MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

CV date	15/02/2022

First name	Pedro Antonio		
Family name	Reche Gallardo		
Gender (*)	Male	Birth date (dd/mm/yyyy)	16/01/1967
SCOPUS Author ID (*)			6603677069
e-mail	parecheg@med.ucm.es	URL Web	http://reche.med.ucm.es
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-3966-5838		

(*) Mandatory

A.1. Current position

Position	Professor of Immunology (CU)		
Initial date	31/01/2022		
Institution	Universidad Complutense de Madrid		
Department/Center	Inmunología, Oftalmología y ORL/Facultad de Medicina		
Country	Spain	Teleph. number	913947229
Key words	Epitope, Antigen, Vaccines, Prediction, MHC, T-cell		

A.2. Previous positions (research activity interuptions, art. 14.2.b)

Period	Position/Institution/Country/Interruption cause

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Chemistry (Bioch &. Mol. Biol.)	U. of Granada/Spain	1990
Licensed in Chemistry (Biochem)	U. of Granada/Spain	1995

Part B. CV SUMMARY *(max. 5000 characters, including spaces)*

1. Scientific contributions

I have over 90 scientific publications in peer review journals, including prestigious high-impact journals like Cell, Nature Immunology, Immunity, PNAS, EMBO, Molecular Cell, JACI, Frontiers in Immunology, Journal Immunology, FASEB J etc. The cumulative impact of the publications is 447.6 (83.6% Q1 and 30% D1,SCImago Journal Rank) and I am the first/last author of more than half of them. More importantly, my publications have received over 7814 citations and my h index is 36 (source Google scholars). Among my most relevant works stand out the discovery and characterization of a cytokine called TSLP involved in inflammatory allergic diseases (Reche et al., J Immunol 2001, 167: 336; Soumelis et al., Nat. Immunol, 2002, 3: 673). We patented the knowledge and applications derived from these works, which have resulted in potential clinical interventions: *e.g.* anti-TSLP antibodies are useful to treat allergic asthma. My work on TSLP is referenced in most immunology textbooks. I am also recognized as a pioneer and world-leading expert in immunoinformatics. I have developed immunoinformatics tools and resources that are commonly used by researchers work-wide and are available for free public use at http://imed.med.ucm.es (RANKPEP, EPIMHC, PVS, TAPREG, EPISOPT, BCEPS ...). My work on immunoinformatics propelled my career in the Dana-Farber Cancer Institute from Instructor of Medicine to director of the bioinformatics core of the Cancer Vaccine Center. In total, I have stayed more than 11 years in prestigious foreign institutions (Cambridge University, England; DNAX Research Institute, CA,USA; and Dana-Farber Cancer Institute, MA, USA) working in different topics, which has given me a truly multidisciplinary formation; I am highly skilled in Biochemistry, Cellular and Molecular Immunology and Bioinformatics. This background allowed me to join in 2006 the University Complutense of Madrid (UCM), under the Ramon y Cajal program (second best score in Biomedicine). In Spain, I started an

independent research group in Immunoinformatics and Immunomedicine (I3M), which has been funded by competitive research grants (SAF2006:07879, SAF2009:08103, BIO:2014-54164-R, IND2020/BMD-17364, CCG08-UCM/BIO-3769). My research activity on immunoinformatics, epitope discovery and vaccine design are recognized worldwide and I keep productive collaborations with national (e.g. Dr. Concha Nuñez, HCSC Spain; Dr. Miguel Fdez-Arquero, HCSC, Spain; Dr. Ruben Varela, USC, Spain; Dr. Oscar Palomares, UCM, Spain; Dr. José Luis Subiza, Immunotek, Spain) and international researchers (e.g. Dr. Sette, La Jolla Institute of Allergy, CA, USA; Dr. Pappalardo, U. of Catania, Italy; Dr Reinherz, Dana-Farber Cancer Institute, MA, USA; Dr. Lehmann, CTL, OH, USA)

2. Community contributions

We routinely use social medial (Facebook, LinkedIn, Twitter, ResearchGate, Tribuna Complutense) to communicate our results in an accessible language. As a result, local, national and international media, including press, radio and TV, have broadcasted our works on HIV, Influenza and SARS-CoV-2. In addition, we collaborate and have received funding by leading Pharma (Inmunotek, SL) and Biotech companies (CTL, OH, USA).

3. Training and advisory contributions

I have trained 3 PhD students and I am currently supervising 6 other PhD students, who are supported by research grants and contracts to me. All trainees have achieved a considerable number of publications and all doctors are employed in Science. I am associate editor of 7 international journals related to vaccines and bioinformatics including Frontiers in Immunology (ISSN:1664-3224), Journal of Immunology Research (ISSN:2314-7156), Vaccines (ISSN: 2076-393X) and Current Computer-Aided Drug Design (ISSN: 1875-6697). I have edited numerous special issues on peptide-vaccines and reverse vaccinology and I am regularly invited to meetings and institutions to deliver talks on vaccines and immunoinformatics. I participate in the organization of meetings on Computational Immunology (CMISF 2017, CMISF 2018 and CMSI F2019) and I serve as scientific advisor of the NIH on T cell epitope discovery programs.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*

1. Russo G, Di Salvatore V, Sgroi G, Parasiliti Palumbo GA, **Reche PA**, Pappalardo F. A. (**2022**) multi-step and multi-scale bioinformatic protocol to investigate potential SARS-CoV-2 vaccine targets. *Brief Bioinform.* 2021 Oct 5:bbab403. PMID: 34607353. (IF: 11.622; **D1**: Mathematical and Computational Biology, 2/58)

2. Ras-Carmona A, Pelaez-Prestel HF, Lafuente EM, **Reche PA** (**2021**). BCEPS: A Web Server to Predict Linear B Cell Epitopes with Enhanced Immunogenicity and Cross Reactivity. *Cells*. 2021 Oct 14;10(10):2744. PMID: 34685724. (IF: 6.662; **Q2**: Cellular Biology, 38/158)

3. Gomez-Perosanz M, Fiyouzi T, Fernandez-Arquero M, Sidney J, Sette A, Reinherz EL, Lafuente EM, **Reche PA** (**2021**). Characterization of Conserved and Promiscuous Human Rhinovirus CD4 T Cell Epitopes. *Cells*. 2021 Sep 2;10(9):2294. PMID: 34571943. (IF: 6.662; **Q2**: Cellular Biology, 38/158)

4. Mallis RJ, Duke-Cohan JS, Das DK, Akitsu A, Luoma AM, Banik D, Stephens HM, Tetteh PW, Castro CD, Krahnke S, Hussey RE, Lawney B, Brazin KN, **Reche PA**, Hwang W, Adams EJ, Lang MJ, Reinherz EL (**2021**). Molecular design of the γδT cell receptor ectodomain encodes biologically fit ligand recognition in the absence of mechanosensing. Proc Natl Acad Sci U S A. 2021 Jun 29; 118(26):e2023050118. PMID: 34172580. (IF: (11.205, 24/162 **Q1** Multidisciplinary Sciences)

5. Lehmann AA, Kirchenbaum GA, Zhang T, **Reche PA**, Lehmann PV (**2021**). Deconvoluting the T Cell Response to SARS-CoV-2: Specificity Versus Chance and Cognate Cross-Reactivity. *Front Immunol*. 2021 May 28;12:635942. PMID: 34127926. (IF: 5.085; **Q1**: Immunology, 38/158)

6. Gomez-Perosanz M, Sanchez-Trincado JL, Fernandez-Arquero M, Sidney J, Sette A, Lafuente EM **Reche PA** (**2021**) Human rhinovirus-specific CD8 T cell responses target

conserved and unusual epitopes *FASEB J*. 2021 Jan;35(1):e21208 (IF: 4.9966; **D1 & Q1**: Biology, 9/93)

7. **Reche PA** (**2020**) Potential Cross-Reactive Immunity to SARS-CoV-2 From Common Human Pathogens and Vaccines. *Front Immunol*.;11:586984 (IF: 5.085; **Q1**: Immunology, 38/158)

8. Molero-Abraham M, Sanchez-Trincado JL, Gomez-Perosanz M, Torres-Gomez A,Subiza JL, Lafuente EM, **Reche PA** (**2019**) Human Oral Epithelial Cells Impair Bacteria-Mediated Maturation of Dendritic Cells and Render T Cells Unresponsive to Stimulation. Front Immunol. 10:14341. *Front Immunol*.,**10**:655 (IF: 5.085; **Q1**: Immunology, 38/158)

9. Lehmann PV, Suwansaard M, Zhang T, Roen DR, Kirchenbaum GA, Karulin AY, Lehmann A, **Reche PA** (**2019**) Comprehensive Evaluation of the Expressed CD8+ T Cell Epitope Space Using High-Throughput Epitope Mapping. *Front Immunol*., **10**:655 (IF: 5.085; **Q1**: Immunology, 38/158)

10. Brazin KN, Mallis RJ, Boeszoermenyi A, Feng Y, Yoshizawa A, **Reche PA**, Kaur P, Bi K, Hussey RE, Duke-Cohan JS, Song L, Wagner G, Arthanari H, Lang MJ, Reinherz EL (**2018**). The T Cell Antigen Receptor Transmembrane Domain Coordinates Triggering through Regulation of Bilayer Immersion and CD3 Subunit Associations. Immunity. 2018,49(5):829-841.e6. PMID: 30389415 (IF: 19.734; **Q1&D1**: Immunology, 4/155)

C.2. Congress

1. *Authors*: Hector F. Pelaez-Prestel, Tara Fiyouzi Alipour, Marta Gomez Perosanz, José Luis Sanchez-Trincado, Esther M. Lafuente & Pedro A. Reche. *Title*: Computer-aided identification of Treg cell epitopes, *Congress*: 42 Congreso de la Sociedad Española de Inmunología (SEI) / I Congreso Virtual SEI. *Tipo participación*: *Poster*. Lugar celebración: Virtual. *Fecha*: 24-26/03/2021

2. *Authors*: Jose Luis Sanchez Trincado, Maria Magdalena Molero, Marta Gomez Perosanz, Jose Luis Subiza, Esther M Lafuente & Pedro A. Reche.*Title*: Human Oral Epithelial Cells Modulate DC Maturation and Impair T cell responses by Mechanisms Insensitive to Bacterial Stimulation. *Congress*: 41 Congreso de la Sociedad Española de Inmunología (SEI). *Tipo participación:* Poster. *Lugar celebración*: Sevilla. *Fecha*: 30/05/2019-01/06/2019

3. Authors: M. Quinzo Albiño, E.M. Lafuente, P. A. Reche *Title*: Computational design of a legacy-based epitope vaccine against Human Cytomegalovirus. Congreso: 2018 IEEE International Conference on Bioinformatics and Biomedicine (BIBM) *Tipo participación*: Oral (Reche) & Comité Organizador. *Lugar celebración*: Madrid, Spain. *Fecha*: 3-6/12/2018

4. *Author*: Pedro A Reche. *Title*: Antigenicity and immunogenicity, educated search for the epitopes. *Congress*: Toolkits for DNA vaccine design, an update. Tipo participación: Keynote lecture. Lugar celebración: Moscow, Russia. *Fecha*: 17-20/11/2016

5. Author: Reche PA. Title: T cell epitope distribution in viruses is linked to proteins biosíntesis and defines a system to prioritize antigens. *Congress*: First Baltic conference Immunologial Modelling: Theory and Practice. *Tipo participación*: Ponencia invitada. *Lugar celebración*: Ritga, Latvia. *Fecha*: 13-16/05/2015

C.3. Research projects

1. “Diseño asistido por computadora de vacunas: aplicación al rhinovirus humano. Ministerio de Economía y Competividad” (REF: BIO2014-54164-R) PI: Pedro A Reche, UCM. 90,000 €, 01/01/2015 – 31/12/2018; Researchers: 4; Role: PI

2. COMPLEMENTO II-CM. Comunidad de Madrid (REF: S2017/BMD-3673). PI: José Ramón Regueiro, 122.394,93 € 01/01/2018–31/06/2022; Role: Researcher. Biochemical and structural analysis of complement inhibitor

3. “Desarrollo de fárcamos inmunoestimulantes de origen bacteriano para la prevención de enfermedades respiratorias crónicas” (REF: IPT-2012-0639-090000). PI: Oscar Palomares & Pedro A Reche. 195,00 €, 07/02/2012 – 30/10/2015; Researchers: 2; Role: PI

4. “Estimulación pan-poblacional de la respuesta de los linfocitos T frente a epítopos CD8

conservados del virus de la hepatitis C". Ministerio de Innovación y Ciencia (REF: SAF2009-08103) PI: Pedro A Reche, UCM; 88,330 €, 01/01/2010–31/12/2013; Researchers: 3; Role: PI

C.4.1. Research Contracts

1. "Study of the immunomodulatory properties of secretory/excretory products from human nematodes (REF: IND2020/BMD-17364) PI: Pedro A Reche, Doctorado Industrial Inmunotek. 90,000 €, 01/01/2021 – 31/12/2023; Researchers: 2; Role: PI

2. "La inmunidad cruzada de formulaciones bacterianas frente a virus que causan enfermedades respiratorias recurrente". Artículo 83, Inmunotek SL (NIF: 50282726B) 31,500 €, 01/10/2020 – 01/10/2022. Researchers: 2. PI: Pedro A Reche. Role: Know how, supervision and technical.

3. "Predicted versus realized epitope space". Artículo 83, CTL (REF: 282-2020) 50,000 €, 01/10/2020 – 31/08/2022. Researchers; PI: Pedro A Reche. Role: Know-how, supervision and technical.

4. "Bioinformatics Analysis of Immunogenicity". Artículo 83, ATREIZA LABORATORIOS, S.L (REF: 425-2019) 50,000 €, 30/09/2019 – 30/09/2020. PI: Pedro A Reche. Role: Know-how and technical.

5. "Identificación de parámetros de inducción de tolerancia inmunitaria en el tratamiento de la alergia a ácaros y gramíneas con nuevas vacunas de conjugados". Artículo 83, Inmunotek SL (REF: 144-2018) 18,800 €, 01/06/2018 – 31/12/2019. Researchers 2; PI: Pedro A Reche. Role: Know-how, supervision and technical.

6. "Identificación de parámetros de inducción de tolerancia inmunitaria en el tratamiento de la alergia a ácaros y gramíneas con nuevas vacunas de conjugados". Artículo 83, Inmunotek SL (REF: 224-2014) 76,600 €, 01/01/2015 – 31/12/2016. Researchers 2; PI: Pedro A Reche. Role: Know-how, supervision and technical.

7. Análisis de la respuesta in vitro de extractos alergénicos y valoración de epítopos inmunodominantes (REF: 31-2011). 100,000 €, 14/01/2011 – 14/07/2012; Researchers: 2; PI: Pedro A Reche & Eduardo Mtnez-Naves. Role: Know how, supervision and technical.

C.4.2. Transfer merits: Granted Patents

1. Ellis L. Reinherz, Mikyung Kim, Pedro A. Reche and Jia-Huai Wang. Computer-based methods of designing molecules. PATENT Nº: US 8,275,595B2. Date: Sep.25,2012. COUNTRY OF PRIORITY: International (EU Y USA) ASSIGNEE: Dana-Farber Cancer Institute

2. Pedro A Reche-Gallardo, Vassili Soumelis, Yong-Jun Liu, Rene de Waal Malefyt, Bazan J. Fernando, Robert A. Kastelein. METHOD OF TREATMENT USING AN ANTI-IL-B50 ANTIBODY. PATENT Nº: US 8,075,886B2. DATE: Dec.13,2011. COUNTRY OF PRIORITY: International (EU & USA) ASSIGNEE: Schering Corporation (Merk).

3. Pedro A Reche-Gallardo, Vassili Soumelis, Yong-Jun Liu, Rene de Waal Malefyt, Bazan J. Fernando, Robert A. Kastelein. CYTOKINE RECEPTOR. PATENT Nº: US 7,071,308 B2. DATE: Jul.4,2006. COUNTRY OF PRIORITY: International (EU & USA) ASSIGNEE: Schering Corporation (Merk).