

# Multimodal nanoparticles for structural and functional tracking of stem cell therapy on muscle regeneration

## H2020 Project n-TRACK

Grant Agreement: 761031

[www.n-track.eu](http://www.n-track.eu)

## n-TRACK Project Open Day 2019

### Preliminary Agenda and Speakers' Profiles

#### Cambridge, UK

**Date:** 30<sup>th</sup> October 2019

**Place:** Trinity Hall College,  
Cambridge, CB2 1TJ  
United Kingdom  
Tel: +44 1223 332500  
[www.trinhall.cam.ac.uk](http://www.trinhall.cam.ac.uk)



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## n-TRACK Open Day 2019 - Meeting venue

### Trinity Hall College

The **Open Day** for the n-TRACK project will be taking place **on the 30th October** at:



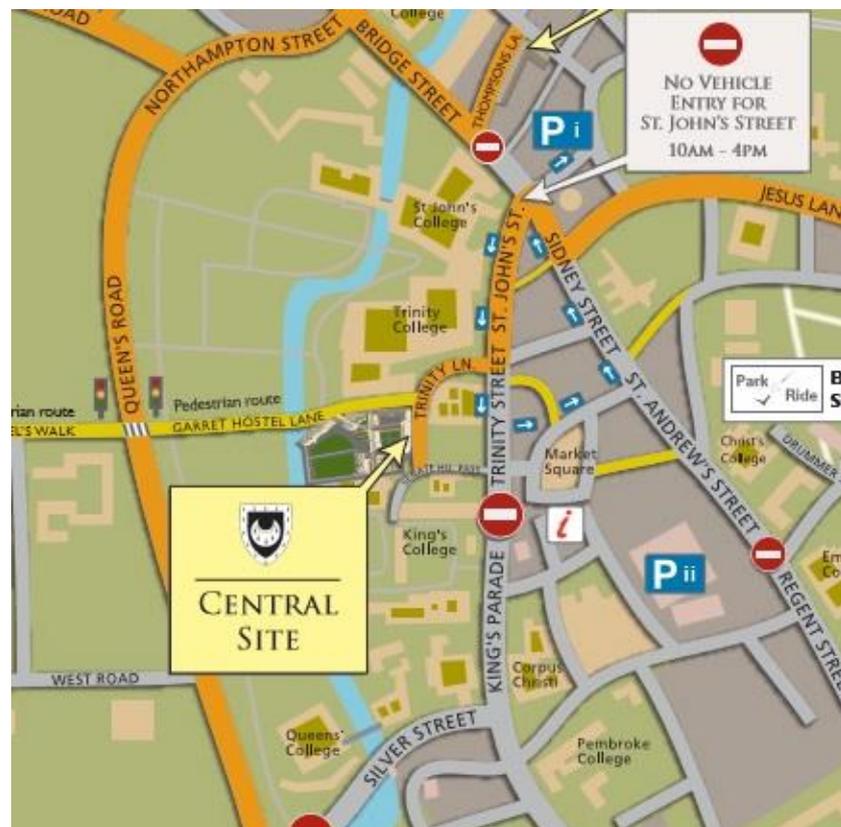
Lecture Theatre  
Trinity Hall  
Trinity Lane  
Cambridge  
CB2 1TJ  
Tel +44 (0)1223 332500  
<http://www.trinhall.cam.ac.uk>



Trinity Hall was founded by Bishop Bateman of Norwich in 1350, making it the fifth oldest surviving College of the University of Cambridge. It is currently home to around 650 students. It has a city central location by the river.

### Parking

Unfortunately Trinity Hall has not parking facilities. For information on where to park, please visit the Cambridge City Council website: [www.cambridge.gov.uk/parking](http://www.cambridge.gov.uk/parking)



## Multimodal nanoparticles for structural and functional tracking of stem cell therapy on muscle regeneration – N-TRACK Project

The **nTRACK** Project ([www.n-track.eu](http://www.n-track.eu)) aims to develop a safe and highly sensitive multimodal Nano imaging agent enabling non-invasive, quantitative and longitudinal stem cell tracking and whole body bio distribution. **nTRACK** will also provide information on cell (long-term) viability using the combination of CT, MRI and PET, which are imaging modalities that are clinically available. The synthesis of **nTRACK** NPs and cellular labelling processes will be scaled up and will follow good manufacturing practice (GMP) requirements. A second goal is to establish a predictive model for early assessment of treatment effectiveness, based on short-term evaluation of the typical migration and bio distribution patterns of the stem cells. This predictive model could substantially improve overall management of the disease and will transform cell therapy treatment from “one size fits all” concept towards personalised treatment.

### n-TRACK Open Day 2019 – Agenda

**09:00** *Arrival and registration*

**09:30** **Welcome and n-TRACK Open Day Introduction**

**Bojan Boskovic**, Managing Director, Cambridge Nanomaterials Technology Ltd (CNT), UK  
n-TRACK Open Day 2019 Organiser

**Jelena Aleksic**, Senior Innovation Manager, Cambridge Nanomaterials Technology Ltd (CNT), UK  
n-TRACK Open Day 2019 Organiser  
n-TRACK Exploitation Manager

**Marc Masa**, n-TRACK Project Coordinator, LEITAT, Spain

**09:50** **Overview of the n-TRACK Project**

**Marc Masa**, Project Coordinator, LEITAT, Spain

The main goal of nTRACK is to develop a safe and highly sensitive multimodal nanoimaging agent enabling noninvasive, quantitative and longitudinal stem cell tracking and whole body biodistribution. nTRACK will also provide information on cell (long-term) viability using the combination of CT, MRI and PET, which are imaging modalities that are clinically available. The synthesis of nTRACK NPs and cellular labelling processes will be scaled up and will follow good manufacturing practices (GMP). A second goal is to establish a predictive model for early assessment of treatment effectiveness, based on short-term evaluation of the typical migration and biodistribution patterns of the stem cells. This predictive model could substantially improve overall management of the disease and will transform cell therapy treatment from “one size fits all” concept towards personalised treatment. The nTRACK technology will be demonstrated on a muscular injury sheep model, using imaging infrastructure commonly used in hospital settings. In addition, non-clinical safety studies on the nTRACK nanoparticles will be conducted following the conclusions of a series of formal interactions with regulatory authorities, to allow the prompt introduction into clinical trials after the end of the project.

**10:20 Nazende Günday Türeli, MJR PharmJet, Germany****Title: Nano-/microparticles Production at MJR PharmJet and Role in the n-TRACK Project**

MJR PharmJet focuses on development and production of nano-/microparticles and with partners from different areas since several years. The microreactor technology can produce nano-/microparticles, emulsions and encapsulations with a well-defined. Microreactor technology enables the optimization of nanoparticle formulations using statistical designs to reach the desired particle properties with minimum experimental effort and cost by utilizing fully automatized DoE-set-up. The continuous production process allows an unlimited industrial scale up, where identical process parameters are used for both small and large scale batches.

Highly efficient particle screening studies are conducted starting with selection of the most appropriate excipient systems and the particle type based on desired specific effect of particulate system and the application route. These studies lead to high throughput screening of particle formulation and production parameters to enable the junction of optimum particle design with the most appropriate technology. MJR`s innovative particle formulations are designed to maximize the benefits of the particulate systems based on application route. Scientists work together with the customer to characterize and determine the benefits of particulate systems followed by the design of particle formulations to ensure the best performance of particulate systems. MJR`s services shorten the time to market by integration of developed particulate systems to existing down processing methods such as wet granulation, lyophilisation or spray drying.

**10:50 Coffee break & exhibition****11:20 Margriet Park, National Institute of Public Health and the Environment (RIVM), Netherlands****Title: Role of RIVM in Aligning Policies and Innovations (Regulatory Agility)**

As an independent institute, RIVM often takes a role as a broker or mediator between different stakeholders, such as policymakers, academics, citizens and companies. This role is of particular value in projects where innovative developments and regulatory policies do not align well. We will demonstrate this by showing some examples of our recent and ongoing efforts.

**11:45 Marta Rayo Lunar, Asphalion, Spain****Title: Role of Asphalion in Regulatory Development of Innovative Products: nTRACK Case**

Asphalion is an International Scientific and Regulatory Affairs consultancy, with offices in Barcelona, Madrid, Amsterdam and Munich. Asphalion provides a global range of services, for global clients. We offer comprehensive services for Drug Development and Regulatory Affairs to Pharma, Biotech and Medical Devices companies. Since 2000, we have consistently grown and now have almost 100 professional consultants with backgrounds in Life sciences (Pharmacy, Chemistry, Biology, Biochemistry, Biotechnology, Medicine and Veterinary Medicine). Our consultants are experts in their field and are in direct contact with EU agencies (EMA and NCAs) for the development and implementation of new regulatory standards. Our services range from early development, throughout the registration, until marketing and post-commercialization phases of your product. Through our network of regulatory consultants, Asphalion is in a position to support your worldwide scientific & regulatory activities. We make use of a dedicated US agent in the fields of Pharma/Biotech, Medical Devices and In Vitro Diagnostics. Within nTrack, Asphalion participates in several tasks including the

development of a regulatory strategy and roadmap for nTRACK and contributes to the preparation of regulatory documentation to support future clinical development.

**12:10 Panagiotis Papadimitroulas, and Sophia Sarpaki, BIOEMTECH, Greece**

**Title: BIOEMTECH's In-vivo Imaging Approach and the Use of Computational Models in n-TRACK Project**

BIOEMTECH is a growing Greek SME in the field of biomedical engineering bridging the gap between ex vivo studies and in vivo molecular imaging, by providing cost effective solutions in terms of instrumentation and services. Using an established imaging platform, we are aiming in the imaging of the muscle injury models, through the nTRACK nanoparticles before and after the stem cells application. A prototype PET/SPECT/X-ray system, alongside with micro- SPECT/CT is used for the extraction of the spatiotemporal biodistribution. Technetium-99m and Indium-111 tracers have already been tested. nTRACK nanoparticles have been characterized under CT irradiation using geometrical phantoms. In-silico studies have been applied in rodents for quantifying GNPs concentration, as a contrast agent, in CT acquisitions. In addition, computational tools have been standardized for simulating realistic biodistributions, in animal computational models and in anthropomorphic phantoms.

**12:40 José Raul Herance, Vall d'Hebron Research Institute, Spain**

**TITLE: Introduction of Vall d'Hebron Research Institute and Role in the n-TRACK Project**

**13:00 Lunch & exhibition**

### **Guest Speakers**

**14:00 Mary Murphy, Senior Lecturer in Regenerative Medicine; Principal Investigator Orthobiology Regenerative Medicine Institute, National University of Ireland, Galway, Ireland**

**Title: Autostem Project - The development of a Fully Automated Platform for the Manufacture of Stem Cells for Cell Therapies**

AUTOSTEM ([www.autostem2020.eu](http://www.autostem2020.eu)) is building an automated pipeline that uses industrial approaches (automation, in-process monitoring, process control, closed systems and novel technologies to produce large quantities of stem cells. Such pipelines will enable us to meet the expected future demand for cells. The project places great emphasis on regulatory compliance, so that therapies which use our cells will be authorised for clinical use. We also focus on comprehensive process design and risk management, so that this challenging project has the greatest possible chance of success

**14:20 Giovanni Giuseppe Giobbe, University College of London - Great Ormond Street Institute of Child Health, UK**

**Title: Extracellular Matrix Hydrogel Derived from Decellularized Tissues Enables Endodermal Organoid Culture**

**14:50 Martin Leahy, Scientific Director, National Biophotonics and Imaging Platform Ireland, National University of Ireland, Galway, Ireland**

**Title: NanoSTARS Imaging for STEM Cell Therapy for Arthritic Joints- Starstem Project.**

**STARSTEM** ([starstem.eu](http://starstem.eu)) is an innovative project funded under the European Union's Horizon 2020 scheme. The project is poised to revolutionise stem cell therapy by providing unprecedented understanding about how these therapies actually work.

STARSTEM brings together leaders in the nano-materials, regenerative medicine, and bio-imaging fields from across Europe. We are using fundamental advances in the physics of imaging to validate stem cell treatments for arthritis. The project results will allow researchers and eventually, hospital doctors, to detect and measure the healing effects of novel stem cell therapies, even where they occur under the skin. Understanding the dynamics and distribution of stem cells means that it will be possible to optimise treatments for patients.

**15:20** *Coffee break & exhibition*

**15:40** **Judit Morla**, Postdoctoral Research Fellow of the Marie Curie Cofund Programme 'TecnioSpringPlus', Molecular Nanoscience and Organic Materials Group (NANOMOL), Institute of Materials Science of Barcelona, ICMAB-CSIC, Spain

**Title: Fluorescent Organic Nanoparticles and Their Use as Bioimaging Probes**

In the very recent years, FRET-based nanoparticle for biosensing, bioimaging, and theragnostic applications have experienced an unprecedented upsurge of interest. However, low colloidal stability, biocompatibility, or low fluorescence intensity due to aggregation have been major limitations. To address these limitations, we have developed novel fluorescent organic nanoparticles (FONs) leading tremendous FRET efficiencies and stable during long periods of time. Indeed, two cyanine molecules were simultaneously loaded into quatsomes (QS), a new class of nanoscopic unilamellar vesicles made by surfactants and sterols. The obtained FONs allow the dispersion and stability of the FRET pair organic dyes on aqueous media, ensuring photostability, biocompatibility and attractive spectroscopic properties for their use as bioprobes. The results, together with the capability of Qs to integrate or encapsulate small drugs or large biomolecules and to be easily functionalized with targeting groups, represent a certainly promising platform, especially for theragnostic nanomedicine.

**16:00** **Yaoyao Chen**, Senior Scientist, STEMCELL Technologies UK Ltd, UK

**Title: Robust and Efficient Tools for Pluripotent Stem Cell and Organoid Research**

**16:20** **Pavel Abdulkin**, Head of Business Development (Particle Engineering & Microfluidics) at Blacktrace Holdings Ltd - Dolomite Microfluidics, Particle Works UK

**Title: Nanoparticle Production Scale-up**

Over the last 20 years continuous flow microfluidic synthesis has developed from a niche capability used by R&D departments into a rapidly growing industry addressing needs from single cell research to gas-to-liquid conversion of natural gas. The technology enables a wide range of benefits including: Substantially improved control over reaction profile; Enhanced yield in fine chemical synthesis; Reproducibility of reaction; Scale-up without additional R&D (via numbering up channels); Scale-up on demand (running chemical reactors at 1-100% of their capacity without change of process).

When applied to nanoparticle synthesis the technology enables substantial improvement over control of particle size, shape and structure. More importantly it enables fabrication of particles that were

previously unattainable or impractical to fabricate by traditional batch techniques. Examples include: Core-shell structures; Fabrication of non-uniform nanostructures such as rods, cones, tripods, dumbbells etc...; Coatings of nanoparticulate structures; Electroplating of nanoparticulate structures; Encapsulation of API's, proteins, DNA/RNA within nanoparticulate structures.

In this talk we will discuss continuous flow chemistry, its applications in fabrication of advanced structures and how this approach can enable new capabilities within your industry.

**16:40 Ingrid Simonic**, Deputy Director at Medical Genetics Laboratories Cambridge University Hospital, UK

**Title: Chromosomal abnormalities in PSCs by G-banding and AGH**

Early detection of chromosomal abnormalities in pluripotent stem cells (PSCs) is important in order to prevent detrimental consequences of these aberrations on PSC application in basic research as well as potential clinical applications.

Chromosomal abnormalities in PSCs include polyploidy, single chromosome aneuploidy, balanced and unbalanced structural chromosomal rearrangement, segmental gains and losses.

Methods used for detection of acquired abnormalities in PSCs include G-banded chromosome analysis, quantitative PCR, and array genomic hybridisation (AGH). Advantages and limitation of these methods will be discussed and illustrated in this presentation to help the participants select the best quality check for their PSC application.

**17:00** *Closing remarks*

**Note** It is planned that all presentations would be followed by Q&A discussion. The organisers reserve the right to change the programme, speakers or venue should circumstances require. For any further enquires please do not hesitate to contact directly the **n-TRACK Open Day 2019 organiser** Dr Bojan Boskovic from Cambridge Nanomaterials Technology Ltd on [info@cnt-ltd.co.uk](mailto:info@cnt-ltd.co.uk) or [Bojan.Boskovic@CNT-Ltd.co.uk](mailto:Bojan.Boskovic@CNT-Ltd.co.uk) or on his mobile phone +447780874335.

## n-TRACK Open Day 2019 - Speakers

### n-TRACK Partners

	<p><b>Marc Massa</b> LEITAT Spain</p>	
<p><b>Marc Massa</b> is scientific coordinator of nTRACK. Senior researcher at the Health and Biomedicine division of LEITAT, Technological Centre. Biologist, University of Barcelona in 1999. During 1999-2007 he joined the Bioresearch Laboratory of Merck Serono. He carried out research activities for the discovery of new therapeutic targets based on genomic and proteomic projects. As of 2008, he joined the Leitit Technology Center as a founding member of the Health &amp; Biomedicine unit and, later co-founder of the spin-off Lykera Biomed. He's co-inventor of 9 patents, 3 granted and transferred to Lykera Biomed. Currently, he is responsible for the Leitit diagnostic and biosensors group.</p>		
	<p><b>Dr. Bojan Boskovic</b> Cambridge Nanomaterials Technology Ltd UK</p>	
<p><b>Dr Bojan Boskovic</b> has more than 20 years of hands-on experience with carbon nanomaterials and composites from industry and academia in the UK and Europe. Previously, he worked as a R&amp;D Manager at Nanocyl,. He also worked on carbon nanotube synthesis and applications as a Principal Engineer-Carbon Scientist at Meggitt Aircraft Braking Systems, as a Research Associate at the University of Cambridge, and as a Senior Specialist at Morgan Advanced Materials. During his PhD studies at the University of Surrey he invented low temperature synthesis method for production of carbon nanomaterials that has been used as a foundation patent for the start-up company Surrey Nanosystems. He was a member of the Steering and Review Group for the Mini-IGT in Nanotechnology that advised the UK Government on the first nanotechnology strategy policy document. Dr Boskovic was working as an advisor for the European Commission (EC) on Engineering and Upscaling Clustering and on setting up of the European Pilot Production Network (EPPN) and European Materials Characterisation Cluster (EMCC). He has experience in exploitation and dissemination management on a number of FP7 and H2020 European projects, including UltraWire, NanoLeap, OYSTER, M3DL0C, Genesis and nTRACK. Also in UK Government InnovateUK funded projects, such as UltraMAT and GRAPHOSITE He is also a leader of a private Nano-Carbon Enhanced Materials (NCEM) consortium</p>		
	<p><b>Dr Jelena Aleksic</b> Cambridge Nanomaterials Technology Ltd. UK</p>	
<p><b>Dr Jelena Aleksic</b> is a Senior Innovation Manager at CNT Ltd. She has wide project management, R&amp;D and teaching experience. While she was working as a scientific associate at the University of Applied Sciences in Stralsund, Germany she taught subjects Fluid Mechanics, Gas Dynamics and Mathematics. During her PhD studies in fluid mechanics related to crystal growth at the University of Rostock, Germany, she developed a new temperature measurement method for fluids based on thermochromic liquid crystals (TLC). Her thesis was awarded with the first prize at the South-eastern Conference on Theoretical and Applied Mechanics in Orlando, FL, USA. She organised scientific conferences and edited an internationally published science magazine. At the CNT Ltd. she has been working extensively on developing business strategies, and preparation of customised patent landscaping and market research reports in the field of nanomaterials. Dr Aleksic has also been working on management of European collaborative R&amp;D projects (EC FP7 &amp; H2020) involving tasks such as innovation management, Business Model and Plan development, identification and analysis of Key Exploitable Results, mapping and engagement with stakeholders and other relevant exploitation and dissemination tasks. Previously she worked in many different industries including renewable energies, construction and social media and she is fluent in English, German, Spanish and Serbo-Croatian.</p>		
	<p><b>Dr. Nazende Günday Türeli- Speaker</b> MJR PharmJet GmbH Germany</p>	
<p><b>Dr. Nazende Günday Türeli</b> possesses 15 years of international research and development experience in international pharmaceutical companies and contract research organizations. She is experienced on Quality-by-Design (QbD) approaches and GMP manufacturing. Her academic expertise is on pharmaceutical</p>		

nano(bio)technology, where and her research interests focuses on nanoparticulate drug delivery systems for pulmonary administration. Her research has been rewarded, and recognized through several international and national organizations, as well as peer-reviewed journals. She is the winner of the 2014 Global CPhI Pharma Awards for Best Innovation in Formulation category.



**Dr Margriet Park**

The National Institute of Public Health and the Environment – RIVM  
Germany



**Dr Margriet Park** is leader of WP6 of nTRACK, which takes care of the regulatory process of the nTRACK material. She is a senior researcher with a PhD in nanotoxicology at RIVM's Centre for Health Protection who has been working on safety of nanomaterials since 2007. She has a background in regulatory risk assessment and focuses her work on facilitating the safety of nanomaterials, nanomedicine and medical technology. She has participated in various EU and national projects related to the risk assessment of nanomaterials and was WP co-leader in the EU funded GUIDEnano project, where she was responsible for developing the human hazard assessment approach in the web-based guidance tool for risk assessment & mitigation of nanomaterials and nano-enabled products. Recent work also focuses on safe-by-design and regulatory agility of innovative products and materials.



**Marta Rayo Lunar**

Asphalion, S.L.  
Spain



**Marta Rayo Lunar** is a Pharmacist  
Specialist postgraduate degree qualification in Industrial Pharmacy and Galenic Formulation.  
Master of Advanced Studies (MAS) in Biopharmacy, Pharmacology and Drug Quality.  
7 years of experience as R+D Project Manager at Spanish biotechnology company focused on the development of drug candidates  
2 years CMC Regulatory Affairs Specialist in drug development and in drug product development activities of new chemical drugs and biologics (including biosimilars and ATMPs)  
Experience in scientific medical writing of regulatory documents for CTAs, Scientific Advice Procedures, Orphan Drug Designations (EU and FDA)



**Dr Panagiotis Papadimitroulas**

BIOEMTECH  
Greece



**Dr Panagiotis Papadimitroulas** holds a PhD on the "Evaluation of diagnostic, therapeutic and dosimetric applications in nuclear medicine, with the development of computational models and the use of Monte Carlo simulations" from the University of Patras (2015). He is the co-founder and the Project Director of BIOEMTECH since 2013. He authored 2 chapter books related to internal dosimetry and computational tools, 17 publications in peer-review journals and more than 50 announcements in international/national conferences. He has great experience in participation and in management from several international/national projects. Since 2017, he is an official member of the OpenGATE collaboration ([www.opengatecollaboration.org](http://www.opengatecollaboration.org)).



**Dr. Sophia Sarpaki**

BIOEMTECH  
Greece



**Dr. Sophia Sarpaki** obtained her PhD diploma from the Department of Chemistry University of Bath, on "Investigations into the Radiochemistry of Gallium- and Fluorine-Containing Compounds for Molecular Imaging Applications". She also holds the FELASSA certification for small animal handling. Currently, she works as project manager of preclinical imaging research projects and research assistant at BIOEMTECH. Lately, she has been involved in a variety of in vivo imaging experiments for a variety of applications including stem cell therapy protocols in paediatric applications.



**Dr José Raul Herance**

Vall d'Hebron Research Institute (VHIR)  
France



**Dr Jose Raul Herance**, PhD, is currently the co-head of the Medical Molecular Imaging Research Group at Vall d'Hebron Institute of Research and one of the scientific directors of nuclear medicine department, expert in vascular biology and metabolism, (co)-authored >80 publications.

He obtained his BA degree in Chemistry at the autonomous University of Barcelona in 2000 where he also obtained his PhD with honours in the field of Organic Chemistry in 2005. After that, he joined the High Technological Institute Foundation at Barcelona Biomedical Research Park, where he received his expertise in molecular imaging. In 2006, he led the Chemistry and Radiochemistry Research Unit in the above Foundation, being involved in diverse clinical and preclinical studies by setting >10 radiopharmaceuticals for clinical trials and > 25 for preclinical studies. Thus, he gained during this period lot of experience working in several imaging projects in clinical and preclinical trials for drug discovery and development. In addition, he has been trained in several international centers including Turku PET Center and the clinical Imaging Center - Imperial College London. In 2014, he was awarded with a Miguel Servet contract, initially joined the Dr. Peset University Hospital (Valencia) and later the Vall d'Hebron Research Institute.

## Guest Speakers



**Dr Mary Murphy (Guest Speaker)**  
Regenerative Medicine Institute  
National University of Ireland Galway  
Ireland



NUI Galway  
OÉ Gaillimh



REMEMI

**Dr Mary Murphy** is Professor of Regenerative Medicine and a Principle Investigator at the Regenerative Medicine Institute (REMEMI) at the National University of Ireland Galway. Her research interests focus on the biology of stem cells and the development of innovative medicines and tissue engineering solutions for osteoarthritis, bone repair and vascular calcification. Her basic research is focused on the concept that stem cell depletion or alteration of function contribute to the development of chronic degenerative diseases such as osteoarthritis and atherosclerosis. The use of the chondrogenic differentiation pathway of bone marrow-derived MSCs as a model to study early changes in osteoarthritis development and the role of inflammation and epigenetics in disease progression is a central platform of her research. Applied research has a focus on cell manufacturing technologies including automation, robotic processes, scalable systems and novel xeno-free and defined cell expansion media.



**Prof. Martin J. Leahy (Guest Speaker)**  
National Biophotonics and Imaging Platform Ireland  
National University of Ireland, Galway  
Ireland



NUI Galway  
OÉ Gaillimh

**Prof. Martin Leahy** completed a DPhil in BioPhotonics at the University of Oxford and he and a colleague established Oxford Optronix Ltd., where he was Director of R&D. From 1995 he had various research and teaching posts at the University of Oxford. After a period in industrial consultancy and joined the Physics Department at the University of Limerick where his group specialized in tissue optics and microcirculation imaging, a number of projects in the area of biomedical instrumentation and lecturing in physics.



**Dr Giovanni Giuseppe Giobbe (Guest Speaker)**  
University College London (UCL)  
Great Ormond Street Institute (GOS)  
Institute of Child Health  
UK



GREAT ORMOND STREET  
INSTITUTE OF CHILD HEALTH

**Dr Giovanni Giuseppe Giobbe**, PhD, NIHR GOSH BRC Catalyst Fellow - Research Associate at UCL GOS Institute of Child Health from January 2016, in the group of Prof. Paolo De Coppi. Previous post-doctoral position at University of Padova (Italy) from June 2015 to December 2016. PhD in Biology and Regenerative Medicine from January 2011 to April 2014 at University of Padova (Italy). In 2010, graduated as M.Sc. in Industrial Biotechnologies at the University of Padova (Italy). In 2008, he got his B.Sc. in Biotechnology at the University of Padova (Italy).



**Dr Judit Morla (Guest Speaker)**  
Molecular Nanoscience and Organic Materials Group (NANOMOL)  
Institute of Materials Science of Barcelona, ICMAB-CSIC  
Spain



ICMAB  
INSTITUT DE CIÈNCIES DE MATERIALS DE BARCELONA

**Dr Judit Morlà-Folch** obtained her PhD under the supervision of ICREA Research Prof. Ramon Álvarez Puebla, working on the analysis of epigenetic mutations in nucleic acids using SERS. During her PhD, she stayed with Prof. Xing Yi Ling at Nanyang Technological University of Singapore as visiting PhD student (2016) where she investigated the development of super-hydrophobic nanomaterials for the detection of circulating tumour cells (CTCs). For one year, she was working as Innovation Manager at Beauty Cluster Barcelona, and after that period she joined New Jersey Institute of Technology (NJIT, EEUU) as Postdoctoral Fellow, where she investigated the design of novel fluorescent organic nanoparticles as bioimaging probes. Nowadays, the same research line is continued at ICMAB-CSIC



**Dr Yaoyao Chen (Guest Speaker)**  
STEMCELL Technologies UK Ltd.  
UK



**Dr. Yaoyao Chen** is a Senior Scientist of R&D at STEMCELL Technologies, Cambridge, UK. She is part of the PSC group as well as the Epithelial group. She has been involved in the development of NaiveCult, and is now actively developing innovative products for multiple tissue areas. Prior to joining STEMCELL Technologies in 2016, Dr. Chen investigated the mechanisms regulating proliferation and differentiation of naive PSCs in group of Prof. Austin Smith at the Cambridge Stem Institute, University of Cambridge. Dr. Chen received her PhD from the University of Manchester, where she studied primitive myelopoiesis during embryonic development.



**Dr Pavel Abdulkin (Guest Speaker)**  
Blacktrace Holdings Ltd  
Dolomite Microfluidics  
UK



**Dr Pavel Abdulkin** is Head of Business Development Particle Engineering & Macro Fluidics) at Blacktrace Holdings Ltd.. After completing his Master and PhD at Cambridge University, Dr Abdulkin has c-founded several technology start-ups including N40 a company that specialises in removal of liquid rocket fuel in mobile continue flow reactors. He is currently responsible for Business Development of Particle Works and Dolomite Microfluidics brands.



**Dr Ingrid Simonic**  
Medical Genetics Laboratories  
Cambridge University Hospital  
UK



**Dr Ingrid Simonic**, is Consultant Clinical Scientist at the Genomics Hub at Cambridge University Hospital, member of the Royal College of Pathologists and Assessor for the UK and European Genomics Quality Assessment scheme for prenatal diagnosis, postnatal tissues and stem cells (GenQA).

## n-TRACK Open Day 2019 – Partners



**LEITAT**  
[www.leitat.org](http://www.leitat.org)

**LEITAT** is a Technological Centre specialized in production technologies, developing R&D activities in the areas of materials sciences, environment, biotechnologies and renewable energies with deep knowledge and experience in technological transfers to several industrial sectors. LEITAT takes part each year in many projects financed by the regional and national governments, and in other co-funded by the European Commission, and develops private R&D projects funded by industrial partners. LEITAT is recognized by the Spanish Government as a CIT (Centre of Technological Innovation) and is one the 5 Technological Centres that is accredited by the Regional Government of Catalonia. Finally, it is member of FEDIT (Federation of Technological Centres in Spain) and the IT Network of the Catalan Regional Government



Bar-Ilan University

**Bar Ilan University**  
[www.popovtzerlab.com](http://www.popovtzerlab.com)

**Bar-Ilan University** (BIU) is renowned for its ground-breaking scientific research and exceptional achievements in nanotechnology and engineering. The BIU Faculty of Engineering supports a variety of interdisciplinary research programs, including various collaborations with world-leading research centers. The research will be conducted in the Faculty's Nanomedicine lab, headed by Prof. Popovtzer. The lab develops innovative nanotechnology-based solutions for broad applications, including early diagnosis of disease, targeted drug delivery with reduced side effects, and novel therapeutic approaches. The lab has a multidisciplinary research approach, integrating researchers from the fields of engineering, chemistry, biology and medicine.



**Pluristem Therapeutics**  
[www.pluristem.com](http://www.pluristem.com)

**Pluristem Ltd.**, a recognized leader in placenta-based cell science, is an SME with the ambition to develop and manufacture safe and effective cell therapy products. The company currently employs 172 workers, of whom 131 hold academic degrees including 20 PhDs, and 5 MDs. Specifically, the research department employs 9 PhDs and 3 research assistants. Pluristem also has an in-house IP unit comprising a patent attorney, a lawyer and a paralegal. More than half the total management contingent are women, reflecting the general gender distribution in the company.



UNIVERSITÄT **medizin.**  
 MAINZ

**University Medical Center of the Johannes Gutenberg-University of Mainz**  
[www.unimedizin-mainz.de](http://www.unimedizin-mainz.de)

The **University Medical Center of the Johannes Gutenberg-University of Mainz** is the only medical institution of supramaximal care in Rhineland-Palatinate and an internationally recognized science location. Our more than 60 hospitals, institutes and departments represent the entire spectrum of modern medicine. Optimal patient care based on state-of-the-art diagnostic and therapeutic procedures and latest research know-how is our aim. The guideline of our actions is in the principle "Our knowledge for your health". Mainz University Hospital has around 1,500 beds and treats around 325,000 patients annually, of which 260,000 are outpatients. On the stations, excellently trained and experienced teams of doctors and healthcare professionals serve about 65,000 patients annually.



**MJR PharmJet**  
[www.mjr-pharmjet.de](http://www.mjr-pharmjet.de)

**MJR PharmJet** focuses on development and production of nano- and microparticles by using patented micro reactor technology with partners from different areas since several years. The microreactor technology can produce nano-/microparticles, emulsions and encapsulations with a well-defined size and creates superior results compared to spray drying, milling and other technologies. Additionally, microreactor technology enables the optimization of nanoparticle formulations using statistical designs to reach the desired particle properties with minimum experimental effort and cost by utilizing fully automatized DoE-set-up. MJR PharmJet has already shown their competence on Quality-by-design (QbD) by various research projects, academic projects as well as customer projects.



**BIOEMTECH Solutions** is a fast-growing Greek SME which aims to bridge the gap between ex vivo studies and in vivo molecular imaging by providing cost-effective solutions in terms of instrumentation and services. The company mainly designs and develops low cost molecular imaging systems and provides imaging services and consultancy with emphasis on nuclear medicine technology. The company was established in 2013 when it ranked 1st in a National Innovation Contest. In its short lifetime, BIOEMTECH Solutions already participates in three Horizon 2020, has been awarded a National support project for SMEs and participates in several submitted international proposals. BIOEMTECH has developed “γ-eye”, a scintigraphic imaging benchtop prototype, which is being installed at University of Leeds and is now launching “β-eye” as a complementary tool for PET imaging. In addition, BIOEMTECH provides imaging services on national level and hosts high performance imaging systems, as well as an IVC for hosting small animals.



**National Center for Scientific Research “Demokritos”**  
[www.demokritos.gr](http://www.demokritos.gr)

The **National Center for Scientific Research “Demokritos”** (NCSR “Demokritos”) is the largest multidisciplinary research center in Greece, with critical mass in expertise and infrastructure in the fields of Nanotechnology, Energy & Environment, Biosciences, Particle and Nuclear Science, Informatics and Telecommunications. The NCSR “Demokritos” conducts world-class basic and applied research, for advancing scientific knowledge and promoting technological development in selected areas of national socio-economic interest. The Center also plays a pivotal role in graduate education and professional training and its unique infrastructure is employed for high-technology services to the Industry and the Society.



**Vall d'Hebron Institut de Recerca**  
[www.vhir.org](http://www.vhir.org)

**Vall d'Hebron Institut de Recerca (VHIR)** is a public sector research institute that has been created in 1994 to serve the research of the Institut Català de la Salut – Hospital Universitari Vall d'Hebron (ICS-HUVH), the leading hospital complex in Catalonia and one of the largest in Spain with more than 1400 beds and around 7000 employees. VHIR is a multidisciplinary biomedical research public center that aims at undertaking high quality and competitive research at international level in the field of health and life sciences in the areas of basic, clinical, epidemiological, economic and health care services in order to favor the transfer of knowledge allowing a better diagnosis, treatment and prevention of the health problems of our society.



**VIVOTECNIA**  
[www.vivotecnia.com](http://www.vivotecnia.com)

**VIVOTECNIA** is nowadays a fully independent European Toxicology Safety Contract Research Organisation (CRO) with the Headquarters based in Madrid, Spain. Vivotecnia is committed to providing the highest quality, GLP compliant services, working with each client to design and execute fit-for-purpose studies to support regulatory submissions. We conduct preclinical safety assessment evaluations for pharmaceuticals (e.g., small molecules, vaccines, and biologics), industrial/agricultural chemicals, excipients, and other compounds. At VIVOTECNIA we help our clients to conduct preclinical GLP-compliant toxicology studies to evaluate safety of new drug candidates adhering to international regulatory requirements and filling the corresponding regulatory submission for clinical trial or marketing authorisation.



**The National Institute of Public Health and the Environment - RIVM**  
[www.rivm.nl](http://www.rivm.nl)

**The National Institute of Public Health and the Environment (RIVM)** delivers high quality scientific knowledge and expertise to meet specific requests of national and international organisations dealing with complex issues in public health and the environment. The RIVM organisation consists of three domains with specific knowledge and expertise: Infectious Diseases and Vaccinology (Centre for Infectious Disease Control), Environment and Safety, Public Health and Health Services. RIVM is a leading institute in knowledge and expertise on the relationship between environment and health. In the Environment and Safety domain, we monitor the quality of air, water and soil, and assess the risks to health and environment, including potential risks of nanotechnology. Within the Public Health domain, studies and investigations are carried out on the safety of medical products and pharmaceuticals, including advanced cell therapies and nanomedicine.



**Asphalion**  
[www.asphalion.com](http://www.asphalion.com)

**Asphalion** is an international Scientific and Regulatory Affairs consultancy, with offices in Barcelona and Munich. Asphalion collaborates with Pharma and Biotech companies facilitating Drug Development and Regulatory Affairs projects for Drugs, Biologics, Biosimilars, ATMPs and Medical Devices. Asphalion involvement ranges from early development, through to registration and post-commercialization phases. Since the company was founded in 2000, Asphalion has consistently grown and now have a team of over 80 employees with backgrounds in all areas of life sciences. Asphalion consultants are experts in their fields and are in direct contact with European agencies for the implementation of new regulatory standards. They provide global services and work for hundreds of clients from around the world. Through collaborations with partners in all other continents, they can accelerate the worldwide scientific and regulatory activities by using local expertise.



**Cambridge Nanomaterials Technology Ltd**  
[www.cnt-ltd.co.uk](http://www.cnt-ltd.co.uk)

**Cambridge Nanomaterials Technology Ltd (CNT)** is an innovation management and nanotechnology consulting company based in Cambridge. It is closely linked with a sister company in Brussels, CNT Innovation ([www.cnt-innovation.be](http://www.cnt-innovation.be)). The CNT Ltd helps companies, academic and government institutions to develop world-class innovative solutions for nanomaterials related R&D and IPR strategy, partnership, products, technologies, funding and markets. CNT Ltd is specialised in carbon nanomaterials R&D consulting and collaborative R&D project management, including exploitation and dissemination management, consortium and supply chain building. CNT has done a number of patent landscaping and market research analysis studies regarding production and use of various nanomaterials helping to link inventors and technology developers with end-users and investors.

## n-TRACK Open Day 2019 - Guests Organisations



**STEMCELL Technologies Inc.**  
[www.stemcell.com](http://www.stemcell.com)

**STEMCELL Technologies Inc.** is a biotechnology company that develops specialty cell culture media, cell isolation systems and accessory products for life science research. Driven by science and a passion for quality,

STEMCELL supports the advancement of scientific research around the world with our catalogue of more than 2000 cell biology research tools.



**Regenerative Medicine Institute (REMEDI)**  
**NUI Galway**

[www.nuigalway.ie/remedi](http://www.nuigalway.ie/remedi)

The **Regenerative Medicine Institute (REMEDI)** is a world-class biomedical research centre focusing on gene therapy and stem cell research.

In state-of-the-art facilities, researchers at REMEDI work together to combine the technologies of gene therapy and adult stem cell therapy with the aim of regeneration and repair of tissues. The unique feature of the research carried out at REMEDI is the novel integration of both therapies in a complementary research and development programme.

Based in the **National University of Ireland, Galway**, REMEDI was established in 2003 through a Science Foundation Ireland (SFI) Centre for Science Engineering and Technology (CSET) award, and industry funding. The institute is located at the National Centre for Biomedical Engineering Science and incorporates the National Cell and Gene Vector Laboratory, a GMP grade vector and cell production facility.

REMEDI is a partnership involving scientists, clinicians, and engineers in academic centres and in industry. It is a unique cluster of talented and committed individuals who share a vision in developing new and successful treatment options for patients.



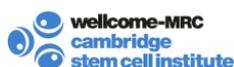
**Novo Nordisk A/C**

[www.novonordisk.com](http://www.novonordisk.com)

At **Novo Nordisk**, we are driving change to defeat diabetes and other serious chronic diseases.

Novo Nordisk is a global healthcare company with more than 95 years of innovation and leadership in diabetes care. This heritage has given us experience and capabilities that also enable us to help people defeat other serious chronic diseases: haemophilia, growth disorders and obesity.

Headquartered in Denmark, Novo Nordisk employs approximately 41,600 people in 80 countries and markets its products in more than 170 countries.



**Wellcome - MRC Cambridge Stem Cell Institute**  
**University of Cambridge**

[www.stemcells.cam.ac.uk](http://www.stemcells.cam.ac.uk)

The **Wellcome - MRC Cambridge Stem Cell Institute** at the **University of Cambridge** is a research centre for the nature and potential medical uses of stem cells. It is located on the Cambridge Biomedical Campus in Cambridge, England. The Cambridge Stem Cell Institute is a world-leading centre for stem cell research with a mission to transform human health through a deep understanding of stem cell biology. Our scientists study stem cell behaviour, both normal and pathological, and use their findings to improve the prevention, diagnosis and treatment of diseases.

Our Institute consists of 29 outstanding research groups, working across three key research themes: Stem Cell States, Stem Cells in Disease and Stem Cells & Therapeutics.

In 2019, our investigators will come together in a purpose-built new building on the Cambridge Biomedical Campus. The new Institute will bring together scientists from multiple disciplines, operating across many tissues

and at multiple scales. This unique set up will allow commonalities and differences in stem cell biology to be explored in a cohesive and inter-disciplinary manner.



**Cell and Gene Therapy Catapult**  
[ct.catapult.org.uk](http://ct.catapult.org.uk)

The **Cell and Gene Therapy Catapult** is a centre of excellence in innovation, with the core purpose of building a world-leading cell and gene therapy sector in the UK as a key part of a global industry. Supported by Innovate UK, our mission is to drive the growth of the industry by helping cell and gene therapy organisations across the world translate early stage research into commercially viable and investable therapies. We are based on the 12th floor of Guy's Hospital in central London, with over 170 cell and gene therapy experts, state-of-the art development and viral vector laboratories. We have also built a £55m large-scale GMP manufacturing centre to help bring cell and gene therapies to market in the UK and internationally.



**UCL Great Ormond Street Institute of Child Health**  
[www. ucl.ac.uk/child-health](http://www.ucl.ac.uk/child-health)

The **UCL Great Ormond Street Institute of Child Health (GOS ICH)** which, together with its clinical partner Great Ormond Street Hospital for Children (GOSH), forms the largest concentration of children's health research in Europe.

The inspirational mission of the UCL Great Ormond Street Institute of Child Health is to: "improve the health and well-being of children, and the adults they will become, through world-class research, education and public engagement".



**The Institute of Materials Science of Barcelona (ICMAB-CSIC)**  
[icmab.est](http://icmab.est)



**Molecular Nanoscience and Organic Materials Group (NANOMOL)**  
[projects.icmab.es/nanomol](http://projects.icmab.es/nanomol)

**The Institute of Materials Science of Barcelona (ICMAB-CSIC)** is a multidisciplinary research center focused on cutting-edge research in functional advanced materials in the fields of energy, electronics, nanomedicine and application fields yet to imagine. In 2018, the total personnel of the institute were 332 people.

**NANOMOL** is a research group with wide expertise and recognized excellence in the synthesis, processing and study of molecular and polymeric materials with chemical, electronic, magnetic and biomedical properties. We continuously generate new knowledge in our basic and applied research projects regarding the micro and nano structuring of molecular materials. We offer this knowledge to improve the properties of products manufactured in diverse sectors, such as chemicals, pharmaceuticals and electronics, thereby contributing to increasing their added value. As a group, we are actively involved in implementing nanotechnology and sustainable and economically efficient technologies for preparing advanced functional molecular materials.



**School of Life and Medical Sciences**  
**University College London**  
[www.ucl.ac.uk/translational-research](http://www.ucl.ac.uk/translational-research)

The **Translational Research Office (TRO)** facilitates the translation of **UCL's** emerging research into therapies, techniques and medical products. Translational research is the process whereby ideas and discoveries from

emerging research projects are translated into products of therapeutic value for human patient benefit. Where discoveries in “basic science” improve our understanding of a disease, the aim of translational research is to move basic science into practice, to improve human health through the development of drugs, therapies, techniques and medical devices.



**Blacktrace Holdings Ltd**

[www.blacktrace.com](http://www.blacktrace.com)

**Dolomite**

[www.dolomite-microfluidics.com](http://www.dolomite-microfluidics.com)

**Dolomite** is the world leader in design and manufacture of high quality innovative microfluidic products. Based in Royston (near Cambridge), UK, Dolomite is part of the **Blacktrace group** of companies, a world leader in Productizing Science™. We have offices in the USA, Japan, India and Brazil and worldwide distributors offering technical assistance and support. Productizing Science™ means creating marketable and commercially successful products from scientific discovery, and Dolomite excels in commercialising microfluidic products which exceed expectations.

Since forming in 2005, Dolomite has grown year on year and now has many thousands of customers in over 50 countries. Our customers include a wide range of major academic institutes, biotechs, start-ups, pharmaceutical companies, manufacturers, petrochemical companies, government institutes and virtually any company or organisation that involves science.



**Johnson Matthey**

[matthey.com](http://matthey.com)

**Johnson Matthey** (LSE: JMAT) is a British multinational speciality chemicals and sustainable technologies company headquartered in the United Kingdom.

It has five global divisions, each of one focussed on the development of high value added, high technology products and services. With 200-year commitment to innovation keeps them at the forefront of technological breakthroughs that make the world a better place.

Enabled by their science, manufacturers across many industries, including automotive, petrochemicals and pharmaceuticals, apply their innovations to improve the function, performance and safety of their products at a lower environmental cost.



**Centre for Business Innovation Limited (CfBI)**

[www.cfbi.co.uk](http://www.cfbi.co.uk)

The **Centre for Business Innovation Limited (CfBI)** is a new type of service organisation, headquartered in Cambridge, UK. We create and facilitate communities whose participants work together in a trusting environment, towards common goals or under a brand which reflects their values and beliefs in order to 'do more with less' in the spirit of Open Innovation. CfBI's team have been refining the formula for over fifteen years to help members all over the world to get optimum benefit.



**Cambridge University Hospitals NHS Foundation Trust**

<https://www.cuh.nhs.uk>

**Cambridge University Hospitals** is one of the largest and most renowned NHS Trusts in the country. In addition to delivering care through Addenbrooke's and The Rosie Hospitals, CUH is also a leading national centre for specialist treatment, a government-designated comprehensive biomedical research centre, one of only five academic health science centres in the UK, and a university teaching hospital with a worldwide reputation. The Trust employs around 10,000 people. The East Anglian Medical Genetics Service comprises the genetics laboratories (molecular genetics and cytogenetics) and clinical genetics and together they: Diagnose genetic disorders - in the clinic and using lab tests. Counsel individuals and families - for example offering risk assessments for patients who have a family history of an inherited disorder or familial cancer syndrome, Research the causes of birth defects and genetic diseases. Educate health care professionals about genetics. The service is provided by an integrated team of doctors, genetic counsellors and laboratory scientists, who are supported by secretarial and administrative staff.

 **sartorius** **The Sartorius Group**  
Web: [www.sartorius.com](http://www.sartorius.com)

The Sartorius Group is a leading international partner of the biopharmaceutical industry and the research sector. We are helping biotech scientists and engineers across the entire globe to develop and manufacture medications from the first idea to production. So more people will have access to better medicine.