Universidad de Cádiz

Facultad de Ciencias del Mar y Ambientales
Departamento de Biología

Campus Río San Pedro
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Dr. José Antonio Muñoz-Cueto

PREDOCTORAL CONTRACT OFFER (4 YEARS)
Ref. PID2021-123640OB-C22

TITLE OF THE PROJECT: *BBLUE-AQUA: Improved sustainability & fish welfare through harmonisation between environmental cycles and biological rhythms* (Funding from the Spanish Ministry of Science and Innovation, Ref. PID2021-123640OB-C22).

ABSTRACT AND OBJECTIVES: The ever-growing human population requires a huge food demand and aquaculture is the world fastest growing food production sector. Actually, over 50% of sea food is provided by fish farms, while fisheries remain stuck since 1980´s. However, there is increasing concern about the sustainability of aquaculture and its impact in the environment and fish wellbeing. The **main objective of BBLUE-AQUA** is to deepen our scientific understanding on the sensing and entraining mechanisms of biological rhythms by key cyclic environmental factors such as light and temperature, and evaluate their impact on the fish growth performance, physiology, reproduction and welfare. In particular, the voluntary selection of light and temperature will be investigated in fish in a thermal gradient and different light spectra using different models (diurnal, nocturnal and blind fish), evaluating their thermotolerance and sensing mechanisms. The project to be carried out by the candidate also develops cutting-edge research and techniques of cell biology and molecular biology (development of new bio-luminescent cell lines, targeted mutagenesis) in marine fish cell cultures, using different light wavelengths and photoperiods to investigate the role of non-visual opsins in light sensing and in synchronising the cellular clock. Research will be focused in fish species with aquaculture interest, as well as basic models, depending on the specific objectives. S&T knowledge transfer will be paramount towards the development of blue aquaculture that integrates new biotechnologies and sustainable systems in an innovative way.

TECHNICAL AND SCIENTIFIC PROFILE OF THE PREDOCTORAL CANDIDATE

- The project has a significant workload in relation to larval fish culture, handling, maintenance and sampling of developing and adult experimental animals (seabream, sole), development of cell culture and molecular biology techniques (development of new bio-luminescent cell lines, targeted mutagenesis, gene expression), as well as morphofunctional techniques (immunohistochemistry, *in situ* hybridization) to localize the input, clock and output elements of the circadian system. Therefore, knowledge and experience in fish culture, cell culture, cellular, molecular biology and morphofunctional techniques, as well as some verifiable background in environmental physiology, chronobiology and/or neuroendocrinology, will be positively assessed.

- The candidate should also have good language skills in English (speaking, writing and reading).

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FORMALIZATION OF APPLICATIONS

- The deadline for the formalization of applications is **16 November 2023.**

- Details of the call can be found at the following webpages:
  - https://planpropioinvestigacion.uca.es/contratos-predoctorales-asociados-a-proyectos-y-rc-fpi-2023/
  - https://www.juntadeandalucia.es/eboja/2023/200/BOJA23-200-00045-15934-01_00290908.pdf

- To apply to the predoctoral contract is a requisite to request the pre-acceptation in the Doctorate Programme of Marine Sciences and Technologies of the University of Cádiz, following the next steps:
  - Access the Doctorate website of the University of Cadiz https://posgrado.uca.es/doctor/index.php
  - Choose the language (Spanish or English) from the pull-down menu in the top right-hand corner.
  - In the pull-down tab "**Convocatoria**" ("**Year**" in the English version), select the academic year 2024/25.
  - Go to the tab "**Alta de nuevo usuario**" ("**New user registration**" in the English versión).
  - Fill in the personal data requested and define an access password.
  - The Doctorate Unit will provide you the user credentials which, together with the password defined and the instructions provided, will allow the pre-enrolment in the Doctorate Programme in Marine Sciences and Technologies of the UCA.

- The application for the predoctoral contract must be formalised electronically at the website https://sedelectronica.uca.es/procedimientos/?proc=415, by accessing the tab "**Iniciar trámite**". For foreign applicants and those who have any problem related to their digital certificate, the Centralised Key System of the University of Cadiz will be enabled. To do this, the applicant must send an email to rrhh.investigacion@uca.es indicating their interest in applying to the selective process for the recruitment of predoctoral staff in this call and request their access codes as a user (**Usuario** y **Clave**). In the e-mail sent, you must attach a copy of your NIF/NIE/Passport or identification document, name, first surname, second surname (optional) and e-mail address. Once the applicant is registered for access, they will be sent the link to obtain their user password from the email account rrhh.investigacion@uca.es.

CONTACT PERSONS

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