







**VUB TechTransfer** is the multidisciplinary operational team of the **Vice-rectorate Innovation & Industry Relations**. We take care of knowledge and technology transfer and exchange. Together with **VUB Foundation**, philanthropic fundraising, and **Crosstalks**, the transdisciplinary exchange platform of the VUB, we constitute the Vice-rectorate.

#### **OUR MISSION:**

CREATING POSITIVE IMPACT BY CONNECTING INNOVATIVE VUB RESEARCH WITH INDUSTRY AND SOCIETY

#### **CONTACT**

VUB TechTransfer Vrije Universiteit Brussel Pleinlaan 11, B-1050 Brussels Belgium

T +32 (0)2 614 88 00

E techtransfer@vub.ac.be

W vubtechtransfer.be



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## **FACTS & FIGURES 2022**



- Brussels Humanities, Sciences and Engineering Campus
- Brussels Health Campus
- · Brussels Photonics Campus
- usquare.brussels
- · Brussels City campus

**FACULTIES** 

3,735 †††† EMPLOYEES

21,61 STUDENTS 3,97 **EMPLOYEES UZ BRUSS** 





**EUR 154 M** RESEARCH BUDGET

REVENUE FROM CONTRACT RESEARCH WITH INDUSTRY AND VALORISATION OF RESEARCH

RESEARCH GROUPS INCLUDING 20 JOINT INT'L, 31 VUB-UGENT AND 12 VUB-ULB





SPIN-OFF COMPANIES

PATENT FAMILIES

INDUSTRIAL RESEARCH FUND

OR GROUPS OF EXCELLENCE IN APPLIED RESEARCH



EUR 3.98 M

**FOUNDATION** 



EUR 58,3 N APPLIED RESEAR APPROVED PROJECTS

"University collaboration with business and industry is not a one-way street but an interaction. Both worlds join forces to create a positive impact on people's lives and our planet through innovative solutions."

Hugo Thienpont, Vice-rector Innovation & Industry Relations

## **INNOVATING FOR IMPACT**

Applied research at universities has become increasingly important as a means to create practical solutions for real-world problems and impact society in meaningful ways. We are proud to have been at the forefront of applied research, developing innovative solutions to the most pressing challenges facing society today such as AI, climate change, mobility and health, taking into account ethical and moral issues.

Despite the disruptions still caused by the pandemic, we continued to make significant progress towards our mission of fostering innovative technologies and transferring them to the industry for the benefit of society. VUB's researchers and TechTransfer team have shown exceptional resilience and dedication, adapting to new circumstances and continuing to drive progress in their respective fields.

We were again able to support more project applications and obtain more funding from Flanders, Brussels and the EU for applied research than in previous years. Also the Industrial Research Fund of the university has been a vital source of support, enabling us to continue developing cutting-edge technologies that have the potential to transform various sectors.

In conclusion, we are confident that the achievements highlighted in this report will inspire us to continue our efforts in the years to come. And together with our partners at the Vice-rectorate Innovation & Industry Relations, the philanthropic fundraising team VUB Foundation and VUB's transdisciplinary exchange platform Crosstalks, together with our researchers, together with our industrial partners and stakeholders, we continue to work towards a better future.

We are very happy to present to you the Annual Report for the year 2022 from the Vicerectorate Innovation & Industry Relations and wish you a lot of reading pleasure.

Sincerely,

Sonja Haesen, Director VUB TechTransfer





Hugo Thienpont, Vice-rector Innovation & Industry Relations

# GROUPS OF EXCELLENCE IN APPLIED RESEARCH (GEARS)

#### **ADVANCED GEARs:**



**Photonics** 



Media, Innovation & Technology



Sustainable Mobility, Logistics & Automotive



**Human Robotics** 



Regenerate

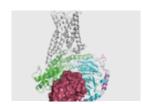
#### **CONSOLIDATOR GEARs:**



Artificial Intelligence



Sustainable Chemistry



Structural Biology



Sustainable Material Technologies



Tech4Health



Accoustics & Vibration



INTEGRAL -Immunotherapy

#### **STARTER GEARs:**



Peptidomimetic TheranOstics



Imaging with nanobodybased tracers



Industrial Microbiology & Food Biotechnology



Microfluidics



**B-Liver** 



NEUR-o-AIMS



Software Systems



Law for Cybersecurity and Health

# GOVERNMENT FUNDING FOR STRATEGIC & APPLIED RESEARCH

#### FROM FLANDERS, BRUSSELS, EUROPE

The strategic and applied research output of the universities influences the regional innovation degree and reinforces the economic landscape. On the other hand it generates revenue for the university which can be reinvested in research. Government funding from Flanders, Brussels and Europe is crucial to support this valorisation of research. In 2022 **governmental funding for approved strategic and applied research projects** at VUB amounted to **€58,305,135**. A positive trend is the fact that, besides Science, Technology, Engineering and Mathematics or STEM-oriented projects, more and more projects from the Social Sciences, Humanities and the Arts (SSHA) are introduced.

#### VUB TechTransfer offers assistance and support to researchers for:

- Projects financed by the Industrial Research Fund of the VUB (Flemish government funding)
- Flanders VLAIO & FWO calls
- Brussels-Capital Region funding through Innoviris
- Projects with SOCs and spearhead clusters
- · Innovation driven EU projects
- · Financing for applied projects with valorization potential by other (international) organisations or administrations

## VUB INDUSTRIAL RESEARCH FUND FOR RESEARCH GROUPS THAT EXCEL IN STRATEGIC AND APPLIED RESEARCH

VUB TechTransfer supports projects financed by the **Industrial Research Fund (IOF – Industrieel OnderzoeksFonds)**. Since 2004 associations receive this **Flemish government funding** according to their valorisation output performance: contracts with industry, the number of patents and spin-offs, share in the European Framework Programme for R&D, number of PhD's obtained and publications and citations. The VUB invests IOF funding in knowledge centers that exceed the average scale of a standard university's research unit, the **'Groups of Excellence in Applied Research' or GEARs**. They have to elaborate a long-term strategic research strategy, demonstrate leadership, and develop new application-oriented inventions with economic potential.

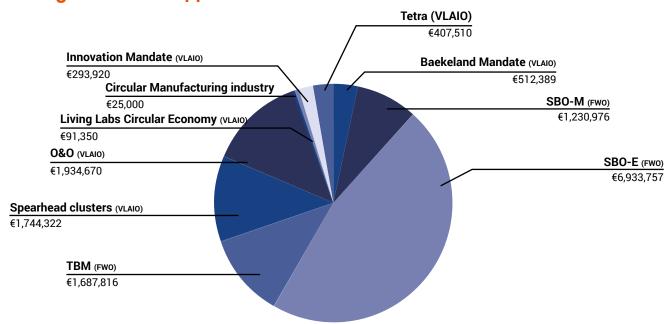
Because of an increase in the overall budget and a significant improvement in output from the VUB, the amount allocated under the IOF to the University Association Brussels (UAB) amounted to €5,741,647 in 2022.

A total of 20 GEAR groups receive funding from the Industrial Research Fund in 2023. The overview can be found on the left-hand page.



#### FLANDERS PROJECT FUNDING

## 2022: VUB received €14,9 million funding from FWO and VLAIO for strategic basic and applied research



In 2022 the Vrije Universiteit Brussel obtained funding for strategic basic and applied research from the Research Foundation - Flanders (FWO) and Flanders Innovation & Entrepreneurship (VLAIO) for a total budget of €14,861,710 which is an increase over last year.

#### Research Foundation - Flanders (FWO)

The **Strategic Basic Research programme (SBO)** concerns innovative research that offers prospects for later economic or social applications. In 2022 this resulted in:

- SBO-E (economic finality): 7 approved projects:
  - A new generation of high-performance building materials and elements integrating aerogels and textile reinforced cement composites
     Tine Tysmans, Dimitrios Angelis, Danny Van Hemelrijck, Hubert Rahier
  - AWESOME Scalable Bulk Acoustic Wave Solutions to Separate Micro- and Nanoparticles in Flow Wim De Malsche, Karine Hellemans,
     Eline Menu, Elke De Bruyne
  - BaseCamp Zero Towards Zero-Touch Testing Coen De Roover
  - LipoMacs functional Lipidomics to unlock Macrophage-mediated therapy Jo Vanginderachter
  - Highly conductive protein fibers as a radically new technological material Han Remaut
  - SUBLIME Stretchable & UBiquitous LIquid Metal Electronics Guy Van Assche, Bram Vanderborght, Iris De Graeve, Tom Hauffman
  - CTRLxAI=T(H)RUST CTRL schemes merged with eXplainable AI for t(h)rustworthy control of physical dynamic systems Ann Nowé

#### SBO-M (societal finality): 2 approved projects

- Serendipity Engine: towards surprising and interesting urban experiences Pieter Ballon
- A Lonely Planet? Addressing LONELIness from a PLAce-based perspective: research on the influence of Neighbourhood and EnvironmenT - Liesbeth De Donder

The **Applied Biomedical Research programme (TBM)** wants to contribute to the long-term implementation of new therapies, diagnostics and prevention methods for which there is not sufficient interest from industry. VUB TechTransfer intensively supports these project applications to increase the chances of success. 4 projects were approved in 2022, 2 with VUB as coordinator and 2 as a partner.

- · Opioid detoxification for patients with Persistent Spinal Pain Syndrome Type II, treated with Spinal Cord Stimulation
  - Maarten Moens, Lisa Goudman, Koen Putman, Cleo Crunelle
- Tackling FRAILTY: ACTIVE-AGE@home: a home-based functional exercise program for community dwelling frail older adults
  - Patricia Devriendt, Siddhartha Lieten
- Prenatal valaciclovir-treatment for congenital CMV: a prospective cohort study Leonardo Gucciardo
- INSTA-MD: INflammation-based Stratification for immune-Targeted Augmentation in Major Depressive disorder Seline Vandenameele

#### Flanders Innovation & Entrepreneurship (VLAIO)

VLAIO stimulates innovation in companies, which is important for economic growth in Flanders. Cooperation with the academic world is crucial for this. Much attention is paid to the needs of the companies.

#### **Baekeland mandates**

With Baekeland mandates, aimed at a doctorate, VLAIO wants to support research that has an economic finality and offers added value for the company involved. In 2022, **2** Baekeland mandates were approved.

- Design optimization and control of a modular high-speed integrated compressor drive system Omar Hegazy
- Population-based resonance frequency monitoring for wind farms through augmented operational modal analysis Christof Devriendt,
   Wout Weijtjens

#### Innovation mandates

An Innovation mandate is specifically intended to allow postdoctoral researchers to carry out a project in close collaboration with the business world, either with an existing company or with a view to establish a new company. 1 mandate with spin-off finality was granted.

Quantitative analysis of musculoskeletal motion by dynamic computed tomography - Nico Buls, Jef Vandemeulebroucke

#### **Tetra projects**

TETRA is a programme for practice-oriented research. In 2022, 2 Tetra projects were submitted in the regular call, 1 with VUB as research partner and 1 as coordinator. Both projects were approved. A dedicated Tetra Health and Care call was launched in 2021. 1 project was approved in 2022.

- · Van cure naar care Lieve Van den Block
- RUSTiec Integratie van Rust in IoT, edge en cloud An Braeken, Kris Steenhaut
- · Minder geldstress. Meer welzijn op het werk Bert Schreurs

#### Living Labs Circular Economy and Circular Make Industry

Additional calls were organised around Circular Economy in 2022.

- Fietsbanden aan banden leggen Bram Vanderborght
- BRUG a systemic approach for accelerating and deepening knowledge exchange in the Flemish construction sector Waldo Galle

#### Financing from Spearhead Clusters

Spearhead Clusters facilitate a network of companies active in a specific domain, and develop an ambitious long-term strategy and competitiveness program for Flanders' strategic domains, in collaboration with knowledge centers and the government. The focus of the Flemish cluster policy lies on a limited number of large-scale and ambitious Spearhead Clusters: Catalisti (sustainable chemistry and synthetics), SIM (materials, circular economy), FLUX50 (green energy, mobility), VIL (logistics and transport), Flanders Food (agrofood), Blue Cluster (wind energy, aquaculture) and the most recent one MEDVIA, previously flanders.healthTech (healthcare innovation).

3 Cluster projects were approved for VUB in 2022:

- Moonshot: 2CCO2 Joeri Denayer
- De Blauwe Cluster: Clay Tectonics Christof Devriendt
- De Blauwe Cluster: Cloud4Wake Jan Helsen

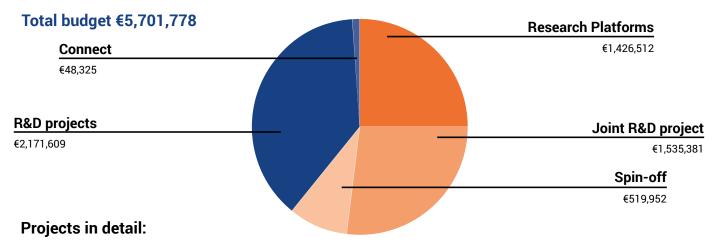
#### **Strategic Research Centers (SOCs)**

SOCs have been created as a result of excellent scientific research in broad domains such as nanoelectronics and digital technologies (imec), biotechnology (VIB), cleantech and sustainable development (VITO) and the manufacturing industry (Flanders Make). They build bridges between fundamental and applied research and are important for Flanders' economy. VUB participates in these Strategic Research Centers.

#### **BRUSSELS PROJECT FUNDING**

VUB TechTransfer supports researchers applying for funding for strategic research with valorisation perspectives from the Brussels-Capital Region. For 2022, 12 projects were approved through Innoviris for a budget of €5,701,778 which is almost double the 2021 figure.

#### **Budget approved Innoviris projects in 2022**



#### Spin-off

The Spin-off action encourages the creation of new companies in the Brussels-Capital Region. Spin-off projects are given the opportunity to put an innovative product, process or service on the market based on previous research results and to explore its industrial and commercial exploitation conditions with a view to developing a new economic activity in the Brussels-Capital Region. **One project was approved**.

METIS - Mining and Extraction of Text based on Intelligent Segmentation - Ann Dooms, Tan Lu, DIMA

#### **Research Platforms**

The Research Platforms program is primarily focused on research projects conducted through interuniversity collaborations. A consortium is composed of at least two research units from universities and/or colleges of higher education mainly from the Brussels Capital Region and with relevant complementary competencies. And there must be interest in the proposal from the business community. This call was launched after the summer of 2021 with the theme "New approaches of testing". There was a huge interest, 6 projects were submitted of which 3 with VUB as coordinator. 3 projects were approved in 2022.

- DetectDem A novel test strategy to follow up patients at risk of developing dementia Jeroen Van Schependom, AIMS & Sebastiaan Engelborghs, NEUR
- Fading Sun Fast Al-driven Dry EEG System for the Identification of Nonconvonvulsive Seizures in Unconscious patients Ann Nowé, Al lab
- VortexDiaLC Vortex enhanced liquid chromatography for HbA1c monitoring based diabetes management Wim De Malsche, uFLOW & Heidi Ottevaere, B-PHOT

#### Joint R&D project

The goal of the Joint R&D project call is to encourage collaboration between academics and entrepreneurs in the Brussels-Capital Region. In 2020 a call was launched with the theme "The Industry of Tomorrow: Green, Human and Smart". In 2022, 5 projects were approved, which is an excellent result.

- EIFEL Emission Free parcel deliveries Koen Mommens, MOBI
- CLEVER Combining 2nd Life Energy Storage and Electric Vehicles for Sustainable Energy System Support Maarten Messagie,
   Maitane Berecibar, MOBI
- H2-HeatNet A planification tool for the integration of hydrogen-based energy systems into urban district heating networks Julien Blondeau, BRITE
- REASSURE Context-aware reliability assessment and optimisation of sustainable energy systems Maarten Messagie, MOBI
- ECOPIPE Energy Consumption Optimization in Pipeline-architectures Joeri De Koster, SOFT

#### **R&D** projects

With this action Innoviris finances industrial research projects. The results can be used to fine-tune a product, process or service. 3 projects were submitted in 2022 and approved.

- MUSCLE Masaai Used to Secure Complex Living Environment and Scenario Adrian Munteanu, ETRO
- TORRES Traffic prOcessing foR uRban EnvironmentS Adrian Munteanu, ETRO
- SPECTRE Switching PixEls robotiCs adopTion REsearch Adrian Munteanu, ETRO & Bram Vanderborght, R&MM

#### Connect

For the above projects financing can be applied to cover the costs of writing a full proposal.



#### **FARI - AI for the Common Good Institute Brussels**

The Brussels government allocated a budget of approximately 9.9 million euros from the Relance funds (via Innoviris and CIRB) in 2021 to the FARI institute, an initiative of VUB and ULB research groups active in Artificial Intelligence.

This initiative aims at helping citizens, politicians and companies as well as not-for-profit organizations to address local, day-to-day or long-term

challenges in the Brussels-Capital Region, Belgium and Europe. It brings world-leading and future researchers to the service of the city. It reinforces a virtuous circle: the city encounters problems which FARI can help address with projects, which in their turn can lead to major scientific advances, especially in the field of AI (Explainable and Trustworthy), Data (Open) and Robotics (Human-centric).

A first office at a central location in Brussels (BeCentral) has been realized. In November 2022, Brussel's newest European Digital Innovation Hub (EDIH), sustAln.brussels, kicked off. With an EU grant of over 2.1 million euros budget allocation, its services will include testing, training, and access to finance and networking activities for SMEs. Under this EU grant, FARI will officially join forces with other major actors in the Brussels digital ecosystem such as Sirris, Agoria and BeCentral to leverage the transition towards a future-proof and sustainable economy for Brussels, enabled by artificial intelligence (AI) and other emerging digital technologies. TechTransfer is closely monitoring this project.

fari.brussels



Icity.brussels is a technology hub focused on research, development, innovation and valorisation. They help Brussels emerge as the ICT Heart of Europe. Funded by the ERDF and Innoviris and as a joint initiative of ULB, VUB and SIRRIS, icity.brussels has already launched R&D ICT projects in several key domains like education, e-Health, mobility, Internet of Things or 5G. Icity.brussels represents 25 research labs and can help companies focus on new innovation projects.

icity.brussels



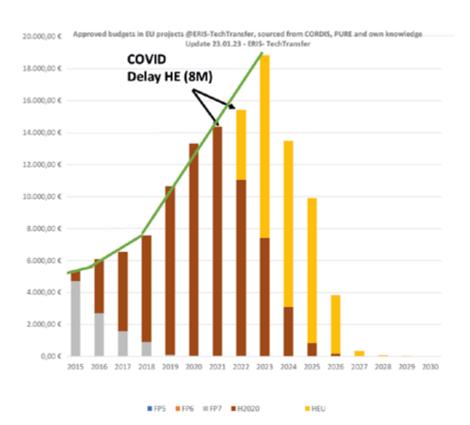
## EU FUNDING SUPPORT FOR PROJECTS WITH ECONOMIC AND SOCIAL PURPOSE

The European Research & Innovation Support or ERIS team of VUB TechTransfer focuses on European programmes and calls in strategic and applied research. The ERIS team stimulates researchers to apply for funding, and intensely supports them throughout the pre- and post-award trajectory. In HORIZON EUROPE, launched in 2021, ERIS-TechTransfer takes on the full supervision of Pillar II programmes with the 6 Clusters and Joint Research Centre as well as Pillar III programmes with the European Innovation Council (EIC), European Innovation Ecosystems (EIE) and the European Institute of Innovation and Technology (EIT).

Besides HORIZON EUROPE, ERIS also has a range of other initiatives such as INTERREG, DIGITAL EUROPE, CREATIVE EUROPE, specific DG initiatives and calls, European Science Foundation (ESF), CORNET, CERV programme and all ERANET and JPI networks in which Innoviris or VLAIO participate.

ERIS-TechTransfer had an exceptional result in 2022 with no fewer than **68 projects approved**, accounting for a total budget of **€32** million (+148% vs 2021).

The **figure below** shows the growth in EU funding for strategic and applied research to VUB for past and present frameworks. The figure is constructed by including all budgets of approved projects, spread over their duration.



## **SUCCESS CASES 2022**

#### SUCCESSFUL EU INNOVATION DRIVEN PROJECTS

#### **SOCIAL SCIENCES & HUMANITIES**

**Prof. Dr. Imre Keseru** is Deputy Director of the **Mobilise Research Group** focusing on supporting the transition in urban mobility through mainly European funded projects in which they

- developed a co-creation methodology and toolkit to support the transformation of urban neighborhoods with the involvement of citizens and other key stakeholders (LOOPER)
- investigated innovative foresight methods to create urban mobility scenarios (SPROUT)
- created a toolkit to make digital mobility solutions more accessible and inclusive (INDIMO)
- co-design smart mobility hubs in an inclusive way (SMART-HUBS)
- support the EU's Green Deal by developing transdisciplinary equity appraisal of transition policies in energy and mobility (TANDEM)

Engaging directly with stakeholders across research, policy, and business (including citizens) to strengthen social innovation, transdisciplinary policy advice, inclusive engagement, and social sciences and humanities communities across Europe, accelerating the EU's transition to carbon neutrality.



#### **SCIENCE & ENGINEERING**

Prof. Dr. Ir Omar HEGAZY is head of the EPOWERS Research Group or Efficient Power Electronics, Powertrain and Energy Solutions. The group consists of over 40 researchers and experts focussing on providing cutting-edge research, top-notch designs and developments on advanced power electronics (ZEFES) with emerging technologies such as SiC (SiC4GRID) and GaN, powertrains for next generation electric vehicles (NEXTBMS, OPEVA), trucks (NextETRUCK), busses (EBRT2030) and ships (NEMOSHIP) smart charging systems, advanced digital twin tools and smart green energy solutions with intelligent control and management systems for tomorrow's mobility, transport and smart green grid applications. Prof. Hegazy received in 2022 7 EU grants with a total budget of 6.8 M€ from Horizon Europe.

#### **LIFE SCIENCES**

**Prof. Dr. Ivan BAUTMANS** is head of the **Frailty in Ageing research group or FRIA**, an interdisciplinary research team to untangle the underlying mechanisms and to develop interventions for prevention and rehabilitation of frailty in the aged. FRIA focuses on untangling how inflammation affects muscle and aims at developing new strategies to combat inflammation and improve muscle performance in older persons. Part of prof. Bautman's research is focused on muscle fatigability as a biomarker of an individual's physical reserves. A new test was developed to measure muscle fatigability to detect early signs of frailty. Since 2019 the Eforto device, allowing self-monitoring of muscle fatigability was developed in a series of EU funded projects (EFORTO1.0, EFORTO2.0 and ISHA). In collaboration with an industrial partner the product was commercialized.







# REVENUE FROM VALORISATION AND CONTRACT RESEARCH WITH INDUSTRY

Through contract research and licensing of technologies with industry and other third parties (profit/non profit), the university can develop and maintain long-term cooperations and implement its knowledge in society. In some cases contract research is supported by governmental financing. This revenue continues to grow as the years before. The total funds from collaborations with the private sector amounted to approximately €15,6 million in 2022.

These funds can be reinvested in university research. Important to note is that not all revenue from VUB research in cooperation with spearhead clusters and strategic research centers is included in this amount.

## **EUTOPIA**

Since 2019, VUB TechTransfer has been involved in the ambitious **EUTOPIA project**, which is carried out by an alliance of 10 like-minded universities willing to reinvent themselves and shape the university of the future: Babeş-Bolyai University in Cluj-Napoca (Romania), Vrije Universiteit Brussel (Belgium), CY Cergy Paris Université (France), de Ca'Foscari University in Venetië (Italy), de Technical Universität Dresden (Germany), the Göteborg University (Sweden), de University of Ljubljana (Slovenia), the NOVA-university in Lissabon (Portugal), the University Pompeu-Fabra in Barcelona (Spain) and the University of Warwick (United Kingdom).

In 2020, the **EUTOPIA-TRAIN (Transformation of Research And Innovation)** project was approved within the framework of the EU Research and Innovation Programme Horizon 2020. In the category Science with and for Society (Swafs), this project was awarded 2 million euro in project funding.

With EUTOPIA-TRAIN, cross-border research and education will be embedded in the full EUTOPIA academic environment. The project has two objectives: to create pan-EUTOPIA research and innovation communities and to open them up to businesses, students, policy-makers and the wider community. It includes an Open Access metadata portal, a common HR strategy, and the creation of an EUTOPIA office for grants, innovation and legal affairs.

In **September 2021**, a part-time valorisation project manager, Tuur Roels, was appointed to coordinate the EUTOPIA-TRAIN project for the TechTranfer service. There is a close collaboration with other services at the VUB (R&D, M&O, Buda, Eutopia Core Group) and with the Innovation Services of the different Eutopia partners.

In 2022, the Eutopia alliance was further strengthened by the award of the follow-up project Eutopia More. With a budget of 17.9 million, 18.4% of which is allocated to the VUB, this project will focus on education and innovation for four years. Through close cooperation with the ten partner universities, the alliance will, among other things, develop a joint innovation strategy. Besides a Eutopia College, a Eutopia Global Institute will also be established. With the Global Institute, Eutopia aims to consciously contribute to research, innovation and service to society. The Global Institute will facilitate Eutopia's efforts in interdisciplinary research and innovation and provide a European and global platform for representation.

## INTELLECTUAL PROPERTY (IP) MANAGEMENT & LICENSING

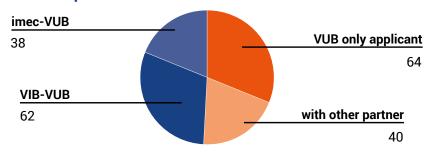
Licensing of research results facilitated by VUB TechTransfer, generates income for the university, creates structural collaborations with companies and gives tangible impact to VUB R&I. At the basis of this licensing lies a strong portfolio of intellectual property (patents and patent applications, software, confidential know-how, design rights, trademarks, etc.). In case of a VUB spin-off company a privileged relationship with a lab is beneficial to the growth of the company, in particular in its early development stages. VUB technologies available for licensing or for R&D partnerships are communicated through bilateral contacts with industry, networking and matchmaking events, the VUB TechTransfer website and weekly newsletter, conferences such as knowledge for growth, and other specific channels.

In 2022 the numbers were again impressive: 45 inventions were disclosed and 26 new patent applications were filed with VUB as (co-)applicant. The total VUB-portfolio included 204 active patent families, of which 64 are owned exclusively by VUB. 62 active families are co-owned with VIB, 38 with imec and 40 with other research institutes and companies, illustrating the substantial amount of R&D collaboration with third parties.

#### Reuters TOP 100 - VUB ranks 59 in Europe's Most Innovative Universities

Reuters Top 100 institutions all produce original research, create useful technology and stimulate the global economy. More than 600 universities were screened. In this ranking not only the number of patents is taken into account but also their 'value'. VUB Ranks 59 which is an excellent result considering the size of the university.





### **ENTREPRENEURSHIP EDUCATION**



To raise more awareness of (technological) entrepreneurship among master and (post) doctoral students, researchers and young professionals, VUB TechTransfer yearly organizes 2 evening courses. The **Starter Seminars** provide a short but intensive introduction to entrepreneurship and business. A variety of topics is covered such as developing a business plan, finance, marketing and the complex issues surrounding patenting. The **Advanced Starter Seminars** are a follow-up course where business aspects and starting up a company are treated more in-depth. Marc Goldchstein, Officer Entrepreneurship Education at VUB TechTransfer, is the main lecturer and content coordinator. Expert-speakers from the VUB or the business world are also involved. Entrepreneurs from VUB spin-offs testify on the startup phase and their experience at several seminars.

#### In 2022

- Hybrid format: live, streaming and recording
- Launch Event and info session 5 October 22
- · Starter Seminars organised during 1st semester. Advanced Seminars during 2nd semester.
- Seminar 'Academic entrepreneurship in practice' on February 15 with testimonials about the start-up phase by VUB spinoffs PRECIRIX, and hbits - Open to participants of both series and external parties
- # participants for both courses: 60
- LinkedIn VUB TechTransfer Entrepreneurship Community keeps growing: 307 members

## **UNIVERSITY SPIN-OFFS**

Through the creation of spin-off companies, the VUB can valorise research results socially and economically and realise a return to the VUB and its research groups.

VUB TechTransfer plays a crucial role in identifying, supporting and evaluating VUB spin-off projects. To maximise the survival of a start-up, a lot of attention is paid to other factors than the innovative technology, such as market strategy, value proposition and a complementary team. In 2022, 2 spin-off companies were launched from the VUB: Swave Photonics and Livliner, bringing the number of active VUB spin-offs to 45.

#### New spin-offs in 2022:





# Boost your wind asset performance and uptime with LivLiner's Al-based solution for forward-looking insights and actionable recommendations

LivLiner was founded by professor Jan Helsen from the VUB department of Mechanical Engineering (MECH) in 2022. He developed an Al-based tool to offer a cutting-edge analytics suite for the wind industry.

Digitalisation is a crucial factor to enable the strong growth of the offshore wind industry. The cutting-edge technology from the VUB research team of Prof. Jan Helsen is based on years of applied validated academic research in self-learning algorithms for performance and maintenance optimisation for large offshore wind farms.

https://livliner.com/





#### Bringing the metaverse to life

Swave Photonics, a spin-off from imec and VUB, is a fabless semiconductor company that designs and markets holographic chips based on proprietary diffractive photonics technology. Its mission is to bring the metaverse to life and enable display manufacturers and content creators to disrupt the visualization market with immersive, ultra-high-resolution, lifelike, true holographic displays. Swave envisions a world where holographic displays give everyone the power to visualize the impossible, collaborate and accomplish more.

https://swave.io

#### **Obic III Fund**

In 2022, follow-on fund Qbic III was established with a total capital of €49 million at start-up. VUB, UGent, UAntwerpen, UHasselt and ULiège, as well as 2 research institutes (VITO and imec) and 8 innovative hospitals all participate in Qbic III. The investors in the previous funds of Qbic, including FPIM, PMV, BNP Paribas Fortis, KBC, LRM, Noshaq and finance&invest.brussels are participating again, supported by additional investors, including individuals and family offices. Meanwhile, investments have already been made in VUB spin-off Weave.ly via convertible loan and in imec/VUB spin off Swave via capital participation. In 2022, a commitment was obtained from a major partner (EIF) to enter into the capital of the fund, which will significantly increase.

www.gbic.be

#### **VUB SPIN-OFF HEADLINES IN THE PRESS IN 2022**

VIB-VUB spin-off Animab raises €10 million for further development of edible antibodies

November 2022 - Source De Tijd & VIB News

New VUB-imec spin-off Swave Photonics, an innovator in Holographic eXtended Reality (HXR) technology to bring the metaverse to life, announced a €7 million seed round.

June 2022 - Source De Tijd

Precirix raises €80M in Series B to advance its pipeline of precision radiopharmaceuticals

March 2022 - Source De Tijd

New personalized cancer vaccine in the making thanks to unique Belgian collaboration. The Belgian start-up Persomed was founded in 2020 in collaboration with VUB and 3 other partners. All of whom have expertise within the field of personalized immunotherapy.

November 2022 – Source Biovox

Weave.ly, a VUB spin-off, has completed a first capital round of € 300.000. September 2022 – Source Start it Accelerate

39M euro invested in VUB spinoff eTheRNA to boost mRNA therapeutics

September 2022 - Source De Tijd

Confo Therapeutics, a VIB-VUB spin-off, doses first subjects in Phase 1 clinical trial to develop a non-opioid approach to the treatment of neuropathic pain.

March 2022 - Source flanders.bio

VUB and UZ Brussel spin-off Lavima Fertility develops new fertility treatment

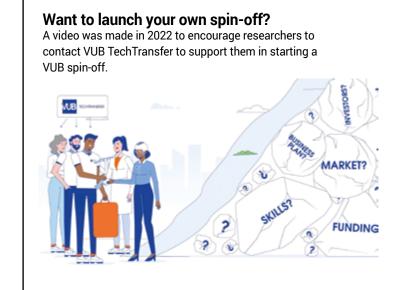
March 2022 - Source Bruzz, EOS

VUB spin-off Axiles Bionics wins the Innovative Starters Award 2021, granted in 2022, and receives 500.000 euro from Innoviris.

February 2022 - Source innoviris.brussels

eTheRNA announces research agreement with Merck to access mRNA technologies

February 2022 - Source flanders.bio



## **RESEARCH PARK & INCUBATORS**

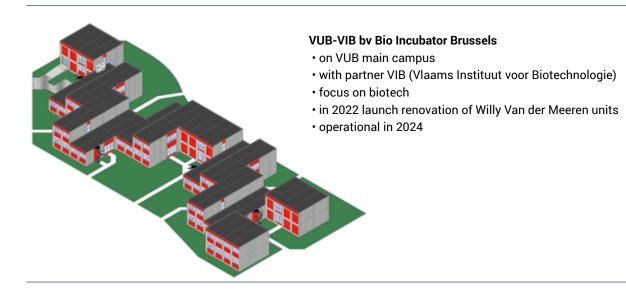
companies committed to supporting research and collaboration with the VUB can find space, appropriate facilities or infrastructure in the research park or one of the incubation centers.

#### Researchpark Zellik

- near UZ Brussel
- in 2022 further development of collaboration with companies www.researchparkzellik.be

#### **Business-Incubator Offices IICB**

- · 30 years at Researchpark Zellik
- · about 90% occupancy rate



#### Incubator for Young Entrepreneurs - StartLAB.Brussels

- at Incubator Usquare near VUB main campus
- initialised by VUB and ULB

startlab.brussels



#### **VUB Business & Technology Incubator - ICAB NV**

- 17 years near VUB main campus
- · focus on technology & engineering
- high occupancy rate www.icabrussel.be

#### **Green Energy Park**

- at Researchpark Zellik
- further development of living lab
- In 2021 launch of Smart Village Lab
- · focus on energy transition a.o.
- in December 2022, VUB professor Elvira Haezendonck became Chairwoman of the Board www.greenenergypark.be

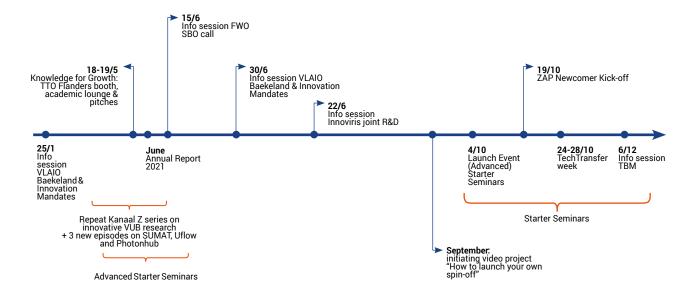


# TECHTRANSFER COMMUNICATION & EVENTS

'Together we connect Science and Society' remained VUB TechTransfer's mission in 2022. Innovation can only be done through interaction between research groups, companies, knowledge centers and other stakeholders. The TechTransfer Communication & Events cell informs the VUB research community of all support and other aspects concerning the valorisation of their research and promotes the university's knowledge and expertise with the outside world through its communication channels. We also take care of connecting parties through the organisation of (digital/hybrid) events. With the final purpose to create a positive impact on society.

After the Covid-19 crisis we continued to switch flexibly between digital, hybrid and live.

The following timeline shows some of the publications, events and other activities of the communication cell in 2022.



- More than 18.000 people visited our website and about 54.600 pages were viewed
- We send out a weekly internal TechTransfer News to all academic personnel and a monthly TechTransfer News to the outside world, to about 450 subscribers, still growing.
- VUB TechTransfer reached 520 followers on Twitter
- Since the launch in September 2021 our LinkedIn page has about 850 followers



## VUB FOUNDATION

#### **VUB. EVERY DONATION RETURNS.**

**VUB Foundation** is the philanthropic department of VUB and raises funds from companies, organisations, institutions and individuals. It operates within the framework of the TechTransfer department of the Vicerectorate of Innovation & Industry Relations. VUB Foundation coordinates all fundraising at VUB under the supervision of the Innovation and Valorisation Board.

For each philanthropic donation, there is a societal return. This is the conviction whereon the policy of the VUB Foundation is based. The contributions support education, research, innovation and social initiatives of the VUB. The knowledge and insights that arise from each contribution, eventually flow back into our society.

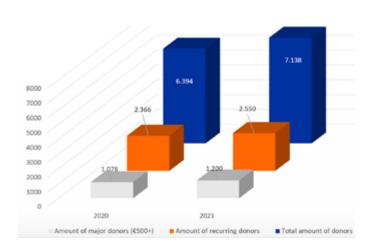
Chairs are an excellent means to financially support education, research, innovation and internationalization and to develop a long-term relationship with companies and other partners. In 2022, VUB counted 25 active chairs among which three newly created: the Wellbeing@work chair with 6 external partners (Obelisk NV, Vitamins@Work BV, Destiny NV, Metiselect NV, SBS Group NV and Projective NV), the Life Skills chair with partner AG Insurance NV and the Patient-centered Osteopathic Interventions Systematic review of Evidence (POISE) chair with partner Osteopathie.be



The VUB Foundation launched several successful fundraising initiatives last year.

The #GiveHope campaign was launched within the VUB Caroline Pauwels Relief Fund for Students when war broke out in Ukraine, to raise funds for Ukrainian and Russian students who became unintentional victims of the war and possibly ran into problems financing or continuing their studies. €78.180 was raised in donations thanks to alumni, staff, VUB sympathizers, VUB Fellows and organisations. To highlight the golden jubilee of the VUB Scientific Support Fund, the Foundation launched the #SupportScience campaign coupled with a fundraising effort for the research in immunotherapy - led by Prof. Dr. Bart Neyns and Prof. Dr. Sandra Tuyaerts - of Dr. Xenia Geeraerts on glioblastoma, an aggressive brain cancer. €30.000 was donated to her research.

In August 2022 we regretfully lost both honorary rectors **Paul De Knop and Caroline Pauwels**. At the request of the families, all communications offered the opportunity to support their funds.



The end-of-year campaign of 2022 was dedicated to the Caroline Pauwels Relief Fund for students. The collective efforts of the donor community raised a total of €153.127, which brings the total amount raised since the Relief Fund's establishment in 2020 to €572.523. This amount will help the VUB to stand by its students who are facing urgent financial, material, social or psychological needs.

The sums of €123.054 and €116.965 were raised for the VUB Paul De Knop Fund for Immunotherapy and for the VUB Yamina Krossa Fund for breast cancer research that supports the development of a cancer vaccine against relapse and metastases. This brings the total amount raised for this funds to €590.980 and €443.327.

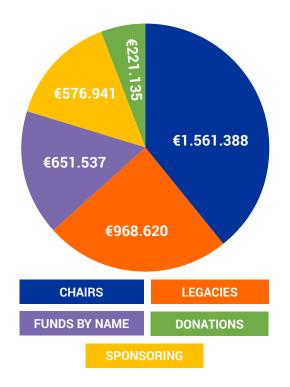
The Foundation manages **11 funds by name**. 2 new VUB funds will be created in 2023: a fund around research on Duchenne muscular disease by prof. dr. Thierry VandenDriessche and a fund focused on the future STEAM Academy, an initiative of prof. dr. ir. Hugo Thienpont.

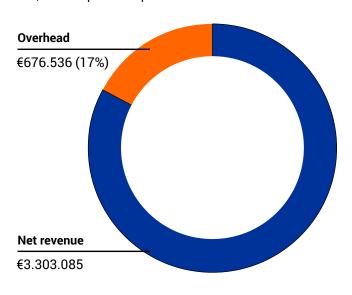
VUB invests the proceeds of all **legacies** in a stock and bond portfolio. The value of the portfolio in December 2022 was €15.028.059. In 2022 one legacy (Ms. Marie-Thérèse Debelder) and one endowment fund (IES Japan Chair) were added to the portfolio. One legacy (Ms. Mireille Aerens chair for alternative non-test animal research) is managed by an external brokerage firm. The portfolio income in 2022 of the Ms. Aerens Legacy was €270.000.

In addition, the succession of Ms. Jenny Addiers opened, to benefit scientific research in rheumatoid arthritis. The Innovation and Valorisation Council approved 6 expenditure plans in 2022.

#### THE NUMBERS

In 2022 the VUB Foundation had a total income of €3.979.621, in-kind sponsorships not included.

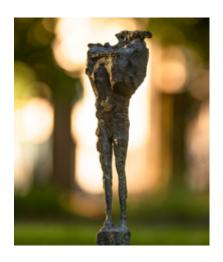




WWW.VUBFOUNDATION.BE

## THE FELLOWSHIP PROGRAMME

#### **CONNECTING ACADEMIA AND SOCIETY**



The Vrije Universiteit Brussel currently has a network of **58 Fellows and 163 Honorary Fellows**.

The VUB Fellows are a diverse network of top-level business people, visionary decision makers, academics, journalists and socially relevant personalities. They are dedicated experts and leaders in their field who commit selflessly to the university and UZ Brussel. Thanks to their commitment, VUB can continue to evolve as an open institution connected with society and the business community. A call was launched in November 2022 for a new class of Fellows (academic year 2022-2023). In 2023, networking events resume after two years of COVID 19- pandemic and the inauguration ceremony of the new Fellows in June is linked to the celebration of **10 years of Fellowship**.

WWW.VUB.BE/FELLOWSHIP

## **VUB CROSSTALKS**

#### **OPEN AND CONSTRUCTIVE KNOWLEDGE EXCHANGE**

Crosstalks is a transdisciplinary and intersectoral platform for an **open and constructive exchange of knowledge** between academic and corporate researchers, entrepreneurs, artists, designers, policymakers and citizens. Since 2003 Crosstalks has been an original player at the crossroads of science, arts and culture.

Both inside and outside the VUB, Crosstalks is a valued and much sought-after partner for collaborations around societal challenges. Due to its interdisciplinary approach, Crosstalks is a particularly suitable platform for VUB researchers to meet stakeholders around themes such as sustainability, social inequality and placemaking. In the coming years, Crosstalks will focus even more on the aftermath of these meetings, with the aim of stimulating inter- and transdisciplinary research projects.

#### **PROJECTS 2022**

#### **More-Than-Human Encounters**

The 3-day symposium on Hydrofeminisms was a collaborative event with **Kaaitheater and The Oceanographies Institute** that aimed to address topics related to **sustainable development**. Specifically, the event focused on the following SDG's:

- · Sustainable cities and communities (SDG 11)
- · Sustainable consumption and production (SDG 12)
- · Life below water (SDG 14)
- · Life on land (SDG 15)

The events attracted over 250 participants, including researchers, artists, and representatives from various organizations, creating an interdisciplinary space for exchange and discussion. Additionally, the video of the event had around 400 views.



## Brussels 2030 Summer Assembly

The Brussels 2030 Summer Assembly was a five-day event focused on preparing Brussels' candidacy as the European

Capital of Culture in 2030. The assembly was organized in collaboration with various organizations, including Vrije Universiteit Brussel, Université Libre de Bruxelles, and Brussels University Alliance, among others. Crosstalks co-organized activities to inspire the Brussels2030 project, with over 800 people participating.

By focusing on inclusivity and participatory methods, the assembly wanted to contribute to progress towards SDG 10: **Reduced Inequalities**, as well as SDG 11: **Sustainable Cities and Communities**.

#### **Shake the Disease**

With the project Shake the Disease, Crosstalks organized a series of workshops and brainstorm sessions in collaboration with **Pfizer, GSK, Janssen Pharmaceuticals and AstraZeneca**. The workshops were designed **for healthcare professionals, researchers and young people**, with a focus on national health objectives (2021-2022) and mental health (2022-2023). On average, each workshop had 25 participants.

This project aligns with the United Nations' Sustainable Development Goal of **promoting good health and wellbeing** (SDG 3).



On International Women's Day, the annual lecture was organized in collaboration with VUB RHEA, Kaaitheater, and the Chair Fatima



**Mernissi**. The lecture focused on the experiences of Afghan filmmaker Sahraa Karimi and the protection of artistic freedom in Afghanistan. In addition to the lecture, a screening of Karimi's film 'Hava, Maryam, Ayesha' was held at Bozar.

The lecture had 170 online attendees, and the film screening had 130 in-person attendees, including filmmakers, programmers, students, and researchers from various academic disciplines. This diversity of the audience highlights the importance of interdisciplinary collaboration and knowledge sharing in addressing complex social issues contributing to Sustainable Development Goal 5, promoting gender equality and empowering women and girls.

#### **HIGHLIGHTS 2022**



## Hydrofeminisms A Series of More-Than-Human Encounters

In 2021-2022 we continued our collaboration with Kaaitheater. This second Series of More-Than-Human Encounters invited speakers and audience to reconsider the artificial distinction between the human and the non-human and the idea of humans as autonomous and self-determined beings.

The last session focused on oceanic storytelling in kinship with hydrofeminism, a form of feminism that emphasizes solidarity with watery creatures and is inspired by music and song-making practices. The session aimed to explore the ancient oceanic ancestors of our present-day bodies of water and engage in practices of writing, singing, and storytelling to find and heal our more-than-human voice(s) in times of rising waters.

Date: January 25 @ Kaaistudio's

#### With:

- Marialena Marouda and Charlie Usher from The Oceanographies Institute (TOI)
- queer Black feminist writer and scholar Alexis Pauline Gumbs
- · artist Daniela Bershan

With the Casterman-Hamers Chair Crosstalks answers the need for a cross-disciplinary and university-wide education and research in the History and Philosophy of Sciences by means of lectures, workshops and residencies.



#### Hava, Maryam, Ayesha VUB Gender Week

The film industry in Afghanistan has made significant progress over the last decade, with the contribution of female directors and staff playing a crucial role. Sahraa Karimi, the former head of the national Afghan Film Organization, played a prominent role in the development of Afghan cinema. However, with the fall of Kabul in August 2021, this progress ended abruptly.

On International Women's Day, her film Hava, Maryam, Ayesha was screened at BOZAR in Brussels. Afterwards, filmmakers Sahraa Karimi, Vida Dena, Rand Abou Fakher, and film programmer Mahdieh Fahimi discussed the importance of women's participation in a patriarchal society fragmented by decades of violence and political instability.

Date: March 8 @ BOZAR

#### With filmmakers:

- Sahraa Karimi
- · Vida Dena
- · Rand Abou Fakher
- · Mahdieh Fahimi

These events enabled to lay the foundations for further collaborations with female filmmakers and to promote a more sustainable and impactful approach to addressing gender equality. This bottom-up approach, which prioritizes the voices and perspectives of those affected by these issues, is essential for Crosstalks' projects.



#### Heyvaert as transition Brussels Summer Assembly

Raafat Majzoub is a Lebanese architect, author, and artist who explores the intersection of literature, visual arts, and public interventions. During his residency at Moussem Nomadic Arts Centre, he focused on the Heyvaert neighborhood in Anderlecht, delving into the local economy, second-hand car industry, public space, and gentrification.

In the context of the Brussels 2030 Summer Assembly, Raafat Majzoub brought together urbanists, artists, community members, and other stakeholders to reflect on the complex dynamics of urban development, community engagement, and sustainability. His "street school" project offers a model for community engagement and shared learning, which can be applied to other neighborhoods and communities in Brussels.

Date: July 6

@ Tour à Plomb

With:

Raafat Majzoub

The interdisciplinary approach of Raafat Majzoub's project aligns with Crosstalks' goal of prioritizing diversity and creating space for different perspectives, in order to foster an inclusive approach to urban development and sustainability.

WWW.CROSSTALKS.NET

#### **VUB TECHTRANSFER. FOUNDATION & CROSSTALKS TEAM**

U +32 (0)2 614 88 00 | ✓ techtransfer@vub.be | ✓ VUB TechTransfer

#### **VUB TECHTRANSFER**



· Sonja Haesen Director VUB TechTransfer sonja.haesen@vub.be



· Tania Bauwens Management Assistant tania.bauwens@vub.be



· Natasja De Landtsheer Administrative Assistant natasja.de.landtsheer@vub.be



· Kristel Mommaerts Legal Counsel - Spin-offs/Innovation kristel.mommaerts@vub.be



· Thomas De Doncker Legal Advisor - Contract Research thomas.de.doncker@vub.be



· Twyla Quéva Legal Advisor - Contract Research twyla.queva@vub.be



· Wesley Verbeke Management Research Contracts wesley.verbeke@vub.be



· Sophie Cammaerts IP & Licensing Administrator sophie.cammaerts@vub.be



· Hugo Loosvelt IP & Licensing Manager hugo.loosvelt@vub.be



· Jessica Hekking Valorisation Advisor Human & Social Sciences jessica.hekking@vub.be



· Liesbeth Bosman Business Developer - Industry & Flemish projects liesbeth.bosman@vub.be



· Mieke De Volder Administrative Coordinator Flemish & IOF Projects mieke.de.volder@vub.be



 Suzy Renckens Innovation Manager (UZB-VUB) suzy.renckens@vub.be



· Philippe Westbroek Business Developer ERIS philippe.westbroek@vub.be



· Alessandra Rossetti Business Developer ERIS alessandra.rossetti@vub.be



· Mohammad Bouroun Business Developer ERIS mohammad.bouroun@vub.be



Mimi Deprez
 Support Officer ERIS
 mimi.deprez@vub.be



Jacky Boonen
 Spin-off Manager
 jacobus.boonen@vub.be



Marie Gruber
 Spin-off Coach
 marie.gruber@vub.be



Qing Cai
 Business Developer - Brussels Projects
 qing.cai@vub.be



Alena Aga
 Communication & Events Coordinator alena.aga@vub.be



Maxime Smits
 Communication & Events Officer maxime.smits@vub.be



 Marc Goldchstein
 Technology Transfer Officer -Entrepreneurship Education marc.goldchstein@vub.be



David Moreels
 Incubation Manager
 david.moreels@vub.be



 Tuur Roels
 Knowledge Valorisator tuur.roels@vub.be

#### **VUB FOUNDATION**



• Isabelle Marneffe
Director Foundation
isabelle.marneffe@vub.be



Goulia Rashidova
 Fundraiser
 goulia.rashidova@vub.be



• Elisabeth Rabaey Legal Officer - Foundation elisabeth.rabaey@vub.be



Hanan Belaraj
 Fellowship Coordinator & Database
 Management Officer
 hanan.belaraj@vub.be



• Lisa Van Reepingen Communication Officer Foundation lisa.van.reepingen@vub.be





Goedele Nuyttens
 Crosstalks Project Manager goedele.nuyttens@vub.be



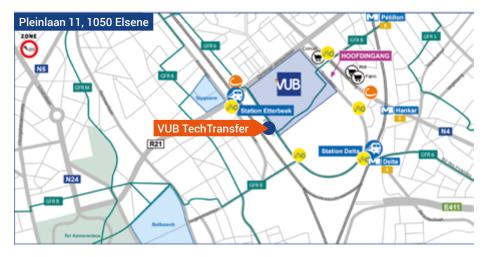
Ine De Bock
 Crosstalks Communication Officer ine.de.bock@vub.be



Marleen Wynants
 Founder & Advisor project 'Shake the Disease'
 marleen.wynants@vub.be



Hugo Thienpont
 Vice-rector Innovation & Industry Relations
 vicerector-innovatie@vub.be



You can find us at our new offices at Pleinlaan 11 near the Brussels Humanities, Sciences & Engineering Campus.

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Sonja Haesen Vrije Universiteit Brussel Vice-rectorate Innovation & Industry Relations VUB TechTransfer Pleinlaan 11, B-1050 Brussels Belgium





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