



### 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	20/1/2024
First name	Carolina		
Family name	Tafalla		
Gender (*)	Female	Birth date (dd/mm/yyyy)	28/12/1973
Social Security, Passport, ID number	44963047W		
e-mail	tafalla@inia.csic.es	URL Web	www.inia.es
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-0860-2976		

(\*) Mandatory

#### A.1. Current position

Position	Professor (Profesor de Investigación OPIs)		
Initial date	17/2/2020		
Institution	INIA (CSIC)		
Department/Center	Animal Health Research Center (CISA)		
Country	Spain	Teleph. number	+34 916202300
Key words	fish, immune system, pathogens, vaccines, B cells		

#### A.2. Previous positions (research activity interruptions, see call)

Period	Position/Institution/Country/Interruption cause
26/09/07-16/2/20	Staff researcher ( <i>Científico titular</i> ) / CISA-INIA/ Spain
17/11/03-26/09/07	Ramon y Cajal researcher / CISA-INIA/ Spain
1/10/02-1/6/03	Marie Curie fellow / Centre de Recherche Jouy-en-Josas (INRA) / France
1/2/ 02-1/10/02	I3P contract / Instituto de Investigaciones Marinas (CSIC) / Spain
1/10/00-1/10/01	Postdoctoral grant CSIC / Xunta de Galicia / Instituto de Investigaciones Marinas (CSIC) / Spain
09/00-12/00	Fundación Caixagalicia grant / Centre de Recherche Jouy-en-Josas (INRA) / France
01/00-02/00	Xunta de Galicia grant / Virginia Institute of Marine Science / USA
02/99-05/99	Fundación Caixagalicia grant / Centre de Recherche Jouy-en-Josas (INRA) / France
01/97-01/00	Fundación Ramón Areces predoctoral grant / Instituto de Investigaciones Marinas (CSIC) / Spain
01/96 - 12/96	CSIC <i>iniciación a la investigación</i> grant / Instituto de Investigaciones Marinas (CSIC) / Spain

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor's in Biology	Universidad de Navarra / Spain	1996
PhD in Biology	Universidad de Santiago de Compostela / Spain	2000

#### Part B. CV SUMMARY

Dr. Carolina Tafalla is Professor (*Profesor de Investigación*) at the Animal Health Research Center (CISA-INIA) with more than 25 years of experience in the field of fish virology and immunology. She obtained her doctoral degree in Biology in 2000 from the *Universidad de Santiago de Compostela* focused on the innate immune response of turbot to viral hemorrhagic septicemia virus (VHSV) after



having worked for 3 and a half years at the *Instituto de Investigaciones Marinas* (IIM-CSIC) under the supervision of Dr. A. Figueras and Dr. B. Novoa. In 2002, she was granted a Marie Curie Individual Fellowship to work at the *Centre de Recherche de Jouy-en-Josas* (INRA, France) under the supervision of Dr. M. Brémont on molecular biology of fish rhabdoviruses. In 2003, she returned to Spain with a Ramón y Cajal contract and started the “Fish Immunology and Pathology” group at CISA-INIA currently comprising 2 staff researchers, 5 postdoctoral researchers, 3 technicians and 1 predoctoral student. She has published more than 128 papers in peer-reviewed SCI journals as well as 10 book chapters. Her h index is 38. She has also directed 6 doctoral thesis and presented 4 patents. Carolina Tafalla has been the principal investigator of several National projects (6) and different European projects including large collaborative projects such as Targetfish or ParaFishControl. In Targetfish, she was a member of the Steering Committee and Workpackage leader. In 2011, she was awarded an ERC Starting grant to phenotypically and functionally characterize B cell responses in fish. In 2017, she obtained an ERC Consolidator Grant to continue her work on fish B lymphocytes. In 2022, she obtained an ERC Proof-of-Concept Grant to bring closer to market a therapeutic strategy against proliferative kidney disease (PKD). From 2019 to 2022, she was a Collaborator of the Coordination, Evaluation and Scientific Monitoring Division (Agricultural and Food Sciences) at the Ministry of Science, Innovation and Universities. Currently, she is a member of the Agricultural Sciences Committee at CSIC. She is member of the editorial board of several prestigious international journals and since the 1<sup>st</sup> December 2023, she is Editor-in-Chief for Fish & Shellfish Immunology.

During this time, she has also been involved in training of scientific personnel at different stages of their career. She has supervised 3 master final works (TFM), 3 grade final works (TFG) and 6 doctoral thesis. Additionally she has trained an important amount of postdoctoral researchers including several *Juan de la Cierva* (3), *Ramon y Cajal* (1) and *CAM Talento* (2) researchers. Additionally, her group receives every year visits from many international researchers from all over the world (Japan, Portugal, Cuba, Peru, ...).

Throughout her scientific career, Carolina Tafalla has greatly contributed to increase our understanding of how the fish immune system is regulated, focusing in different periods in specific elements of the immune system, such as chemokines, dendritic cells or B cells. It has been on B cells where she has made major contributions in the field in the recent years, changing some pre-established paradigms, producing novel tools to study B cells, and characterizing for the first time in fish specific B cell subsets such as the IgD<sup>+</sup>IgM<sup>-</sup> B cells. Hence, her work has positioned her group among the leading groups in the world regarding fish B cell biology. Some of these studies have been published in prestigious general immunology journals, due to their developmental and comparative interest. Furthermore, this basic immune knowledge has been used for more applied purposes, also investigating new vaccine prototypes, novel adjuvants or therapeutic measures to decrease fish mortalities based on immune regulation. For this reason, she has also been involved in contracts with different companies (feeding, vaccine production), to transfer the immune knowledge gained throughout the years, into solutions that will increase the welfare and survival of aquacultured fish.

## Part C. RELEVANT MERITS

### C.1. Publications (CA corresponding author)

1. Herranz-Jusdado JG, Morel E, Simón R, Díaz-Rosales P, **Tafalla C** (CA). Teleost IgD<sup>+</sup>IgM<sup>-</sup> B cells in gills and skin have a plasmablast profile, but functionally and phenotypically differ from IgM<sup>+</sup>IgD<sup>-</sup> B cells in these sites. *iScience*. 2023 Jul 20;26(8):107434.
2. Morel E, Herranz-Jusdado JG, Simón R, ..., **Tafalla C** (CA) (11/11). Endoplasmic reticulum expansion throughout the differentiation of teleost B cells to plasmablasts. *iScience*. 2022 Dec 21;26(1):105854.
3. Simón R, Martín-Martín A, Morel E, Díaz-Rosales P, **Tafalla C** (CA). Functional and phenotypic characterization of B cells in the teleost adipose tissue. *Frontiers in Immunology* 2022 May 10;13:868551.
4. Perdiguero P, Morel E, **Tafalla C** (CA). Diversity of rainbow trout blood B cells revealed by single cell RNA sequencing. *Biology (Basel)*. 2021 Jun 9;10(6):511.
5. Perdiguero P, Morel E, Díaz-Rosales P, **Tafalla C** (CA). Individual B cells transcribe multiple rearranged immunoglobulin light chains in teleost fish. *iScience*. 2021;24(6):102615.



6. Perdiguero P, Gómez-Esparza MC, Martín D, Bird S, Soletto I, Morel E, Díaz-Rosales P, **Tafalla C (CA)**. Insights into the evolution of the *prdm1/Blimp1* gene family in teleost fish. *Frontiers in Immunology*. 2020;11:596975.
7. Perdiguero P, Martín-Martín A, Benedicenti O, ..., **Tafalla C (CA)** (11/11). Teleost IgD<sup>+</sup>IgM<sup>-</sup> B cells mount clonally expanded and mildly mutated intestinal IgD responses in the absence of lymphoid follicles. *Cell Reports*. 2019;29(13):4223-4235.
8. Muñoz-Atienza E, Aquilino C, Syahputra K, ..., **Tafalla C (CA)** (11/11). CK11, a teleost chemokine with a potent antimicrobial activity. *The Journal of Immunology*. 2019;202(3):857-870.
9. Abós B, Estensoro I, Perdiguero P, ..., **Tafalla C (CA)** (11/11). Dysregulation of B cell activity during proliferative kidney disease in rainbow trout. *Frontiers in Immunology*. 2018;9:1203.
10. Abós B, Bird S, Granja AG, Morel E, More Bayona JA, Barreda DR, **Tafalla C (CA)**. Identification of the first teleost CD5 molecule: additional evidence on phenotypical and functional similarities between fish IgM<sup>+</sup> B cells and mammalian B1 cells. *The Journal of Immunology*. 2018;201(2):465-480.

## C.2. Congress

1. C. Tafalla. Understanding fish B responses to combat infectious diseases 21<sup>st</sup> European Association of Fish Pathologists Conference in Aberdeen (UK). September 2023. Invited keynote presentation.
2. C. Tafalla. Novel insights on fish immunoglobulins and B cell subsets. Meeting of the Italian Society of Comparative Immunology. February 2023. Invited keynote presentation.
3. C. Tafalla. Prevención y tratamiento de las enfermedades víricas en acuicultura. Real academia de las Ciencias Veterinarias de España. June 2019. Invited conference.
4. P. Perdiguero, A. Martín-Martín, O. Benedicenti, P. Díaz-Rosales, E. Morel, E. Muñoz-Atienza, M. García-Flores, R. Simón, I. Soletto, A. Cerutti, C. Tafalla. Evidence of IgD-secreting plasmablasts with special molecular signatures in the intestine of teleost fish. Mucosal Health in Aquaculture 2019. Oslo (Norway). September 2019. Award to the best oral presentation.
5. C. Tafalla. Innate regulation of teleost B cells. BioAqua 2018. Varadero (Cuba). October 2018. Invited conference.
6. C. Tafalla. Fish B lymphocytes. Wageningen University (Wageningen, Holanda). Fish Immunology Workshop. April 2016, 2017, 2018. Invited conference.
7. C. Tafalla. Distinctive features of teleost B cells. CNB-CSIC, Madrid. June 2016. Invited conference.
8. C. Tafalla. Antigen presenting cells in fish. Tokyo, Japan. November 2016. Invited conference.

## C.3. Research projects

1. Green innovation strategies for animal health management: towards sustainable Aquaculture (GRINNAQUA). HORIZON-WIDERA-2021-ACCESS-03-01: Twinning. Funding entity: EU. Project coordinator: Dr. B. Costas (CIIMAR, Portugal). Role: PI at CISA-INIA. Duration: 2022-2025. Total amount: 219.000 euros.
2. Relation between the microbiota, diet composition and response to vaccination in rainbow trout. Principal investigator: Dr. C. Tafalla/ Dr. P. Díaz Rosales. CISA-INIA. Funding entity: Plan Estatal de Investigación Científica y Técnica y de Innovación (Ministerio de Ciencia e Innovación). Duration: 2022-2025. Total amount: 266.200 euros.
3. Blocking BAFF signaling to treat proliferative kidney disease (PKD) in trout (PKDcontrol). Principal investigator: Dr. C. Tafalla. CISA-INIA. Funding entity: ERC Proof-of-Concept Grant. Duration: 2022-2024. Total amount: 150.000 euros.
4. Teleost mucosal B1-like lymphocytes at the crossroad of tolerance and immunity. Principal investigator: Dr. C. Tafalla. CISA-INIA. Funding entity: ERC Consolidator Grant. Duration: 2017-2022. Total amount: 1.866.046 euros.
5. VetBioNet INFRAIA-01-2016-2017. Principal investigator: Dr. E. Blanco. CISA-INIA. Role: participant. Funding entity: EU H2020. Duration: 2017-2022. Total amount: 50.000 euros.
6. Advanced Tools and Research Strategies for Parasite Control in European farmed fish (ParaFishControl). EU H2020-634429. Project coordinator: Ariadna Sitja-Bobadilla. IATS-CSIC. Spain. Principal investigator: Dr. C. Tafalla. CISA-INIA. Funding agency: EU H2020. Duration: 2015-2020. Total amount: 195.050 euros.
7. Targeted disease prophylaxis in European fish farming (Targetfish). Project coordinator: Geert Wiegertjes. Wageningen University (Netherlands). Principal investigator: Dr. C. Tafalla. CISA-INIA. Funding entity: EU FP7. Duration: 2011-2016. Total amount: 302.394 euros.



8. Teleost B lymphocytes, the equivalent of mammalian B1 lymphocytes? Principal investigator: Dr. C. Tafalla. CISA-INIA. Funding entity: ERC Starting grant. Duration: 2011-2016. Total amount: 1.390.000 euros.
9. Search for effective adjuvants for oral vaccination of fish. Principal investigator: Dr. C. Tafalla / Dr. P. Díaz-Rosales. CISA-INIA. Funding entity: Plan Nacional (Ministerio de Ciencia, Innovación y Universidades). Duration: 2018-2020. Total amount: 157.300 euros.
10. Immune role of fish CD8+ dendritic cells in disease and vaccination. Principal investigator: Dr. C. Tafalla. CISA-INIA. Funding entity: Plan Nacional (Ministerio de Ciencia, Innovación y Universidades). Duration: 2015-2017. Total amount: 165.000 euros.

#### C.4. Contracts, technological or transfer merits

##### Contracts

1. Contract between INIA-CSIC and the company Hipra to evaluate the immune response of sea bass to vaccination. Type of contract: Agreement. 7.341 euros. December 2023-December 2024. Principal investigator: C. Tafalla. N° of researchers: 1.
2. Potential antivirals as complements for aquaculture fish feeds. Type of contract: Agreement. 234.900 euros. December 2022-December 2026. Principal investigator: C. Tafalla. N° of researchers: 1.
3. Contract between INIA-CSIC and the company AQUATRECK to evaluate the efficacy of antiviral fish vaccines. Type of contract: Agreement. 94.775 euros. January 2022-July 2023. Principal investigator: C. Tafalla. N° of researchers: 1.
4. Potential antivirals as complements for aquaculture fish feeds. Type of contract: Agreement. Funding entity or bodies: Skretting ARC (Norway). Participating entities: Centro de Investigación en Sanidad Animal (CISA-INIA). Duration: 2019 - 2023. Total amount: 165.000€. Principal investigator: C. Tafalla. N° of researchers: 1.
5. Potential antivirals as complements for aquaculture fish feeds. Type of contract: Agreement. Funding entity or bodies: Skretting ARC (Norway). Participating entities: Centro de Investigación en Sanidad Animal (CISA-INIA). Duration: 2019 - 2023. Total amount: 165.000€. Principal investigator: C. Tafalla. N° of researchers: 1.
6. Potential antivirals as complements for aquaculture fish feeds. Type of contract: Agreement. Funding entity or bodies: Skretting ARC (Norway). Participating entities: Centro de Investigación en Sanidad Animal (CISA-INIA). Duration: April 2015 - April 2019. Total amount: 200.000€. Principal investigator: C. Tafalla. N° of researchers: 1.

##### Patents

7. Inventors: **C. Tafalla**, E. Muñoz-Atienza, C.J. Secombes, M. Faber, J.W. Holland. Title: Estrategia de bloqueo de la interacción de BAFF con su receptor (BAFF-R) como tratamiento para la enfermedad proliferativa del riñón que cursa con inflamación mediada por células B en peces. N° of application: ES3041.6. Priority country: Spain. Entity holder of rights: INIA (70%) and University of Aberdeen (30%).
8. Inventors: M. P. Estrada García, J. M. Lugo González, Y. Carpio González, **C. Tafalla**. Title: Use of PACAP for treating viral infections in aquatic organisms. N° of application: 2010-0233/PCT/CU2011/000008. Priority country: Cuba and United States of America. Priority date: 01/12/2010 - 30/11/2011. Entity holder of rights: Centro de Ingeniería Genética y Biotecnología, La Habana (Cuba).
9. Inventors: M. Mockey, L. Dedieu, **C. Tafalla**, A. Cuesta. Title: Administración oral de DNA mediante el uso de liposomas cubiertos de alginato (Nouveaux liposomes de vaccination génique). N° of application: 1003622. Priority country: Europe and Chile. Priority date: 10/09/2010. Entity holder of rights: CIRAD (70%), INIA (30%).
10. Inventors: **C. Tafalla**, J. Coll. Title: Utilización de un vector codificando la interleuquina 8 de trucha como inmunoestimulante o adyuvante para vacunas en peces. N° of application: 200700563. Priority country: Spain. Priority date: 02/03/2007. Entity holder of rights: INIA.