CURRICULUM VITAE ABREVIADO (CVA)

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

Part A. PERSONAL INFORMATION

First name	ANTONIO MANUEL		
Family name	ESTÉVEZ GARCÍA		
Gender (*)	Male	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	aestevez@ipb.csic.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-8272-5405	

(*) Mandatory

A.1. Current position

Position	STAFF SCIENTIST (CIENTÍFICO TITULAR DEL CSIC)		
Initial date	2009		
Institution	CONSEJO SUPERIOR DE INVESTIGACIONES		
Department/Center	INSTITUTO DE PARASITOLOGÍA Y BIOMEDICINA "LÓPEZ-NEYRA"		
Country	SPAIN	Teleph. number	34-958-181652
Key words	Trypanosomes, RNA-binding proteins, post-transcriptional regulation		

A.2. Previous positions (research activity interuptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2003-2009	"Ramón y Cajal" Research Fellow, CSIC, Spain
1999-2003	Postdoc, University of Heidelberg, Germany
1996-1999	Postdoc, Howard Hughes Medical Institute-UCLA, USA

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD Biological Sciences	Universidad Autónoma de Madrid, Spain	1995
BSc Biological Sciences	Universidad de Granada, Spain	1989

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

Trypanosomatids are unicellular eukaryotes that cause important diseases in humans and cattle. They are the most diverged eukaryotes for which sufficient tools and data are available at the genomic, biochemical, cellular, and molecular levels. Importantly, they have been a prolific source of discovery of novel biological phenomena, most of which are related to the RNA world. These parasites are utmost dependent on posttranscriptional processes to control gene expression. The aim of my group is to identify and characterize RNA-binding proteins with a specific role in mRNA processing, decay and translation. This will allow us to identify potential candidates for therapeutic intervention and contribute to make trypanosomes an excellent model system to study posttranscriptional regulatory mechanisms in more complex eukaryotes.

Our scientific contributions have been key to understand how trypanosomes are able to modulate gene expression in the absence of transcriptional control. We identified and characterized the first RNA-binding protein involved in the regulation of mRNA degradation in trypanosomes (published in Nucleic Acids Research in 2008). We also identified a short RNA element that is necessary and sufficient to confer repression of mRNA expression in response to purine nutrients, a phenomenon apparently unique in eukaryotes (published in Nucleic Acids

Research in 2014). Later on, we characterized a protein binding complex that binds to this RNA element and mediates the purine-dependent regulation. This is the first signaling pathway linking the response to nutrients to posttranscriptional regulation that has been described so far in any trypanosomatid species (Nucleic Acids Research, 2021). Lastly, we have published, again in Nucleic Acids Research (2022), a work that challenges a long-standing idea in the trypanosomatids field that states that many 'non-expressed' regions are kept silent because they are not transcribed, and this is because specific chromatin marks act as 'roadblocks' that prevent RNA pol II from read-through. Our data strongly support that these 'silent' regions are pervasively transcribed, and the derived transcripts are not detected because they are degraded, not because they are not transcribed. We have shown for the first time that pervasive transcription exists in an organism in which RNA pol II is constitutive. This work was disseminated through different local and national media (COPE, CSIC).

I have set up productive collaborations with other national and international groups: Elena Gómez-Díaz (Spain), Dolores González-Pacanowska (Spain), Jose M. Pérez-Victoria (Spain), Mark Carrington (UK), Calvin Tiengwe (UK), Susanne Kramer (Germany), Michael Boshart (Germany), Luisa Figueiredo (Portugal) and Vivian Bellofatto (USA).

My group has become a reference in RNA-binding proteins and gene regulation in trypanosomes. We have acquired expertise in challenging techniques such as purification of RNA-binding proteins using RNA chromatography, ChIP-seq, RNA-seq and ATAC-seq, gene manipulation or purification of protein complexes; this expertise has allowed us to set up fruitful collaborations. I have gained skills in programming, statistics, bioinformatics and machine-learning that have allowed us to manipulate, analyse, compare, curate and properly evaluate own and external NGS data, as shown in our last publications. I have taught and shared these skills and expertise to the students working in my lab during all these years.

I have mentored and supervised three final degree projects and three PhD thesis, two of which will be defended before Summer. All three PhD students are currently pursuing scientific careers elsewhere. Regarding science popularization, in addition to the aforementioned dissemination of our latest work, I have actively participated in several editions of "Pint of Science" and "CafeConCiencia" events, aimed to disseminate lab results among the general public and high school students, respectively. I also organized during six years scientific workshops for children in public primary schools, and was member (two years) and chief (one year) of one of the committees of "Ciencia en Acción", an international science dissemination contest organized by the CSIC and the Lilly Foundation, among others.

I am a frequent reviewer in Nucleic Acids Research, BMC Microbiology, Molecular Microbiology, and also external evaluator for national and international scientific committees (ANEP, Ayudas PTA, FONCYT).

I am the Coordinator of the Informatics Facilities in our Institute since 2009. I was the Coordinator of the Molecular Parasitology Group of the Spanish Society of Biochemistry and Molecular Biology (SEBBM) from 2012 to 2015, and I was Chief of the Department of Biochemistry and Molecular Pharmacology in our Institute from 2014 to 2021. I am member of the SEBBM since 1991.

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

C.1. Publications *(see instructions)*

Claudia Gómez-Liñán, Elena Gómez-Díaz, Gloria Ceballos-Pérez, Sandra M. Fernández-Moya, and **Antonio M Estévez** (2022)
The RNA-binding protein RBP33 dampens non-productive transcription in trypanosomes.
Nucl. Acids Res., 50:12251-12265.

A long noncoding RNA promotes parasite differentiation in African trypanosomes (2022)
Fabien Guegan, K Shanmugha Rajan, Fábio Bento, [...], Luisa M Figueiredo (AC) (**12**/15)
Sci. Adv., 8:eabn2706

Miriam Rico-Jiménez, Gloria Ceballos-Pérez, Claudia Gómez-Liñán, and **Antonio M Estévez** (2021)

An RNA-binding protein complex regulates the purine-dependent expression of a nucleobase transporter in trypanosomes.
Nucl. Acids Res., 49:3814–3825.

Daniel García-Caballero, Guiomar Pérez-Moreno, **Antonio M Estévez**, Luis M Ruíz-Pérez, Antonio E Vidal, and Dolores González-Pacanowska (2017)
Insights into the role of endonuclease V in RNA metabolism in *Trypanosoma brucei*.
Sci Rep., 7:8505.

Anish Das, Vivian Bellofatto, Jeffrey Rosenfeld, Mark Carrington, Rocío Romero-Zaliz, Coral del Val, and **Antonio M Estévez** (2015)
High throughput sequencing analysis of *Trypanosoma brucei* DRBD3/PTB1-bound mRNAs.
Mol. Biochem. Parasitol. 199:1-4.

Sandra M Fernández-Moya, Mark Carrington, and **Antonio M Estévez** (2014)
A short RNA stem-loop is necessary and sufficient for repression of gene expression during early logarithmic phase in trypanosomes.
Nucl. Acids Res., 42:7201-8209.

Sandra M Fernández-Moya, Mark Carrington, and **Antonio M Estévez** (2014)
Depletion of the RNA-binding protein RBP33 results in increased expression of silenced RNA polymerase II transcripts in *Trypanosoma brucei*
PLoS ONE, 9: e107608

Sandra M Fernández-Moya, Angélica García-Pérez, Susanne Kramer, Mark Carrington, and **Antonio M Estévez** (2012)
Alterations in DRBD3 ribonucleoprotein complexes in response to stress in *Trypanosoma brucei*
PLoS ONE, 7: e148870

Antonio M. Estévez (2008)
The RNA-binding protein TbDRBD3 regulates the stability of a specific subset of mRNAs in trypanosomes.
Nucl. Acids Res., 36:4573-86.

Antonio M. Estévez, Tore Kempf and Christine Clayton (2001)
The exosome of *Trypanosoma brucei*.
EMBO J. 20:3831-9

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

Antonio M. Estévez
The RNA-binding protein RBP33 dampens non-productive transcription in trypanosomes
Microbes 2022. French Society of Microbiology.
Montepellier (France), 2022
Invited conference

Antonio M. Estévez
Evidence for pervasive transcription in trypanosomes
Department of Biochemistry, Cambridge University
Cambridge (UK), 2022
Invited conference

Miriam Rico-Jiménez, Gloria Ceballos-Pérez, Claudia Gómez-Liñán and **Antonio M. Estévez**

An RNA-binding protein complex regulates the purine-dependent expression of the *Trypanosoma brucei* NT8 nucleobase transporter.
British Society for Parasitology Meeting.
Granada (Spain), 2020
Poster

Sandra M. Fernández Moya, Angélica García Pérez, Susanne Kramer, Anish Das, Vivian Bellofatto, Mark Carrington, and **Antonio M. Estévez**
Ribonómica en tripanosomas
V Reunión de la Red Temática Española de RNA
Oral presentation
Valencia (Spain), 2012

Antonio M. Estévez
Effects of RBP33 silencing on gene expression in *Trypanosoma bruce*i
European Meeting on Gene Expression in *Trypanosoma brucei*
Oral presentation
Würzburg (Germany), 2012

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

New pathways for gene expression control in trypanosomes
Ref.: 201920E114
Proyecto Intramural Especial del CSIC
P.I.: Antonio M. Estévez
10/2019 to 10/2022
165,596 €

Purine-dependent post-transcriptional regulation in trypanosomes
Ref.: BFU2014-55193-P
Ministerio de Economía y Competitividad. Subprograma Estatal de Generación de Conocimiento, Convocatoria 2014
P.I.: Antonio M. Estévez
01/2015 to 12/2018
151,250 €