

4 transnational research consortia will be funded under the umbrella of the ERA-CVD JTC 2020. The total funding volume of the call amounts to about 3 M€.

Projects are shown below by alphabetical order :

CardioStressCI

Cardiovascular stress impacts on neuronal function: intracellular pathways to cognitive impairment

Coordinator: Jordi Garcia-Ojalvo, Pompeu Fabra University, Barcelona, Spain

Partners:

- Angel Ois, Hospital del Mar, Barcelona, Spain
- Attila Gürsoy and Ozlem Keskin, Koc University, Istanbul, Turkey
- Raúl Vicente, University of Tartu, Estonia
- Stanley Nattel, Montreal Heart Institute, Canada

Project summary:

Cardiovascular disease is a known risk factor for the development of cognitive impairment and dementia as we age, but the reasons for this connection at the level of genes and proteins are still unclear. The goal of CardioStressCI is to identify proteins linked to both disorders, using cellular stress as a guide, with the ultimate goal of informing new diagnostic and treatment methods.

ENRICH

ENdothelial Retinal function as Indicator for vascular Cognitive Health

Coordinator: Ingeborg Stalmans, Research Group of Ophthalmology, Department of Neurosciences, KU Leuven, Leuven, Belgium

Partners:

- Moti Freiman, Technion, Israel Institute of Technology, Department of Biomedical Engineering, Haifa, Israel
- Hélène Girouard, Montreal Heart Institute: Research Centre, Department of Surgery, Université de Montréal, Montréal, Canada.
- Cécile Duplaa, Inserm U1034, Université de Bordeaux, Bordeaux, France
- Henner Hanssen, Department Sport, Exercise and Health (DSBG), University of Basel, Basel, Switzerland

Project summary:

Microvascular dysfunction is a key player in cardiovascular diseases and precedes vascular dementia. This project aims to explore the potential of retinal parameters to detect and monitor microvascular dysfunction in the clinic as well as in the laboratory, making use of Artificial

Intelligence. The final goal is to correlate these with cognitive decline in order to enable prevention of vascular neurodegeneration through early vascular screening via a simple exam of the eye.

ImmuneHyperCog

Cerebrovascular-immune interfaces: searching for an immune signature coupling hypertension to cognitive dysfunction

Coordinator: Giuseppe Lembo, IRCCS Neuromed, Italy

Partners:

- Pablo Blinder, Tel-Aviv University, Israel
- Turgay Dalkara, Hacettepe University, Turkey
- Tomasz Guzik, Jagiellonian University, Poland
- Slava Epelman, University Health Network, Canada

Project summary:

The ImmuneHyperCog consortium will investigate i) the mechanisms driving vascular cognitive impairment at the vascular-immune interface, ii) the immune landscape of the hypertensive brain and iii) the relationships between brain immunity and neuronal activity. Human studies and biobanks' tissue will help in validating potential neuro-vascular-immune therapeutic targets to hamper vascular cognitive impairment.

PREVENT-VCi

Prevention of Vascular Cognitive Impairment through Early Detection of Cardiovascular Diseases

Coordinator: Philippe Boucher, UMR CNRS 7021, Strasbourg University, France

Partners:

- Katey J Rayner, University of Ottawa Heart Institute, Canada
- Lina Badimon Maestro, Research Institute Hospital de la Santa Creu i Sant Pau- Autonomous University of Barcelona, Spain

Project summary:

Atherosclerosis and hypercholesterolemia and subsequent inflammation and oxidative stress are major causes of vascular cognitive impairment. In this proposal, our team will investigate how intracellular cholesterol trafficking, oxidative stress and inflammation, promote blood-brain barrier breakdown and affect cerebral blood flow, and search within these pathways for molecular targets with therapeutic potential to improve cerebrovascular function.