The assessment of genomic regulation and gene function in cardiovascular disease GWAS loci

Postdoc opportunities are available at Inserm U970, Paris Cardiovascular Research Center, Paris Descartes University, France.

The avenue of large-scale genetic association studies, especially genome-wide association studies (GWAS) helped genetic susceptibility to complex diseases, where genes and environmental factors are most of the time important determinants. Most of the time, GWAS have pointed at unsuspected and novel loci and genes, for which very little information is available about genomic regulation and tissue specific gene expression and molecular or biological function.

The scientific questions that we attempt to address in the lab are part of projects aiming at reducing the existing gap between the high throughput capacities in generating increasing number of confirmed association loci and the functional assessment to identify the causal and functional genetic variants. Most of the time, genetic variants are tagged by a large number of associated SNPs, with theoretical regulatory role on genes with unknown biological function.

Our lab uses genetic data generated in one published GWAS on mitral valve prolapse, a common risk factor for heart failure and sudden death (PMID: 26301497) and one ongoing GWAS on Fibromuscular Dysplasia, a female neglected vascular disease supported by an ERC Starting project (See preliminary finding in PMID: 27792790). More details on diseases are available at nabila.bouatianaji.fr.

The successful candidates should hold a PhD in molecular genetics, genomic regulation with established experience supported by at least one publication as main junior author in the study of gene regulation in complex diseases, ideally in the cardiovascular field, eventually cancer genomics. The applicants should have proven excellent experiment organization and rigor, appreciate working in interdisciplinary and international teams and excel in oral and written scientific communication. Abilities to use computational biology tools in genomics will be positively assessed.

Missions: To examine the functional significance of genetic susceptibility variants at GWAS confirmed loci using high throughput reported assays (e.g MPRA) and search for target genes using Hi-C based experiments in human cell models (smooth muscle cells, valvular interstitial cells); to assess the link with cardiovascular biology functions (migration, proliferation and survival) under diverse mechanical and hormonal stimuli of primary and engineered cells.

Application to nabila.bouatia-naji(at)inserm.fr including
Curriculum vitae
Application letter
Two reference names to be contacted.