Name Participants of WG3	**Katja Kanninen**
Affiliation	A.I.Virtanen Institute for Molecular Sciences, University of Eastern Finland
Scientific expertise, up to 5 key words	Brain, Alzheimer's disease, in vitro modelling, mitochondria, astrocytes
Motivation for participation in WG3	New ideas and research collaborations
Short narrative biosketch, including scientific background/ education/major achievements etc.	I am a cell biologist by training and defended my PhD thesis on the topic of NRF2 and Alzheimer's disease. My postdoctoral phase focused on understanding the role of biometals in neurodegenerative diseases. Now I am working as an associate professor (tenure track) and research group leader at the University of Eastern Finland in Finland. My team studies the impact of environmental stressors such as air pollutants on brain health and seeks to understand their link to neurodegenerative diseases. Of particular interest are astrocytes, the multifunctional brain cells that impact on neuronal health. We are also interested in viral infections, and the impact of early life stress on mental health. We use a variety of different research models, including human-based cell cultures and tissues, and mouse models of disease, to understand disease mechanisms and test novel therapeutic approaches. We have also applied a variety of functional and omics technologies, including single cell RNAseq in our research. Recently we have developed a new in vitro model of the olfactory mucosa, located at the rooftop of the nasal cavity. This unique human-based model can be used to study the impact of inhaled agents on brain health. NRF2-related publications: **- Kanninen K**, Malm TM, Jyrkkänen HK, Goldsteins G, Keksa-Goldsteine V, Tanila H, Yamamoto M, Ylä- Herttuala S, Levonen AL, Koistinaho J. Nuclear factor erythroid 2-related factor 2 protects against b-amyloid. Mol Cell Neurosci. 2008 Nov; 39(3):302-13. **-Kanninen K**, Heikkinen R, Malm TM, Rolova T, Kuhmonen S, Leinonen H, Ylä-Herttuala S, Tanila H, Koistinaho M, Levonen A-L, Koistinaho J. Intrahippocampal injection of a lentiviral vector expressing Nrf2 improves spatial learning in a mouse model of Alzheimer's disease. Proc Natl Acad Sci U S A. 2009 Sep 22;106(38):16505-10. **-Kanninen KM**, White AR, Koistinaho J, Malm T. Targeting Glycogen Synthase Kinase-3β for Therapeutic Benefit against Oxidative Stress in Alzheimer's Disease: Involvement of the Nrf2-ARE Pathway. Int J Alzheimers Dis. 2011;2011:985085. -Pomeshchik Y, Kidin I, Savchenko E, Rolova T, Yamamoto M, Levonen AL, Ylä-Herttuala S, Malm T, **Kanninen KM**, Koistinaho J. Does Nrf2 Gene Transfer Facilitate Recovery After Contusion Spinal Cord Injury? Antioxid Redox Sign. 2014 Mar 10;20(8):1313-23. -Kärkkäinen V, Pomeshchik Y, Savchenko E, Dhungana H, Kurronen A, Lehtonen S, Naumenko N, Tavi P, Levonen A-L, Yamamoto M, Malm T, Magga J, **Kanninen KM**, Koistinaho J. Nrf2 regulates neurogenesis and protects neural progenitor cells against Ab toxicity. Stem Cells 2014 Jul;32(7):1904-16.

	-Kanninen KM, Pomeshchik Y, Leinonen HM, Malm T, Koistinaho J, Levonen A-L (2015). Applications of the Keap1-Nrf2 System for Gene and Cell Therapy. Free Radic Biol Med. 2015 Nov;88(Pt B):350-361. -Liddell JR, Lehtonen S, Duncan C, Keksa-Goldsteine V, Levonen A-L, Goldsteins G, Malm T, White AR, Koistinaho J, **Kanninen KM**. Pyrrolidine dithiocarbamate activates the Nrf2 pathway in astrocytes. J Neuroinflamm. 2016 Feb 26;13(1):49. -Abdalkader M, Lampinen R**, Kanninen KM**, Malm TM, Liddell JR. Targeting Nrf2 to suppress ferroptosis and mitochondrial dysfunction in neurodegeneration. Front. Neurosci. 2018 Jul 10;12:466. -Oksanen M, Hyötyläinen I, Trontti K, Rolova T, Wojciechowski S, Koskuvi M, Viitanen M, Levonen A-L, Hovatta I, Roybon L, Lehtonen S, **Kanninen KM**, Hämäläinen RH, Koistinaho J.NRF2 activation boosts antioxidant defenses and ameliorates inflammatory and amyloid properties in human Presenilin-1 mutated Alzheimer's disease astrocytes. Glia 2020 Mar;68(3):589-599.
Current research topics/ongoing projects	Environmental exposures and NRF2 in the brain. Air pollution and NRF2. Viral infections and NRF2.
Nfr2-related methodologies/ infrastructure/ equipment	Human brain cells, animal models of neurodegeneration, behavioral testing, mitochondrial assays
Available sample collections/datasets; interested in sharing; yes/no	Alzheimer's disease patient-derived cells, 5xFAD animal model, lentiviral constructs for NRF2
Available cohorts/ ongoing/planned human studies/grant applications	-
Interested in STSM: outgoing/hosting (year 1/later); yes/no	Yes, any time.