Candidates for PhD study in imaging of atherosclerosis

The Imaging area of the PESA (Progression of Early Subclinical Atherosclerosis) study at CNIC, headed by Javier Sanz, is searching for candidates to perform a PhD study within imaging of atherosclerosis.

Development of non-invasive imaging techniques that are capable of measuring atherosclerotic disease activity is key for increasing our understanding of the causes of human atherosclerosis and for testing the efficacy of preventive strategies.

The thesis will be focused on: "Subclinical myocardial disease evaluated by cardiac magnetic resonance (Cardiac-MR) in the PESA study".

The presence of cardiovascular risk factors and vascular disease may result in myocardial damage evolving from asymptomatic phase to clinical manifestations. The ability to identify the preclinical phase of myocardial damage would have a great impact on primary prevention. The overarching objective of the thesis is to determine the relationship between early atherosclerosis and subclinical myocardial damage assessed by cardiac magnetic resonance (MR) imaging, data not previously reported. Subclinical myocardial disease will be evaluated with MR advanced technology capable of quantifying microcirculatory disease and the presence of microfibrosis (both known markers of early myocardial involvement) and other parameters (function, T1- and T2- mapping). The study population is a subset (n = 900) of PESA study, an ongoing cohort of asymptomatic individuals aged 40-55 years who are exhaustively followed for a period of at least 9 years.

The PESA study is designed to assess the presence and progression of subclinical atherosclerosis, without including originally the myocardial characterization. It is therefore a unique opportunity to test this hypothesis and take advantage of the PESA infrastructure with a programmed long-term follow up. Our group has pioneered the development of novel methodology to characterize the myocardium and thus, new sequences will be implemented in this large population based-study apply to evaluate for the first time the association between subclinical myocardial disease and atherosclerosis. The student will have cutting-edge tools for this line of work, including the development of non-invasive techniques (Cardiac-MR) to measure subclinical myocardial disease in the context of atherosclerosis. The imaging experiments are performed in the "Advanced Imaging Unit" at CNIC.

Candidates should have a keen interest in working with Cardiac-MR imaging (acquisition and imaging analysis) as well as a desire to understand the early myocardial disease secondary to atherosclerosis. Selection criteria include motivation towards translational cardiovascular research and a strong academic record.

Please apply online by June 5th 2016 with a motivation letter in English and a CV including average grades on the 0-10 scale from MSc and BS degrees to javier.sanz@mountsinai.org and leticia.fernandez@cnic.es indicating in the subject "Predoctoral. Javier Sanz 2016" For translation of foreign grades please use http://notasmedias.aneca.es/home.

This information does not contain a public job offer. Job offers for specific vacancies are posted on the job portal https://www.cnic.es/en/empleo/ofertas-empleo. Interested candidates should send their applications via the appropriate specific job offer, otherwise they won't be evaluated. The specific job offer is therefore, the only channel of participation in selection processes.

References:
1- Fernandez-Friera L, Fuster V et al. Prevalence, Vascular Distribution and Multi-territorial Extent of Subclinical Atherosclerosis in a Middle-Aged Population: The PESA (Progression of Early Subclinical Atherosclerosis) Study. Circulation 2015. 131 (24); 2104-13.
2- Garcia-Alvarez A, Javier Sanz, et al. Association of myocardial T1-mapping CMR with hemodinamics and RV performance in pulmonary hypertension. JACC Cardiovascular Imaging 2015; 8(1):76-82.
3- Sanchez-Gonzalez J, Fernandez-Jimenez R, Ibañez B. Quantitative perfusion by cardiac magnetic resonance.Journal of Cardiovascular Magnetic Resonance, 2015;19:17-21.