritic cells from pediatric patients with type 1 diabetes does not hamper their tolerogenic potential. *Frontiers in Immunology* 10:2811, **2019**
  17. Villalba A, Rodriguez-Fernandez S, Ampudia RM, Cano-Sarabia M, Perna-Barrull D, Bertran-Cobo C, Ehrenberg C, Maspoch D, **Vives-Pi M**. Phosphatidylserine-liposomes with insulin peptides but not other autoantigens prevents experimental type 1 diabetes. *Artif Cell Nanomed Biotech*. 48 (1):77-83, **2020**

#### Pertinent earlier publication

1. Alba A, Puertas MC, Carrillo J, Planas R, Ampudia R, Pastor X, Bosch F, Pujol-Borrell R, Verdaguer J, **Vives-Pi M**. The transgenic expression of IFN beta in islet beta cells breaks the tolerance in non-diabetes prone strains and accelerates autoimmune type 1 diabetes in NOD mice. *J. Immunology* 173:6667-6675, **2004**
2. Planas R, Alba A, Carrillo J, Puertas MC, Ampudia R, Pastor X, Okamoto H, Takasawa S, Gurr W, Pujol-Borrell R, Verdaguer J, **Vives-Pi M**. Reg gene overexpression in islets from non-obese diabetic mice with accelerated diabetes: role of IFN beta. *Diabetologia*, 49:2379-2387, **2006**
3. Planas R, Carrillo J, Sanchez A, Ruiz de Villa MC, Núñez F, Verdaguer J, James RFL, Pujol-Borrell R, **Vives-Pi M**. Gene expression profiles for the human pancreas and purified islets in Type 1 diabetes: new findings at clinical onset and in longstanding diabetes. *Clin exp Immunol* 159 (1):23-44, **2010**
4. Arif S, Moore F, Marks K, Bouckenooghe T, Dayan CM, Planas R, **Vives-Pi M**, Tree T, Marchetti P, Huang GC, Gurzov EN, Pujol-Borrell R, Eizirik DL, Peakman M. Peripheral and islet interleukin-17 pathway activation characterises human autoimmune diabetes and promotes cytokine-mediated beta-cell death. *Diabetes*, 60:2112-2119, **2011**
5. Ye J, **Vives-Pi M**, Gillespie KM. Maternal microchimerism: increased in the insulin positive compartment in type 1 diabetes pancreas but not in infiltrating immune cells or replicating islet cells. *PLOS ONE* 9(1):e86985, **2014**

**C. Current Research Projects****Principal Investigator****Project Number: 201632-10**

Title: A new dawn for type 1 diabetes: Combining a nanotherapy to halt autoimmunity with beta-cell regeneration. Funding: Fundació La Marató de Tv3

Dates: 01/03/2017 to 31/03/2020

**Project Number: Cer001**

Title: Therapy against autoimmunity por type 1 diabetes prevention and reversal. Funding: DiabetesCero Foundation

Dates: 01/06/2017 to 31/05/2020

**Project number: PI18/00436**

Title: Biomarkers of partial remission in patients with type 1 diabetes

Funding: Instituto de Salud Carlos III. Ministry of Science, Innovation and Universities. Spanish Gov.

Dates: 01/01/2019 to 31/12/2021

**Project number: 201308267**

Title Impact of prenatal betamethasone to type 1 diabetes: Tolerance induction and beta-cell protection against autoimmunity

Funding: Juvenile Diabetes Research Foundation (JDRF)

Submitted Feb 31/01/2020

**Partner****Project number: KFO296**

**PI: Eva Tolosa (University Medical Center Hamburg-Eppendorf, Germany)**

Title: Feto-maternal immune cross talk: Consequences for maternal and offspring's health

Funding: Deutsche Forschungsgemeinschaft (German Reserch Council)

Dates: 2016 to 2020

**Project number: 2-SRA-2019-837-S-B**

**PI: Benoit Gauthier (CABIMER, Sevilla, Spain)**

Title: LRH-1/NR5A2 agonism to stimulate immune coupled human islet beta cell regeneration

Funding: Juvenile Diabetes Research Foundation (JDRF)

Dates: 01/08/2019 to 31/07/2022

**D. Doctoral Theses supervised (2015-2020)****Silvia Rodríguez Fernández**

Phosphatidylserine-rich liposomes to tackle autoimmunity. En route to translationality

28/06/2019

Excelent Cum Laude

**David Perna Barrull**

Effects of prenatal betamethasone treatment in the development o type 1 diabetes en el mellitus

18/12/2019

Excelent Cum Laude

**Adrian Villalba Felipe**

Combined therapy for type 1 diabetes: Immunotherapy and regenerative strategies

Scheduled Thesis Defense: October 2020

**E. Patents (Inventor)**

**Vives-Pi M**, Pujol-Autonell I, Verdaguer J, MasPOCH D, Cano M. Liposome-based immunotherapy. WO 2015107140. Patented licenced to Ahead Therapeutics S.L. for exploitation

Verdaguer J, Egia L, Corral M, Mora C, Rosell E, **Vives-Pi M**, Pujol-Autonell I, Barquinero J. New peptides inducers of inflammation and cell death for use in Medicine. European Patent File. Application number EP19382537 (June 2019)

**More information:**

<http://www.germanstrias.org/immunology-inflammation/immunology-of-diabetes>

<http://www.hospitalgermanstrias.cat/servei-immunologia>

<http://www.aheadtherapeutics.com>