

## Press Release

A new concept for the carotid artery disease risk stratification will be developed by the TAXINOMISIS project, which has been funded by the European Commission, within HORIZON 2010, with the participation of 16 partners from 10 countries. The project is coordinated by the University of Ioannina, Greece.

Taxinomisis project aims to develop a new concept for the carotid artery disease stratification by analyzing the pathobiology of symptomatic plaques, identifying disease mechanisms and developing a multiscale risk stratification model.

The risk stratification model will integrate clinical and personalized data, plaque and cerebral image processing, computational modeling and novel biomarkers for high versus low risk states. In order to address the needs for stratified and personalized therapeutic interventions this approach will be the first of its kind in cardiovascular and other chronic diseases in general. One of the critical points is that TAXINOMISIS will have a strong personalized element, exploring the biology of atherosclerotic plaques and circulating biomarkers in the same patient, combined with heterogeneous individual/patient specific clinical imaging and demographic information.

Carotid artery disease, which refers to the build-up of atherosclerotic plaques in carotid bifurcations, is a highly prevalent and devastating disease of our times with enormous socio-economic burden. It constitutes the primary cause of cerebrovascular events and ischaemic stroke, and accounts for up to 30% of all strokes.

The determining factors for carotid artery disease management are currently the degree of stenosis, and the presence of symptoms. Patients with 70% stenosis in their carotid artery, either symptomatic or asymptomatic, are considered to be at high risk of cerebrovascular events and are therefore directed to surgical intervention (carotid endarterectomy or stenting). In contrast, patients with <70% stenosis are considered at low-intermediate risk when asymptomatic, and unless other confounding factors exist, they are subjected to medical treatment alone. When the patients are symptomatic with recent events, the cut-off of 50% stenosis is used instead. However, this stratification is rather generic, leading to high levels of unnecessary surgical treatment, and high levels of under treatment in patients with lower levels of stenosis, who are also at high risk of cerebrovascular events. Moreover, the criteria for this stratification have been largely based on clinical trials of the 90's and refer to patient populations that have dramatically changed since then.

The TAXINOMISIS consortium includes Panepistimio Ioanninon-Greece, Universitair Medisch Centrum Utrecht-Netherlands, Klinikum Rechts der Isar der Technischen Universitat Munchen-Germany, Faculty of Medicine University of Belgrade-Serbia, Interuniversitair Microelectronica Centrum-Belgium, Idryma Iatroviologikon Ereunon Akademias Athinon-Greece, The Chancellor, Masters And Scholars of the University of Oxford-United Kingdom, ZORA Biosciences Oy-Finland, Pirkanmaa Hospital District-Finland, Stichting Nederlands Instituut Voor Onderzoek Van de Gezondheidszorg-Netherlands, IRCCS Azienda Ospedaliera Universitaria San Martino Ist-Istituto Nazionale Per La Ricerca Sul Cancro-Italy, Ethniko kai Kapodistriako Panepistimio Athinon-Greece, Fundacio Privada Clinic Per a la Recerca Biomedica-Spain, BIOIRC D.O.O. Kragujevac-Serbia, Engineering Ingegneria Informatica S.P.A.-Italy, European Society for Cardiovascular and Endovascular Surgery-Switzerland.



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