

## BIOGRAPHICAL SKETCH

NAME Fernando Pastor		POSITION TITLE Research Assistant Professor. Head of the Aptamer Unit at CIMA	
eRA COMMONS USER NAME (credential, e.g., agency login)			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Oviedo Spain	BS	96/00	Biochemistry
University of Navarra Spain	PhD	02/06	Cellular and Molecular Biology
Clínica Universitaria de Navarra Spain	Residency	01/05	Clinical Immunology
Dotson Interdisciplinary Immunotherapy Institute (Miami, USA)	Postdoctoral	07/11	Tumor Immunology

### A. Personal statement.

The current research of my lab is based on developing novel strategies to enhance the antitumoral immune response by use of an emerging aptamer therapeutic platform. The main two aims of our research are to increase the antigenicity of the tumor and to potentiate the stimulation at the tumor site. Especially we are optimizing a novel approach to increase the antigenicity of the tumor by target inhibition of NMD by using aptamer-siRNAs chimeras. My group has experience in molecular and cellular biology with a specific training in aptamer oligonucleotide selection and delivery technology. Beside I have a background on tumor and clinical immunology which will allow us to translate the aptamer oligonucleotide targeting technology presented in the proposal to the cancer immunotherapy arena. In summary, I have a demonstrated record of productive research in various aspects of tumor immunology.

### B. Positions and Honors.

#### Positions and Employment

Years	Position, Place
2002-2006	Internal Residence in Clinical Immunology. Clínica Universitaria de Navarra. Spain
2007-2011	Posdoctoral Fellow. Dotson multidisciplinary Immunotherapy Institute. University of Miami. USA
2011-	Assistant Professor. Head of the Aptamer Unit. CIMA. Spain.

## Other Experience and Professional Memberships

2010 – American Association of Cancer Research  
2013 – American Society for Gene & Cell Therapy  
2015- International Society of Aptamers

## Honors

2014 Ramon y Cajal Award

## **C. Selected peer-reviewed publications and patent citations.** (Selected from more than 30 publications)

### 10 Most relevant to the current application

- 1- **Pastor F.**, Kolonias D., Giangrande P., Gilboa E. Induction of tumor immunity by targeted inhibition of nonsense mediated mRNA decay. *Nature* 2010; 465, 227–230.
  - 2- McNamara J., Kolonias D., **Pastor F.**, Mittler R., Chen L., Giangrande P., Sullenger B., and Gilboa E. Multivalent 4-1BB binding aptamers costimulate CD8+ T cells and inhibit tumor growth in mice. *J Clin Invest.* 2008; 118(1): 376–386.
  - 3- **Pastor F.**, Kolonias D., McNamara J., Gilboa E. Targeting 4-1BB costimulation to disseminated tumor lesions with bi-specific aptamers. *Mol Ther.* 2011 Oct 19(10):1878-86.
  - 4- Gilboa E, Mc Namara J, **Pastor F.** Use of oligonucleotide aptamer ligands to modulate the function of immune receptors. *Clinical Cancer Research.* 2013 Mar 1;19(5):1054-62
  - 5- **Pastor F\***, Soldevilla MM, Villanueva H, Kolonias D, Inoges S, de Cerio AL, Kandzia R, Klimyuk V, Gleba Y, Gilboa E, Bendandi M. CD28 aptamers as powerful immune response modulators. *Mol Ther Nucleic Acids.* 2013 Jun 11. \*Corresponding autor
  - 6- Soldevilla MM, Villanueva H, Bendandi M, Inoges S, López-Díaz de Cerio A, **Pastor F.** 2-fluoro-RNA oligonucleotide CD40 targeted aptamers for the control of B lymphoma and bone-marrow aplasia. *Biomaterials.* 2015 Oct;67:274-85
  - 7- S Hervas-Stubbs, MM Soldevilla, H Villanueva, U Mancheño, M Bendandi, **F Pastor.** Identification of TIM3 2'-Fluoro Oligonucleotide Aptamer by HT-SELEX for Cancer Immunotherapy. *Oncotarget* January 2016.
  - 8- T Lozano, MM Soldevilla, N Casares, H Villanueva, M Bendandi, JJ Lasarte, **F Pastor.** Targeting inhibition of Foxp3 by a CD28 2'-Fluoro oligonucleotide aptamer conjugated to P60-peptide enhances active cancer immunotherapy. *Biomaterials.* 2016 Jun; 91:73-80
  - 9- Soldevilla MM, Villanueva H, Casares N, Lasarte JJ, Bendandi M, Inoges S, López-Díaz de Cerio A, **Pastor F.** MRP1-CD28 bi-specific oligonucleotide aptamers: target costimulation to drug-resistant melanoma cancer stem cells. *Oncotarget.* 2016 Mar.
  - 10- O Rabal\*, **F Pastor\***, H Villanueva, MM Soldevilla, S Hervas-Stubbs, J Oyarzabal. In-silico aptamer docking studies. From a retrospective validation to a prospective case study: TIM3 aptamers binding. Accepted for publication in *Mol Ther Nucleic Acids.* 2016
- \*corresponding author, equally contributed.

**Patents relevant to the current application.**

14- Aptamer-Targeted siRNA to inhibit Nonsense Mediated Decay. E. Gilboa, F. Pastor. WO/2011/005566.

15- Aptamer-Targeted Costimulatory Ligand Aptamer. E. Gilboa, F. Pastor. WO/2010/144295

**D. Current Research Support**

Title: "Transforming EGFR expressing tumors into immune-rejectable tissues"

Fundación Ramón Areces

1/01/2017 -01/01/2021

Consortium member: Fernando Pastor

Title: "Identification of TCR and costimulatory receptor-specific aptamers to generate artificial TCR-signalosome/aptamer scaffolds"

MARIE SKLODOWSKA-CURIE INNOVATIVE TRAINING NETWORKS (ITN)

1/01/2017 -01/01/2020

Consortium member: Fernando Pastor

Title: "Turning cancer stem cells into endogenous vaccines".

Worldwide Cancer Research Award (AICR) 15-1208

10/1/2015-10/1/2018

PI: Fernando Pastor

Title: "Targeted inhibition of NMD and costimulation for combinatorial immunotherapy of hematological neoplasias"

at the tumor site.

Instituto Carlos III FIS I+D PI14/01611

1/1/2015 -1/1/2018

PI: Fernando Pastor

Title: "Development of RadioaptamiRs as new biotechnological tool for targeting therapy in metastatic tumors"

BIO2013-50458-EXP

01/09/2015-01/09/2017

PI: Alfonso Calvo

Role: Co-Investigator. I selected the Tmprss4 aptamer, and I am responsible for the generation of all the derived constructs.