Approved Appilications call “2Treat Public-Private Partnerships”

Main Applicant
Dr. D. van Schaardenburg (Raede)

Partners
Academia: Reade, UMCU, LUMC, AMC, VUmc
Companies : Sanquin Diagnostiek, Immunobank NV, PSDx, BV Cyclotron VU, Hemics, Sectra, Roche, Abbvie, Pfizer, UCB, BMS
Health Fund: Reumafonds

Title
Molecular Diagnostics in Rheumatoid Arthritis (acronym: MODIRA)

Summary
Rheumatoid arthritis (RA) is the most common inflammatory joint disease. Key challenges in the management of RA are the variability of the response to drugs between patients, and the subjectivity of disease activity assessment which is still based on clinical examination. Although the outcome of most RA patients has markedly improved with the use of new drugs, treatment decisions in individual patients are mostly random since tools to select the best drug option are missing. Given the costs of biologicals (14k EUR/yr/patient), this is an untenable situation. New tools are urgently needed to help clinicians diagnose RA in a very early stage and then select the best drug in each patient.
The MODIRA project will test whether new laboratory assays of blood samples and imaging techniques can contribute to better selection of drugs in individual RA patients. To this end, blood samples from different groups of RA patients will be analysed for a range of markers considered relevant in RA, while new imaging techniques to assess disease activity will help clinicians tailor treatment. The MODIRA project will contribute to a more efficient and effective personalized treatment of RA. This would ensure that RA patients receive the best treatment as early as possible and thus avoid toxicities of ineffective medication.

Main Applicant
Prof. dr. R.P. Coppes (Universitair Medisch Centrum Groningen)

Partners
Academia: University Medical Center Groningen, Hubrecht Institute
Companies : Nano-Fiber Matrices B.V., PolyVation B.V.
Health Fund: KWF Kankerbestrijding

Title
Development of a 3D matrix for the culturing of adult tissue stem cells for therapeutic purposes

Summary
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Main Applicant
Dr. P.Y.W. Dankers (Eindhoven University of Technology)

Partners
Academia: TUE, UMCU
Companies : Xeltis
Health Fund: Nierstichting

Title
In Situ Tissue Engineering of Vascular Access Grafts

Summary
In the Netherlands 4600 patients require hemodialysis to treat end stage renal disease. Vascular access is considered the Achilles' heel of hemodialysis. The leading cause of failure is occlusion of the graft by thrombosis (80%), in which venous neo-intimal hyperplasia (excessive cell proliferation of the vascular wall) is the underlying pathology in 90% of the cases. The median patency of current vascular access options is only 7-15 months, requiring frequent interventions. Based on our previous preclinical and clinical results, we propose a radically different approach. We will develop off-the-shelf available, biodegradable, synthetic, porous bilayered AV-grafts that in vivo gradually transform into living, vascular access grafts with improved long-term functionality. These grafts are designed to minimize thrombosis and intragraft neo-intimal hyperplasia. For this purpose we will apply our biodegradable supramolecular elastomeric materials platform. These materials will be processed into vascular graft scaffolds using electrospinning. To minimize thrombogenicity and intragraft neo-intimal hyperplasia, the lumen layer will be functionalized to be either non-cell adhesive or selective celladhesive to specifically capture endothelial (progenitor) cells. In close consultation with notified bodies and regulatory bodies, the project will perform all necessary steps to enable a first-in-man trial after completion of the project.

Main Applicant
Dr. Y. Liu (Academisch Centrum Tandheelkunde Amsterdam)

Partners
Academia: Academic Centre for Dentistry Amsterdam (ACTA)
Companies : Cam Bioceramics (CAM), Sinensis Life Sciences (Sinensis), Profess Medical Consultancy (Profess)

Title
BIOBONE: Biomimetic bone substitute as regenerative treatment for bone tissue repair

Summary
Annually, > 2 million surgical procedures are performed worldwide to repair bone defects in the jawbone or skeletal bone structures. The surgical procedure replaces the missing bone with either material derived from the patient himself (autografts), or from other donors, human cadavers or bone banks (allografts) or from other species (xenografts). Despite their extensive use, the bone grafts have limited availability and are associated with serious side effects. As such, there is an urgent medical need for alternative boneregenerative products.

Recently, Dr. Liu and Prof.dr. Wismeijer of the Academic Centre for Dentistry Amsterdam (ACTA) have developed a unique technology to produce a novel bone substitute with local, limited and time-controlled release mechanism for (bio)active molecules and compounds.

In this project, the clinical efficacy and safety of this novel bone substitute will be determined in a first-in-human trial. To this end, the bone substitute will be produced (GMP-compliant) including the required quality control, activity and stability testing.

The end product of this project will be a bone substitute with demonstrated safety and clinical efficacy, ready for registration and clinical implementation (market introduction). We anticipate that the novel bone substitute has all characteristics to achieve safe and effective treatment of bone defects.

Main Applicant
Prof. A.E. Rowan (Radboud Universiteit Nijmegen)

Partners
Academia: RUN, Radboudumc, VUmc
Companies : Heli-X, Chiralix
Health Fund: Brandwondenstichting

Title
Biomimetic Hydrogel allowing customizable Wound Care

Summary
Imagine spraying-on a smart liquid wound dressing, which immediately gelates, covering the wound, filling even deep ulcer wounds. A dressing which has nanosized pores which allows water to escape yet prevents bacteria from getting in, yet is smart and triggers rapid healing, stimulating the cells to grow in an ordered fashion preventing scarring. A smart material, which mimics the extracellular matrix found in your body aiding wound repair, yet can be easily applied and removed. This ideal dream material is at hand!
This proposal uses the state of the art design and synthesis of a unique tunable biomechanical hydrogel, which can not only cover wounds but also controls and facilitates cell fate. It combines chemistry, biochemistry, and cell physiology, to deliver the next generation of biomimetic active wound dressings for direct application by the clinicians in burns and deep ulcer wounds.