IBMC - Instituto de Biologia Molecular e Celular

Research fellowship (f/m)

Internal Code: Norte2020NEURO74

Project: NORTE-01-0145-FEDER-000008, Porto Neurosciences and Neurologic Disease Research Initiative at i3S

Title: Investigation of RNA-mediated pathogenic pathways in neurodegeneration

IBMC/i3S is opening **1 (one) Research Fellowship** to join its Research Program in Neurosciences and Neurological Disease Research.

We are looking for a Fellow holding a degree in Biology with a grade of 15 or higher and autonomy in working in Molecular Biology and Zebrafish Developmental Genetics. English language, both spoken and written, and good inter-personal relationships in the context of a multidisciplinary research team are essential attributes. Preference will be given to candidates willing to pursue a Doctoral degree.

Group and PI: This position is available in the group of Genetics of Cognitive Dysfunction under the leadership of Isabel Silveira.

Work Plan:
The toxic RNA gain-of-function is a complex emerging mechanism in which several parallel pathogenic pathways have been identified, including (1) RNA foci formation with sequestration of RNA binding proteins (RNABP), (2) alternative splicing misregulation (3) repeat-associated non-ATG initiated (RAN) translation and (4) R-loops formation with consequent repeat length dependent accumulation of abortive transcripts. The expanded RNA recruits an excess of RNABP, most commonly splicing factors (RNASF) forming mRNA/protein aggregates called RNA foci. Due to the lower availability of RNASF in the cell, alternative splicing of other mRNAs is impaired resulting in misplicing. In the cytoplasm, probably due to the formation of secondary structures, repetitive RNA becomes able to recruit ribosomal subunits beginning RAN translation in all reading frames. Some of the repetitive regions have bidirectional transcription with both sense and antisense RNAs toxic to the cell. Loci with bidirectional transcription include HDL2 with both polyglutamine and RNA gain-of-function and FTD/ALS, where both sense and antisense transcripts contribute to RNA gain-of-function. The work to be carried out is aimed at identify RNA-mediated pathogenic pathways in cell models of neurodegenerative diseases by investigating (1) RNA foci composition, (2) aberrant alternative splicing, (3) RAN translation and (4) antisense transcription.

The work will be developed at Instituto de Investigação e Inovação em Saúde - i3S, Porto, Portugal.

The Fellowship will be for 3 months, renewable up to 10 months, and it is expected to start in July 1st 2018.

The fellowship amount is 745 euros, paid by bank transfer, preferentially.
(http://alfa.fct.mctes.pt/apoios/bolsas/valores)
Fellowships are regulated by current laws relating to the Statute of Science Research Fellows, namely Law 40/2004 of August 18, amended and republished by Decree-Law No. 202/2012 of 27 August

and the Regulation of Scientific Research Studentships of IBMC approved by Fundação para a Ciência e Tecnologia (http://www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2015.pdf)

Selection Committee:
Isabel Silveira, PhD
António Ribeiro, PhD
Anabela Cordeiro da Silva, PhD

Applications are open from June 4 to June 16, 2018.

To apply for the Fellowship interested candidates must hold a Biology degree and submit the following documents a) Complete CV and b) Letter of Motivation, *via* the online application system:

http://www.ibmc.up.pt/gestaocandidaturas/index.php?codigo=Norte2020NEURO74

The ranking list of candidates will be published at IBMC website, and the selected candidate will be notified by email.