# Laureates 2019

## Funds for health research

### managed by the King Baudouin Foundation

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THE FUNDS FOR HEALTH RESEARCH MANAGED BY THE KING BAUDOUIN FOUNDATION

**Throughout the past decade, the King Baudouin Foundation has developed numerous activities in the areas of health and health research. The Foundation supports initiatives that enable citizens to live in good health or to help combat diseases more effectively, and initiatives that contribute to accessible and acceptable healthcare for society.**

**In the area of health research, the Foundation already administers over 80 Funds carrying out research in very diverse fields such as cancer, AIDS, rare diseases, ageing, neurology, cardiology, etc. Most of these Funds have been set up by individual donors with a clear motivation, for example to support a specific area of research on the basis of a personal experience or a sense of gratitude towards a specific institution or department, etc.**

**All Funds are administered by a steering committee that decides on the definition of the Fund's mission, the use of the financial resources, etc. When a call is launched, the committee can rely on the expertise of an independent jury for the selection of the laureate(s).**

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The Funds are managed in such a way that the donor's wishes are considered paramount and a tailored approach is developed. At the same time, the Foundation seeks to make the best possible use of the resources available and to create the greatest possible impact. This may lead to choosing specific niche areas of research, using new tools for philanthropic support, cooperating with other funding institutions and research centres, etc.

In order to develop an overall, future-oriented vision on the best ways to deliver philanthropic support in the field of health research, the Foundation relies on the knowledge of the recognized experts of the 'Advisory Committee Research' and 'Advisory Committee Cancer'.

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In 2019, 43 Funds have awarded research grants for a total amount of more than 6,7 million euro. This would never have been possible without the collaboration of the philanthropists and the members of our advisory committees, steering committees and scientific juries. The King Baudouin Foundation wants to thank all these people for their selfless commitment and invaluable contribution to our activities. They are the guarantors of the relevance of our approach and the scientific quality of the projects we support.

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## Alain Hendlisz

Jules Bordet Institute

Brussels

Cancer

*Legacy to the*

*King Baudouin Foundation*

# Identification of biomarkers of oligometastatic and diffuse diseases in patients operated for liver metastases

King Baudouin Foundation

*Working together for a better society*

## Alain Hendlisz

Jules Bordet Institute

Brussels

Cancer

**Identification of biomarkers of oligometastatic and diffuse diseases in patients operated for liver metastases**

Project supported by the
King Baudouin Foundation
**Grant €600,000**

***Identification of predictive biomarkers for curative surgery in patients with oligometastatic liver disease. A multidisciplinary interuniversity group dedicated to the research of biomarkers for oligometastatic profile in patients operated for liver metastases from solid tumor.***

Among patients with liver metastasis from solid tumors operated with curative-intent, the analysis of survival outcomes reveals 2 different profiles. First, a substantial proportion of patients in whom the tumor will rapidly reappear after surgery, leading to cancer-related death in the first postoperative years. Second, a population in whom long-term survival is obtained, eventually after multiple liver resections.

We aim to improve the selection process and reduce the risk of futile surgery in patients with aggressive tumor behavior in whom surgery will not significantly improve the prognosis and to recognize patients with oligometastatic disease who will benefit from surgery. Therefore, a multidisciplinary platform is organized to explore different potential markers of tumor biology, including immunology and genetic tumor sequencing.

## Francesca Rapino

ULiège – GIGA

Liège

Cancer

***Funds for biochemical research on cancer***

*Funds André Vander Stricht, Emile Carpentier, Van Damme, Yvonne & Jacques François - De Meurs, Arlette Lemaître, M. Waeyenborghs, Julia Ertryckx, Jules Delière, Madeleine Wigand and Christiane De Block*

## Impact of codon-biased translational regulation in melanoma immuneresponse

King Baudouin Foundation
*Working together for a better society*

## Francesca Rapino

ULiège - GIGA

Liège

Cancer

## Impact of codon-biased translational regulation in melanoma immuneresponse

Project supported by the
Funds for biochemical research on cancer
**Grant €150,000**

In the past years the discovery that our immune system is able to recognize and kill tumor cells led to effective treatments for many cancers. Among those melanoma, the deadliest form of skin cancer, has shown an impressive regression when treated with immunotherapy. Unfortunately, not all patients respond to the current immune treatments and some of them acquire resistance towards the drugs after some time. For these reasons, a better understanding of the events occurring in tumors when they face the immune system would be beneficial to improve melanoma patients' prognosis. Protein synthesis occurs in cells by associating the codons of the mRNA to the specific amino acid in the protein. This happens in the ribosomes by correctly pairing the mRNA codons to the tRNA anticodon: to this end tRNAs can be modified in order to increase the efficiency and the fidelity of the recognition of specific codons. We recently discovered that a specific tRNA modification (U34-mcm5s2) is needed for melanoma cells to become resistant to target therapy. In this project we want to understand if the U34-mcm5s2 modification plays a role in modulating melanoma response to the immune system. Also, we aim to understand if other tRNA modifications, or actors of translation fidelity, will be important to define melanoma immune response. This study will highlight new regulatory pathways and putative important targets for immunotherapy, possibly ameliorating patient life.

## Peter Vermeulen

GZA

Antwerp

Cancer

*Fund Oncology Augustinus*

# Biology of growth of cancer by vessel co-option instead of angiogenesis

King Baudouin Foundation
*Working together for a better society*

## Peter Vermeulen

GZA

Antwerp

Cancer

## Biology of growth of cancer by vessel co-option instead of angiogenesis

Project supported by the
Fund Oncology Augustinus
**Grant €100,000**

The growth of tumors critically depends on the supply of nutrients and oxygen, delivered to the tumor cells via the blood stream and therefore an adequate blood supply is indispensable. The formation of new blood vessels, a process termed angiogenesis, was considered to be a cancer hallmark and, consequently, anti-angiogenic therapy was regarded as a broadly applicable anti-cancer treatment. Unfortunately, the high expectations of anti-angiogenic therapy have not been fully reached and limited efficacy in both early and late stage cancer has been observed. A possible explanation for these disappointing results is the over-estimation of the importance of angiogenesis in cancer as alternative mechanisms for tumor vascularization exist, including vessel co-option. During vessel co-option, cancer cells take advantage of the existing blood vessels in the colonized organ. Recent analyses in lung, liver and brain tumors demonstrate vessel co-option may be the dominant mechanism of vascularization in these organs. Unfortunately, lack of biological knowledge with respect to vessel co-option hampers the translation from bench to bedside. In this project, the aim is to address the gaps in the biological understanding of vessel co-option by studying the genome-wide gene expression profile of liver metastases with growth patterns that reflect distinct mechanisms of tumor vascularization.

## Peter Vermeulen

GZA

Antwerp

Cancer

*Fund Oncology Augustinus*

# Improving the biobank of the department of Oncological Research of the GZA Hospitals to support translational cancer research

King Baudouin Foundation
*Working together for a better society*

## Peter Vermeulen

GZA

Antwerp

Cancer

# Improving the biobank of the department of Oncological Research of the GZA Hospitals to support translational cancer research

Project supported by the
Fund Oncology Augustinus
**Grant €49,088**

A biobank is a collection of human samples and related clinical data that will exclusively be used for scientific research purposes. A biobank must comply with the Royal Decree of 9 January 2018 and with the General Data Protection Regulations. The management of the Oncology Center of the GZA Hospitals has decided to organize a biobank to collect samples of patients with cancer with the aim to support cancer research at the Translational Cancer Research Unit of the department of Oncological Research of the Oncology Center GZA. Although not a legal requirement, accreditation according to the norm ISO 20387 published in 2018 will be obtained. Maintaining a biobank can be regarded as one of the obligatory tasks of a comprehensive cancer center. Patients should indeed be offered the possibility to contribute to the progress of cancer research by donating samples and related clinical follow-up data. Privacy shall be respected by the process of pseudonymization.

**Philip Debruyne & Laura Tack**

AZ Groeninge

Kortrijk

Cancer

*Fund AZ Groeninge*

# Underrepresentation of vulnerable older patients with cancer in phase II and III oncology registration trials: a case-control study

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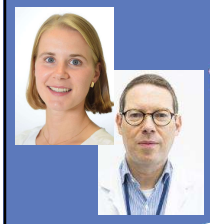

**Philip Debruyne & Laura Tack**

AZ Groeninge

Kortrijk

Cancer

**Underrepresentation of vulnerable older patients with cancer in phase II and III oncology registration trials: a case-control study**

Project supported by
the Fund AZ Groeninge
**Grant €10,000**

It is suggested that the strict inclusion criteria for clinical trials ensure that only fit older people can participate while the vulnerable and frail profiles are eliminated. As a result, not all scientifically based recommendations within oncology are applicable to the elderly with a rather vulnerable profile.
In this research project, we provide evidence for the hypothesis that older patients included in phase II or III oncology trials are significantly fitter than the real life oncology population. By an oncogeriatric screening, a clear distinction can be made between fit and vulnerable profiles, allowing an effective and safe therapy to be individualised for each elderly patient with cancer. Therefore, we suggest to integrate some form of geriatric evaluation in future cancer clinical trials to enable stratification according to this parameter and allow subgroup analysis. This will broaden the application and interpretation of trial results. The results of our project were published in the Journal of Geriatric Oncology

## Hélène Schoemans

UZ Leuven

Leuven

Hematology

*Fund Michael Van Waeyenberge*

# SMILe (SteM cell Transplantation faciLitated by eHealth Technology)

King Baudouin Foundation
*Working together for a better society*

## Hélène Schoemans

UZ Leuven

Leuven

Hematology

## SMILe (SteM cell Transplantation faciLitated by eHealth Technology)

Project supported by the
Fund Michael Van Waeyenberge
**Grant €305,000**

Considering the far-reaching impact of allogeneic hematopoietic stem cell transplantation (HCT) on multiple aspects of their lives, HCT patients can benefit from an integrated model of care, in which they are given the opportunity to take an active role in their survivorship journey. The SMILe project (SteM Cell TransplantatIon faciLitated by eHealth Technology) proposes an innovative eHealth powered integrated care model of care based on a 'care coordinator' and an eHealth interface (the SMILe App) to support patient self-management. This project is currently running in Germany and Switzerland. It is developed based on user feedback and implementation science principles to facilitate future sustainable application to real life settings. Thanks to the Michael Van Waeyenbergh fonds, UZ Leuven will perform a context analysis to understand how to adapt the SMILe model to its local setting and plan a clinical trial to test its efficacy compared to standard care.

## Johan Maertens

UZ Leuven

Leuven

Hematology

*Fund Michael Van Waeyenberge*

# Supportive care for hematology patients: research on improved diagnostics and safer antifungal therapy

King Baudouin Foundation
*Working together for a better society*

Johan Maertens

UZ Leuven

Leuven

Hematology

Supportive care for hematology patients: research on improved diagnostics and safer antifungal therapy

Project supported by the
Fund Michael Van Waeyenberge
**Grant €41,319**

Invasive mold infections still remain an important cause of severe disease and even death in patients with leukemia or other cancers. Despite significant improvements in the diagnosis and treatment of these less widely known infections, they still carry a mortality of around 20-30%. For this reason, our research group wants to decrease the mortality by advanced risk stratification, for example based on genetic markers, and by improving early diagnosis. For this we aim to improve several aspects of the diagnostic process, such as improved patient comfort (for example by exhaled breath analysis), decreased diagnostic delay (by using fast “lateral flow” tests), or an improved accuracy in identifying the causative agent (for example using “next generation sequencing”).

## Isabelle Merckaert & Aurore Liénard

Jules Bordet Institute

Brussels

Cancer

*Fund Thierry Maricq*

*Fund Véronique Detournay*

# Children facing parental cancer: a randomized controlled study evaluating the efficacy of a psychological intervention to support parenting

**Selection made in cooperation with the Friends of the Bordet Institute**

King Baudouin Foundation

*Working together for a better society*


## Isabelle Merckaert & Aurore Liénard

Jules Bordet Institute

Brussels

Cancer


## Children facing parental cancer: a randomized controlled study evaluating the efficacy of a psychological intervention to support parenting


Project supported by the Funds Thierry Maricq and Véronique Detournay

**Grant €28,846**


Cancer has a significant short and long-term impact on the family. Following cancer diagnosis, many parents report being concerned about the impact of the illness on their children and how to communicate about the illness.

The effectiveness of a parental intervention is assessed through a longitudinal two arms, randomized controlled trial. The psychological intervention consists in a brief individual 4-sessions program centered on supporting children through 'open parents-children communication' in the context of a parental cancer. The participants are randomly assigned to either an intervention group or a waiting list group. Assessments are conducted at two periods: before and after the intervention for the experimental group and at 9 weeks of interval for the control group. The evaluation of the intervention assesses principally parental self-efficacy in communication, emotion regulation and communication behaviors with children.

## Darius Razavi & Aurore Liénard

Jules Bordet Institute

Brussels

Cancer

*Fund Thierry Maricq*

*Fund Véronique Detournay*

**Family support in the context of parental cancer: evaluation of the impact of an intervention developed in the Institut Jules Bordet**

**Selection made in cooperation with the Friends of the Bordet Institute**

King Baudouin Foundation

*Working together for a better society*

**Darius Razavi & Aurore Liénard**

Jules Bordet Institute

Brussels

Cancer

**Family support in the context of parental cancer: evaluation of the impact of an intervention developed in the Institut Jules Bordet**

Project supported by the Funds
Thierry Maricq and Véronique Detournay
**Grant €23,000**

Cancer has a significant short and long-term impact on the family and especially on children. Children of cancer patients may suffer from emotional, behavioral or somatic difficulties. In addition, parents are asking many questions about the impact of the disease on their children and how to support them.
Aware of these observations, our team has implemented for several years a preventive and psychoeducational intervention for children facing a family cancer. This intervention has been assessed, among others, in 2016 (participant's expected benefits). The results indicate that these expectations cover many fields and seem to vary according to the medical situation, children's age and the family situation. The current objective of the study is to develop a short tool "BenEval" to better adapt to the needs of patients. It will be a computer-based questionnaire for more ease of use. This adaptation should allow us to meet more participants and better answer the question of expectations and benefits' families.

## Steven Laureys

ULiège

Liège

Rare diseases

*Fund Generet*

# Taking care of patients in non-responsive wakefulness, minimally conscious or locked-in syndrome

**In cooperation with the F.R.S.-FNRS & FWO**

King Baudouin Foundation
*Working together for a better society*

## Steven Laureys

ULiège

Liège

Rare diseases

Taking care of patients in non-responsive wakefulness, minimally conscious or locked-in syndrome

Project supported by the Fund Generet
**Prize €1,000,000**

With his team, Steven Laureys works at better characterizing residual brain function of patients who survive an acute brain damage but remain in a coma, unresponsive wakefulness, minimally conscious or locked-in syndrome. His research focuses on diagnosis, prognosis and treatment, and his multimodal evaluation of consciousness in severely brain-damaged patients is recognized internationally as a major medical, scientific and ethical contribution to the field.
He created the Coma Science group in 2006. People from all over Europe who have woken up from a coma but are not regaining consciousness or are having considerable difficulty doing so come to his center for clinical examinations.
In 2014 he created the 'GIGA Consciousness' group at the university of Liège to study the pathological, pharmacological and psychological modifications of human perception and consciousness. In 2019 he created the Brain Clinic at the university hospital of Liège.
One way of bringing about a recovery is the use of electrical brain impulses, but the research group is also looking for other forms of treatment. The funding that comes with the Generet Prize will be used among other things for more research into the effects of pharmacological treatments such as apomorphine. This substance is injected under the skin and stimulates chemical processes in the brain for some patients, but it is not yet clear which patients will benefit from this effect. An initial phase of research in a small group of patients has yielded some encouraging results, but these still need to be confirmed through more research involving larger numbers of patients.

## Geert Bultynck

KU Leuven

Leuven

Wolfram syndrome

*Fund Eye Hope*

**Exploring & fixing deranged Ca2+ signalling in Wolfram syndrome: a role for anti-apoptotic Bcl-2 and opportunity for Bcl-2-based strategies**

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## Geert Bultynck

KU Leuven

Leuven

Wolfram syndrome

**Exploring & fixing deranged Ca2+ signalling in Wolfram syndrome: a role for anti-apoptotic Bcl-2 and opportunity for Bcl-2-based strategies**

Project supported by the
Fund Eye Hope
**Grant €45,000**

Wolfram syndrome is a rare autosomal-recessive genetic disorder, characterized by childhood-onset diabetes mellitus, atrophy of the optic nerve and other complications. Mutations in two causative genes, WFS1 (majority of cases) and CISD2 (minority of cases) have been described as major disease causes. Currently, no treatment for Wolfram syndrome is available, resulting in a low life expectancy (about 30 years). In Wolfram syndrome, intracellular calcium-release channels appear to be dysregulated, resulting in deranged calcium dynamics and cellular stress. Important modulators of these channels are anti-apoptotic Bcl-2 proteins. By exploiting our insights in the cell biological functions of anti-apoptotic Bcl-2 proteins, we aim to explore whether Bcl-2 and Bcl-2-derived tools normalize calcium signaling in Wolfram syndrome and suppress disease outcomes.

## Dennis Roop

University of Colorado Denver

United States

Epidermolysis bullosa simplex

*Fund Vlinderkindje*

# A stem cell-based therapy for patients with Epidermolysis bullosa simplex (Phase II): translating stem-cell therapies for EBS into the clinic

**Selection made in cooperation with DEBRA International**

King Baudouin Foundation
*Working together for a better society*

## Dennis Roop

University of Colorado Denver

United States

Epidermolysis bullosa simplex

A stem cell-based therapy for patients with Epidermolysis bullosa simplex (Phase II): translating stem-cell therapies for EBS into the clinic

Project supported by the
Fund Vlinderkindje
**Grant €150,000**

The induced pluripotent stem cell (iPSC) technology provides a platform for developing a permanent corrective therapy for EBS. However, manufacturing genetically corrected EBS iPSC-derived epidermal cells for a clinical trial is a complex process, which needs to be implemented under cGMP-compliant conditions. We will adapt our previously developed technologies for cellular reprogramming, gene editing and iPSC differentiation into epidermal progenitors to cGMP standards and generate safety and efficacy data for keratin 14-corrected iPSC-derived epidermal grafts for FDA approval of a clinical trial. We will also assess the efficacy of systemically delivered MSCs to improve the engraftment of iPSC-derived keratinocytes.

## Anton De Spiegeleer

UGent

Ghent

Ageing

*Fund Marie-Thérèse De Lava*

*Fund Robert Schneider*

# Tackling Sarcopenia: the influence of gut microbiome on the etiology of sarcopenia

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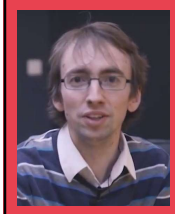

## Anton De Spiegeleer

UGent

Ghent

Ageing

Tackling Sarcopenia: the influence of gut microbiome on the etiology of sarcopenia

Project supported by the Funds
Marie-Thérèse De Lava and Robert Schneider
**Grant €145,000**

Sarcopenia is the loss of muscle mass, strength and function with ageing. It represents an important health issue of the 21st century because of its devastating effects on quality and length of life in addition to an increased prevalence of aged people. The mechanisms that might lead to sarcopenia are still poorly understood. However, recent studies indicate a link between sarcopenia and the microbes in the gut, the so-called microbiome. Promising in vitro data from our group showed that specific bacterial metabolites, i.e. quorum sensing peptides (QSP), may be involved in this link between the gut microbiome and sarcopenia. This multidisciplinary project will investigate the interaction between QSP and sarcopenia in vivo, aiming to ameliorate diagnosis, prevention and therapy of sarcopenia. Ultimately, the findings of this project could help increase functionality and quality of life in older people and decrease the devastating health outcomes associated with sarcopenia.

## Naomi Dhollander

VUB

Brussels

Primary care

*Fund Maurange*

**Improving the interdisciplinary dialogue between the oncological team in the hospital and primary care in the light of providing early palliative care to advanced cancer patients**

King Baudouin Foundation
*Working together for a better society*

## Naomi Dhollander

VUB

Brussels

Primary care

**Improving the interdisciplinary dialogue between the oncological team in the hospital and primary care in the light of providing early palliative care to advanced cancer patients**

Project supported by the
Fund Maurange
**Grant €77,952**

The majority of advanced cancer patients wants to be cared at home and prefers to die at home. To achieve this, interdisciplinary collaboration between professional caregivers working in the hospital setting and professional caregivers working in the home setting is crucial. As we see in current health care, the general practitioner (GP) who is a key person in the care for a patient, often loses contact with his patients from the moment they receive active oncological treatment in the hospital. Byinvolving specialized palliative home care early in the disease trajectory of advanced cancer patients, those teams can support the GP in taking up the role as coordinator of care. However, in current practice, professional caregivers in different settings rarely communicate with each other leading to a discontinuity of care between different care settings. If we find a possibility to bring the patient and family caregiver, the GP and other primary caregivers, the oncological team and the palliative home care team together to give expertise and support, continuity of care can be guaranteed in supervision of the GP. We will use an existing model for interdisciplinary collaboration and communication in the primary care setting and together with involved professional caregivers, patients and family caregivers, this model will be adapted to be usable in the light of providing early palliative care for advanced cancer patients.

## Nicolas Capelli

de Duve Institute – UCLouvain

Brussels

Biomedical sciences

*Fund Maurange*

# Modulation of RSK kinase activity and target specificity by cellular and pathogens' proteins

King Baudouin Foundation
*Working together for a better society*


## Nicolas Capelli

de Duve Institute – UCLouvain

Brussels

Biomedical sciences

Modulation of RSK kinase activity and target specificity by cellular and pathogens' proteins



Project supported by the
Fund Maurange
**Grant €35,000**


Our laboratory discovered that unrelated pathogens, including viruses and bacteria, used the very same mechanism to hijack cellular enzymes (protein kinases named RSK) for their own benefit.
We will analyze whether additional pathogens use the same strategy to hijack these kinases and whether, in physiological conditions, RSK kinases can be regulated similarly by cellular factors.

## Guido Bommer

de Duve Institute – UCLouvain

Brussels

Parkinson

*Fund Maurange*

# Novel biochemical aspects of Parkinson's disease

King Baudouin Foundation
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## Guido Bommer

de Duve Institute – UCLouvain

Brussels

Parkinson

# Novel biochemical aspects of Parkinson's disease


Project supported by the
Fund Maurange
**Grant €25,000**

Parkinson's disease is the second most common neurodegenerative disease. Its characteristic motor symptoms are caused by the progressive loss of a particular neuron population in the midbrain. However, it is still unclear why these cell die is unclear. Therefore, currently no causal therapies are available. The group of Guido Bommer investigates the function of an enzyme with a suspected role both in cancer biology and Parkinson's disease. The goal is to understand how this enzyme protects cells from stress. Eventually, this study may clarify how metabolic activity can lead to damage that causes the protein aggregation and the sensitivity to oxidative stress observed in Parkinson's disease. With the help of the Fonds Maurange, we will acquire a separation system (called HPLC) which will greatly expand our capacity to evaluate metabolic changes in cells.

## Veerle Foulon & Michael Ceulemans

KU Leuven

Leuven

Pharmacology

*Fund Maurange*

# Towards a Teratology Information Service (TIS) in Belgium: the exploration of users' preferences and data collection opportunities

King Baudouin Foundation
*Working together for a better society*


## Veerle Foulon & Michael Ceulemans

KU Leuven

Leuven

Pharmacology

Towards a Teratology Information Service (TIS) in Belgium: the exploration of users' preferences and data collection opportunities



Project supported by the Fund Maurange
**Grant €50,000**


The recent PhD project of Michael Ceulemans showed that patients and healthcare professionals (HCPs) do have a substantial number of questions regarding the safe use of medicines during pregnancy and lactation, and search for answers via many different ways. To tackle these information needs as well as the current lack of safety data, the establishment of a Teratology Information Service (TIS) in Belgium was recommended. As an expertise center specialized in pre- and postnatal exposure to medicines and other health products, a TIS focuses on counseling and providing evidence-based information to patients and HCPs, collecting exposure data and performing research on medication use during pregnancy and lactation, and contributing to the (continuous) education of licensed and future HCPs. Although the necessity to set-up a Belgian TIS has been clearly demonstrated, it still remains unknown how the service should be developed within the Belgian context, both with regard to providing information to patients and HCPs as well as to collecting data and performing research. Therefore, the current project aims to provide evidence on operational requirements for the establishment of a Belgian TIS. More specifically, the research activities aim to collect evidence on the expectations and preferences of Belgian patients and HCPs towards the organization of the Belgian TIS, as well as on the most optimal data collection strategy for future research on the safety of medicines during pregnancy and lactation.

## Evangelia Bolli

Harvard Medical School, Center for Systems Biology

Boston, USA

Immunology

*Fund Henri Benedictus*

**Responsiveness of patients to a PD-1 (programmed cell death protein) immunotherapy suffering from head and neck squamous cell carcinoma**

King Baudouin Foundation
*Working together for a better society*

## Evangelia Bolli

Harvard Medical School, Center for Systems Biology

Boston, USA

Immunology

**Responsiveness of patients to a PD-1 (programmed cell death protein) immunotherapy suffering from head and neck squamous cell carcinoma**

Project supported by the
Fund Henri Benedictus
**Fellowship $45,000**

Immunotherapy is a clinical breakthrough for the treatment of various aggressive cancers, including melanoma, non-small cell lung carcinoma and head and neck squamous cell carcinoma. Immunotherapeutics target the immune system, instead of the tumor itself, and can durably control cancers that otherwise resist to standard-of-care treatments. Currently approved immune drugs include monoclonal antibodies that target the programmed cell death protein 1 (PD-1) pathways, often referred to as immune checkpoint blockers. However, immune checkpoint blockade only benefits a minority of patients. There is increasing experimental evidence that host cells present in the tumor microenvironment can limit responses to immune checkpoint blockade and, thus, that many patients may fail to respond to immunotherapy due to immune non-permissive tumor environments. In my research, I aim to specifically test the hypothesis that tumor-associated neutrophils are key determinants of the response to a-PD1 immune checkpoint inhibitor in patients. Addressing this question is important because better understanding mechanisms of immunotherapy response should lead to the development of novel therapeutic approaches with improved clinical outcomes.

## Mathias Vissers

UC Berkeley & UC San Francisco

Berkeley & San Francisco, USA

Translational medicine

*Fund Henri Benedictus*

# Master in Translational Medicine

King Baudouin Foundation
*Working together for a better society*

## Mathias Vissers

UC Berkeley & UC San Francisco

Berkeley & San Francisco, USA

Translational medicine

# Master in biomedical engineering

Project supported by the
Fund Henri Benedictus
**Fellowship $60,000**

## Caroline Van Cauwenberghe

UGent

Ghent

Alzheimer

*Fund Jules Delière*

*Fund Steldust*

*Fund M. Waeyenborghs*

**The dynamic interplay of the complement system, immune cell infiltration and extracellular vesicles at the choroid plexus in Alzheimer's disease pathogenesis**

**Selection made in cooperation with SAO/FRA**

King Baudouin Foundation
*Working together for a better society*

## Caroline Van Cauwenberghe

UGent

Ghent

Alzheimer

**The dynamic interplay of the complement system, immune cell infiltration and extracellular vesicles at the choroid plexus in Alzheimer's disease pathogenesis**

Project supported by the Funds
Jules Delière, Steldust and M. Waeyenborghs
**Grant €73,500**

The brain is protected against external insults such as toxins, infectious agents and blood fluctuations by the presence of tight barriers. One of those barriers, the blood-cerebrospinal fluid barrier, separating the blood and cerebrospinal fluid, is present at the choroid plexus in the brain ventricles. The choroid plexus is responsible for the production of cerebrospinal fluid and provides active surveillance for immune cells, like white blood cells. Research shows severe changes at the choroid plexus in Alzheimer's disease. This points towards an important role of this structure in the disease progression. We previously reported that Alzheimer's disease is linked with increased inflammation in the choroid plexus and an impairment of the blood-cerebrospinal fluid barrier which might lead to the influx of white blood cells into the brain. More recently, we detected an increase in complement proteins in the choroid plexus in Alzheimer's disease. Additionally, we observed that the choroid plexus is able to release extracellular vesicles (EVs) into the cerebrospinal fluid and that these EVs might play an important role in Alzheimer's disease. In this project, we will investigate the interplay between the immune cells, the complement system and EVs at the choroid plexus during Alzheimer's disease. This will provide novel insights in the role of the choroid plexus in Alzheimer's disease and might ultimately lead to the discovery of novel key molecules or mechanisms, which may be relevant for the prevention or treatment of Alzheimer's disease.

## Sara Van Mossevelde

UAntwerpen

Antwerp

Alzheimer

*Fund Mr and Mrs Deelen-Hollanders*

**Detailed characterizing and phenotyping of patients with Alzheimer's disease in order to identify modifying or prognostic factors and biomarkers**

King Baudouin Foundation
*Working together for a better society*

## Sara Van Mossevelde

UAntwerpen

Antwerp

Alzheimer

**Detailed characterizing and phenotyping of patients with Alzheimer's disease in order to identify modifying or prognostic factors and biomarkers**

Project supported by the
Fund Mr and Mrs Deelen-Hollanders
**Grant €135,000**

Patients with Alzheimer's disease can display a variety of symptoms and the disease course can be quite different between them. Up to date we are not able to predict which patient will display which symptoms or how fast the disease will progress.
In this research project we will follow a large group of patients with Alzheimer's disease and perform each 12 months a thorough investigation of all symptoms and signs.
We want to explore if certain life style habits, other diseases or exposure to certain environmental factors can predict the development of particular symptoms or signs. Further we will investigate if certain blood values might serve as 'markers' to indicate progression of the disease or to predict the development of particular symptoms or signs. Further research into these 'predicting' factors and blood 'markers' might also give additional insights about the underlying causes of Alzheimer's disease which might lead in the longer term to therapies against Alzheimer's disease.

## Alice Nieuwboer

KU Leuven

Leuven

Parkinson

*Fund Malou Malou*

*Fund Perano*

# TARGET SLEEP: The role of sleep on motor memory consolidation in Parkinson's disease

King Baudouin Foundation
*Working together for a better society*


## Alice Nieuwboer

KU Leuven

Leuven

Parkinson

# TARGET SLEEP: The role of sleep on motor memory consolidation in Parkinson's disease



Project supported by the
Funds Malou Malou and Perano
**Grant €137,000**


This project investigates the sleep-motor interaction in Parkinson's disease (PD) by testing whether a post-training nap intervention enhances performance on a motor learning task as compared to wakefulness. We also explore to what degree sleep disturbances impact on motor learning abilities in PD. We will use a finger sequence-learning task to test for behavioral markers of long-term motor learning. Also, we will study the physiology of sleep overnight and during the nap. Together, this project could induce a shift in motor rehabilitation programs towards adopting sleep-based interventions to optimize retention of training effects, so that patients can maintain motor functions for as long as possible.

## Luis Serrano

Center for Genomic Regulation

Barcelona, Spain

Ophthalmology

*Fund Aline*

# Microbiome disbiosis, Inflammation and Macula Degeneration

King Baudouin Foundation
*Working together for a better society*

## Luis Serrano

Center for Genomic Regulation

Barcelona, Spain

Ophthalmology

## Microbiome disbiosis, Inflammation and Macula Degeneration

Project supported by the
Fund Aline
**Grant €25,000**

One of the leading causes of blindness, especially in old people, is the degeneration of a critical region of the retina called 'macula'. This disease called AMD is a progressive neurodegenerative condition, currently incurable. There are two main types of AMD, the so called wet AMD were massive growth of capillaries in the macula caused blindness and the dry one where the macula region of the retina degenerates. Both forms are associated with a chronic inflammation. The first one can be treated with drugs that prevent blood growth but with time, it turns into the dry version. There are suggestions that the bacterial composition of our gut and mouth could cause chronic inflammation if they are altered, and combined with other factors (ie smoking, UV light etc…) could cause the disease and/or aggravate it. We propose here to test this hypothesis by comparing the status of mouth from controls donors and people affected by AMD with their inflammatory status. A relationship between unhealthy microbes and AMD-associated inflammation could lead to an easy treatment were we could modify the microbiota.

## Elfride De Baere

UGent

Ghent

Ophthalmology

*Fund John W. Mouton Pro Retina*

# Precision medicine in inherited blindness using integrated omics in patient-derived stem cell models

King Baudouin Foundation
*Working together for a better society*


## Elfride De Baere

UGent

Ghent

Ophthalmology

# Precision medicine in inherited blindness using integrated omics in patient-derived stem cell models



Project supported by the
Fund John W. Mouton Pro Retina
**Grant €30,000**


Inherited retinal diseases represent a major cause of certifiable blindness in the working age and childhood population. Despite a revolution in DNA technology that allowed to find genetic causes in half of the cases and that has culminated in successful gene therapies, essential knowledge is lacking to establish a genetic diagnosis in the remaining half of the patients, representing about 175,000 people in Europe. With this project we aim to improve the discovery of hidden mutations in inherited retinal disease, often residing in the 'dark matter' of the genome, and to find novel targets for intervention. From blood cells of patients with undiagnosed inherited retinal diseases we will make stem cells that we will let develop to cells that mimic light-sensitive retinal cells (photoreceptors) that express disease-causing genes of interest. We will perform large-scale DNA, RNA and protein studies on these cells from patients and controls. By integrating these three layers of information, we will develop a sophisticated strategy to pinpoint hidden mutations in undiagnosed patients. These mutations may represent novel targets for intervention studies. This proposal has expected health impact, accelerating a definite diagnosis in inherited retinal diseases, improving genetic counseling, reproductive options, disease prognosis and management and ultimately offering therapeutic opportunities. We will transfer results from our study to the patients through our local clinical and international networks

# Fund for scientific research in rheumatology

**The Fund for scientific research in Rheumatology** supports clinical and multicentre programs, either in academic or non-academic Belgian institutions.
The Fund especially focuses on projects that are open to collaborations with other interested centers and which cannot easily be supported through other existing national or international programs. Translational or basic research can also be supported in a preparative phase for more established funding opportunities.

**In 2019, 8 projects were supported for a total amount of €135,858.**

King Baudouin Foundation
*Working together for a better society*

**Charlotte Baert**
Cliniques Universitaires Saint-Luc

Ultrasound evaluation of joint inflammation in patients with juvenile idiopathic arthritis

**Ellen De Langhe**
KU Leuven

Anti-MDA5 autoantibodies in the pathogenesis of myositis

**Stefan Clockaerts**
KU Leuven

Prevention of posttraumatic ankle osteoarthritis by targeting articular adipose tissue inflammation

**Thijs Swinnen**
KU Leuven

Physical fitness, body composition and physical activity in psoriatic arthritis: exploring opportunities for targeted intervention

**Jans Lennart**
UGent

Bone MRI for detection of spinal structural lesion in patients with spondyloarthritis

**Nisha Limaye**
de Duve Institute – UCLouvain

Identification and functional validation of the first familial Systemic Sclerosis (SSc)-causative genes

**Vanessa Smith**
UZ Gent

Incidence and Prevalence of Interstitial Lung Disease in the Belgian Systemic Sclerosis Cohort

**Isabelle Peene**
UZ Gent / AZ Sint-Jan-Brugge

Primary Sjögren's Syndrome, from Epithelitis to Systemic AutoiMmunity: the SESAM study


Charlotte Baert


Ellen De Langhe


Stefan Clockaerts


Thijs Swinnen


Jans Lennart


Nisha Limaye


Vanessa Smith


Isabelle Peene

King Baudouin Foundation
Working together for a better society

# Fund Doctor J.P. Naets

The Fund **Doctor J.P. Naets** supports interdisciplinary medical research on thyroid diseases and cell proliferation.

Priority is given to innovative research realized by small promising teams at the **IRIBHM** (Institut de Recherche Interdisciplinaire en Biologie Humaine et Moléculaire), ULB.

King Baudouin Foundation
*Working together for a better society*

# Fund Doctor J.P. Naets







**In 2019, 6 projects were supported for a total amount of € 456.000**

King Baudouin Foundation
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**Xavier De Deken**
IRIBHM, ULB

Thyroid function and inflammation in a new animal model overexpressing the interleukin-4 in the thyroid

**Bernard Robaye**
IRIBHM, ULB

- Study of the role of the P2Y6 and P2Y2 receptors in physiological and ectopic osteoblastogenesis
- Control of vascular calcification: study on an *in vitro* cell model and process of vascular calcification *in vivo*

**Alain Boom, Antonina Khoruzhenko**
IRIBHM, ULB

Does mTORC1 mediate the proliferating effect of high glucose?

**Carine Maenhaut, Geneviève Dom**
IRIBHM, ULB

Study of the metabolic and immune profiles of thyroid tumors with follicular architecture, and characterization of their intra-tumor cell heterogeneity

**Carine Maenhaut, Olivier Hancisse**
IRIBHM, ULB

Molecular characterization of papillary thyroid carcinoma: study of the role of ADAR onmicroRNA biogenesis and sequence

## Ruud Van Winkel

KU Leuven

Leuven

Psychiatry

*Fund Queen Fabiola*

*Fund Julie Renson*

## Chair
## Youth in Transition: Mental Health in a Challenging Period

King Baudouin Foundation
*Working together for a better society*

Ruud Van Winkel

KU Leuven

Leuven

Psychiatry

Chair
Youth in Transition: Mental Health in a Challenging Period

Chair supported by the
Fund Queen Fabiola and the
Fund Julie Renson
**Grant €600,000**

Many psychiatric disorders typically have their onset between 14-25 years, yet at present, insufficient cross-talk between child & adolescent and adult psychiatry results in inefficient clinical organization and a research focus on established psychiatric disorders. The current project aims to combine state-of-the-art clinical and research innovations to improve mental health care for young people.
We will study the social environment and its relevance to transition psychiatry over the entire age range of 14-25 years, using complementary methodological approaches including epidemiology, Virtual Reality, neuroimaging and experience sampling. We will also investigate VR assisted therapy as a clinical intervention. Second, we will study the barriers and levers for mental health service use by adolescents and young adults, and the implementation of an optimal transition model. We will implement a comprehensive education and dissemination package to ensure that our findings reach stakeholders and the general public.

## Véronique Delvenne

Queen Fabiola Children's University Hospital

Brussels

Psychiatry

*Fund Queen Fabiola*

*Fund Julie Renson*

# Chair
# Psychiatry of transition in a world in transition

King Baudouin Foundation
*Working together for a better society*


## Véronique Delvenne

Queen Fabiola Children's University Hospital

Brussels

Psychiatry



## Chair
## Psychiatry of transition in a world in transition


Chair supported by the the
Fund Queen Fabiola and the
Fund Julie Renson
**Grant €600,000**

Adolescents and young adults have specific needs in mental health. Transition from Child and Adolescent Psychiatry Services to Adult Psychiatry Services occurs in a particularly at-risk period of life. As barriers exist between these two types of structure, movements must be planned to improve patient care.

The current project will follow a large group of French-speaking Belgian adolescents. We will describe adolescents characteristics and their environment specific features to understand whether they are risk or protective factors to develop mental health needs. The final goal is to identify adolescents who need early intervention and continuity of care. We hope to propose an innovative model of gradual transition and help to reduce stigmatization towards psychological suffering.

## Quentin De Hemptinne

CHU Saint - Pierre

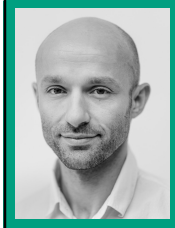
Brussels

Cardiology

*Fund Doctor & Mrs René Tagnon*

**Optical Coherence Guided Treatment of ST-segment Elevation Myocardial Infarction with the Drug-eluting Resorbable Magnesium Scaffold: the BEST-MAG multicentre study**

King Baudouin Foundation
*Working together for a better society*



## Quentin De Hemptinne

CHU Saint- Pierre

Brussels

Cardiology

**Optical Coherence Guided Treatment of ST-segment Elevation Myocardial Infarction with the Drug-eluting Resorbable Magnesium Scaffold: the BEST-MAG multicentre study**

Project supported by the
Fund Doctor & Mrs René Tagnon
**Grant €30,000**

Percutaneous treatment of coronary artery disease depends on the implantation of stents within diseased coronary segments. Bioresorbable scaffolds (BRS) (a stent that disappears from the artery over time) are the latest evolution in coronary treatment and might offer several potential advantages due to its resorbable properties. A new type of bioresorbable scaffold made from a metallic magnesium alloy has been recently developed and shows promising results. We hypothesized that such stent might be particularly useful in patients presenting acute myocardial infarction. We performed a pilot study in our center in eighteen patients that supported this concept, and stressed the necessity to perform a multi centre large study including intra-coronary imaging with long-term clinical follow-up.
BEST-MAG is an investigator-initiated and -sponsored prospective, non-randomized, multicentre trial designed to assess feasibility and safety of RMS implantation in selected STEMI patients based on pre-specified inclusion and exclusion criteria using intra-coronary imaging to guide the procedure.

## An Zwijsen

KU Leuven

Leuven

Cardiology

*Belgian Heart Fund*

# Contribution of BMP-SMAD regulated biogenesis of microRNAs in organ-specific functions of lymphatic endothelium

King Baudouin Foundation
*Working together for a better society*


## An Zwijsen

KU Leuven

Leuven

Cardiology

Contribution of BMP-SMAD regulated biogenesis of microRNAs in organ-specific functions of lymphatic endothelium



Project supported by the
Belgian Heart Fund
**Grant €15,000**


A major function of the lymphatic system is to drain tissue fluid and maintain fluid homeostasis. A dysfunctional lymphatic vasculature is associated with development of several diseases, including lymphedema or tissue swelling. Lymphedema predisposes amongst others for atherosclerosis and exacerbates various cardiovascular diseases. Worldwide approximately 250 million people suffer from this disease. Despite the considerable public health significance, no real cure exists for lymphedema, only symptom-controlling physical therapy. In this project, we will study the BMP signalling pathway, a pathway that has recently emerged to co-regulate lymphatic vessel development and stability. We will make use of human lymphatic endothelial cell culture systems, a mouse lymphedema model and patient material. Understanding how differences between various organ-specific lymphatic beds are established and the response of these organ-specific vessels to environmental changes is essential to identify mechanisms underlying lymphatic vessel restricted diseases and to design improved therapeutic treatments.

## Emeline Van Craenenbroeck

UAntwerpen

Antwerp

Cardiology

*Belgian Heart Fund*

# Discovering the role of titin (TTN) in anthracycline-induced cardiac dysfunction in breast cancer

King Baudouin Foundation
*Working together for a better society*


## Emeline Van Craenenbroeck

UAntwerpen

Antwerp

Cardiology

# Discovering the role of titin (TTN) in anthracycline-induced cardiac dysfunction in breast cancer



Project supported by the
Belgian Heart Fund
**Grant €15,000**


Anthracyclines are the mainstay of chemotherapeutic treatment in a wide range of malignancies. However, due to a growing population of cancer survivors, the importance of long-term complications of anti-cancer treatment has increased. Cardiotoxicity is the most frequent and most feared adverse event as the cancer patients of today could become the heart failure patients of tomorrow. The susceptibility to anthracyclines is not fully explained by differences in clinical risk factors and it has been suggested that genetics may play a role. Genetic variants in titin, an important protein in the heart, can cause a predisposition to heart diseases that are clinically similar to chemotherapy-induced cardiotoxicity. In this research project we will investigate if genetic mutations in titin are related to increased susceptibility for cardiotoxicity in breast cancer patients. This approach will allow us to identify high-risk patients prior to ANT therapy in order to start preventive treatment during therapy.

## Luc Bertrand

UCLouvain

Woluwe-Saint-Lambert

Cardiology

*Belgian Heart Fund*

# Importance of protein O-GlcNAcylation in cardiac hypertrophy development

King Baudouin Foundation
*Working together for a better society*


## Luc Bertrand

UCLouvain

Woluwe-Saint-Lambert

Cardiology

# Importance of protein O-GlcNAcylation in cardiac hypertrophy development



Project supported by the
Belgian Heart Fund
**Grant €20,000**


Cardiac hypertrophy is a leading cause of heart failure and death in Belgium and all over the world. Our project is based on a recent discovery made in our lab showing that the detrimental progression of this pathology can be prevented by targeting a particular use of sugar (or glucose) which is called O-GlcNAcylation pathway. Our ongoing project want to establish novel therapeutic strategies inhibiting O-GlcNAcylation events with the goal to prevent heart failure development and human death from such cardiac diseases.

## Sandrine Horman

UCLouvain

Woluwe-Saint-Lambert

Cardiology

*Belgian Heart Fund*

# Limiting platelet lipid synthesis: a defense mechanism against atherothrombosis in coronary artery disease ?

King Baudouin Foundation
*Working together for a better society*

## Sandrine Horman

UCLouvain

Woluwe-Saint-Lambert

Cardiology

Limiting platelet lipid synthesis: a defense mechanism against atherothrombosis in coronary artery disease ?

Project supported by the
Belgian Heart Fund
**Grant €20,000**

In Belgium, there are about 10,000 cases of myocardial infarction every year. A myocardial infarction, known to the general public as a "heart attack", results from a thrombosis (formation of a blood clot) inside the coronary arteries supplying blood to the heart muscle. As a result, some parts of the heart quickly run out of oxygen and nutrients and cannot work properly. Blood platelets play a key role in thrombosis and are therefore major targets for the treatment of thrombotic occlusive disorders. However, key therapeutic challenges remain because many patients suffering from acute arterial thrombotic events do not respond well to existing clinical treatments and/or suffer from severe side effects.

The recent data of our laboratory shed light on novel mechanisms potentially important for platelet function. We have focused our interest on acetyl-CoA carboxylase (ACC), a protein regulating the synthesis of lipids that are critical mediators of platelet activation. Our project aims to demonstrate that targeting ACC and lipid metabolism could be a promising new therapeutic approach to limit the thrombotic risk in coronary patients.

## An Van Berendoncks

UAntwerpen

Antwerp

Cardiology

***Belgian Heart Fund***

**Prevention of recurrence of hypertensive pregnancy disorders in women with active desire for pregnancy, a randomized controlled trial: a smartphone-based aerobic exercise training program during pregnancy versus usual care**

King Baudouin Foundation
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## An Van Berendoncks

UAntwerpen

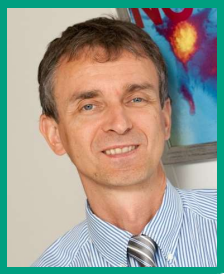
Antwerp

Cardiology

**Prevention of recurrence of hypertensive pregnancy disorders in women with active desire for pregnancy, a randomized controlled trial: a smartphone-based aerobic exercise training program during pregnancy versus usual care**

Project supported by the
Belgian Heart Fund
**Grant €15,000**

Preeclampsia (PE) is characterized by hypertension and organ-damage during pregnancy. Moreover, it has been shown that PE is a systemic disease affecting blood vessel function in the whole body with considerable risk for future cardiovascular disease. Therefore, there is a need for specialized Women's Heart Clinics, where a multidisciplinary approach is adopted in the referral, diagnosis, treatment and follow-up of these patients. Currently, in PE patients, there is an unmet need of preventive measures to prevent 1) PE recurrence and 2) the development of cardiovascular disease later in life. With this project, we hypothesize that exercise training during pregnancy minimizes the risk of PE recurrence and long-term risk for cardiovascular disease through improved vascular health.



## Jean-Luc Balligand

Cliniques Universitaires Saint-Luc/UCLouvain

Woluwé-Saint-Lambert

Cardiology

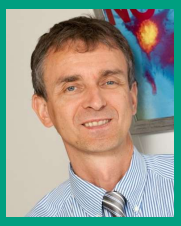
*Fund Joseph Oscar Waldmann-Berteau*

*Fund Walckiers Van Dessel*

**A randomized, placebo-controlled trial of the use of an inhibitor of Aquaporin-1 for the treatment of heart failure with preserved ejection fraction-the BACOPEF trial**

King Baudouin Foundation

*Working together for a better society*




## Jean-Luc Balligand

Cliniques Universitaires Saint-Luc/UCLouvain

Woluwé-Saint-Lambert

Cardiology

**A randomized, placebo-controlled trial of the use of an inhibitor of Aquaporin-1 for the treatment of heart failure with preserved ejection fraction-the BACOPEF trial**



Project supported by the Funds
Joseph Oscar Waldmann-Berteau
and Walckiers Van Dessel
**Grant €79,587**


About half of all patients affected by heart failure (a condition when the heart cannot pump enough blood to the body) suffer from a specific form of the disease, where the heart does not fill properly, because of thickening and stiffening of its muscle wall. Unfortunately, there currently is no specific treatment with proven efficacy for this particular disease. Therefore, much research is needed to understand how this disease develops and to find a cure. The proponent's lab has discovered a new "target" that is involved in this thickening and stiffening of the heart. Surprisingly, it is a water channel, named Aquaporin-1, that also transports oxidant molecules. The same group has discovered that extracts of a plant, Bacopa Monnieri, efficiently block this target, and reduce heart thickening in animals. The group now proposes to test standardized extracts of Bacopa, that are clinically available as a medication, in patients with this form of heart failure, to see if it can improve their quality of life, symptoms and functional status. At the same time, patients will undergo additional tests to better understand how the disease develops. It is expected that this carefully controlled study will generate much needed knowledge on this disease frequently affecting the ever growing population of aging patients, and provide a new treatment that would be readily available, thereby allowing a rapid translation of scientific results to the clinic.

## Jozef Bartunek

Cardiovascular Center Aalst OLV Aalst

Aalst

Cardiology

*Fund Cardiac research Aalst*

# Predicting left ventricular recovery in non-ischemic cardiomyopathy patients with atrial fibrillation and acute decompensated heart failure

King Baudouin Foundation
*Working together for a better society*

## Jozef Bartunek

Cardiovascular Center Aalst OLV Aalst

Aalst

Cardiology

# Predicting left ventricular recovery in non-ischemic cardiomyopathy patients with atrial fibrillation and acute decompensated heart failure

Project supported by the
Fund Cardiac research Aalst
**Grant €108,823**

Heart failure and atrial fibrillation are two conditions that often occur together and are responsible for hospital admissions and an increased risk of mortality. It is often not clear which of the two conditions was present first. This is important in terms of prognosis - patients with atrial fibrillation and pre-existing heart failure have a worse prognosis than patients whose atrial fibrillation induces heart failure - and it also affects the choice of treatment. In this project we will study whether genes can be found in the blood and heart muscle tissue that are related to the condition that precipitated the problem, making it possible to predict whether heart function will be restored once the patient is back in sinus rhythm.

## Linos Vandekerckhove

UGent

Ghent

AIDS

*Fund for scientific research on AIDS*

# Paving the way for a multidimensional therapeutic cure approach in patients treated during acute HIV seroconversion

King Baudouin Foundation
*Working together for a better society*

## Linos Vandekerckhove

UGent

Ghent

AIDS

**Paving the way for a multidimensional therapeutic cure approach in patients treated during acute HIV seroconversion**

Project supported by the
Fund for scientific research on AIDS
**Grant €299,902**

HIV-1 stably integrates into the genome of infected cells where it can remain as a latent reservoir. The 'shock and kill' strategy aims to eliminate this latent reservoir. However, initial reports from such interventions in chronically infected patients failed to provide evidence of sustained viral control. Patients treated during very recent infection show better immune function and a smaller HIV-1 latent reservoir. Chimeric Antigen Receptor (CAR) T cells is a new and particularly promising strategy in the cancer field. We hypothesize that CAR immunotherapy is a promising strategy especially in patients treated during recent infection. The present project aims to include patients diagnosed and treated during recent infection in a diagnostic pathway to identify best suited candidates for a shock and kill strategy by evaluating the 'shock' response towards different agents and the 'kill' response based on CAR-T cells. In addition, psychological evaluation will be performed to evaluate patient perception towards these new strategies.

## Lode Godderis

KU Leuven

Leuven

Health promotion and disease prevention

*Fund Van Mulders-Moonens*

# With a user-centered approach to an integrated health policy

King Baudouin Foundation
*Working together for a better society*


## Lode Godderis



KU Leuven

Leuven

Health promotion and disease prevention

## With a user-centered approach to an integrated health policy



Project supported by the
Fund Van Mulders-Moonens
**Grant €86,890**


Companies benefit from the implementation of an integrated health policy. By improving their physical health (e.g. healthy diet, physical activity, ergonomics) and well-being (mental health, alcohol and drug prevention) employees become fitter, happier and more productive. Despite its importance, only a limited number of companies implemented a health policy. In collaboration and co-creation with the construction and food industry we will unravel why implementing an integrated health policy is a challenge and how their approach might be improved. This means that stakeholders will be involved in all phases of the process, from research to prototyping. This participatory approach has the advantage that it leads to an output that is recognizable and applicable to other companies.
Research team: KU Leuven, Environment and Health (coordination); Flemish Institute for Healthy Living; IDEWE, external prevention service and the Flemish centre of expertise on alcohol and other drugs.

## Koen Putman

VUB

Brussels

Pediatrics

*Fund Jeanne & Alice Van De Voorde*

# Brain injuries in children: improving towards adequate and novel care trajectories (BRILIANT)

King Baudouin Foundation
*Working together for a better society*

Koen Putman

VUB

Brussels

Pediatrics

Brain injuries in children: improving towards adequate and novel care trajectories (BRILIANT)

Project supported by the
Fund Jeanne & Alice Van De Voorde
**Grant €120,000**

Currently there is too much unexplainable variation in care trajectories for people with traumatic brain injuries. One category of patients less studied in this domain is pediatric traumatic brain injuries, mainly because their numbers of low. The BRILIANT team has access to a national data set on all children in Belgium aged between 2.5-18 years who were admitted to an acute hospital for a traumatic brain injury. It is estimated that these were 4000 children in 2016. For each child we combine the clinical information on the type of injury and all services this child received during his/her recovery (also called care trajectory). Such a large database allows us to: 1) describe the number of children per type if brain injury, 2) what kind of care trajectory they follow, 3) predict what kind of injury leads to a given care trajectory, 4) verify if there are factors which prevent or facilitate to follow the proper care trajectory and 5) to identify action points to improve the quality of care in pediatric traumatic brain injuries. The aim of our research team is to bring all required information to the table to stimulate our policy makers to improve the quality of care for these children with specific needs.

## Filip Van den Bosch

UZ Gent

Ghent

Insurance medicine

*Fund Benevermedex*

# Work participation in patients with rheumatic musculoskeletal diseases in an anti-TNF era: implications for private insurances

King Baudouin Foundation
*Working together for a better society*


## Filip Van den Bosch

UZ Gent

Ghent

Insurance medicine



## Work participation in patients with rheumatic musculoskeletal diseases in an anti-TNF era: implications for private insurances



Project supported by the
Fund Benevermedex
**Grant €17,500**


Patients often face rheumatological disorders at an age when they are also contacting insurance companies to take out necessary private insurance policies (e.g. remaining-balance insurance or guaranteed income insurance). They often have to pay disproportionately high premiums or are excluded from certain forms of insurance due to the supposedly increased risk of dropping out of the employment market or of excess mortality in comparison with healthy people of the same age. Due to a lack of up-to-date, high-quality information, insurance companies base these calculations on data from a period when rheumatological disorders were often diagnosed at a late stage and the treatments available were much more limited than they are today. These risk assessments therefore seem to be out of date now.

The aim of this project is to provide recent, high-quality information on the participation of patients with rheumatological disorders in the employment market in Belgium. We aim to identify factors that are associated with (un)successful participation in the employment market. The results will lead to recommendations based on scientific evidence, on the estimation of risks of short-term or long-term incapacity for work among patients with rheumatological disorders, allowing private insurers to set premiums at an appropriate level. Not only will all patients benefit from this, but the method used and the results of the study may also create a precedent for the estimation of risk in other chronic conditions.

## Maarten Moens

UZ Brussel

Brussels

Insurance medicine

*Fund Benevermedex*

# Comprehensive pain assessment in patients with chronic pain: a prospective registry

King Baudouin Foundation
*Working together for a better society*

## Maarten Moens

UZ Brussel

Brussel

Insurance medicine

# Comprehensive pain assessment in patients with chronic pain: a prospective registry

Project supported by the
Fund Benevermedex
**Grant €10,000**

Experiencing long-term pain can influence a lot of aspects of daily living among which a reduced quality of life and limitations in performing activities. If patients are experiencing pain for a long-term, they may apply for a financial compensation. When aiming to receive this compensation, a medical expert, who is appointed by the tribunal, needs to evaluate the severity of pain of that specific person. Currently, the expert will give a score from 1 to 7 on a scale ranging from minimal pain to exceptional severe pain. This score provides information on the amount of pain that a person is experiencing, based on the interpretation of the medical expert. However, next to the severity of the pain itself, there are a lot of other factors that also may play an important role in how much pain a specific person truly experiences. Think for example about the patient's mood and general health condition, his working and financial status, his personal life and the presence of caregivers and his general environment. In this project, we propose a more complete assessment of pain which is not only measuring the amount of pain but also possible factors that play a role in how much pain a patient is experiencing. Our new pain assessment consists of a combination of questionnaires, physical examinations and a registration of several bodily parameters. It is our aim to use this approach in at least 100 patients with long-term pain. In this project, we will evaluate whether medical experts find this new assessment useful and easy-to-use in their practice. Medical experts can provide their feedback and suggest adaptations to the assessment tool, where after we will adapt the assessment tool accordingly. This means that the assessment tool will be continuously improved during the time period of this project. At the end of the project we will have a new assessment tool that will evaluate a lot of factors that are influencing a patient's pain experience.

## Koen Putman

VUB

Brussels

Insurance medicine

*Fund Benevermedex*

# Predicting Return to Work using Administrative Data

King Baudouin Foundation
*Working together for a better society*


## Koen Putman

VUB

Brussels

Insurance medicine

# Predicting Return to Work using Administrative Data


Project supported by the
Fund Benevermedex
**Grant €17,500**

This project uses national patient level data to predict return to work after traumatic brain injury on different time points. More specifically, the probabilities of different percentages of a full time reinstatement will be estimated. The data underlying the models will be retrieved from data that are routinely collected different governmental agencies which are linked at patient level. Data on hospital stay, healthcare utilization and employment will be linked at an individual level for all patients who were admitted to hospital with a traumatic brain injury in 2016 (estimated number ≈ 22.000 patients). This unique national dataset allows in-depth analyses on a series of factors which have an effect on the likelihood to resume work after the injury. Stakeholders of various background (medical experts, employment service workers, patients,…) will be involved in the study to identify factors that are likely to affect work resumption and to evaluate the resulting prediction models.

The goal of this project is to create models that predicts return to work as accurate as possible. Therefore, all methodological choices are based on the idea of maximizing the predictive accuracy. This will allow for the first time to have national figures on the likelihood to resume work depending on the type of brain injury. Furthermore, we envision multiple applications for the prediction models. In insurance medicine, it will complement judgment by expertise with data-driven estimates. The predictions can also be used to inform patients and improve communication and collaboration between patients and physicians. Finally, the knowledge gathered by this project holds the possibility to improve policies related to work resumption to increase the percentage of those returning to work.

## Famke Wildemeersch

UGent

Ghent

Insurance medicine

*Fund Benevermedex*

# Influence of new pharmacological and non-pharmacological approaches of rheumatoid arthritis on work participation: a systematic review

King Baudouin Foundation
*Working together for a better society*

## Famke Wildemeersch

UGent

Ghent

Insurance medicine

**Influence of new pharmacological and non-pharmacological approaches of rheumatoid arthritis on work participation: a systematic review**

Project supported by the
Fund Benevermedex
**Grant €1750**

**Background**. Rheumatoid arthritis (RA) is a chronic and progressive autoimmune disease that frequently has a negative impact on work participation among patients. Even more, patients with RA are in greater risk to become work disabled, have reduced productivity (presenteeism) or have an increased number of sick leave (absenteeism) compared with the general population. Since 2000, the management of RA has made significant progress. The improvement of the management of RA has led to much better results regarding disease activity and joint destruction. However, many of these patients are confronted with additional fees when contracting private insurances, since the risk assessment by insurances is mainly based on historical data.
**Objective**. This systematic literature review was performed to study the influence of new pharmacological and non-pharmacological approaches on work participation among patients with RA with the objective to improve the risk assessment of RA patients when contracting private insurances.
**Method**. A systematic literature review from January 1990 until January 2018 was performed using Pubmed, Embase and Web of Science.
**Results**. Finally, 49 relevant articles were selected. Positive results of pharmacological agents (combination of DMARDs or biologic therapy) on work participation could be demonstrated in patients with recent-onset RA.
**Conclusion**. The large heterogeneity in terms of patient population, study design and outcome measures limits interpretation of the data. However, this systematic literature review could demonstrate that the effect of a treatment is of utmost importance.

## Manon Vandeputte

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**Influence of new pharmacological and non-pharmacological treatments in axial spondyloarthritis on work participation: a systematic review**

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## Manon Vandeputte

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**Influence of new pharmacological and non-pharmacological treatments in axial spondyloarthritis on work participation: a systematic review**

Project supported by the
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Axial spondyloarthritis (AxSpA) occurs typically in young and professionally active patients. Since 2000, there have been important improvements made in the management of SpA, both on a pharmacological (introduction of biological disease-modifying antirheumatic drugs (=bDMARD)) and a non-pharmacological (holistic approach) level. As a result of early diagnosis followed by adequate treatment, the majority of patients achieve a state of clinical remission allowing them to function without significant problems. However, many of these persons still experience problems such as exclusion clauses, additional premiums and contract refusals when taking out private insurance policies because mostly risk assessments are solely based on historical data.

The aim was to carry out a systematic literature review to investigate whether the work participation in patients with axSpA has significantly improved since the introduction of the bDMARD and the non-pharmacological treatment modalities. This would provide arguments for a more accurate and updated risk assessment of the expected personal and economic incapacity of axSpA patients by private insurance companies.

In total, 33 studies out of 603 retrieved citations were included. In this literature search, a difference was made between patients with structural damage (Ankylosing Spondylitis (AS)) and patients in an early stage of the disease (non-radiographic AxSpA (nr-AxSpA)). Most of the patients included in the selected studies had longstanding AS with significant structural damage. This contrasts daily practice where the majority of patients are diagnosed and treated in an early stage of the disease. The great heterogeneity between the studies in patient populations, study design and evaluation methods impeded the formation of a uniform conclusion. However, a positive tendency in work productivity in AS and nr-axSpA patients since the introduction of the new treatment modalities could be observed. More observational, cross-sectional and prospective studies are needed - especially in nr-axSpA patients - to evaluate the effect of both pharmacological and non-pharmacological treatment on the work outcome in axSpA patients.

## Kaat Alaerts

KU Leuven

Leuven

Autism

*Fund Doctor Gustave Delport*

*Fund Maria-Elisa & Guillaume De Beys*

# An investigation of the neural, behavioral and biophysiological effects of long-term oxytocin treatment in children with autism spectrum disorder

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## Kaat Alaerts

KU Leuven

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Autism

An investigation of the neural, behavioral and biophysiological effects of long-term oxytocin treatment in children with autism spectrum disorder



Project supported by the Funds
Doctor Gustave Delport and
Maria-Elisa & Guillaume De Beys
**Grant €100,000**


Intranasal administration of the neuropeptide oxytocin (OT) has gained increasing interest as a possible treatment for targeting the socio-communicative difficulties characteristic of autism spectrum disorder (ASD). While initial studies provided important insights into the immediate effects of single-dose OT administrations, the impact of long-term (multiple-dose) OT treatment on social behavior, neural circuitry and biophysiology is largely unknown. Likewise, the possibility that long-term treatment may induce long-lasting neurobehavioral changes that outlast the period of actual administration remains unexplored. To fill these gaps, the current project will investigate the (long-term) effects and mechanism of multiple-dose OT treatment (4 weeks of daily administrations) in children with ASD. By adopting an extensive neuroimaging protocol (EEG and MRI) and biophysiological assessments of stress, the project will allow relating objective neural and physiological indices to clinical behavioral measures. Given the large heterogeneity of ASD, the project also specifically aims at identifying mediating factors that modulate treatment response (e.g. attachment style, hormonal levels, epigenetics of OT receptor gene). Together, the planned research will provide important new insights into the neural and biological mechanisms of OT treatment, and will aid in delineating patients that may benefit the most from OT treatment.

## Carla Gomes da Silva

ULiège - GIGA

**Liège**

**Autism**

***Fund Doctor Gustave Delport***

***Fund Maria-Elisa & Guillaume De Beys***

**Linking cellular and molecular signatures of anatomical connectivity to autism spectrum disorders behaviors**

King Baudouin Foundation

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## Carla Gomes da Silva

ULiège - GIGA

Liège

Autism

**Linking cellular and molecular signatures of anatomical connectivity to autism spectrum disorders behaviors**

Project supported by the Funds
Doctor Gustave Delport and
Maria-Elisa & Guillaume De Beys
**Grant €100,000**

Autism spectrum disorders (ASD) are complex neurologic disorders with a developmental onset. Due to the heterogeneity of symptoms from patient to patient there is need to find biomarkers that will help us establishing relationships between the morphological and anatomical brain modifications in these patients and the pattern of brain activity and behavioral manifestations. I am using ASD mouse models to investigate how molecular and morphological brain modifications correlate with specific patterns of brain activity and behavior. I expect that my research will improve the diagnosis of the disease and will be useful for medical doctors aiming using pharmacological and psychotherapeutic treatment approaches.

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