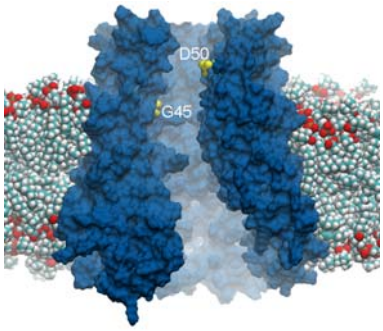
Two postdoctoral positions to work on therapeutic approaches for rare diseases caused by aberrant connexin hemichannels



Overview: Two postdoctoral position are available to work on a project titled "*A therapeutic approach for rare genodermatoses caused by aberrant connexin hemichannels*" funded by a grant awarded to **Professor Fabio Mammano**[1] (PI) by Italy's **Fondazione Telethon**[2]. Each one is a one-year position with the expectation of being renewed for a second year pending satisfactory performance. Applicant evaluation will begin immediately, with **proposed contract starting date on Dec 1st, 2019**.

Lab and Project: The Mammano Lab is focused on the development of translational approaches for orphan diseases linked to connexin dysfunction, that improve therapeutic outcomes, increase patient compliance, and minimize negative side effects. The Lab is located in the **Institute of Biochemistry and Cell Biology (IBBC)**[3] of the **National Research Council (CNR)** with sites in **Naples** and **Rome** (Monterotondo), Italy. The funded project will be carried out in close collaboration with the **Shanghai Institute for Advanced Immunochemical Studie**[4] of ShanghaiTech University, to discover and test the therapeutic potentials of antibodies that target the extracellular domain of connexins in order to gain control over hyperactive hemichannels [1, 2].

Job Descriptions: The ideal candidates will be creative, highly motivated, and have a passion for performing translational research. The selection process will place a strong emphasis on creative thinking and the ability to communicate with a multidisciplinary team.

Candidates for position No. 1 should have preferentially:

I. a PhD (or equivalent research experience) in a quantitative science such as Biomedical Engineering or Physics or Neuroscience;
II. experience with and willingness to conduct patch clamp electrophysiology experiments in combination with fluorescence imaging (this will be considered an asset);
III. expertise in cell culture maintenance and transfection or viral transduction with lentiviral vectors;
IV. willingness to conduct multi-well based functional assays to measure ATP release (bioluminescence), cell viability (MTT absorbance) and dye uptake or Ca^{2+} uptake (fluorescence) in cultured keratinocytes using plate readers (e.g. Perkin Elmer ENSPIRE or the like);

Candidates for position No. 2 should have preferentially:

I. a PhD (or equivalent research experience) in Biology or Biomedical Sciences;
II. expertise in molecular biology (cloning, mutagenesis, qPCR);
III. experience in the production and purification of lentivirus and/or adeno associated virus;

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[2] http://www.telethon.it/en
[3] https://www.cnr.it/en/institute/130/istituto-di-biochimica-e-biologia-cellulare-ibbc
[4] http://siais.shanghaitech.edu.cn/eng/

IV. willingness to establish and work with genetically modified three-dimensional cultures of humanized dermal equivalents (using the methods described in [3], or variants thereof).

Scientific Environment: The Rome/Monterotondo site of IBBC is home to the Italian node of the **INFRAFRONTIER/European Mouse Mutant Archive**[5] and hosts the Monterotondo Mouse Clinic that operates in conjunction with the **International Mouse Phenotyping Consortium (IMPC)**[6]. The Naples site of IBBC is home to a node of the **EuroBioimaging Research Infrastructure** [7] and is fully equipped with the most advanced microscopy techniques. As such, the Lab is uniquely positioned to pursue translational research with the goal of moving new therapeutic approaches into the clinic as quickly as possible. Professor Fabio Mammano is the National Delegate in INFRAFRONTIER and IMPC and has a consolidated experience in the generation and phenotypic characterization of mouse models of hereditary human diseases [4].

Further details will be disclosed with perspective candidates upon request, either via email or skype. If interested, please send an email to fabio.mammano@cnr.it with:

I. A cover letter describing the candidate's scientific experience, interests, and career goals

II. Curriculum vitae, including full list of publications

III. Contact information for 3 professional references

Cited articles:

[1] L. Xu, et al., Design and Characterization of a Human Monoclonal Antibody that Modulates Mutant Connexin 26 Hemichannels Implicated in Deafness and Skin Disorders, *Front Mol Neurosci*, 10 (2017) 298. PMID: 29018324

[2] G. Ziraldo, et al., A Human-Derived Monoclonal Antibody Targeting Extracellular Connexin Domain Selectively Modulates Hemichannel Function, *Frontiers in Physiology*, 10 (2019) 392. PMID: 31263420

[3] D.S. Hill, et al., A Novel Fully Humanized 3D Skin Equivalent to Model Early Melanoma Invasion, *Mol Cancer Ther*, 14 (2015) 2665-73. PMID: 26330548

[4] F. Mammano, Inner Ear Connexin Channels: Roles in Development and Maintenance of Cochlear Function, *Cold Spring Harb Perspect Med*, 9 (2019). PMID: 30181354

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[5] https://www.infrafrontier.eu/
[6] https://www.mousephenotype.org/
[7] http://www.eurobioimaging.eu/