



Identification and clinical validation of biomarkers for long-term outcome after cerebral ischemia (iBioStroke)

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Ischemic stroke is an acute disease which often results in severe long-term consequences such as physical disability, depression, cognitive decline or even dementia. To date, patients at risk for these late consequences of stroke are not duly diagnosed and treated due to the lack of reliable biomarkers. The main hypothesis of the current consortium is that a combination of extracellular vesicles EV- and genetic polymorphism-based biomarkers present in blood and CSF predict favorable or unfavorable long-term outcome after ischemic stroke. Based on this hypothesis, the current consortium of leading clinical and experimental European stroke researchers will address the following two specific aims: 1) carry out proteomic and miRNA analysis of ND-EVs and performing a Genome-Wide Association Study on ED-EVs isolated from blood and CSF of acute and chronic stroke patients (on admission and three months after the insult) and 2) carry out longitudinal proteomic and miRNA analysis of ND-EVs isolated from from blood and CSF of young and aged rats and mice subjected to transient focal cerebral ischemia (1, 3, 6, and 12 month after stroke). Results from these screenings will be correlated with clinical and functional sequels of stroke (neuroimaging, sensory-motor dysfunction, cognitive decline, and depression). The results have the potential to immediately improve current clinical practice and to provide scientific knowledge on how the young and aged brain respond to acute injury.