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CENTRO NACIONAL DE BIOTECNOLOGÍA

CENTRO NACIONAL DE BIOTECNOLOGÍA (CNB)

Candidate for a Postdoctoral Juan de La Cierva

Logic of Genomic Systems Laboratory

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Limits on Phenotypic Prediction: Aging as complex Phenotype

Aging represents a multifaceted biological process shaped by numerous genetic factors and environmental stimuli. This prompts consideration about the existence of *latent* variables capable of simplifying this intricate phenomenon and aiding in the interpretation and prediction of the aging phenotype. Among these potential variables, energy emerges as a significant candidate. Our preliminary research in the laboratory has substantiated this hypothesis, leveraging genome-wide metabolic models [1]. Presently, we are in the process of establishing an experimental framework to investigate the impact of energy on aging in the nematode *Caenorhabditis elegans*. This endeavor involves the development of pertinent energy reporters and the implementation of an *in-house* tracking system for precise nematode navigation.

We are currently seeking a two-year postdoctoral researcher through the Juan de La Cierva program to contribute to the advancement of this project. We are particularly interested in candidates with a background in physics, mathematics, or engineering, who possess a keen interest in the development of quantitative experimental biology. Alternatively, we welcome applications from biologists or biotechnologists with expertise in *C. elegans* and a strong desire to apply a more quantitative approach to Biology. The overarching goal of our lab is to foster a principled understanding of function and prediction in Biology [2].

Some recent references.

[1] Alonso-Lavin, Alvar J., Djordje Bajić, and Juan F. Poyatos. 2021. 'Tolerance to NADH/NAD+ Imbalance Anticipates Aging and Anti-Aging Interventions'. *iScience* 24 (7): 102697.

[2] Yubero, Pablo, Alvar A. Lavin, and Juan F. Poyatos. 2023. 'The Limitations of Phenotype Prediction in Metabolism'. *PLOS Computational Biology* 19 (11): e1011631.

Candidates may informally contact Dr Juan F. Poyatos (jpoyatos at cnb.csic.e) and send a CV plus motivation letter at their earliest convenience to meet the application deadlines.

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