MINISTERIO DE CIENCIA E INNOVACIÓN

CURRICULUM VITAE (maximum 4 pages)

AGENCIA ESTATAL DE INVESTIGACIÓN

Part A. PERSONAL INFORMATION

CV date	08/12/2020

First and Family name	Rubén Agudo Torres		
Social Security, Passport, ID number	70245662M	Age	41
Researcher codes	Open Researcher and Contributor ID (ORCID**)	0000-0002-4784-3318	
	SCOPUS Author ID (*)	8932428300	
	WoS Researcher ID (*)	K-9173-2017	

(*) Optional
(**) Mandatory

A.1. Current position

Name of University/Institution	Universidad San Pablo CEU		
Department	Inmunología y Parasitología		
Address and Country	Urbanización Montepríncipe, Km 5.3 28668 Boadilla del Monte. Madrid		
Phone number	+34 913724784	E-mail	ruben.agudotorres@ceu.es
Current position	Ramón y Cajal Researcher	From	05/2017
Key words	High-Throughput Screening, RNA polymerase, protein engineering, protein directed evolution, RNA virus		

A.2. Education

PhD, Licensed, Graduate	University	Year
PhD in Molecular Biology	Universidad Autónoma de Madrid	2009
Bachelor in Biology	Universidad SEK	2002

A.3. General indicators of quality of scientific production *(see instructions)*

Indicators since 2007 (2010-3 years due to paternity leaves in 2014, 2017 and 2020).
Number of theses: 1 ongoing
Number of publications in SCI journals: **25**, 50% as first author, 80% as first, second or corresponding author.
Number of Q1 publications: 15, **6 of them in top10% journals** (first decile, D1).
Citations (since 2007): 845 (Scopus); 835 (Web of Knowledge).
h-index: 18 (Scopus and Web of Knowledge)
Average citations/year (last 5 years): 83.4 (Scopus); 84,2(Web of knowledge)

Part B. CV SUMMARY *(max. 3500 characters, including spaces)*

I have published 27 articles in SCI journals, of which 65% are included in top-tier (Q1) journals. 6 of them in the top 10% journals (first decile), including Angewandte Chemie (1), Journal of the American Chemical Society (1), PLoS Pathogens (2), Nucleic Acid Research (1) and Current Opinion in Structural Biology (1). I am the corresponding author of 2 of my publications (both in Q1) and the first or second author in 80% of them. Of these, 2 belong to reviews in which I have been invited to participate by due to my scientific experience in their respective fields. Furthermore, one of my works has resulted in the filing of a patent (registration number P200930482). My scientific research accumulates 978 citations, with an h-index of 20 (Scopus; h=19 and 970 cites in Web of Science). I have participated in 8 national- and European-funded research projects, and I am the principal investigator in 1 of them. I have supervised 6 undergraduate students and I am currently supervising a PhD student. I am actively involved in diverse activities related to science communication, including teaching and more than 15 contributions national and international conferences.

I performed my PhD in the group of Prof. Esteban Domingo at CBMSO. I worked on the antiviral effect of different compounds targeting the polymerase of an RNA virus under both, biochemical and population dynamics scopes. In 2009 I obtained my doctorate with *cum laude* qualification and Extraordinary Doctorate Award. I achieved a high scientific success that allowed me to work in the laboratory of Prof. Manfred T. Reezt (Marburg, Gemany) for about 4 years. There, I developed several platforms for the high-throughput screening of

different biocatalyst variants generated by directed evolution. After this period, because to my outstanding scientific record, I earned in 2015 a Marie Skłodowska-Curie Individual Fellowships to carry out my own research project in the laboratory of Prof. Luis Blanco (CBMSO). There, I could combine the knowledge of virus evolution, molecular biology and protein engineering acquired throughout my scientific stage. I developed a high-throughput method for screening the activity of variants created by directed protein evolution of a novel human polymerase. Due to the success of the results obtained in this research, in 2016 I participated in a Proyecto Retos-Colaboración (RTC-2016-4710-1) signed among Prof. Blanco and the biotechnology company Sygnis-Expedeon, to use my method to select polymerase variants with biotechnological applications.
Since May 2017 I have joined the group of Prof. Carmen del Águila, in the Faculty of Pharmacy of the San Pablo CEU University, thanks to a "Ramón y Cajal" contract, which promotes the incorporation to the national research system of highly skilled researchers. In my new laboratory, I have begun to develop, as an independent scientist, a work line related to engineering and directed evolution of viral polymerases for clinical and biotechnological purposes. This project is being currently funded by a grant from the State Research Plan (BIO2017-85124-R). I am right now developing different systems for the high-throughput screening of compounds showing inhibitory effect against several viral polymerases. Thanks to this work, I am maintaining active collaborations with several top-level national groups in their respective fields, creating a multidisciplinary and synergist network that is enriching my own line of research.

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

C.1. Publications *(see instructions)*

Selected publications since 2007

1. Sáez-Álvarez, Y., Arias, A., Del Águila, C. **Agudo, R**. 2019. Development of a fluorescence-based method for the rapid determination of Zika virus polymerase activity and the screening of antiviral drugs *Sci. Rep*. 9(1):5397
2. **Agudo, R**. Calvo, P. A. Mártinez-Jiménez, M. I. Blanco, L. 2017. Engineering human PrimPol into an efficient RNA dependent- DNA primase/polymerase *Nucleic Acids Res*. 45(15):9046-9058
3. **Agudo, R**. de la Higuera, I., Arias, A. Grande-Pérez, A. Domingo, E. 2016. Involvement of a joker mutation in a polymerase-independent lethal mutagenesis escape mechanism *Virology*. 494:257-266
4. Roiban, G. D.; **Agudo, R**.; Reetz, M. T. 2014. P450-Catalyzed oxidative hydroxylation of achiral organic compounds with simultaneous creation of two chirality centers in a single C-H activation step. *Angew. Chem. Int. Ed Eng*. 53(33):8659-8663
5. **Agudo, R**.; Reetz, M. T. 2013. Designer cells for stereocomplementary de novo enzymatic cascade reactions based on laboratory evolution.*Chem.Commun*. 49(93):10914-10916
6. **Agudo, R**.; Roiban, G. D.; Reetz, M. T. 2013. Induced axial chirality in biocatalytic asymmetric ketone reduction.*J. Am. Chem. Soc*. 135(5):1665-1668
7. **Agudo, R**.; Roiban, G. D.; Reetz, M. T. 2012. Achieving regio- and enantioselectivity of P450-catalyzed oxidative CH activation of small functionalized molecules by structure-guided directed evolution.*ChemBioChem*. 13(10):1465-1473
8. **Agudo, R**., Ferrer-Orta, C., Arias, A., de la Higuera, I., Perales, I., Pérez-Luque, R., Verdaguer, N., Domingo, 2010. E. A Multi-step process of viral adaptation to a mutagenic nucleoside analogue by modulation of transition types to extinction-escape. *PLoS Pathog*. 6(8):e1001072
9. Perales, C. **Agudo, R**., Tejero, H., Manrubia, S. C. Domingo, E. 2009. Potential benefits of sequential inhibitor-mutagen treatment of RNA virus infections. *PLoS Pathog*. 5(11): e1000658
10. **Agudo, R**. Arias, A., Pariente, N., Perales, C. Escarmís, C. Jorge, A., Marina A. Domingo, E. 2008. Molecular characterization of a dual inhibitory and mutagenic activity of 5-fluorouridine triphosphate on viral synthesis. Implications for lethal mutagenesis. *J. Mol. Biol*.382(3):652-666.

C.2. Research projects

1. **BIO2017-85124-R**. Title: Desarrollo de Herramientas basadas en polimerasas virales con uso clínico y biotecnológico. Funding Body: Ministerio de Economia, Industria y Competitividad. Type of participation: Principal Investigator. Duration: 01/01/2018-31/12/2020. Funding: 128,381 €.
2. **RTC-2016-4710-1**. Title: Optimización por evolución dirigida del sistema de amplificación genómica TruePrime. Funding Body: Ministerio de Economia, Industria y Competitividad. Type of participation: Research team. Duration: 01/07/2016-30/06/2018. Funding: 265,619 €.
3. **H20-20-MSCA-IF-2014 654615**. Title: Artificial evolution of a novel multifunctional human polymerase (EVOPRIMPOL). Funding Body: European Comission. Type of participation: Research team. Duration: 01/05/2015-30/04/2017. Funding: 177,122 €.
4. **BFU2008-02816/BMC**. Title: Extinción de virus RNA por mutagénesis incrementada. Bases moleculares de la defección letal. Funding Body: Ministerio de Ciencia e Innovación. Type of participation: Researcher team. Duration :01/01/2009-31/12/2011. Funding: 327.910 €.
5. **008-20F-0191**. Title: Bases moleculares de extinción viral. Funding Body: Ministerio de Ciencia y Educación. Type of particiption: Researcher team.: Duration: 01/09/2008-31/08/2010. 123.142 €.

C.4. Patents

Title: Tratamiento Antiviral (Antiviral Treatment).
Patent number: **P200930482**, (20/07/2009). First application.
Authors: Domingo, E., **Agudo, R**., Tejero, H., Cuevas, S., Perales C. Participating Entities: Spanish National Research Council (CSIC), National Institute of Aerospace Technology (INTA), Complutense University of Madrid (UCM), Centro de Investigación Biomédica en Red: Enfermedades Hepáticas y Digestivas (CIBERehd).

C.5, Invited conferences

1. 4th DNA Polymerase Meeting. *EVOPRIMPOL: a reliable strategy to evolve Human PrimPol.* Biarritz, France 10/2016.
2. 6th International Congress on Biocatalysis, (Biocat 2012). *P450 Oxidative CH-Activation of Small Nonfunctionalized Molecules*. Hamburg, Germany. 09/2012.
3. 4th European Congress of Virology. *Potential benefits of sequential inhibitor-mutagen treatments of RNA virus infections*. Cernobbio, Italy. 04/2010.
4. 15th Meeting of European Study Group on the Molecular Biology of Picornavirus (EUROPIC). *Inhibitory and mutagenic activities of 5-fluorouridine-triphosphate contribute to lethal mutagenesis of foot and-mouth disease virus*. Sitges, Spain. 05/2008.

C.6, Student's supervision

Doctoral Thesis (PhD)
Yanira Sáez-Álvarez. *Development of fluorescence-based methods for the rapid determination of viral RdRps activity and the screening of antiviral drugs*. Supervisors: Rubén Agudo and Carmen del Águila. Defense:2021.

Bachelor Thesis: 4 finished; 2 ongoing.