

Name Participants of WG3	Prof. dr. Vita Dolžan, MD, PhD, spec lab med gen
Affiliation	University of Ljubljana, Faculty of Medicine, Institute of Biochemistry and Molecular Genetics, Pharmacogenetics Laboratory Vrazov trg 2, SI-1000 Ljubljana, Slovenia
Scientific expertise, up to 5 key words	Pharmacogenomics, molecular biomarkers, personalized medicine, oxidative stress, inflammatory pathways
Motivation for participation in WG3	To enhance collaboration and support translation of research of NRF2-related biomarkers of disease pathogenesis, disease progression and/or treatment response from cell or animal model systems not available in our lab towards validation in samples from our extensive repository of biological samples or in existing or novel clinical collaborations.
Short narrative biosketch, including scientific background/ education/major achievements etc.	<p>Prof. dr. Vita Dolžan is a Full Professor of Biochemistry and Molecular Biology and the founder and Head of the Pharmacogenetics Laboratory at the Institute of Biochemistry and Molecular Genetics, at the Faculty of Medicine, University of Ljubljana (UL). Her laboratory was one of the seven European clinical implementation sites within the H2020 project Ubiquitous pharmacogenomics (U-PGx) (2016-2021).</p> <p>She has vast research experience in the field of pharmacogenetics and implementation of novel molecular biology based methods into clinical use. She published over 170 SCI indexed papers that have over 3000 citations. She investigates the influence of genetic variability in drug metabolizing, antioxidative and inflammatory pathways on disease pathogenesis, disease progression and/or treatment response in several diseases, with particular focus on neurodegenerative and inflammatory diseases as well as cancer. She is particularly interested in development of clinical-pharmacogenetic models that would facilitate the translation of personalized medicine into clinical practice. She also works on the promotion of pharmacogenomics knowledge and awareness among Slovenian medical professionals and general public.</p> <p>Selected publications related to the project:</p> <ol style="list-style-type: none"> Goričar K, Holcar M, Mavec N, Kovač V, Lenassi M, Dolžan V. Extracellular Vesicle Enriched miR-625-3p Is Associated with Survival of Malignant Mesothelioma Patients. <i>J Pers Med</i>. 2021 Oct 9;11(10):1014. doi: 10.3390/jpm11101014. PMID: 34683154. Vogrinc D, Goričar K, Dolžan V. Genetic Variability in Molecular Pathways Implicated in Alzheimer's Disease: A Comprehensive Review. <i>Front Aging Neurosci</i>. 2021 Mar 18;13:646901. doi: 10.3389/fnagi.2021.646901. PMID: 33815092. Atanasovska Velkovska M, Goričar K, Blagus T, Dolžan V, Cvenkel B. Association of Genetic Polymorphisms in Oxidative Stress and Inflammation Pathways with Glaucoma Risk and Phenotype. <i>J Clin Med</i>. 2021 Mar 9;10(5):1148. doi: 10.3390/jcm10051148. PMID: 33803434. Kucec E, Goričar K, Dolžan V, Rener-Primec Z. HIF1A polymorphisms do not modify the risk of epilepsy nor cerebral palsy after neonatal hypoxic-ischemic encephalopathy. <i>Brain Res</i>. 2021 Apr 15;1757:147281. doi: 10.1016/j.brainres.2021.147281. PMID: 33515534. Redenšek S, Jenko Bizjan B, Trošt M, Dolžan V. Clinical and Clinical-Pharmacogenetic Models for Prediction of the Most Common Psychiatric Complications Due to Dopaminergic Treatment in Parkinson's Disease. <i>Int J Neuropsychopharmacol</i>. 2020 Nov 26;23(8):496-504. doi: 10.1093/ijnp/pyaa028. PMID: 32710539.

<p>Current research topics/ongoing projects</p>	<p>Prof. Dolžan is PI of national research program Molecular mechanisms of regulation of cellular processes related to some human diseases (ARRS P1-0170; 2017-2023) and PI of the applied research project Biological markers of risk for development, progression and treatment response in asbestos related diseases (ARRS L3-2622; 2020-2023). Besides, she is also involved in research of: (1) molecular biomarkers that could predict response to treatment with dopaminergic drugs in Parkinson's diseases, (2) plasma and CSF biomarkers that could predict the progression of mild cognitive dysfunction to Alzheimer's disease, (3) genetic variability in antioxidative, inflammatory and drug metabolizing pathways that could predict the risk for the development of glaucoma and response to treatment with latanoprost of SLT, (4) genetic factors that may predict the development of neurologic sequelae in newborns with hypoxic-ischemic encephalopathy; (5) genetic and epigenetic factors determining the response to hypobaric and normobaric hypoxia in adults born prematurely; (6) pharmacogenetic of immunosuppressant treatment after kidney transplantation and early molecular biomarkers of transplanted kidney failure; (7) pharmacogenetics of treatment with antipsychotics and antidepressants; (8) genetics of alcohol dependence; (9) development of clinical-pharmacogenetic models for malignant mesothelioma treatment; (10) biomarkers of disease severity and progression and pharmacogenetics of treatment response in COVID-19 patients.</p>
<p>Nfr2-related methodologies/ infrastructure/ equipment</p>	<p>DNA/RNA/protein extraction, quantification and analysis SNP genotyping: PCR thermal cyclers GeneAmp PCR System 9600 Thermal Cycler, Veriti Thermal Cycler, ProFlex PCR System; 7500 Real-Time PCR System (all Applied Biosystems); high throughput genotyping system (SNPline LGC group) consisting of Meridian 1 Channel WWP liquid handler, KUBE Heat plate Sealer, Hydrocycler 4 and FLUOstar Omega plate reader with KlusterCaller Software (obtained through H2020 UPGx project) SNP genotyping, miRNA qPCR and telomere length analysis: QuantStudio 7 Flex Real-Time PCR System (Applied Biosystems) ddPCR UV-1601 -Spectrophotometer (Shimadzu), UV-VIS spectrophotometer GENios (Tecan), NanoDrop ND-1000 (NanoDrop) Plasma protein measurements (ELISA): multimode microplate reader Synergy2 (Biotek)</p>
<p>Available sample collections/datasets; interested in sharing; yes/no</p>	<p>Slovenian blood donors (>500 –DNA, info only on age and gender) COVID-19 (>200 - DNA, miRNA, plasma, longitudinal follow-up) Asbestos related diseases (940 asbestos-exposed subjects: pleural plaques - 390, asbestosis – 147, mesothelioma – 225, no disease -178; DNA, plasma, serum, Tempus tubes for mesothelioma treatment= Glaucoma (307 – DNA, plasma) Parkinson's disease (204 – DNA; plasma) Alzheimer's disease and MCI (>100 - DNA, plasma, CSF) Kidney transplant patients (290 – DNA; 36 – DNA, urine) Treatment with antipsychotics (341 patients with SZ or schizoaffective disorders: 72 acutely treated, 128 maintenance treatment, 94 treatment responsive and 47 treatment resistant – DNA) Alcohol dependence (88 alcohol-dependent, 99 abstinent, and 94 blood donors, only males –DNA) Sharing / collaboration possible after obtaining a permission from the National Medical Ethics Committee.</p>

Available cohorts/ ongoing/planned human studies/grant applications	Ongoing recruitment: COVID-19 (hospitalized), Alzheimer’s disease, kidney transplant patients, mesothelioma, antiepileptic treatment. Planned second phase of recruitment in glaucoma patients and Parkinson’s disease and start of recruitment in antidepressant treatment and COVID-19 (mild and moderate, not hospitalized).
Interested in STSM: outgoing/hosting (year 1/later); yes/no	Hosting/later. Postdocs from the lab: Outgoing/year 1 or later.