

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

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|--|--|----------------------------|------------|
| First name | Felipe | | |
| Family name | Espigares Puerto | | |
| Gender (*) | Male | Birth date (dd/mm/yyyy) | 19/04/1983 |
| Social Security, Passport, ID number | 53573509T | | |
| e-mail | felipe.espigares@csic.es | URL Web | |
| Open Researcher and Contributor ID (ORCID) (*) | | 0000-0002-6122-9031 | |

(*) Mandatory

A.1. Current position

| | | | |
|-------------------|---|--|---------------|
| Position | Ramón y Cajal Researcher | | |
| Initial date | 01/04/2024 | | |
| Institution | Consejo Superior de Investigaciones Científicas (CSIC) | | |
| Department/Center | Fish Physiology and Biotechnology | Instituto de Acuicultura de Torre de la Sal (IATS) | |
| Country | Spain | Teleph. number | +34 633471888 |
| Key words | fish; aquaculture; welfare; behavior; neural circuits; neuroendocrinology; physiology | | |

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

| Period | Position/Institution/Country/Interruption cause |
|-------------------------|--|
| 21/05/2022 – 31/01/2024 | <u>Position:</u> Postdoctoral Researcher; <u>Institution:</u> National Institute of Genetics (NIG); <u>Country:</u> Japan |
| 01/02/2021 – 31/01/2022 | <u>Position:</u> Marie Curie Postdoctoral Researcher; <u>Institution:</u> Instituto Gulbenkian de Ciência (IGC); <u>Country:</u> Portugal. |
| 01/02/2019 – 31/01/2021 | <u>Position:</u> Marie Curie Postdoctoral Researcher; <u>Institution:</u> National Institute of Genetics (NIG); <u>Country:</u> Japan. |
| 01/03/2016 – 12/12/2018 | <u>Position:</u> Marie Curie Postdoctoral Researcher; <u>Institution:</u> Instituto Gulbenkian de Ciência (IGC); <u>Country:</u> Portugal. |
| 01/06/2009 – 14/12/2015 | <u>Position:</u> CSIC-JAE-PreDoc PhD Student; <u>Institution:</u> Instituto de Acuicultura de Torre la Sal (IATS-CSIC); <u>Country:</u> Spain. |

A.3. Education

| PhD, Licensed, Graduate | University/Country | Year |
|--|--------------------------------|------|
| PhD in Marine Resources | University of Valencia (Spain) | 2015 |
| Master's degree in Aquaculture and Fisheries | University of Cádiz (Spain) | 2008 |
| Bachelor's degree in Marine Sciences | University of Cádiz (Spain) | 2008 |

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

In 2009, I was awarded a prestigious competency-based Predoctoral Fellowship (CSIC-JAE-Predoc), which enabled me to work in the field of **fish reproduction and neuroendocrinology** at the Instituto de Acuicultura de Torre de la Sal (IATS-CSIC, Spain). My PhD focused on the characterization of the molecular and neuroendocrine mechanisms triggered by kisspeptins in the brain of European sea bass (*Dicentrarchus labrax*) in relation to puberty and fertility, under the supervision of Prof. Silvia Zanuy. During this period, I expanded my skills with a wide variety of scientific techniques used in fish neuroendocrinology and physiology (e.g. DNA cloning, Real-time quantitative PCR, immunohistochemistry, hormonal analysis, cell culture techniques). In 2012, I was **awarded a competency-based Mobility Fellowship (Short-term Stay Fellowship JAE Predoc)**, following which I transferred to the Department of Neurogenesis and Oestrogens (Université de Rennes 1, France). Prof.

Olivier Kah supervised my training there, during which I acquired a comprehensive knowledge of **fish neuroanatomy**. I became experienced with fluorescence *in situ* hybridization analysis. I completed my PhD with 9 publications in international peer-reviewed journals, including 5 as first author (see publications nº 6 – 10).

Shortly after finishing my PhD, in 2016, **I was awarded a Marie Skłodowska-Curie Individual European Fellowship**, following which I joined Prof. Rui Oliveira's Integrative Behavioral Biology Group (Instituto Gulbenkian de Ciência, Portugal). There, I studied the behavioral and physiological mechanisms involved in judgment bias and their role in triggering the stress response in zebrafish (*Danio rerio*). I also benefited from a **European secondment** under the supervision of Prof. Øyvind Øverli at the Norwegian University of Life Sciences (NMBU), which provided me with intensive training in the analysis of monoamine neurochemistry by HPLC. At Rui Oliveira's laboratory, I acquired several important skills and knowledge in the field of **fish behavior (e.g. assessment of behavioral traits, anxiety, affective state)**. Notably, I developed and validated, for the first time in a fish species, a behavioral assay to measure judgment bias in zebrafish that allow to categorize them in an optimistic/pessimistic dimension. Some of the work related to my first Postdoc is already published (see publications nº 3 – 5).

In 2019, **I was awarded a Marie Skłodowska-Curie Global Fellowship**, following which I joined Prof. Koichi Kawakami's laboratory (National Institute of Genetics, Japan). At NIG (outgoing phase), I aimed to characterize the specific neural circuits underlying judgment bias. For this purpose, I developed a transgenic zebrafish that enable the genetic labelling of cfos-active neurons, allowing a precise dissection of functional brain circuits. During the return phase (IGC, Portugal), I conducted research analyzing how the social environment influences cancer progression in a zebrafish melanoma model (see publication nº 1). Altogether, this postdoctoral training enabled me to acquire several important skills, knowledge and expertise in **molecular genetics (e.g. Tol2-mediated transgenesis and CRISPR/Cas9 technology)** as well as strengthen my expertise in fish behavior. In 2018, I also conducted a research project as Principal Investigator, which was funded **by the Portuguese Fundação para a Ciência e a Tecnologia (FCT)**. My project's main aim was to test the role of judgment bias in the vulnerability to stress dysregulation and its specific detrimental consequences throughout an organism's lifespan, which included the effects of judgment bias on cancer progression and sex determination, using zebrafish and European sea bass as research models. Some of the work related to this project is already published (see publication nº 1), while another study is currently under revision. This FCT project allowed me **to supervise and mentor the early postdoctoral researcher** (M. Victoria Alvarado; 47 months) hired to work on the project. This project also enabled me to contribute and supervise, as a senior author, the adaptation of the judgment bias test to the European sea bass, revealing the importance of these type of behavioral assays in measuring the affective state of cultured fish and their applications for fish welfare (see publication nº 2). In fact, this work has proven to be of **great interest to the general public**, as it has been **publicized through press releases sent to several media** (Casa de la Ciencia, Agencia Iberoamericana para la Difusión de la Ciencia y la Tecnología, IPac Aquicultura, AquaHoy, misPeces, El Periódico Mediterráneo, interview on the RTVE program's "Españoles en la mar"). Finally, I have recently been awarded a **Ramón y Cajal Grant (Score: 89.4/100)** and a **R3 certification (Score: 86/100) as an established researcher** that enabled me to join IATS-CSIC to **establish my own line of research**.

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

C.1. Publications (**corresponding author*)

1. Alvarado, M.V., Cerdá-Reverter J.M., **Espigares, F.*** (2025). A functional framework for a comprehensive study of welfare in fishes. PROCEEDINGS OF THE ROYAL SOCIETY B: BIOLOGICAL SCIENCES, 292:20251833 (doi: 10.1098/rspb.2025.1833).
2. **Espigares, F.**, Alvarado, M.V., Abad-Tortosa, D., Varela, S.A.M., Sobral, D., Faisca, P., Paixao, T., Oliveira, R.F.* (2025). Optimistic and pessimistic cognitive judgement bias modulates the stress response and cancer progression in zebrafish. *TRANSLATIONAL PSYCHIATRY*, 15:111 (doi: 10.1038/s41398-025-03311-9).
3. Alvarado, M.V., Felip A., **Espigares, F.* †**, Oliveira, R.F.* † (2023). Unexpected appetitive events promote positive affective state in juvenile European sea bass. *SCIENTIFIC REPORTS*, 13: 22064 (doi: 10.1038/s41598-023-49236-5). †co-senior authors.
4. **Espigares, F.**, Alvarado, M.V., Faisca, P., Abad-Tortosa, D., Oliveira, R.F.* (2022). Pessimistic

- cognitive bias is associated with enhanced reproductive investment in female zebrafish. *BIOLOGY LETTERS*, 18: 20220232 (doi: 10.1098/rsbl.2022.0232).
5. **Espigares, F.**, Martins, R.R., Oliveira, R.F.* (2022). A novel behavioural assay to investigate judgment bias in zebrafish. *BIO-PROTOCOL*, 12: e4327-e4327 (doi: 10.21769/BioProtoc.4327).
 6. **Espigares, F.**, Abad-Tortosa, D., Varela, S.A.M., Ferreira, M.G., Oliveira, R.F.* (2021). Short telomeres drive pessimistic judgment bias in zebrafish. *BIOLOGY LETTERS*, 17: 20200745 (doi: 10.1098/rsbl.2020.0745).
 7. **Espigares, F.**, Rocha, A., Gómez, A., Carrillo, M.*, Zanuy, S.* (2017) Photoperiod modulates the reproductive axis of European sea bass through regulation of *kiss1* and *gnrh2* neuronal expression. *GENERAL AND COMPARATIVE ENDOCRINOLOGY*, 240: 35-45 (doi:10.1016/j.ygcen.2016.09.007).
 8. **Espigares, F.**, Zanuy, S., Gómez, A.* (2015) Kiss2 as a regulator of Lh and Fsh secretion via paracrine/autocrine signaling in the teleost fish European sea bass (*Dicentrarchus labrax*). *BIOLOGY OF REPRODUCTION*, 93: 114 (doi:10.1095/biolreprod.115.131029).
 9. **Espigares, F.**, Rocha, A., Molés, G., Gómez, A., Carrillo, M.*, Zanuy, S.* (2015) New insights into the factors mediating the onset of the puberty in sea bass (*Dicentrarchus labrax*). *GENERAL AND COMPARATIVE ENDOCRINOLOGY*, 224: 176-185 (doi:10.1016/j.ygcen.2015.08.013).
 10. Felip, A.†*, **Espigares, F.†**, Zanuy, S., Gómez, A. (2015) Differential activation of kiss receptors by Kiss1 and Kiss2 peptides in the sea bass. *REPRODUCTION*, 150: 227-43 (doi:10.1530/REP-15-0204). †*These authors contributed equally to this work.*
 11. **Espigares, F.**, Carrillo, M., Gómez, A., Zanuy, S.* (2015) The forebrain-midbrain acts as functional endocrine signaling pathway of Kiss2/Gnrh1 system controlling the gonadotroph activity in the teleost fish European sea bass (*Dicentrarchus labrax*). *BIOLOGY OF REPRODUCTION*, 92: 70 (doi:10.1095/biolreprod.114.125138).
 12. **Espigares, F.**, Tanabe, H., Kawakami, K.* Activation of androgen receptor-positive neurons during mating behavior revealed by ZEBRANT a novel neuronal activity reporting system in zebrafish. *In preparation*.

C.2. Congress (presenting author underlined)

1. **Espigares, F.**, Tanabe, H., Kawakami, K. A transgenic zebrafish for genetic visualization of functionally activated circuitry in the brain. 12th European Zebrafish Meeting (9-13 July 2023). Krakow, Poland. Oral presentation.
2. **Espigares, F.**, Tanabe, H., Kawakami, K. A transgenic zebrafish for genetic visualization of functionally activated circuitry in the brain. 28th Japanese Medaka and Zebrafish Meeting (1-2 September 2022). Osaka, Japan. Oral presentation.
3. **Espigares F.**, Abad-Tortosa D., Ferreira T., Ferreira M.G., Oliveira R.F. Neural mechanisms of cognitive bias and health consequences. The 14th International Zebrafish Conference (12-16 June, 2019). Suzhou, China. Poster presentation.
4. **Espigares, F.**, Oliveira, R.F. Cognitive bias: new perspectives from a novel behavioral test in zebrafish. 47th Annual Meeting of the Society for Neuroscience (11-15 November 2017), Washington DC, USA. Poster presentation.
5. **Espigares, F.**, Abad-Tortosa, D., Ferreira T., Godinho-Ferreira, M., Oliveira, R.F. Susceptibility of optimistic and pessimistic individuals to detrimental effects of chronic stress. 21st Annual Meeting of the Society for Behavioral Neuroendocrinology (11-14 June 2017), Los Angeles, USA. Poster presentation.
6. **Espigares, F.**, Abad-Tortosa, D., Ferreira T., Godinho-Ferreira, M., Oliveira, R.F. Cognitive bias and cellular aging: impact of stress perception on telomere length. 35th International Ethological Conference (30 July-4 August 2017), Estoril, Portugal. Oral presentation.
7. **Espigares, F.**, Gómez, A., Carrillo, M., and Zanuy, S. Kiss2 acts at various levels of the reproductive axis in a teleost fish species. 8th International Symposium of Fish Endocrinology (28 June-2 July 2016), Gothenburg, Sweden. Poster presentation.
8. **Kah, O.**, Escobar, S., **Espigares, F.**, Alvarado, V., Servili, A., Felip, A., Gómez, A., Carrillo, M., Zanuy, S. An overview of kisspeptins in European sea bass. (**Invited Plenary lecture**).

International symposium on Reproductive Biology and Comparative Endocrinology (25-27 February 2015), Varanasi, India. Oral presentation.

9. Kah O., Espigares, F., Escobar, S., Alvarado, M.V, Gueguen, M.M., Felip, A., Servili, A., Gómez, A., Carrillo, M., Zanuy, S. Kisspeptins in the brain of the European sea bass: expression, regulation and putative functions (**Invited State of the Art Lecture**). 10th International Symposium on Reproductive Physiology of Fish, (25-30 May 2014), Olhão, Portugal. Oral presentation.
10. Carrillo, M., Espigares, F., Escobar, S., Rodríguez, R., Gómez, A., Zanuy, S. Puberty in sea bass: Environmental control and endocrine aspects (**Invited Closing lecture**). 10th International Symposium on Reproductive Physiology of Fish (25-30 May 2014), Olhão, Portugal. Oral presentation.

C.3. Research projects

Role as Principal investigator (PI)

1. Neuroethological perspectives on sociosexual communication in fish: advances toward more efficient and sustainable reproduction (FISHCOMM; PID2024-158295NA-I00) (2025). **Funded by the Spanish Ministry of Science and Innovation**. Project duration: 1/12/2025 to 30/11/2028. Amount funded: € 180,690
2. Neural mechanisms and health consequences of cognitive bias along the life-span (COGBIAS; Ref.: PTDC/BIA-COM/31010/2017) (2018). **Funded by the Fundação para a Ciência e a Tecnologia (FCT)** (central Portuguese governmental institution responsible for the financing of research). Project duration: from 1/10/2018 to 31/8/2022. Amount funded: € 239,861.

Role as Co-Principal investigator (Co-PI)

3. Neural circuitry and health consequences of cognitive bias (COGBIAS; Ref.: 795765) (2019). **Funded by the H2020 Programme of the EC/ Marie Skłodowska-Curie actions (MSCA); Global Fellowship**. PI / supervisor: Prof. Rui Oliveira (Instituto Gulbenkian de Ciência). Project duration: from 1/2/2019 to 31/1/2022. Amount funded: € 270,862.
4. Neural mechanisms of cognitive bias and its role in the triggering of the stress response in zebrafish (BIASTRESS; Ref.: 703285) (2016). **Funded by the H2020 Programme of the EC/ Marie Skłodowska-Curie actions (MSCA); Intra-European Fellowship**. PI / supervisor: Prof. Rui Oliveira (Instituto Gulbenkian de Ciência). Project duration: from 1/5/2016 to 30/4/2018. Amount funded: €160,636.

Role as investigator

5. Involvement of taste sensing mechanisms in the regulation of feed intake of fish (FISHTASTE; PID2022-136288OB-C33) (2023). **Funded by the Spanish Ministry of Science and Innovation**. PI: Dr. Jose Miguel Cerdá-Reverter (IATS-CSIC). Project duration: 1/9/2023 to 31/8/2026. Amount funded: €242,690.
6. Indicators of cumulative stress in Mediterranean aquaculture species (ESTRESCALE; GVA-THINKINAZUL/2021/025) (2022). **Funded by the Generalitat Valenciana**. PI: Dr. Jose Miguel Cerdá-Reverter (IATS-CSIC). Project duration: 1/1/2022 to 31/12/2024. Amount funded: €178,500.
7. Functional characterisation of Kiss/Gpr54 system in European sea bass (*Dicentrarchus labrax*): Role of kisspeptins in endocrine and environmental control of puberty (KISSCONTROL; AGL2009-11086) (2010). **Funded by the Spanish Ministry of Science and Innovation**. PIs: Dr. Alicia Felip and Prof. Manuel Carrillo (IATS-CSIC). Project duration: 1/1/2010 to 31/12/2012. Amount funded: €205,700.
8. Building a biological knowledge-base on fish lifecycles for competitive, sustainable European aquaculture (LIFECYCLE; FP7222719) (2009). **Funded by the 7th Framework Programme of the EU (Large-Scale Integrating Project)**. Coordinator: Prof. Thrandur Björnsson (Göteborg University). PI at IATS: Prof. Silvia Zanuy (IATS-CSIC). Project duration: from 1/2/2009 to 31/7/2013. Amount funded: €406,242.
9. Functional aspects of the thyroid system in sole (*Solea senegalensis*): interaction with osmoregulating, stress and metamorphic processes (AGL2007-61211/ACU) (2007). **Funded by the Spanish Ministry of Education and Science**. PI: Prof. Juan Miguel Mancera (University of Cádiz). Project duration: from 1/9/2007 to 31/2/2010. Amount funded: €95,590.