

HORIZON-HEALTH-2022-STAY HLTH-02-01 Personalised blueprint of chronic inflammation in health-to-disease transition

or HORIZON-HLTH-2022-TOOL-11-01 Optimising effectiveness in patients of existing prescription drugs for major diseases (except cancer) with the use of biomarkers

Ideas for the project:

- **Measuring of Heart rate variability changes during the inflammation process**
- **Measurement of personal blueprint of human cardiovascular system and its changes - applications in biometrics**
- **Unobtrusive measurement of pharmacodynamics (anti depression, sedatives, anti inflammatory).**
- **Unobtrusive measurement of cognitive-behavioral changes using HRV parameters evaluation**
- **Long-term tremor measurement - study of tremor parameters changes with different drugs**
- **Unobtrusive measurement of respiration effort changes for evaluation of respiratory diseases**
- **Unobtrusive measurement of care quality, well-being and stress levels of elder persons and persons with special needs**

Infrastructure offered:

- o Biomedical laboratory
- o Equipment (sensor pads) for precise measuring of heart rate variability, respiration rate, micro-vibrations of human body, pulse wave velocity, ABI index and tremor
- o Server systems and storage optimized for long-term data collection and evaluation
- o Cloud systems for mHealth interventions based on sensoric data collection capable of real time prompts and automatic sending & evaluation of questionnaires
- o Infrastructure for neural networks long-term training & HPC Cluster
- o Laboratories for electronic circuit development and testing
- o Various medical devices
- o IoT development laboratory

Recent projects solved, related to the issue:

- NU21-09-00007 → mHealth intervention delivered in general practice to increase physical activity and reduce sedentary behaviour of patients with prediabetes and type 2 diabetes
- TL03000520 → Smart solutions across continual care of older people
- FV40231 → Innovative platform for determination of bioactive substances
- HDHL-INTIMIC 2021 “Standardized measurement, monitoring and/or biomarkers to study food intake, physical activity and health (STAMIFY)” - Wearable sensors for the assessment of physical and eating behaviours – WEALTH
- HAIE CZ.02.1.01/0.0/0.0/16_019/0000798 → Healthy Aging in Industrial Environment HAIE
- Marie Skłodowska-Curie Actions and is co-funded by the South Moravian Region under Grant Agreement No. 665860. → mHealth Active

Partners in previous research projects:

Charles University, University of Limerick, Leibniz Institute for Prevention and Epidemiology - BIPS GmbH, University College Cork, Ghent University - Department of Movement and Sports Sciences, Université Paris XIII - Sorbonne Paris Nord - Centre de Recherche en Épidémiologies et Biostatistiques Sorbonne Paris Cité

Contacts with industrial partners:

TESLA a.s., Trilab Group s.r.o., EMPLA AG spol. s r. o., ESSENCE LINE, s.r.o., DERS s.r.o., Deeplab s.r.o., LifeQ B.V.

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