

16 Granted projects ZonMw Open Competition 2019

In the proposal round 2019 16 researchteams have been granted that will set up innovative collaborations that contribute to innovation in science and healthcare for the longer term. Each team has received a maximum of 750,000 euros from the programme ZonMw Open Competition.

Linking mTOR to deregulated GABA signaling in developmental epilepsy

Prof. E.M.A. (Eleonora) Aronica – Amsterdam UMC-AMC
Dr D. (Dirk) Schubert – Radboudumc

Epilepsy is a common neurological disease, affecting approximately 180,000 people in the Netherlands. Treating childhood-onset genetic epilepsies is challenging. This project brings together researchers with expertise in epilepsy, neuropathology and neurophysiology to elucidate the mechanisms underlying altered neuronal network function in epilepsy, using human brain tissue and human cell models.

New energy for genetic cardiomyopathy

Prof. ir J.P.W.M. (Jeroen) Bakkers – Hubrecht Institute
Prof. F.W. (Folkert) Asselbergs and dr M. (Magdalena) Harakalova – University Medical Center Utrecht
Dr F.M. (Frédéric) Vaz – Amsterdam UMC

Cardiomyopathies are life threatening diseases that can be caused by genetic factors such as the PLN mutation. In this project it will be investigated how the PLN mutation affects the energy metabolism of the heart by using novel disease models. The results will help to develop new treatment strategies.

Disturbed protein complexes on cancer cells leads to reduced therapy response

Prof. A.B. (Annemiek) van Spriel – Radboudumc
Prof. P. (Piet) Gros – Utrecht University

Protein complexes on the cancer cell surface can facilitate growth. The researchers are investigating the structure and organisation of protein complexes on the cancer cell surface. This research may provide prospects to make cancer cells more sensitive to immunotherapies.

Ready for the new T: resident cells for tumorimmunity

Prof. T. (Thorbal) van Hall – Leiden University Medical Center
Dr K.P.J.M. (Klaas) van Gisbergen – Amsterdam UMC

Cancers consist of more than just derailed cells but are intermingled with normal cells of the body, including those of the immune system. Immunotherapy activates such immune cell and thereby control tumor growth. We here will investigate the role of a new lineage of cells: tissue-resident memory T cells.

Navigating uncertainty in gender incongruence and differences in sex development (DSD)

Dr C.M. (Chris) Verhaak and dr A.J.M. (Anke) Oerlemans – Radboudumc
Dr W.J.P. (Wyke) Stommel – Radboud University
Dr M.A. (Marij) Hillen – Amsterdam UMC-AMC
Dr A.L.C. (Annelou) de Vries – Amsterdam UMC-VUmc

Transgender and intersex children, their parents, and healthcare providers face substantial uncertainty. This covers medical, psychological, ethical and communicative aspects regarding treatment decisions and longterm development of the conditions. This project aims to understand uncertainty and support children, parents and healthcare professionals in recognizing, discussing and coping with uncertainty.

Cornea regeneration instructed by molecular cell identity characterization

Dr H. (Jo Huiqing) Zhou – Radboud University

Dr M. (Mor) Dickman and dr V.L.S. (Vanessa) LaPointe – Maastricht University

The current treatment for cornea damage depends on stem cells in the patient's own healthy eye. No treatment is available for patients with two injured eyes. Scientists will develop a novel regenerative technology to convert patient's skin and mouth cells into cornea stem cells to restore vision.

Peeping through the cell wall of the tubercle bacillus

Prof. W. (Wilbert) Bitter – Amsterdam UMC-VUmc

Prof. Dr D.J. (Dirk) Slotboom – University of Groningen

The tubercle bacillus is remarkably resistant to antibiotics due to its fortified cell wall. Now, we will unravel

how this cell wall works in keeping up defenses while allowing transport of essential nutrients. We will use this knowledge to device new antibiotics.

In search for the origin of our autonomic nervous system

Prof. A. (Andries) Kalsbeek – Amsterdam UMC

Prof. O.C. (Onno) Meijer – Leiden University Medical Center

Dr C.X. (Chun-Xia) Yi – Amsterdam UMC

Dr A. (Ahmed) Mahfouz – Leiden University Medical Center

Prof. E. (Eric) Fliers – Amsterdam UMC

The hypothalamus is a small brain area that controls all of our physiology via hormones and autonomic nervous system. Its neuro-endocrine neurons have been well-characterized since a long time. With the newest microscopes and molecular techniques researchers will now trace and characterize the neurons that control our autonomic nervous system.

Family matters: genes and behavior as the biological basis for a long and healthy life.

Prof. P.E. (Eline) Slagboom – Leiden University Medical Center

Prof. D.I. (Dorret) Boomsma – Free University Amsterdam

Prof. W.M.M. (Monique) Verschuren – RIVM

Dr M. (Marian) Beekman – Leiden University Medical Center

The life expectancy raises globally but the increase in healthy lifespan is lagging behind. Longevity families traced in Dutch databases often display disease-free survival into exceptional ages. In this project, we will disentangle the social, behavioral and genetic mechanisms that protect against age-related disease and promote a healthy life span.

Targeting the Mesenchymal Cancer Cell Phenotype for Therapeutic Gain

Prof. ir. P. (Peter) ten Dijke – Leiden University Medical Center

Dr P.E. (Pouyan) Boukany – TU Delft

Prof. J.W.M. (John) Martens and prof. S. (Stefan) Sleijfer – Erasmus MC Cancer Institute

Most cancer patients die from malignant metastases, or because the patients have become insensitive to chemotherapy. In this project, we aim to identify and repurpose existing drugs to selectively change the behaviour of aggressive cancer cells into non-invasive and therapy sensitive cancer cells or benign fat cells.

Out in the cold!

Prof. P. (Patrick) Schrauwen – Maastricht University

Dr E. (Eric) Kalkhoven – UMC Utrecht

Dr J. (Joris) Hoeks – Maastricht University

Prof. S. (Sander) Kersten – Wageningen University and Research Center

In type 2 diabetes, tissues such as skeletal muscle take up less glucose, leading to elevated glucose levels in the blood. This research explores if cold-induced shivering, a type of muscle contraction that heavily relies on glucose for fuel, can stimulate glucose uptake and improve glucose control in diabetes patients.

Dynamic symptoms networks - a novel paradigm to improve diagnosis, prognosis and treatment of multimorbidity

Prof. M.G.M. (Marcel) Olde Rikkert and Dr G.M.E.E. (Geeske) Peeters – Radboudumc

Prof. T.M. (Thomas) Gill – Yale School of Medicine

Prof. C.L.H. (Claudi) Bockting and dr R. (Rick) Quax – University of Amsterdam

The researchers aim to develop a novel theory to improve diagnosis and treatment of older people with complex health problems. Symptoms of diseases overlap and influence each other. The insights gained through this theory can inform doctors about the optimal strategy to treat patients with multiple concurrent diseases.

Recovery of the cell's energy factories for tissue repair in COPD: muscles to the rescue

Prof. I.H. (Irene) Heijink – UMC Groningen

Dr R.C.J. (Ramon) Langen and dr H.R. (Harry) Gosker – Maastricht University

Prof. E.M.J. (Sabeth) Verpoorte – University of Groningen

COPD is a severe disease characterized by lung and often also muscle damage. We will investigate a novel concept where aberrant interaction between lung and muscle leads to defects in the cell's energy factories and impaired tissue repair. By restoring these defects, we aim to improve lung and muscle function.

Autism exposed

Dr R.A. (Raymond) Poot – Erasmus MC

Prof. B. (Bas) Van Steensel – Nederlands Kanker Instituut

Dr H.H.H. (Hieab) Adams – Erasmus MC

The risk to develop a mental disorder such as autism or schizophrenia is determined by your DNA. The researchers apply a new method towards reading in the DNA whether somebody is susceptible and to better understand what goes wrong in the brain development of patients.

Beta cell stress and the exocrine pancreas: A cause/ consequence relationship?

Dr B.N.G.G. (Ben) Giepmans – UMC Groningen

Dr E.C.M.C. (Elizabeth) Carroll – TU Delft

Dr A. (Arnaud) Zaldumbide – Leiden University Medical Center

Evidence that the complete pancreas is affected in Type 1 diabetes is emerging. In zebrafish larvae the scientist microscopically study a cause-consequence relationship to understand whether the insulinproducing cells will be stressed by their neighbors involved in food processing, which may be a long-sought trigger for Type 1 diabetes.

The bicarbonate umbrella – a multiorgan protective mechanism in humans.

Prof. U.H.W. (Ulrich) Beuers – Amsterdam UMC

Prof. A.J. (Ton) Rabelink – Leiden University Medical Center

Patients with cholestatic and genetic liver diseases suffer from consequences of worsening liver function, but also liver-independent complaints. We identified bicarbonate secretion as protective mechanism for liver and bile ducts. We aim to characterize and manipulate the 'bicarbonate umbrella' in liver, bile ducts and other organs in a multidisciplinary approach.