ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DIPARTIMENTO
DI FARMACIA
E BIOTECNOLOGIE

AVVISO DI SEMINARIO

Il giorno **27 Febbraio 2024**
alle ore **14.00**

Dott. Nicola Facchinello

Istituto di Neuroscienze (CNR), Padova
(ospite di Prof. Giovanni Perini)

terrà un seminario dal titolo:

CRISPR/Cas9 technology in zebrafish: an efficient approach for human genetic diseases modeling.

in presenza:
Aula Ex Esercizi, via San Giacomo 12, Bologna BO

e in streaming:
https://teams.microsoft.com/l/meetup-join/19%3aN09c0NlyEssBnF7ObCyDOQwkgDWm1qdd9f7F2nJV9fw1%40thread.tacv2/1631519544944?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%225a941351-ef41-4aa4-8771-fa50a6d62ca1%22%7d

Colleghi e studenti sono cordialmente invitati

ABSTRACT

The zebrafish continues to captivate the research community and serves as an ideal in vivo model, owing to its transparency, high manipulability, versatility, and the availability of a range of genetic tools. These attributes enable researchers to address fundamental biological questions at a whole-organism level. In addition to classical approaches, recent technological advances in zebrafish disease modeling have centered on precision genome editing through CRISPR/Cas9 technology.

In zebrafish, it allows the rapid generation of knockout lines by simply injecting a guide RNA and Cas9 protein into one-cell stage embryos. Specifically, we employed tissue-specific CRISPR to uncouple tissue-specific functions and study cell-autonomous functions in tissues during development.

Our focus included the application of this technique to the cdkl5 gene, responsible for encoding the Cyclin-Dependent-Kinase-Like-5 enzyme, mutations of which are linked to CDKL deficiency disorder (CDD). We elucidate the pathophysiological mechanisms associated with the lack of Cdkl5, employing the CRISPR/Cas9 technique to generate a zebrafish cdkl5-/- mutant line and characterizing the morphological, behavioral, and neurophysiological alterations associated. The current successes in this area make it even more exciting to look forward to new disease models and tools to investigate them, resulting in more robust, representative and predictive preclinical models.

BIOGRAPHICAL SKETCHES

Nicola Facchinello is currently a research scientist at the Neuroscience Institute (CNR) in Padova. He obtained a master's degree in biotechnology and a Ph.D. in Biotechnology from the University of Padova. He has a longstanding experience in cell biology, mouse and zebrafish manipulation, with a deep interest in human disorders. Throughout my career, I have been mainly focused on a wide range of mechanisms acting during neural, cardiovascular, muscular, cancer and endocrine development. My expertise allowed to combine the CRISPR/Cas9 with pathway-responsive zebrafish lines and imaging techniques for the detailed visualization of developmental and physio-pathological processes.
A complete list of his publications is available here: https://orcid.org/0000-0003-4898-4064

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