

Ecosystem Slovakia

RESEARCH INSTITUTIONS

INSTITUTE OF NEUROIMMUNOLOGY SAS

- Norbert Zilka, Rostislav Skrabana, Andrej Kovac

BIOMEDICAL CENTRE SAS

- Barbora Ukropcova

GOVERNMENTAL BODIES

MINISTRY OF HEALTH, SLOVAK REPUBLIC

- Peter Valkovic, Iveta Hermanovska

COMPANIES

MULTIPLEX DX

- Pavol Cekan

GENETON

- Tomas Szemes

SOCIETAL ACTORS

CENTRUM MEMORY no.

- Petra Brandoburová, Zuzana Habalová

SLOVAK ALZHEIMER'S SOCIETY

- Norbert Zilka, Maria Wirth, Zlatica Pisklová

Ecosystem Slovakia



CENTRUM MEMORY no.

GENETON

Dementia diagnostics

INSTITUTE OF NEUROIMMUNOLOGY SAS

MULTIPLEX DX

Assay development

BIOMEDICAL CENTRE SAS

CENTRUM MEMORY no.

Non-pharmacology intervention

MINISTRY OF HEALTH, SLOVAK REPUBLIC

INSTITUTE OF NEUROIMMUNOLOGY SAS

National action plan

SLOVAK ALZHEIMER'S SOCIETY

INSTITUTE OF NEUROIMMUNOLOGY SAS

Dissemination



WP4 Development of new diagnostic assays for AD progression

AD PATIENT SAMPLES

Memory Centre 



FNUSA-ICRC 

iPSCs SECRETOME

Faculty of Medicine MU 



Structural biology

Institute of Neuroimmunology 
CEITEC 



ASSAY DEVELOPMENT

Institute of Neuroimmunology 

Multiplex DX 

TAU ASSAY

miRNA ASSAY



WP4 Development of new diagnostic assays for AD progression

AD PATIENT SAMPLES

Memory Centre



Biomarker based diagnostics

Geneton



Genetic diagnostics

- APP
- PS1
- PS2
- tau



60-80 patients per year

- cUDS
- MRI volumometry
- CSF

WP5 Non-pharmacological interventions



AD PATIENT COHORT

Memory Centre 

FNUSA-ICRC 

BIOMARKER DIAGNOSTICS

Institute of Neuroimmunology 

GENETICS

Geneton 



NON-PHARMACOLOGICAL INTERVENTION

Biomedical centre, SAS 

Memory centre, SAS 

 *FNUSA-ICRC* 
Harmonisation of the protocol



ASSAY VALIDATION

Institute of Neuroimmunology  Multiplex DX

Dissemination

Slovak Alzheimer's society

- Brain awareness week
- Alzheimer's day
- Spreading of Information about Slovak AD centres

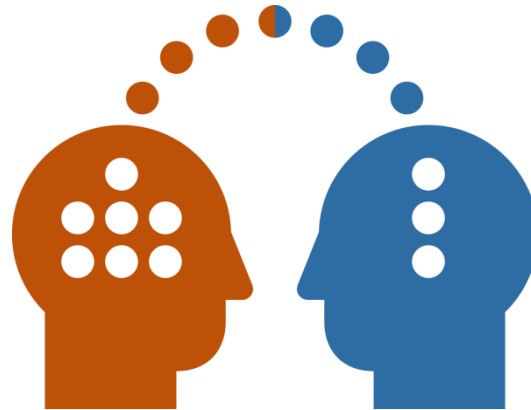


Slovak action plan to combat dementia

DEMENTIA
FRIENDLY SOCIETY



Czech Alzheimer's society



Human rights
Services and care
Education
Destigmatization
Prevention
Diagnostics
Epidemiology

Ministry of Health

Slovak Republic

DEMENTIA FRIENDLY
SLOVAKIA



Slovak Alzheimer's society



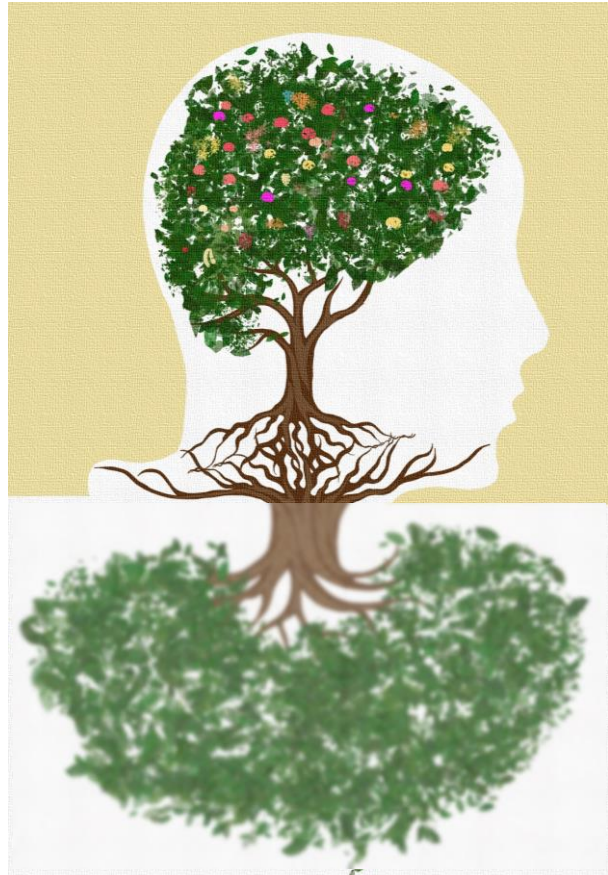
Institute of Neuroimmunology Slovak Academy of Sciences



UNICORN IN THE SLOVAK SCIENTIFIC ECOSYSTEM

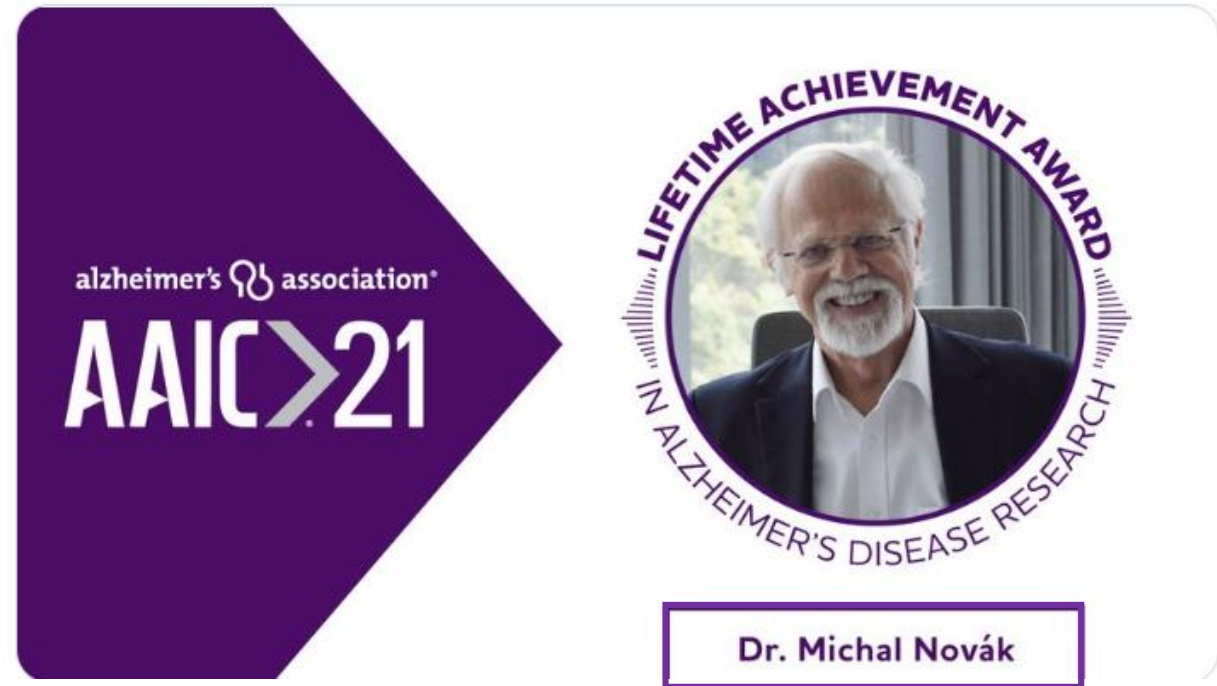
DEEP CAMBRIDGE ROOTS

Institute of Neuroimmunology SAS



Laboratory of molecular biology,
MRC, Cambridge, UK

2021
ALZHEIMER ASSOCIATION AWARD



KHALID IQBAL LIFETIME ACHIEVEMENT AWARD

ALZHEIMER'S CLINICAL RESEARCH

ADDITION (International project – JPND/Horizon)

- modelling the possible trajectories of Alzheimer's disease to predict when important disease milestones will be reached by individual patients

LANCRE-AD (National project)

- establishment of a Slovak Alzheimer's disease patient cohort, with harmonised clinical, cognitive, imaging, and biomarker assessment at key Alzheimer's disease care facilities in Slovakia

MultiplexDX

About: MultiplexDX is a biotechnology company developing multiplexed, accurate, quantitative and accessible diagnostic tests for cancer and infectious diseases. During the pandemic we have developed, validated, certified and sold 11 types of molecular diagnostic tests.

Our mission: To revolutionize breast cancer diagnostics



MultiplexDX

Expertise:

RNA-seq, RNA FISH, miRNA analyses, Nucleic acid amplification technologies, CE IVD test development

30 Scientists | 11 CE IVD COVID-19 diagnostic tests | 6 research projects



Dr. Pavol Čekan
Founder & CEO



Dr. Peter Kilián
COO

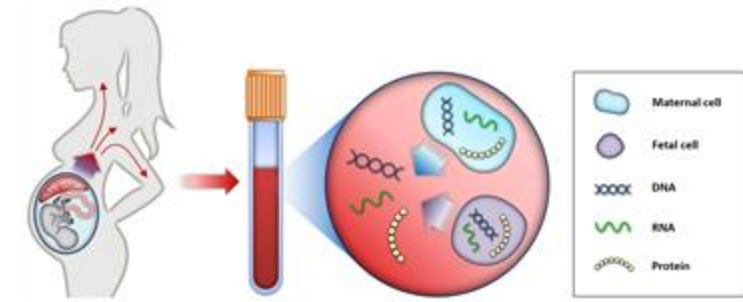


Dr. Adrian Szobi
Director of R&D
Team Leader for ADDIT CE

More info:

multiplexdx.com

Geneton s.r.o.



- Established in 2006, Geneton s.r.o. is focused on the development of **comprehensive clinical genomics solutions** based on a combination of cutting-edge molecular biology methods such as high-parallel sequencing and proprietary bioinformatics algorithms and methods.
- Geneton has developed the **Trisomy test**, a non-invasive prenatal test for the determination of chromosomal aberrations based on whole genome sequencing of plasma samples from pregnant women, which has been used in clinical practice since 2015.
- The company operates a genetic laboratory in Bratislava, which was accredited in 2020 by the Slovak National Accreditation Service. The laboratory is qualified to perform the determination of **unique identifying genetic profile** and relationship in biological materials of human origin by fragment analysis as well as to perform DNA sequence determination.

Paternity tests
testy@geneton.sk
www.geneton.sk



Selected research projects:

- **PreveLynch** - development of a test for screening and detection of colorectal cancer specifically in a subset of patients with Lynch syndrome
- **PanClinCov** - research on viral genome and genetic determinants in terms of susceptibility to SARS-Cov-2 infection and tendency to develop COVID-19 disease
- **GenoScan Lbquant** - applied research and validation of an assay for prostate cancer screening and monitoring using analysis of circulating free tumor DNA
- **Genomicosat** - development and testing of molecular and informatics methods for efficient characterization and interpretation of relevant microsatellite repetitive motifs from genomic data
- **SepMin** - development of a bioinformatics solution to interpret results from a small portable sequencer in Real-Time analysis mode for rapid sepsis detection
- **PANGAIA** - research in the area of pangenomic representation of genomic sequences, enhancing the skills of professionals, competencies and education among academic and private partners
- **ALPACA** - creating a network of experts to strengthen existing and create new links within the emerging computational pangenomics bioinformatics community and sharing the experience of teams

Ilkovičova 8 | 841 04 Bratislava | SR
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www.geneton.sk

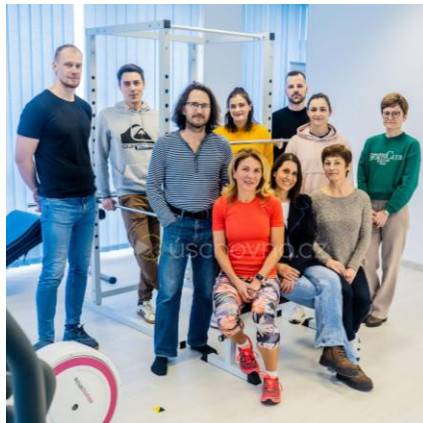


Physical Activity Centre



Translation: prescription of physical activity in clinical practice, for the prevention and treatment of chronic diseases

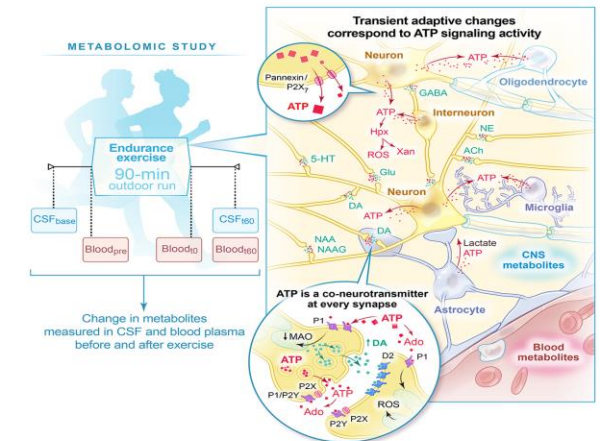
- Prof. MUDr. Barbara Ukropcová, PhD founded and leads the PAC since 2017
- training studies for seniors, patients with MCI, Parkinson's disease, obesity



Dept. metabolic disorders research

Integrated exercise physiology and integrated pathophysiology of "lack of exercise" diseases

- dr. Ukropec, dr. Ukropcová
- Metabolic dysregulation as a pathophysiological substrate of chronic diseases
- Integrating the systemic response to exercise: exercins, exosomes and periphery-brain communication; identification of molecules with neuroprotective potential



Li, Schön, Naviaux, Ukropec, Ukropcova et al, FASEB J. 2022 **CSF & plasma metabolomics of acute endurance exercise.**

Physical Training Intervention

Translation into practice:
The use of exercise in prevention and treatment



BMC SAS Centre for Physical Activity Cooperation:

- Regional authorities:

Regional Public Health Authorities.

active.me project: movement programmes for seniors in Slovakia

- LFUK and University Hospital Bratislava

- professional medical societies

Slovak Society of General practitioners and others

- educational and popularisation activities

medics, health professionals, general public

Selected projects: PBRC Grant Award for Young Scientists (2003); European Foundation to Study Diabetes (2010); SAS-NSC Taiwan (2014, 2019); Ministry of Health ČR (2016, 2020); VEGA (2012, 2015, 2018, 2022), APVV 2015 (for BMC SAV), 2020

Professional societies: European Association to Study Diabetes, ISTAART, Exercise & Physical Activity Study; Group ExPAS-EASD (founding member, 2015), Obesity section SDS (board member), Slovak Obesity Association (founding and board member), Slovak Neurology Society, O.Z. Strieborné Líšky (board member since 2017)

MEMORY CENTRE N.P.O Bratislava, Slovakia



Structure of services



- ✓ is a non-profit organisation established in 2002
- ✓ unique centre in Slovakia regarding to the complexity of offered services
- ✓ integration of the social and healthcare services
- ✓ four outpatient clinics – psychiatry, clinical psychology, neurology and treatment pedagogy
- ✓ modern diagnostics and takes part in clinical research of medicines
- ✓ the non-pharmacological therapies in its day-care clinic for patients with Alzheimer's disease
- ✓ support to their family members
- ✓ certified facility in science and educational programs in non-pharmacological approaches of treatment, accredited by the Ministry of Labour, Social affair and family of Slovak republic as well as the Ministry of health
- ✓ educational materials for public to spread information about dementia and Alzheimer's disease

Research focus



SLOVAK RESEARCH
AND DEVELOPMENT
AGENCY



- destigmatisation, fighting stigma and family support
- funded projects to raise the awareness about the Alzheimer's disease
- model of the good practice for the reformation of the psychiatric services health system

- creation and standardization of the Slovak neuropsychological battery NEUROPSY
- development of the telemedical neuropsychological screening method using AI and machine learning
- aging trajectories
- harmonisation of the diagnostic process

- online platform for the education of family and professional caregivers
- new methods of activation of the elderly including cognitive stimulation
- support groups for family caregivers



SLOVAK ALZHEIMER SOCIETY

member of

- Alzheimer Europe
- Alzheimer Disease International

groups

- scientists
- physicians
- caregivers
- relatives
- laymen

supports

- research
- spreading of information





CONTACT POINTS

Slovak Alzheimer Society creates a network of contact points





PUBLIC AWARENESS OF DEMENTIA



Brain Awareness Week



www.niu.sav.sk

Vydáva a podporuje spoločnosť Lumibehav, Slovensko, s.r.o.

mozg @ i . sav . sk

Týždeň mozgu 2009
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
16. – 22. marca

Myslíme na svoj mozog?
www.niu.sav.sk www.alzheimer.sk

- Brain Awareness Week (BAW)
- World Alzheimer's day – 21st September

- Mgr. Iveta Hermanovská
- State Advisor – since May 2021, MoH, [Institute of Research and Development](#)
- Scientific Board Secretary, MoH SR
- Experience: NCP for Health, ERC, MSCA, JRC of H2020,
- National NCP Coordinator H2020
- ERA-NET Transcan project manager
- support of applied research projects in the field of neurodegenerative diseases (calls 2018 and 2019)
- cooperation with ESFRI – national nod ECRIN – support of academic clinical trials (training of clinical coordinators and nurses)
- mentoring platform BIOHUB SK – support of innovative teams, start-ups and spin-offs
- strengthening of translational and clinical research through professional support including education
- connecting academic and private sector with health care providers to improve innovative diagnostics and therapy



Institute for Research and Development

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