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Postdoctoral research fellow position available in the PaceLab and Ion Channel Biophysics groups at the the Department of Biosciences, University of Milan
(<https://pacelab.it/>; <https://moronilab.com/>)

A postdoc position is available at the Department of Biosciences, University of Milan, in the team led by professor Dario DiFrancesco (the PaceLab) and professor Anna Moroni (Moronilab) to **investigate the cellular physiology of HCN4 channel expression in cardiomyocytes**. The position is funded through a 5-year grant by the Fondazione Leducq-Transatlantic Networks of Excellence in Cardiovascular and Neurovascular Research. The project FANTASY (Fighting AgaiNsT sinus node dysfunction And aSsociated arrhYthmias) investigates mechanisms underlying the Sinus Node Disease (SND) syndrome, and involves basic studies of ion channels modulating cardiac pacemaker activity (HCN4, GIRK4, Cav1.3), in association with clinical studies of SND-patient cohorts.

The successful candidate should be a highly motivated researcher holding a PhD degree in basic/translational biology, capable of autonomous organizational and experimental activity and willing to work in a large, highly collaborative team, and to share data and ideas.

Previous experience in the fields of cellular/molecular biology techniques including cell cultures, single-cell patch clamp, advanced microscopy, recombinant DNA, gene-editing techniques, protein biochemistry, heterologous ion channel expression will be appreciated. Experience in cardiac cell isolation and manipulation would also be appreciated.

The position is available from October 1st, 2024. The salary will be in accordance with the University scale and will be adequate to the candidate experience. Applications including a CV, list of publications and two presentation letters should be sent to Dario DiFrancesco (dario.difrancesco@unimi.it) or Anna Moroni (anna.moroni@unimi.it).

Publications related to the project:

-Yavari et al (2017) Mammalian $\gamma 2$ AMPK regulates intrinsic heart rate. **Nat Commun** 8(1):1258. doi: 10.1038/s41467-017-01342-5 .<https://pubmed.ncbi.nlm.nih.gov/29097735/>

-DiFrancesco D. (2019) Comparing pathways for long-term heart rate modulation by the funny current. **J Gen Physiol**. 151(9):1066-1069. doi: 10.1085/jgp.201912409. <https://pubmed.ncbi.nlm.nih.gov/31431492/>

-DiFrancesco D. (2020) A Brief History of Pacemaking. **Front Physiol**. 22;10:1599. doi: 10.3389/fphys.2019.01599. <https://pubmed.ncbi.nlm.nih.gov/32038284/>

-Krumbach JH, Bauer D, Sharifzadeh AS, Saponaro A, Lautenschläger R, Lange K, Rauh O, DiFrancesco D, Moroni A, Thiel G, Hamacher K. (2023) Alkali metal cations modulate the geometry of different binding sites in HCN4 selectivity filter for permeation or block. **Journal of General Physiology** 155(10):e202313364. <https://pubmed.ncbi.nlm.nih.gov/37523352/>

-Porro A, Saponaro A, Castelli R, Introini B, Hafez Alkotob A, Ranjbari G, Enke U, Kusch J, Benndorf K, Santoro B, DiFrancesco D, Thiel G, Moroni A. (2024) A high affinity switch for cAMP in the HCN pacemaker channels. **Nature Communications** 15(1):843. <https://pubmed.ncbi.nlm.nih.gov/38287019/>

-Saponaro A, Krumbach JH, Chaves-Sanjuan A, Sharifzadeh AS, Porro A, Castelli R, Hamacher K, Bolognesi M, DiFrancesco D, Clarke OB, Thiel G, Moroni A. (2024) Structural determinants of ivabradine block of the open pore of HCN4. **Proc Natl Acad Sci U S A**. 121(27): e2402259121. <https://pubmed.ncbi.nlm.nih.gov/38917012/>