

BRACCO FELLOWSHIPS EDUCATION IN RESEARCH ENROLMENT FORM

Name of Institution // Hospital de la Santa Creu i Sant Pau

City and Country of Institution // Barcelona, Spain

RESEARCH GROUP

Brief description of the research group and of its mission:

The vascular imaging group is part of the vascular section in hospital de Sant Pau (a 3rd level university hospital in Barcelona). Its mission is to advance the knowledge of medical device design, vascular imaging and quantitative biomarkers as well as the development of artificial intelligence tools.

TITLE OF PROPOSED RESEARCH PROJECT

Comprehensive Multi-Omics Analysis of Risk Factors in the Growth and Rupture of Abdominal Aortic Aneurysms

Multiomic study (in collaboration with the genetics and vascular surgery research groups) to identify radiomic image patterns (CT and abdominal ultrasound) and their relationship with the growth of abdominal aortic aneurysms as well the risk of rupture.

OBJECTIVES

- To know the genetic, epigenetic and medical imaging features related with abdominal aortic aneurysms
- To learn a comprehensive approach of vascular imaging techniques
- To learn how to perform advanced quantitative and radiomics vascular analysis
- To learn how to code artificial intelligence algorithms to classify vascular images

APPLICANT'S DUTIES

- Vascular segmentation from spectral and conventional angioCT and ultrasound database
- Correlation analysis between manual and automatic segmentation
- Preparation of problem cases for specific analysis and case presentations
- Classification of vascular lesions following the current qualitative and quantitative classifications
- Database curation (radiological data).

APPLICANT'S BENEFITS

- Participation on scientific outcomes of the project i.e. presentations to congresses or publications of papers

- A specific one-to-one training in post-processing tools and python programming is offered to create an image classifier using AI
- Mentoring by a senior radiologist specialist in vascular imaging
- Participate in the committees of vascular diseases of the hospital during the stay.
- Access for study to a database of more than 400 adult patients diagnosed with abdominal aorta aneurysm

- Project Leader: Josep Munuera
- Members: Jordi Villalba, Jaime Dilme, Maria Sabater, Jose Manuel Soria, Cesar Acebes, Abdel Hakim Moustafa