Postdoctoral position: "Targeting long non-coding RNAs in brain cancer"

Project: "National Center for Gene Therapy and Drugs based on RNA Technology" - Spoke 6 "RNA drug development"
Contract type: research fellowship, competitive salary
Duration: 12 months (renewable for 1 year)
Location: Institute of Molecular Biology and Pathology of the National Research Council (IBPM-CNR) - Rome
Tentative activity start date: November 2023 - February 2024

THE INSTITUTE

IBPM offers a stimulating and interdisciplinary scientific environment. Research revolves around biological macromolecules, approached using a combination of experimental and computational methods to identify molecular targets and elucidate their structure, dynamics, regulation, function, and evolution. IBPM labs unite a diverse community of scientists, including molecular biologists, geneticists, pathologists, chemists, and structural biochemists. IBPM is located at Sapienza University of Rome, in collaboration with several academic departments.

THE TEAM

Our interdisciplinary group arises from a targeted collaboration, bringing together molecular biologists and biochemists to conduct joint research under the framework of the PNRR-CN3 project. External collaborations with genomic technologists and computational scientists add further potential to this research initiative.
This research is led by Dr. Pietro Laneve and Dr. Pierpaolo Ceci. Dr. Laneve brings extensive experience on the most relevant methodologies for RNA analysis and boasts a well-established scientific track record in characterizing the function of non-coding RNAs in neuronal systems. Dr. Ceci specializes in nanobiotechnology, nanomedicine and biomedicine. Recombinant human nanoferritins are routinely designed, produced and characterized in Dr. Ceci's laboratory in order to exploit them in the field of drug-delivery.

ACTIVITY

The plan is to study the role of pathological long noncoding RNAs in the pediatric cerebellar tumor Medulloblastoma, and to develop a highly efficient delivery system for targeting them, in view of an RNA-based drug therapy. The post-doctoral fellow will be responsible for experimental activities including:
- Optimization and test of long non-coding RNA targeting molecules (ASOs, siRNAs…)
- Functional analysis of long noncoding RNAs in Medulloblastoma
- Production of recombinant human ferritins by Escherichia coli fermentation and biochemical purification
- Ferritin-RNA complexes production
- Biochemical/biophysical characterization of Ferritin-RNA complexes

CANDIDATE PROFILE

- Background in molecular or chemical biology
- PhD in molecular biology, biotechnology, biochemistry, or related disciplines
- Ability to report, organize and publish research data

Other priorities

- Experience in cell manipulation and gene expression analyses
- Skills in RNA and protein manipulation, management of -omic datasets, confocal microscopy

Attitudes

Strong communication skills, willingness to collaborate, problem-solving abilities, motivation to learn, effective time and priority management

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BIBLIOGRAPHY

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Laneve P. et al., Front Pediatr (2019) doi: 10.3389/fped.2019.00067
Deng G. et al., Cancer Med (2023) doi: 10.1002/cam4.5778
Falvo E. et al., J Exp Clin Cancer Res. (2021) doi: 10.1186/s13046-021-01851-8x