

HEALTHY LONGEVITY GLOBAL COMPETITION

2025 Catalyst Awardees

Sponsor: EIT Health of the European Union

AI-powered retinal screening for early detection of chronic diseases

Principal Investigator	Kyrylo Goncharuk, Founder & CEO
PI Primary Affiliation	CHECK EYE LLC
Co-Investigator(s)	Prof. Andrii Korol, MD, PhD — Founder & Chief Medical Director Mykhailo Shuranov — Founder & Communications Advisor CheckEye Core Team Olena Chernenko — Strategic Healthcare Advisor Anastasiia Kyrylenko — Head of Operations Serhii Polienko — Head of Development Victoria Chuchina — CMO & Impact Evangelist

PROJECT DESCRIPTION

CheckEye is a Ukrainian health-tech startup dedicated to revolutionizing preventive healthcare. Our platform enables automated retinal screening using artificial intelligence, initially focused on diabetic retinopathy but with a roadmap to detect over 50 chronic conditions, including cardiovascular and neurodegenerative diseases. The solution operates with standard non-mydriatic fundus cameras and provides rapid, reliable, and scalable analysis through a secure cloud-based system.

By decentralizing access to advanced diagnostics, CheckEye brings screening to primary care clinics, pharmacies, mobile units, and community healthcare centers, ensuring early detection and intervention. Screenings are performed by junior medical staff within minutes, without the need for dilation drops, while results are automatically processed by our AI and integrated into patient management workflows.

Despite the challenges of operating during a full-scale war in Ukraine, CheckEye has already launched in multiple regions in partnership with the Ministry of Health of Ukraine, the Ukrainian Diabetes Federation, and leading academic institutions. To date, the platform has screened over 10,000 patients and demonstrated significant impact in preventing vision loss and reducing disability.

Our mission is to make preventive medicine accessible and affordable at scale, supporting family doctors and health systems in Ukraine and internationally. With support from international partners and grants, CheckEye continues to expand across Europe and beyond, contributing to global efforts in early detection, healthier aging, and reducing the burden of chronic diseases.

Galenband - Continuous arm-worn ECG

Principal Investigator	Oisín McGrath
PI Primary Affiliation	Galenband
Co-Investigator(s)	Eddie McDaid

PROJECT DESCRIPTION

Galenband is a Galway-based MedTech startup developing a groundbreaking wearable that captures ECG data continuously from the upper left arm for extended periods. The device fills a critical gap in atrial fibrillation

detection, a major cause of ischemic strokes, by enabling long-term, non-invasive monitoring to support earlier diagnosis and intervention. Backed by leading cardiologists, Galenband's expert team is refining this innovation for seamless clinical integration and maximum impact. With a focus on sustainability and broad clinical utility, Galenband is poised to redefine cardiac care.

HOPE

Principal Investigator	Prof. Philippe Karoyan, PhD
PI Primary Affiliation	CNRS, ENS-PSL, Sorbonne Université
Co-Investigator(s)	Jonathan Levy, PharmD & MSc in Management ; Jean-Pascal Tranié, Graduate of École Polytechnique and École Nationale d'Administration ; Florence Allouche Aknin, PharmD & MBA ; Luis Gomez Morales, PhD ; Sterenn Goubin, DVM ; Natasha Danda, MS ; Xavier Rouchon, MS ; Olivia Soufflet, PhD candidate ; Soheib Kerbache, MS, DVM & PharmD candidate ; Farah Doghmane, MS & PharmD candidate ;

PROJECT DESCRIPTION

Chronic lymphocytic leukemia (CLL) is the most common adult leukemia, accounting for about 30% of cases. Its global incidence has risen sharply (+150% between 1990 and 2019). In the United States, about 23,690 new cases are expected in 2025.

Despite therapeutic progress, a major unmet medical need remains. It concerns patients with resistance biomarkers, those who are double-refractory or double-exposed to BTK and BCL2 inhibitors, and elderly patients ineligible for intensive strategies. For these populations, treatment options remain limited, and current therapies provide temporary remissions.

To address these patients, Pepkon is developing peptide-based therapies that mimic thrombospondin-1 (THBS1). These peptides act through a mechanism inducing calcium-dependent immunogenic tumor cell death. This mechanism triggers immunogenic cell death (ICD), characterized by the release of DAMPs (ATP, calreticulin, HMGB1), which activate antigen-presenting cells and initiate an adaptive immune response. In patients, this could promote clearance of residual tumor clones and reduce relapse risk through a “vaccination effect.”

Pepkon's peptides have also demonstrated enhanced activity in vitro as monotherapy or in combination, outperforming current standard CLL therapies on leukemic patient cells, including poor prognostic biomarkers that are also found across other cancers: del(11q), del(17p/TP53), and 2p gain. Furthermore, Pepkon's peptides have shown efficacy across a broad spectrum of malignancies, including T- and B-cell leukemias, myeloid leukemias, non-Hodgkin lymphomas, as well as solid tumors such as triple-negative breast cancer and glioblastoma.

This novel approach opens new perspectives and restores hope for patients with limited therapeutic options.

Methica CC - accurate, fast, comfortable cervical cancer screening

Principal Investigator	Nutte van Belzen, MD
PI Primary Affiliation	CC Diagnostics

Co-Investigator(s)	Ronald Vos, BSc; Jolien de Waard, PhD; Ilinka Stanciu, MSc
---------------------------	--

PROJECT DESCRIPTION

CC Diagnostics aims to revolutionize cervical cancer screening. We have developed the Methica CC - a PCR-based test that detects damaged DNA that leads to cervical cancer. This test offers unmatched 97% cancer detection, easier access for the patients due to self-sampling compatibility, and a significant 6x reduction in time and cost per test for the diagnostic labs.

PoliRNA: a new generation of targeted RNA therapies in cardiac regeneration

Principal Investigator	Letizia Nicoletti, PhD
PI Primary Affiliation	PoliRNA srl
Co-Investigator(s)	Giovanni Paolo Stola, PhD Student Valeria Chiono, Professor

PROJECT DESCRIPTION

PoliRNA is an innovative startup specialized in the development of customized nanocarriers for the next-generation of RNA therapies. With our cutting-edge polymer lipid hybrid nanocarriers, PoliRNA address key challenges in RNA therapies, such as limited in vivo stability, non-specific liver accumulation, and off-target effects, unlocking the full potential of RNA-based treatments. PoliRNA NPs have reached a Technology Readiness Level (TRL) of 5 for cardiac regenerative medicine applications, showing high RNA loading efficiency, biocompatibility, in vitro and in vivo stability, controlled and sustained RNA release, target cell internalization and transfection efficiency, and high therapeutic efficacy by in vitro and in vivo preclinical trials. PoliRNA NPs functionalized with a specific ligand for active targeting of cardiac fibroblasts showed accumulation and retention in murine heart, the targeted tissue, when loaded with a fluorescent siRNA and improvement in cardiac ejection fraction when encapsulating a set of reprogramming microRNAs, called “miRcombo”. The enhanced stability, safety and efficacy of PoliRNA NPs in preclinical trials pave the way towards novel RNA therapies in cardiac regenerative medicine and other fields. Indeed, for their versatility, we are currently exploring further applications, such as the treatment of muscle-related diseases and CAR T therapy. Our mission is to transform RNA-based therapeutics into safer and more effective solutions, to develop innovative therapies for diseases that are, so far, considered untreatable.

Reprogramming Immunity: A 5th-Generation CAR-T Platform for Safer and More Durable Cancer Therapy

Principal Investigator	Dormeshkin Dmitri, PhD
PI Primary Affiliation	Immunofusion
Co-Investigator(s)	Alex Migas, PhD; Mikalai Katsin, MD

PROJECT DESCRIPTION

Immunofusion is a privately held biotech company committed to developing next-generation cell therapies that overcome the limitations of current CAR T technologies. While CAR T-cell therapies have transformed cancer and autoimmune disease treatment, they remain constrained by low durable response rates, toxicity, and manufacturing bottlenecks.

Leveraging extensive experience in translating CAR T therapies from bench to bedside, Immunofusion has created a 5th-generation platform that integrates precise tumor targeting with a proprietary ILX-cel signaling domain designed to enhance T-cell fitness, persistence, and resistance to exhaustion. This innovation enables potent and sustained anti-tumor activity while minimizing safety risks associated with conventional CAR T-cell therapy.

Our lead product, TanCLL CAR T-cells, provides a safer, more effective option for patients with Chronic Lymphocytic Leukemia and Mantle Cell Lymphoma. TanCLL spares healthy B-cells, prevents antigen escape, and eliminates the need for lymphodepletion chemotherapy, significantly reducing treatment-related toxicity and enabling outpatient administration.

Importantly, the ILX-cel domain delivers all essential activation signals in a controllable, antigen-dependent manner, paving the way for in vivo CAR delivery—a transformative approach that would allow patients' own immune cells to be reprogrammed directly inside the body.

Building upon its modular architecture, Immunofusion's platform holds potential for broad application across both oncology and autoimmune indications, representing a new paradigm in the design of safer, more durable, and more accessible cell therapies.

URIMON

Principal Investigator	Dr. Johan de Rooij PhD MBI & Mr. Bram de Moor LLM MBI
PI Primary Affiliation	Amsterdam University Medical Center (NL) Technical University of Twente (NL)
Co-Investigator(s)	Mrs Karin Oudshoorn PhD Dr. Marc Warmoes PhD Mrs Maaïke Dekker MSc Mr. Jeffrey Benistant MSc Mrs. Merel Enschoot MSc Mr. Tintin Wongtana BSc Mr. Diemer Harbers BSc

PROJECT DESCRIPTION

You2Yourself (Y2Y) develops a personalized early disease warning system called URIMON. More precisely, Y2Y develops methods and algorithms to monitor biomarker profiles in periodic body fluid samples of individuals, to enable the early detection of life-threatening diseases and enhance chances of cure. Y2Y's ambition is to free the world from late-stage diagnoses, to enable healthy aging at lower costs.

URIMON is a biomarker-based early disease warning system that builds on the fact that every individual is unique and so are his/her biomarker profiles. Y2Y uses microRNAs, an established class of biomarkers for organ problems such as cancer and dysfunction. Quantitative Next Generation Sequencing in blood and urine samples is used to obtain comprehensive small RNA profiles and machine learning is used to develop algorithms for the detection and specification of diseases. Establishing personal baseline values of a large number of RNAs enables the sensitive detection of changes associated with the onset of disease. The specific RNAs that change indicate the nature of the developing disease (e.g. cancer and type).

To validate its technology, Y2Y is building a unique biobank of sample series that capture the onset of disease, by collecting periodic samples from a large cohort of healthy people. Y2Y has analyzed periodic sample series of individuals that developed a top-4 type of cancer or cardiovascular disease to show early disease detection, up to 2 years prior to current diagnosis, at a sensitivity ranging from 85% for prostate cancer to 100% for the future occurrence of stroke. Y2Y is working on improving her detection algorithms for personalization of disease detection and on integration into one multi disease warning algorithm. Furthermore, the laboratory workflow for microRNA profiling is being adapted for automation to enable standardization and upscaling to market requirements.

“Microneedle-Mediated, Targeted Fungal Infection Therapy to Preserve Mobility in Diabetic Patients”

Principal Investigator	Waleed Faisal, PhD
PI Primary Affiliation	ArrayPatch Ltd
Co-Investigator(s)	Darren Cunningham,

PROJECT DESCRIPTION

ArrayPatch is pioneering a novel therapeutic platform using DerMap™ dissolving microneedles to deliver antifungal treatment directly into the nail bed and surrounding skin, targeting the \$6 billion global onychomycosis (nail fungal infection) market. We focus especially on diabetic older adults, who are at highest risk for complications such as ulceration, mobility loss, and systemic infection. By bypassing the gastrointestinal tract and providing localized high-concentration delivery, our approach reduces systemic exposure and enhances treatment safety and adherence.

Our proposition extends healthy longevity by preserving functional mobility and preventing the debilitating sequelae of chronic fungal infection in aging populations. The microneedle format: pain-free, user-friendly, and minimally disruptive, is particularly suited for elderly/diabetic users who may struggle with oral medications or suffer from polypharmacy.

Innovatively, we aim to reformulate standard antifungal agents into a microneedle patch for a first-in-class delivery mode. This unconventional strategy leverages well-understood actives but challenges the existing paradigm of oral-based antifungal regimens. Our hypothesis is that this targeted delivery will reduce treatment duration, improve cure rates, and minimize systemic toxicity.

We are currently pursuing a 505(b)(2) regulatory pathway, accelerating time-to-market with established pharmaco-chemical data and positioning for first approval within 3–4 years. Early clinical proof-of-concept will focus on safety, usability, and efficacy endpoints among older diabetic patients. The long-term goal is to expand this platform to other dermatologic indications, like skin cancer and peptide therapeutics for diabetics, creating a scalable, longevity-enhancing delivery system.