stretchBIO

D7.1 KICK-OFF MEETING

StretchBio Kick-off Meeting of the Project

Identifier:	StretchBio_D7.1_ Kick-off Meeting
Work package:	WP7
Dissemination level:	Public
Keywords:	Dissemination, Exploitation
Abstract:	This document evinces that a kick-off meeting of StretchBio was held in Barcelona at the beginning of the project with all consortium members actively participating. The content of this deliverable is labelled as public.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808.

Document history:

Version	Date	Reason of change
1	10/10/2021	Creation of document
1.1	11/10/2021	Deliverable review and validation by Coordinator

Document author(s):

Entity	Contributor
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UB-IN2UB	Albert Romano-Rodríguez

Disclosure Statement:

This document has been produced by consortium partners of the *StretchBio* Horizon 2020 project, funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808. The content of this document, the information contained herein, and the views expressed are those of the authors and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the information contained.

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Executive Summary

StretchBio project commenced in September 2021 and will conclude in August 2025. The consortium members are convinced that the close collaboration between the partners is crucial to achieving the proposed objectives and thus, to facilitate the overall success. For this reason, and despite the COVID-19 restrictions, a face-to-face meeting was organized in Barcelona on October 6th, 2021.

During this one-day meeting, partners had a unique opportunity to physically know each other, review the StretchBio workplan and establish collaboration synergies for the coming months.

The official kick-off was slightly delayed until the COVID-19 control measures were relaxed by the health authorities. Nevertheless, this small deviation is not expected to impact the project implementation.

In this deliverable, the agenda and the high-level minutes of the meeting are provided with shreds of evidences that the meeting took place as initially foreseen. Here, no confidential information is given, and as a consequence, the document is labelled as public.

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Table of Contents

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808.

List of Figures

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808.

1 Introduction

In this section, the official agenda for the meeting, as well as the high-level minutes are provided.

1.1 KoM Agenda

StretchBio

Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies

Contract no. 964808
H2020-FETOPEN-2018-2019-2020-01

Kick-off Meeting

October 6th 2021

Venue:
Room Eduard Fontserè
Facultat de Física – Universitat de Barcelona
Martí i Franquès 1 – 08028
Barcelona

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808.

Agenda **Wednesday, 6th October, 2021**

Time	Topic	Contribution
09:00	Arrival / Dial-in (Attendance and system check)	
09:30	Brief welcome & opening Overview and approval of meeting agenda	**UB-IN2UB** A Romano.
09:40	**StretchBio project** • Vision --- Main foci --- Objectives • Project implementation	**UB-IN2UB** A Romano.
10:10	**Ethics Requirements (WP 1)** • Ethics overview and tasks • Involvement and roles of partners • Deliverables at M1	**UB-IN2UB** A Oriol.
10:30	Coffee break	
10:50	**Introduction of the project partner organisations** (*~10' each; max. 5 slides)* • Short general introduction • Main fields of expertise in relation to StretchBio • Role within the project - ALU-FR - DTU - LEITAT - *ReadyCell* - UB-IN2UB - UB-IBUB - UB-FUTT	**Each project partner**
12:00	**The Work Packages in detail** (*~15' each)* • Objectives & main goals • Content & tasks • Involvement and roles of partners • Interaction with other WPs • Deliverables - WP2: **Design and modelling of photonic crystals** UB - WP3: **Fabrication and characterisation of the nanosensor** DTU - WP4: **Tissue-nanopillar material compatibility** LEITAT - WP5: **Integration of light sources and detectors** ALU-FR	**WP leaders**
13:00	End of morning session and lunch[1]	

[1] *Lunch and coffee supported by the University of Barcelona*

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Agenda **Wednesday, 6th October, 2021**

Time	Topic	Contribution
14:30	Start of afternoon session / Dial-in (Attendance and system check)	
14:40	**Exploitation, dissemination, training and communication (WP 8)** • Objectives & main goals • Content & tasks • Involvement and roles of partners • Interaction with other WPs • Deliverables	**ReadyCell & UB-IN2UB**
15:10	**Project Management (WP 7)** • General issues • Organisational structure • Communication and reporting • Quality assurance and risk management plan	**UB-IN2UB** F. Hernandez-Ramirez
15:40	Wrap-up, questions, comments & next steps	**All**
16:00	End of Kick-off Meeting	

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1.2 KoM Minutes

Prof. Dr. Albert Romano (AR) gave an introductory presentation about the vision, general objectives, and main foci of StretchBio. Keeping in mind that the consortium is relatively small, internal procedures should be kept as simple as possible.

AR reviewed the background of StretchBio, which started in a Spanish national project that preliminary shed some light on the challenges to be addressed in the coming years. As a consequence, the work will not start from scratch since previous knowledge has already been gathered: evidence of the first nanosystem structures was shown.

AR overviewed the partners' roles, the project implementation schedule, keeping the focus on the first year, and those open issues labelled as nice-to-have by the end of the project. If effort is devoted to those issues, it will be declared in the frame of WP4.

Albert Oriol (AO), the external ethical advisor appointed by the consortium, reviewed his background in the Members Ethics Committee in the Trias i Pujol hospital nearby Barcelona for more than 15 years. He will play an independent role but will support the consortium just in case ethical doubts arise. Since data from identifiable patients are not expected to be handled by the consortium members, the project implementation should be straightforward as far as ethical aspects are concerned. In any case, he will validate the internal procedures of the partners in the deliverable D1.3 to be released by the end of October. AR explains that a new deadline at M2 was requested (and approved by the Commission) to accommodate the KoM delay.

Partners reviewed the role of their institutions in StretchBio and described their main expertise: full details are given in the supporting slides (Annex II).

The consortium members moved to the presentation of the running technical work packages (WP2, WP3, WP4 & WP5) providing an overview of the main objectives and reporting tasks of each one, with a special focus on the first-year commitments.

In WP2, it was agreed that the optimization of the nanostructures will take time (months). To avoid blocking WP4 activity, AR suggests that first proofs should be conducted in non-optimal architectures, which is approved by the WP4 leader (LEITAT).

In WP3, a specific working session for nanofabrication experts is to be organized in the coming days to align the fabrication strategies and routes to be followed. WP3 leader (DTU) explains that samples with nanopillars do not need specific manipulation procedures. They are not affected by temperature changes either.

Lunch break.

In the afternoon session, ReadyCell as WP leader reviews WP8 objectives and reporting tasks. A preliminary schedule for events and dissemination actions in the frame of the project, which will be refined, together with quantitative KPIs, before M6. A first draft for the project website was shown and approved by the consortium members: the website will be immediately launched and the deliverable D8.1 is expected to be submitted to the European Commission by the end of M2. Finally, it was announced that a logo proposal will be presented to the partners for their final validation in the coming days. This is a necessary step to launch the web and complete the official reporting templates (i.e., deliverables).

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Finally, the project manager (Francisco Hernández, FH) overviews the main reporting commitments for the coming months (WP7), focusing on a 6-month horizon. Once the consortium members are aware of the pending tasks in WP1 (Ethical requirements), it is agreed that drafts of deliverables D1.1 and D.1.2 will circulate for immediate final approval and submission to the EC. Besides, partners must (i) confirm that the information in the grant agreement regarding data processing and protection remains valid, (ii) DPOs exist in their institutions, and (iii) provide the forms used by the hospital to obtain consent from patients (UB-FUTT). Risk monitoring at project level will be conducted on a three-month basis.

Full details on the work package overviews are given in the attached slides (Annex II).

The next meeting (6M) is proposed to be held in Barcelona, unless the PO suggests a different option. The project meeting is concluded.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808.

2 Group Photo

Figure 1: Group photo of attendants to the first StretchBio meeting

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 964808.

Annex 2 – Presentations - Slides

Presentations (slides) shown by the participants to the StretchBio KoM. Information identified as potentially confidential or critical has been eliminated.

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Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies – STRETCHBIO

Contract no. 964808, 1/9/2021-31/8/2025
H2020-FETOPEN-2018-2019-2020-01

Kick-off Meeting
Universitat de Barcelona
October 6th 2021

Outline

1. Agenda: overview and approval
2. Vision of the project
3. Partners
4. Objectives
5. Implementation

1. Agenda

Time	Topic	Contribution
09:30	Brief welcome & opening	**UB-IN2UB** (A Romano)
09:40	**StretchBio project:** Vision --- Objectives --- Project implementation	**UB-IN2UB** (A Romano)
10:10	**Ethics Requirements (WP 1)**	**UB-IN2UB & Ethics advisor**
10:30	Coffee break (bar of faculty of Physics)	
10:50	**Introduction of the project partner organisations**	**Each project partner**
12:00	**Work Packages in detail** (*~15' each)*	**WP leaders**
13:00	End of morning session and lunch (bar of faculty of Physics)	
14:40	**Exploitation, dissemination, training and communication (WP 8)**	**ReadyCell & UB-IN2UB**
15:10	**Project Management (WP 7)**	**UB-IN2UB** (F. Hernandez-Ramirez)
15:40	Wrap-up, questions, comments & next steps	**All**
16:00	End of Kick-off Meeting	

2. Vision of the project

Prior knowledge:

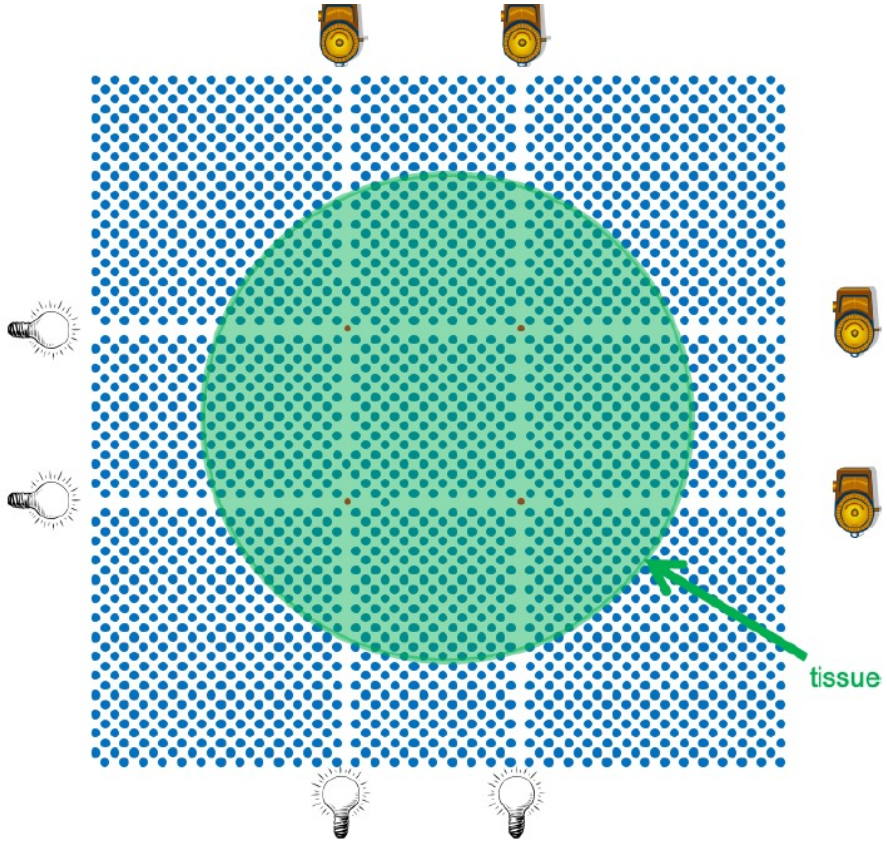
- Tissue mechanics plays a major role in tissue development, both in normal function and diseased condition
- Numerous diseases are related to the loss of elasticity or increase of stiffness of tissues (solid cancer, fibrosis, sclerosis or arthritis)
- There is no experimental measurement method of mechanical stresses in living tissues, only indirect indications
- Several antitumoral drugs have different efficiency on individual cells and on tissues

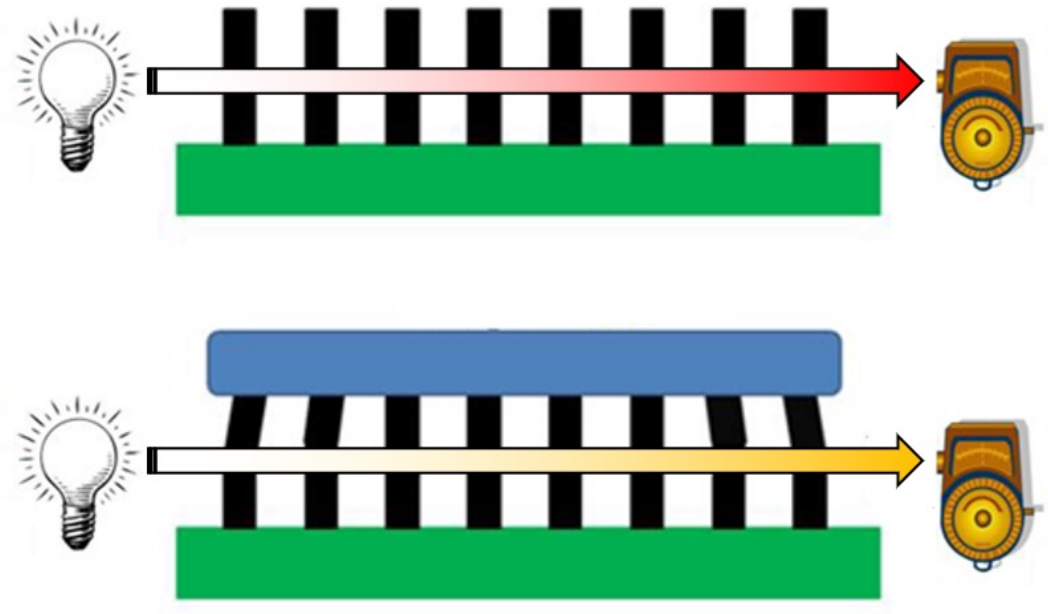
2. Vision of the project

Open questions:

- Can we develop a system providing quantitative information about these stresses?
- Can such a system provide two-dimensional stress information?
- Can we combine such a system with biopsies?
- Can such a system be used for antitumoral drug efficiency screening in biopsies for personalised medicine?

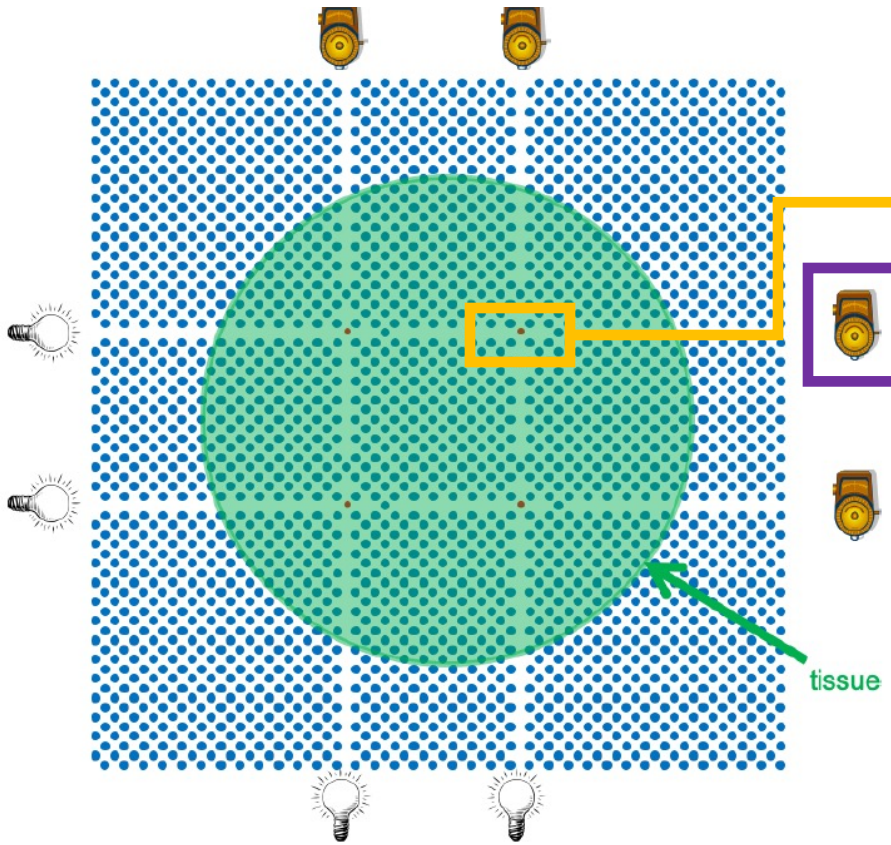
2. Vision of the project

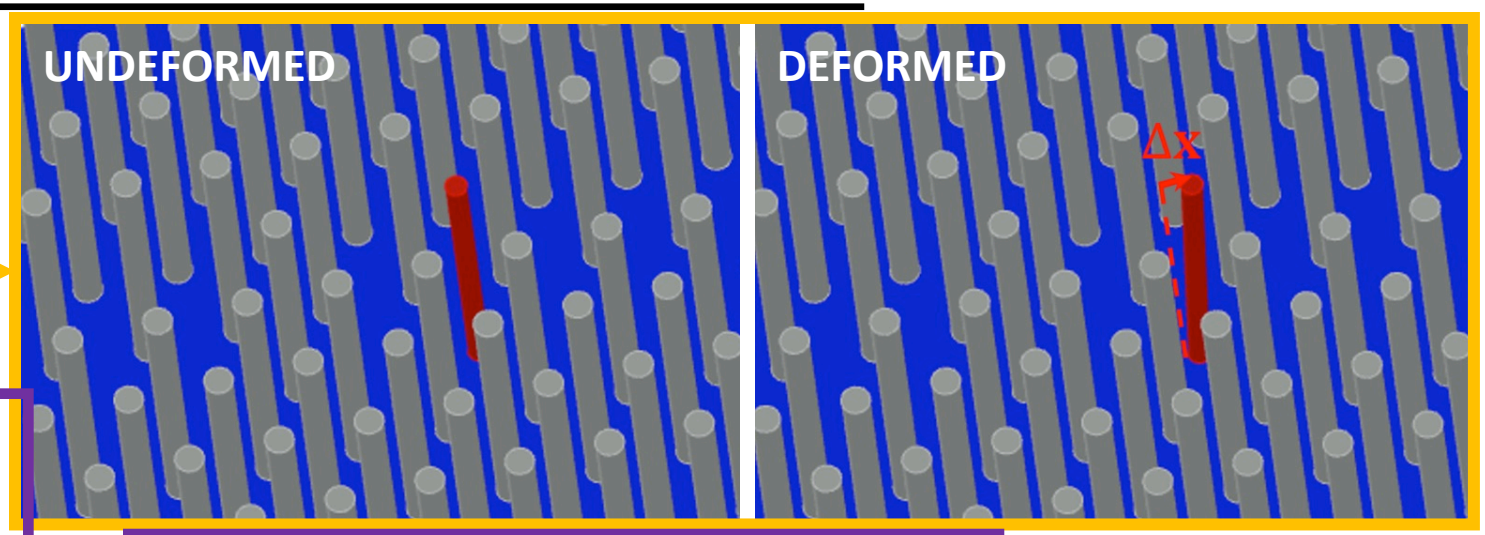


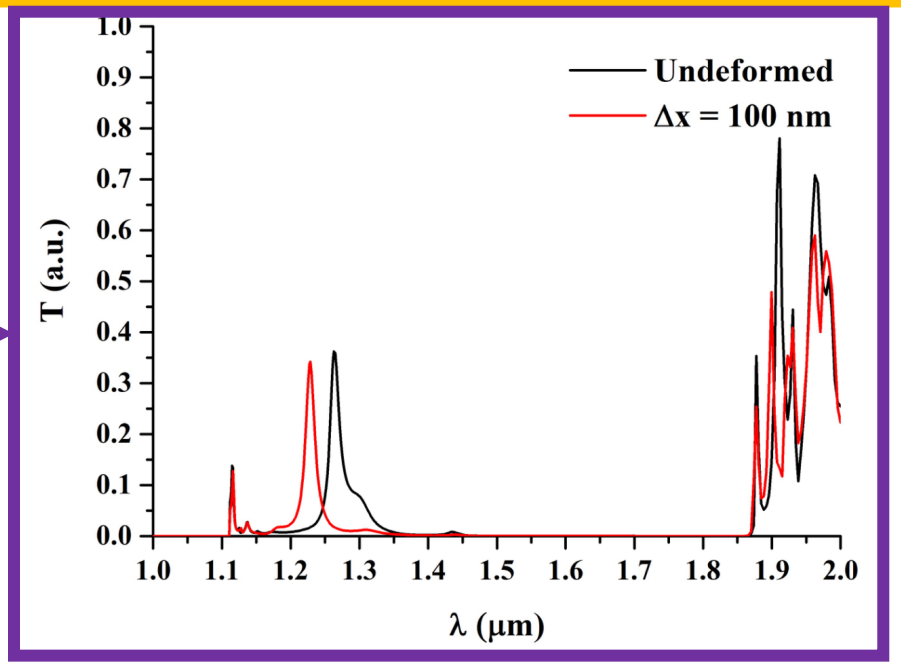


Result of 2D planar forces on the deflection of nanopillars

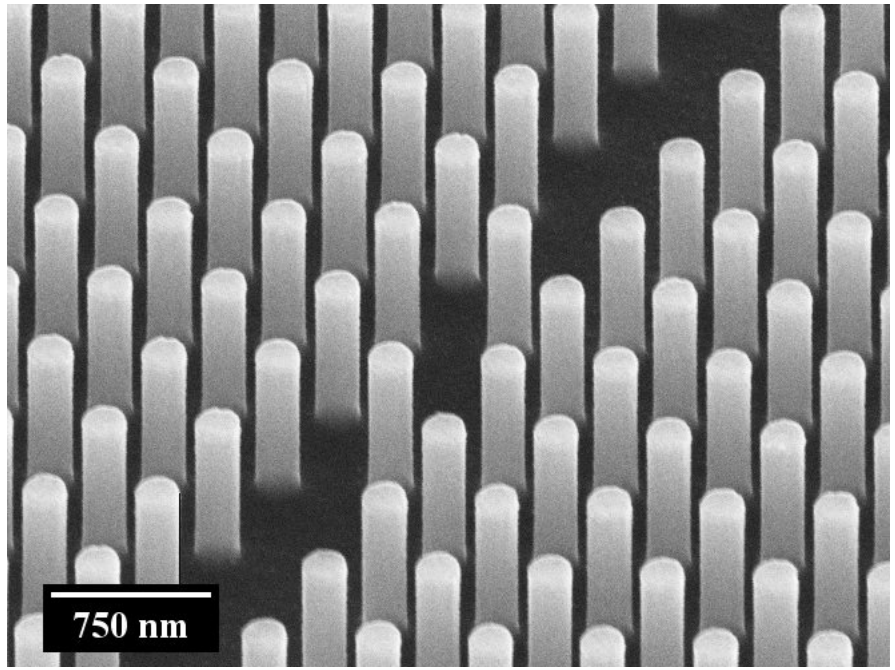
2. Vision of the project

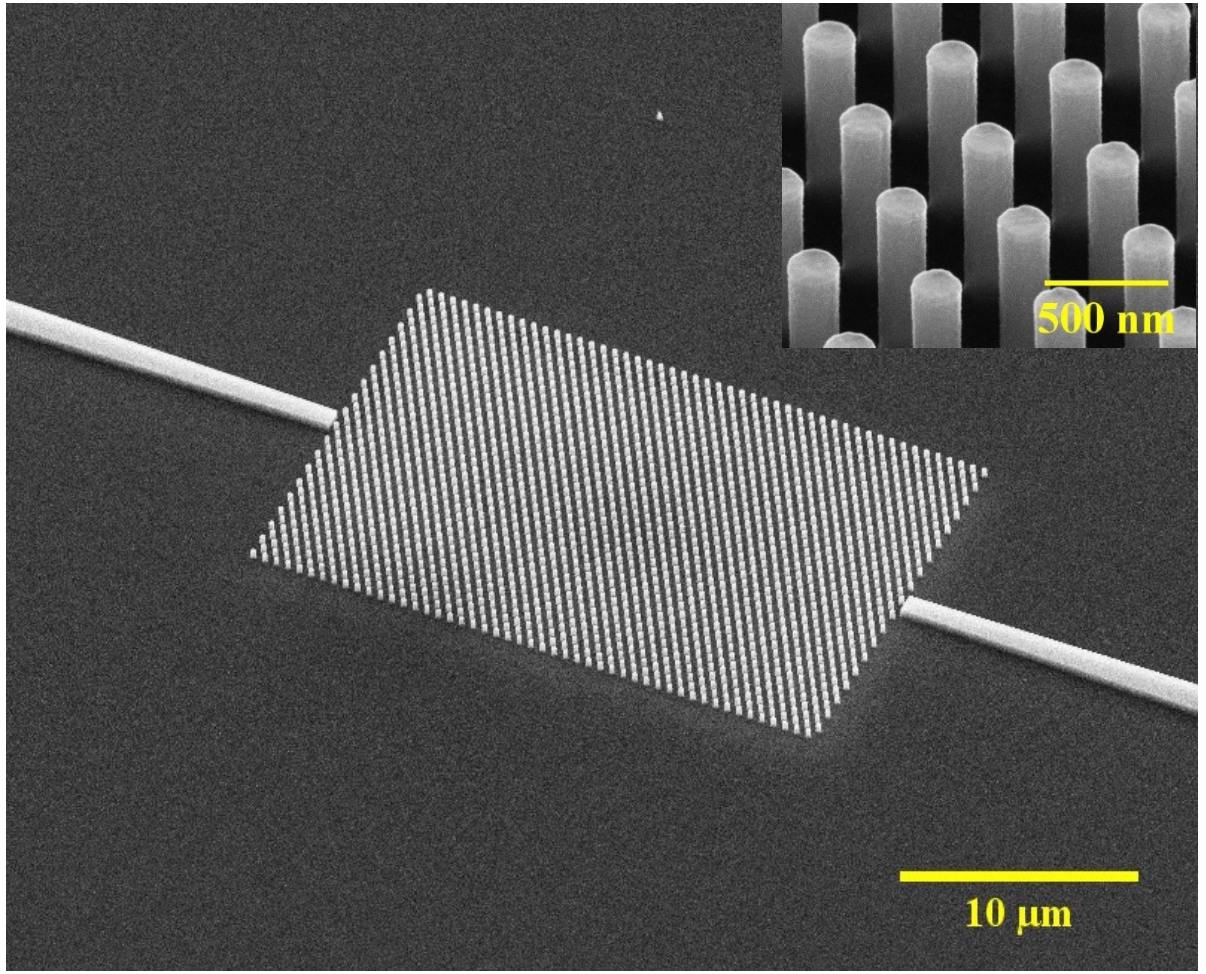






2. Vision of the project





Fabrication of the complete nanosensor inside a nanofabrication cleanroom.

2. Vision of the project

Imaginal disc (epithelia) of Drosophila wing after 8 hours on top of a silicon nanosensor.

3. Partners

Participant name		Tasks
UB	UB- IN2UB	Project coordination. Design, simulation, modelling and testing of the sensor and of the nanosystem
	UB-IBUB	Tumour development and tissue regeneration on Drosophila imaginal discs
	UB-FUTT	E*x-vivo* measurements on oncological biopsies
DTU		Design, simulation, nanofabrication and testing of the sensor
ALU		Development of the advanced optical measurement system
LEITAT		Development and testing of 3D tissues, cell culture; evaluation of the therapeutic efficiency of drugs on tissues
READYCELL		Development and testing of 3D tissues; cell culture; exploitation and marketing activities
Ethics advisor		Supervising the ethical requirements and associated documents

4. Objectives

Main objective:

To develop a **compact photonic nanosystem** for continuous label-free **ex-vivo monitoring** of the mechanical stresses occurring in **biopsies of tumoral living tissue** upon **drug treatment** for personalised medicine

4. Objectives

Partial objectives:

- To design and fabricate an array of silicon nanopillars on top of which a biopsy can be placed and can develop
- To measure the horizontal bending of some of the nanopillars due to the horizontal forces exerted by the tissue
- To observe a modification of the light transmission spectrum through the nanosystem based on nanopillars
- To relate light transmission and horizontal forces
- To measure the light transmission modification upon antitumoral drug treatment of the biopsy for personalised medicine

4. Objectives

Partial objectives:

To develop the theoretical and technical basis for the concept:

- designing photonic devices formed by arrays of nanopillars and simulate the light transmission upon deflection of the nanopillars
- fabricating the photonic devices and measure the light transmission variation upon mechanical deflection
- developing the theoretical background of the interaction between the nanopillar arrays and the *ex vivo* tissues
- developing a compact optical excitation and readout system for the nanosensor

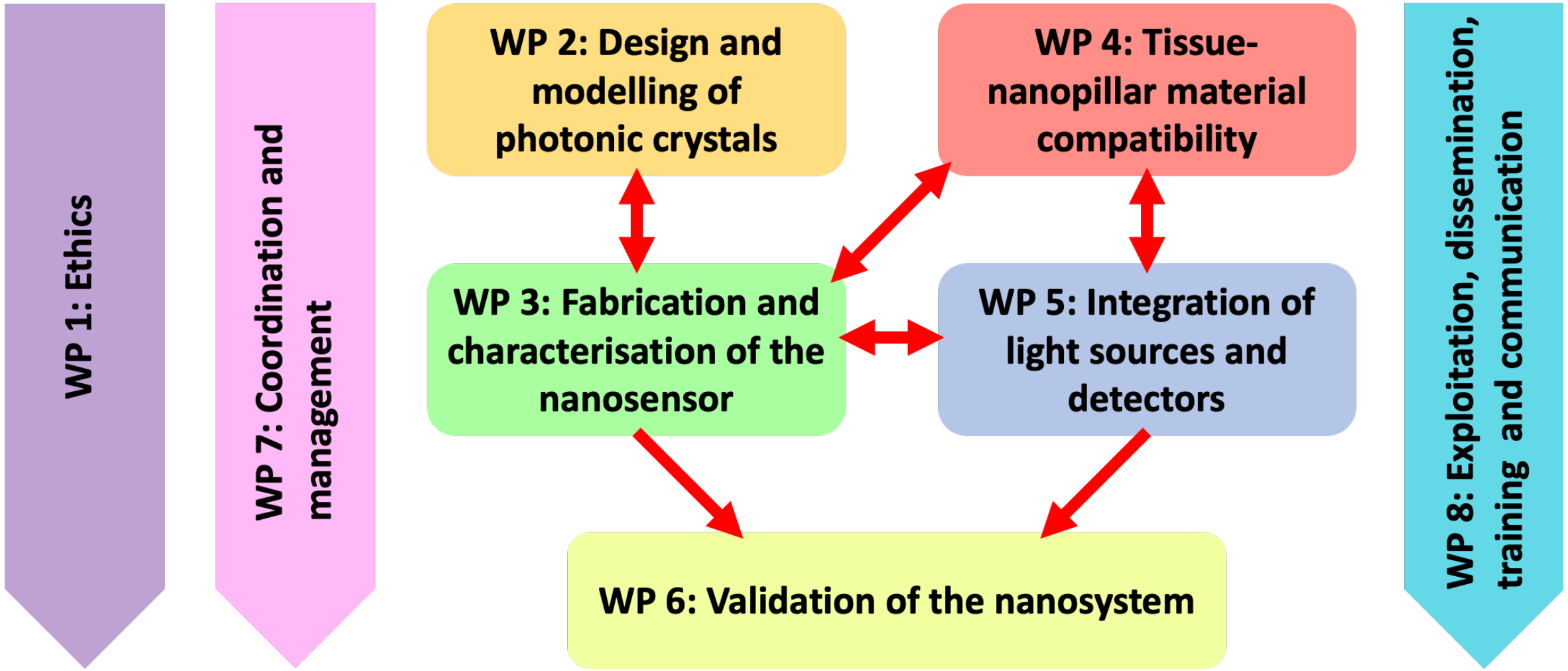
4. Objectives

Partial objectives (contd):

To validate the two-dimensional stress measurements in cancer-relevant tissue biopsies:

- *Ex-vivo* monitoring in genetically engineered Drosophila melanogaster
- *Ex-vivo* monitoring drug impact on 3D cultures
- *Ex-vivo* monitoring in fresh tumour samples from cancer patients to study the impact of anti-cancer drugs on these stresses

5. Implementation



5. Implementation

Work packages, tasks, deliverables and milestones		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP1	**Ethics requirements**	D1.1 D1.6															
WP2	**Design and modelling of photonic crystals (UB)**																
	T2.1: Simulation/modelling of the deformation		D2.1														
	T2.2: Modelling of light transmission			D2.2													
	T2.3: Study of the effect of nanopillar deformation					D2.3	M2				D2.4						
WP3	**Fabrication and test of the nanosensor (DTU)**																
	T3.1: Fabrication of nanopillars			D3.1	M1												
	T3.2: Measurement of the bending-force relation				D3.2												
	T3.3: Light transmission through the nanopillar array					D3.3	M3										
	T3.4: Light transmission changes upon bending							D3.4									
	T3.5: Surface modification of the nanopillars									D3.5	M6						
WP4	**Tissue-material compatibility (LEITAT)**																
	T4.1: Living tissue-nanopillar biocompatibility				D4.1												
	T4.2: Study of the adhesion of tissue-nanopillar							D4.2	M4								
	T4.3: Other issues affecting light propagation								D4.3								
WP5	**Integration of light sources and detectors (ALU)**																
	T5.1: Design of grating for light coupling				D5.1												
	T5.2: Miniaturised photodetectors						D5.2										
	T5.3: Design of optical components for light splitting																
	T5.4: Design/implementation of source and detection									D5.3	M7						

5. Implementation

Work packages, tasks, deliverables and milestones		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP6	**Validation of the nanosystem (UB)**																
	T6.1: Proof of concept							D6.1	M5								
	T6.2: Experiments on ex vivo tissues									D6.2	M8	D6.3		D6.4	M12		
	T6.3: System integration														D6.5		
WP7	**Coordination and management (UB)**																
	T7.1: Consortium meetings	D7.1															
	T7.2: Project monitoring and risk management																
	T7.3: Production of internal and official reports			D7.3		D7.4		D7.5		D7.6		D7.7		D7.8		D7.9	D7.10
	T7.4: Maintenance of project document database		D7.2														
WP8	**Exploitation, dissemination and training (RCELL)**																
	T8.1: Patent database and exploitation plan	D8.1			D8.2								D8.5	M11			
	T8.2: Planning scientific publications and conferences									D8.3	M9						
	T8.3: Workshops, training and short term-missions									D8.3	M9						
	T8.4: Communication and outreach										D8.4	M10					

5. Implementation

Open issues about Nanosystem design (not forecasted):

- *Hybrid or integrated nanosystem*
- *Dimensions of the photonic crystal structure to match the tissues*
- *Cleaning/sterilisation capabilities of the nanosystem*
- *Compact or laboratory system*

»StretchBio«
Partner presentation IMTEK (ALU-FR)

Kick-off meeting 06.10.2021, Barcelona

Jens Goldschmidt
Chair for Gas Sensors
Department of Microsystem Technologies IMTEK
Albert-Ludwigs-University Freiburg, Germany

Albert-Ludwigs-University Freiburg – IMTEK

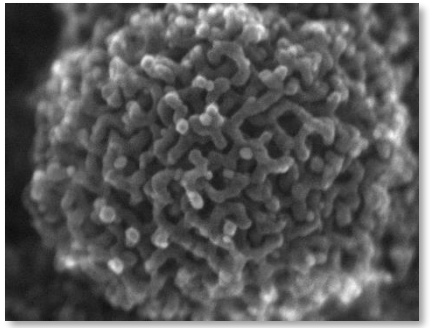
Facts

- One of the worlds largest research facilities for microsystems engineering
- 24 chairs
- 340 research associates
- 650 students

Research at the Chair for Gas Sensors

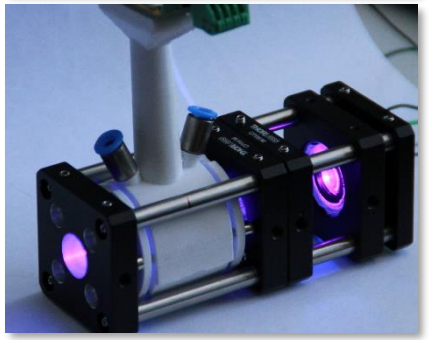
MEMS sensors and devices

- Miniaturized, low-power and highly integrated gas sensing devices
- Environmental and process monitoring, consumer, automobile, life sciences
- Catalytic, NDIR, metal oxide sensors, thermal conductivity sensors



Optical sensors

- Non-resonant and acoustic resonator-based sensor devices in IR and UV
- Miniaturized, high sensitivity and selectivity
- Environmental monitoring, exhaust gas, consumer



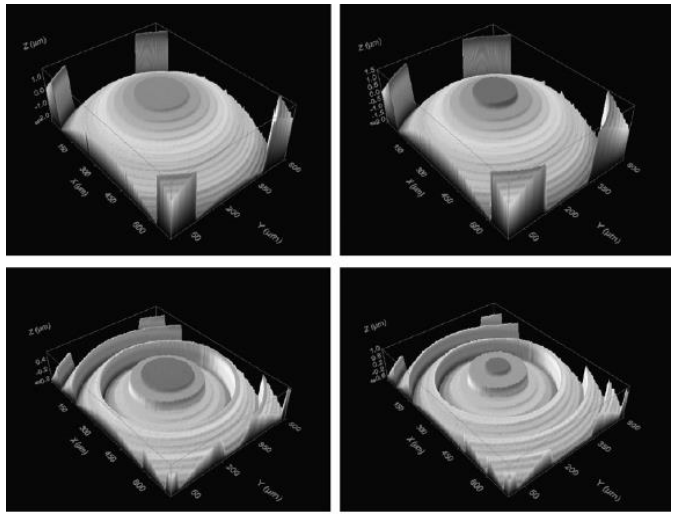
Spectroscopic systems for gas analysis

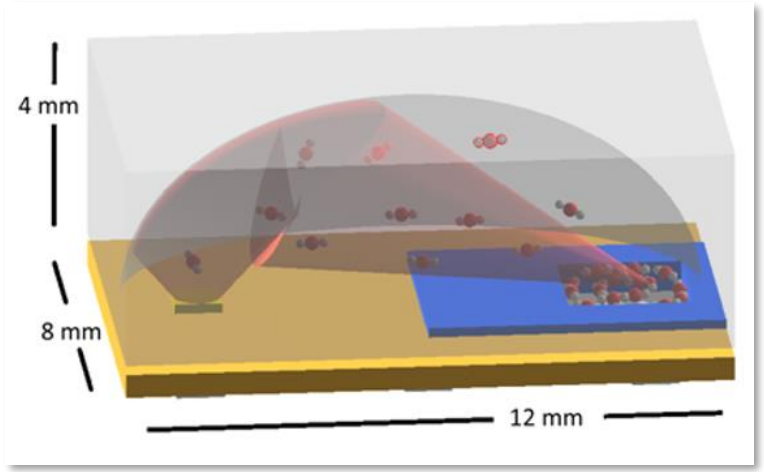
- Cavity-based, photothermal for extremely high sensitivity
- Frequency comb-based gas analysis
- Process control, environmental monitoring

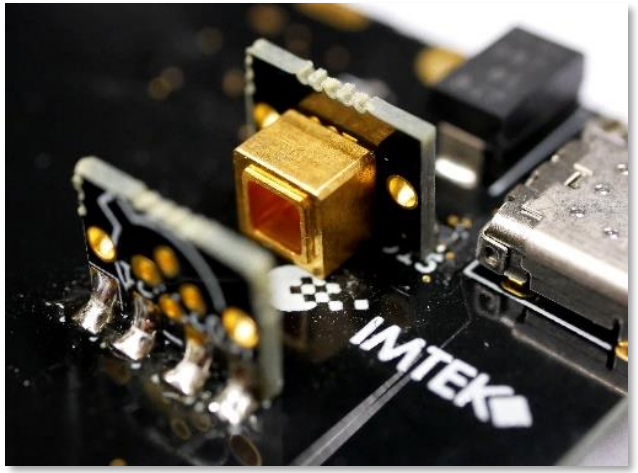
Expertise

MEMS devices and optical sensors

- More than 20 years experience in MEMS design and sensor fabrication
- Basic research, simulation, design, electronics, prototype development, characterization
- Infrastructure: simulation tools, CAD software, flowbox, AFM/SEM, electronics development







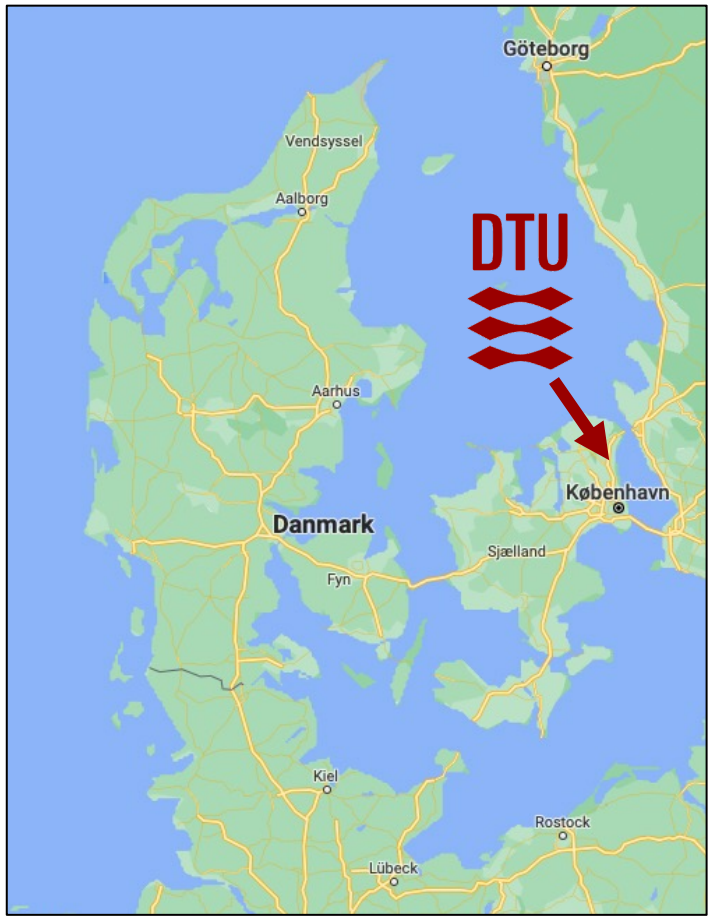
Role within the project

- Expertise in state-of-the-art semiconductor fabrication technology
- Aid in the fabrication of the integrated nanosystem
- Integration of small-scale optical components
- Optical characterization of the nanosystem in the cell culture medium
- Experience in the design, setup and validation of optical sensing systems
- Manage dissemination and exploitation activities

Kick-off meeting StretchBIO – Barcelona, October 2021

DTU presentation

Technical University of Denmark



- In Danish: Danmarks Tekniske Universitet (DTU)
- Founded in 1829
- 12.000 students and 6.000 employees (incl. PhD students)
- Main campus in Lyngby north of Copenhagen

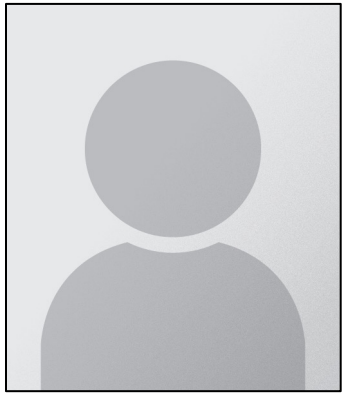
Participants from DTU

DTU Bioengineering
Department of Biotechnology and Biomedicine

Winnie Svendsen
Professor

Maria Dimaki
Senior Researcher

Christian Bertelsen
Postdoc



Unknown
PhD student (2022)

DTU Fotonik
Department of Photonics Engineering

Andrei Laurynenka
Associate Professor

Radu Malureanu
Senior Researcher

WP2	WP3	WP4	WP5	WP6	WP7	WP8
29 months	35 months	15 months	6 months	3 months	6 months	10 months

NaBIS – Nano Bio Integrated Systems

- Led by Prof. Winnie Svendsen
- Established in **2006** at DTU Nanotech
- Moved to **DTU Bioengineering** in 2019
- Works to integrate micro- and nanotechnology in lab-on-chip systems for **biological analysis**, including medical diagnosis, treatment monitoring, as well as environmental monitoring

Cleanroom fabrication

- **DTU Nanolab**
  National Centre for Nano Fabrication and Characterization
- Access to machines and equipment needed to fabricate the nanosensors
- Open access but training is required

DTU Nanolab Youtube channel
https://www.youtube.com/watch?v=2bFUO201DS4


DTU

managing technologies

StrechBio KOM Oct, 6th 2021

LEITAT presentation

ABOUT LEITAT

Established in 1906, Leitat is a private non-profit organization expert in offering disruptive solutions to the technological needs of companies and entities, with a clear orientation towards generating competitive value and a sustainable future.

MISION

We manage technologies to create and transfer social, environmental, economic and industrial sustainable value for companies and entities through research and technology processes.

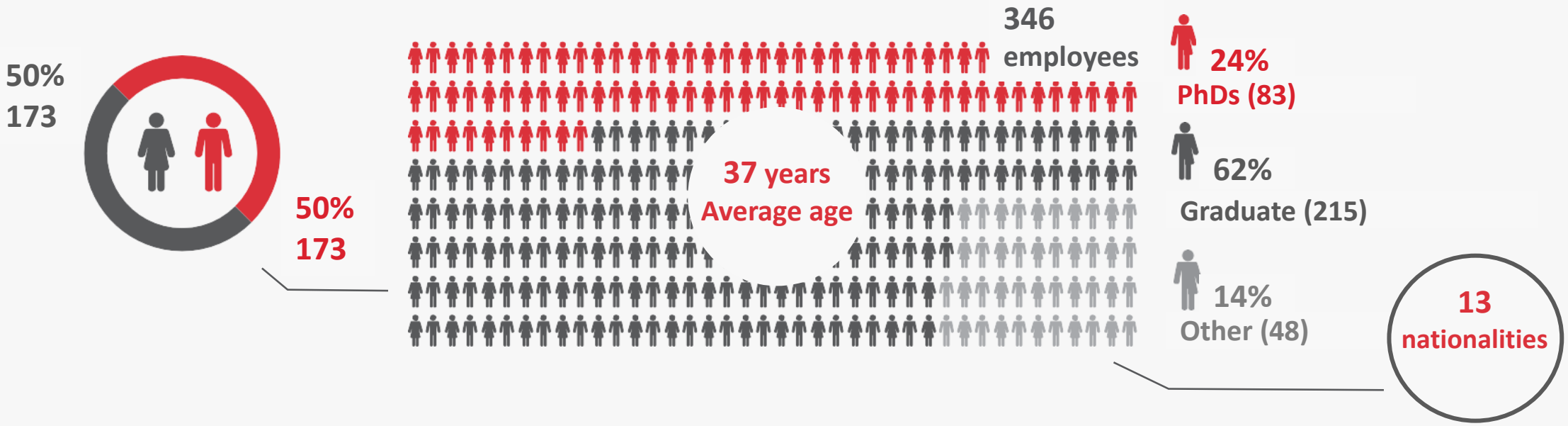
VISION

Be a referent at global level in managing innovative technologies and reinforcing people creativity and talent.

LEITAT
managing technologies

TEAM

Our team is formed of high-skilled professionals with know-how and experience in several knowledge areas, being specialized in technology transfer.



ABOUT LEITAT

FACILITIES

Leitat has several work centers around Spain, with cutting-edge facilities which respond to specific technology areas:

Terrassa
Headquarters

Barcelona
Districte 22@
Parc Científic de Barcelona
Vall d'Hebron Institut de Recerca

Vilanova del Camí
Centre d'Innovació Anoia

Valencia
Biopolo La Fe

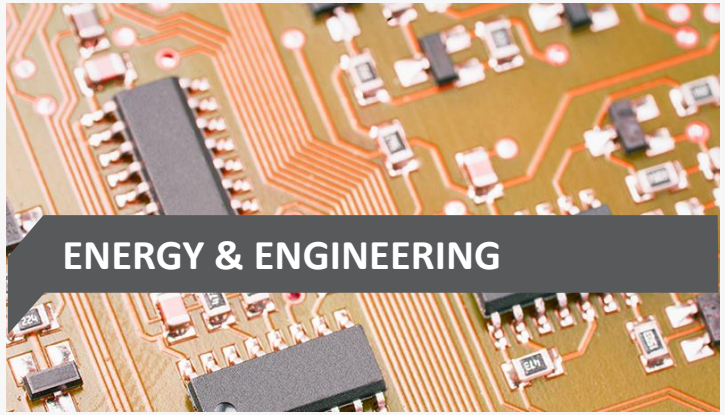
Technology areas:

- Health & Biomedicine
- Applied Chemistry & Materials
- Circular Economy
- Energy & Engineering
- Advanced Technology Services

MANAGING TECHNOLOGIES

5 INTERCONNECTED DEPARTMENTS

Leitat operates under a collaborative model which connects teams, projects and clients, thus delivering comprehensive solutions to our clients.



HEALTH & BIOMEDICINE

HEALTH & BIOMEDICINE

STRATEGY

The H&B unit focuses its activities on two key aspects in the area of health and biomedicine: therapy and diagnosis.

THERAPY

We work on the identification, **characterization and validation of therapeutic targets** in different diseases (oncological, inflammatory, dermatological, regenerative medicine, angiogenic, etc.) and on the generation and characterization of **new therapeutic entities.** For the pharmacological characterization of these entities, their efficacy, mechanisms of action, toxicity, etc. are investigated, in vitro cellular models and in vivo animal models are developed and developed.

DIAGNOSTICS

Complementary to research in therapy, biomarkers are investigated in different biofluids (blood, plasma, urine, saliva) by studying nucleic acids, microvesicles / exosomes and / or proteins. It also researches, designs, characterizes and develops leading reagents, tools and devices -types of biosensors- for the diagnosis, prognosis, response to therapy and monitoring of the progression of pathologies.

HEALTH & BIOMEDICINE

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ANTIBODIES

- Monoclonals and policlonals
- Antibody Engineering
- *Phage display* libraries of: VHH, scFv, Fab
- Biosensing

DRUG DISCOVERY

- Target discovery
- Drug efficacy
- Preclinical drug development
- Biomarker identification
- Skin health & cosmetics
  - Efficacy studies and claim support
  - Preclinical models in dermatology

REGENERATIVE MEDICINE

- *In vitro* and *in vivo* preclinical studies
- Studies in small & large animals
- Advanced technologies for clinical imaging
- Cell and pharmacological therapy

Role within the project

WP3. Fabrication and characterization of the nanosensor:

To test biocompatible coatings in order to improve cell adhesion and viability.

WP4. Tissue-nanopilar material compatibility WP Leader

To perform analysis of parameters like cell viability, differentiation, migration and/or proliferation of the different cell types cultured on nanopilars surface.

WP6. Validation of the nanosystems:

To perform biological validations on top of nanopillars. Once cell cultures are stabilized, several anti-cancer agents will be tested, and their effects will be compared to equivalent activities on conventional methods to validate the best performance of the nanopillar system.

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PPE Organismo Notificado 0162

ENAC ENSAYOS Nº 18/LE 026

EMAS GESTIÓ AMBIENTAL VERIFICADA ES-CAT-000041

-CO_2MPROMISO VOLUNTARIO Acuerdo voluntario para la reducción de CO_2

CHARTER DIVERSIDAD 2019 2021

Fundación Alares®

ReadyCell

EASING YOUR SCREENING

StretchBio
Kick-off meeting

Barcelona, October 6th 2021

ReadyCell is a biotechnological company founded in 2000. Our mission is to provide ready-to-use cell-based *in vitro* tools for the **ADME-Tox** segment.

ReadyCell develops, manufactures and commercializes **innovative kits** following quality standard ISO 9001:2015.

ReadyCell is located in the **Barcelona Science Park**, a highly specialized biotechnological cluster.

- Biotechnology transfer expertise
- Manufacturing capacity
- Quality certifications
- Expertise in technical asset development
- Innovative *in vitro* tools research

Ready-to-use kits for ADME-Tox characterization in drug discovery and preclinical development

Experts in cell culture

ReadyCell cultures reference cells most used in scientific research.

- Caco-2
- MCDKII
- HEK 293
- HT-29

Drug discovery in vitro assays support

These cell models are the main component of manufactured *in vitro* kits, which are indicated for **new drugs** development.

- Permeability Studies
- Protein Membrane Interactions Assays
- Toxicity Tests

ReadyCell supplies *in vitro* kits **worldwide**, on-demand, and adapting the calendar to pharmacokinetic assay requirements.

Our **patented gel-like medium**, Shipping Medium®, allows transportation of cells at room temperature, optimizing cell viability up to 7 days and easing posterior research procedures.

ReadyCell has partnered with specialized life science distributors to enable a quick response to all our customer's needs in an increasingly rapidly evolving context.

Readycell participation in StretchBio project

- **WP3: Fabrication and characterization of the nanosensor**
  Nanopillars' surface modification for tuning tissue adhesion will be studied.

- **WP4: Tissue-nanopillar material compatibility**
  Minimisation of unwanted effects of the growing tissues on the nanopillars.

- **WP6: Validation of the nanosystems**
  Integration of cell culturing compartment with the nanosystem for simultaneous experiments.

- **WP8: Explotation, dissemination and trining** **WP leader**

readycell.com

reagents@readycell.com

ReadyCell

ReadyCell

easing your screening

Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies – STRETCHBIO

Group: ***UB-IN2UB***

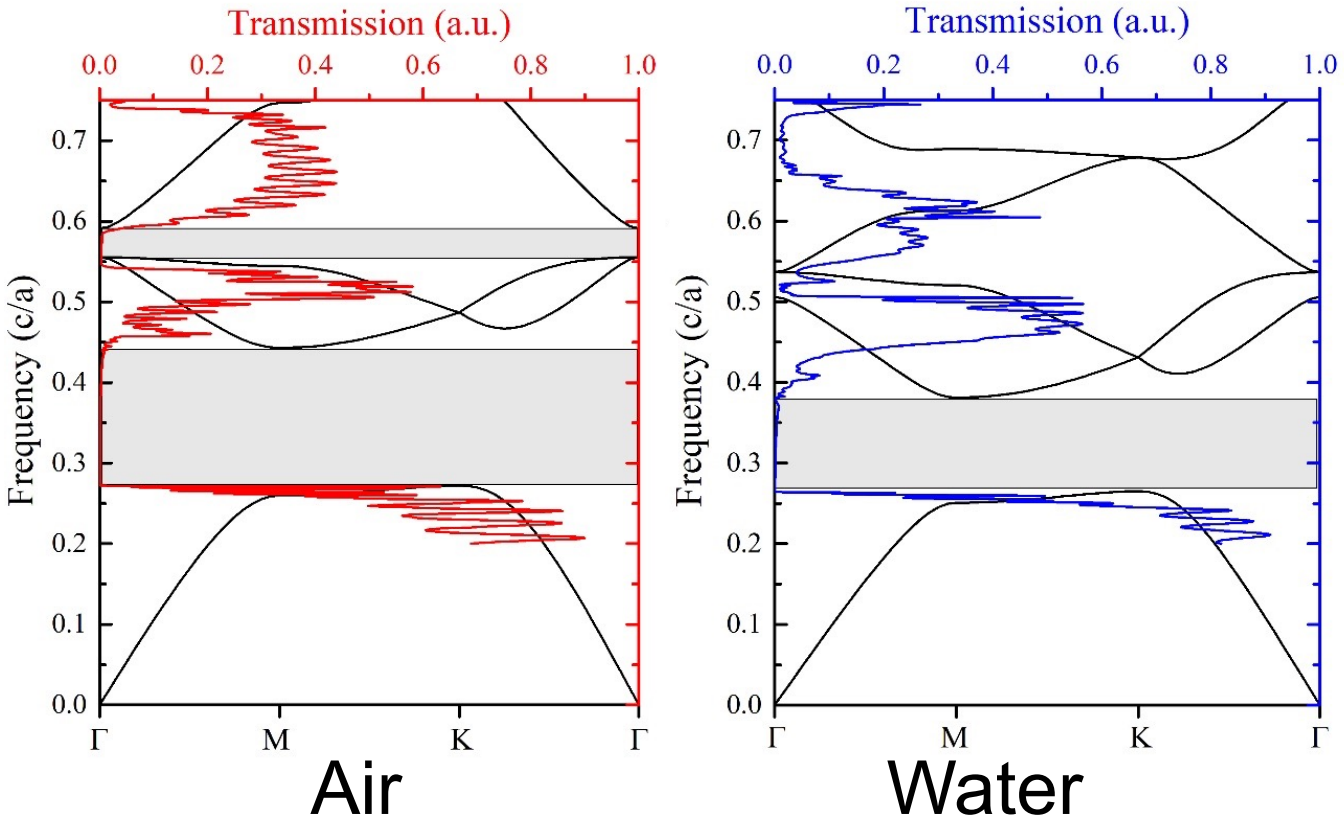
Institute of Nanoscience and Nanotechnology &
Department of Electronic and Biomedical Engineering of UB

Description and Expertise

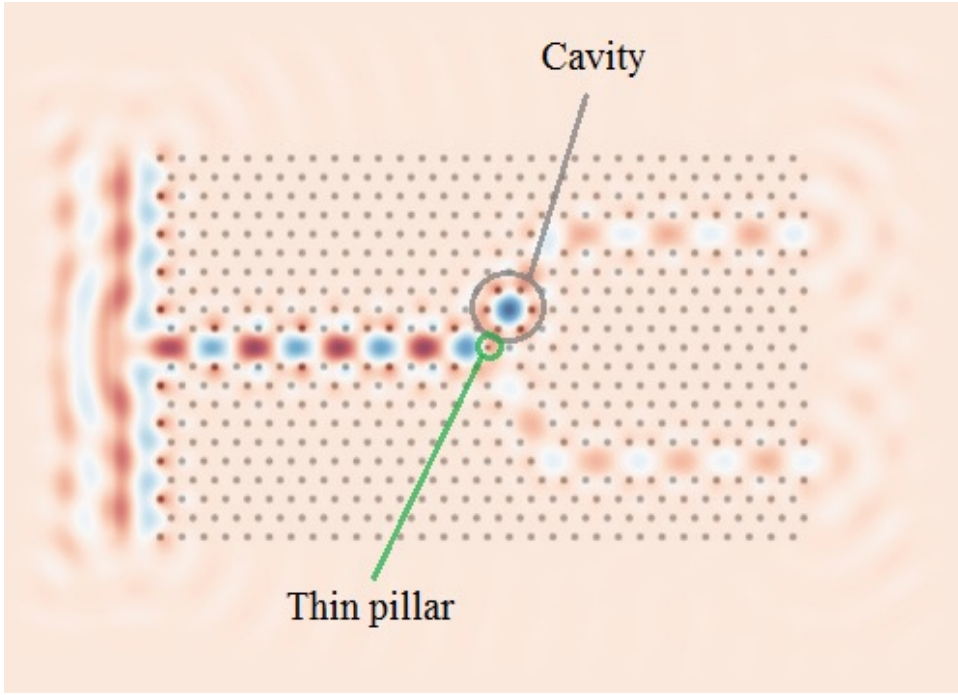
Expertise in:

- Micro and nanosystem design and implementation
- Chemical and biosensor development, fabrication and characterisation
- Design and characterisation of photonic structures and devices
- Structural, physical and chemical characterisation, modelling and simulation

Photonic simulations

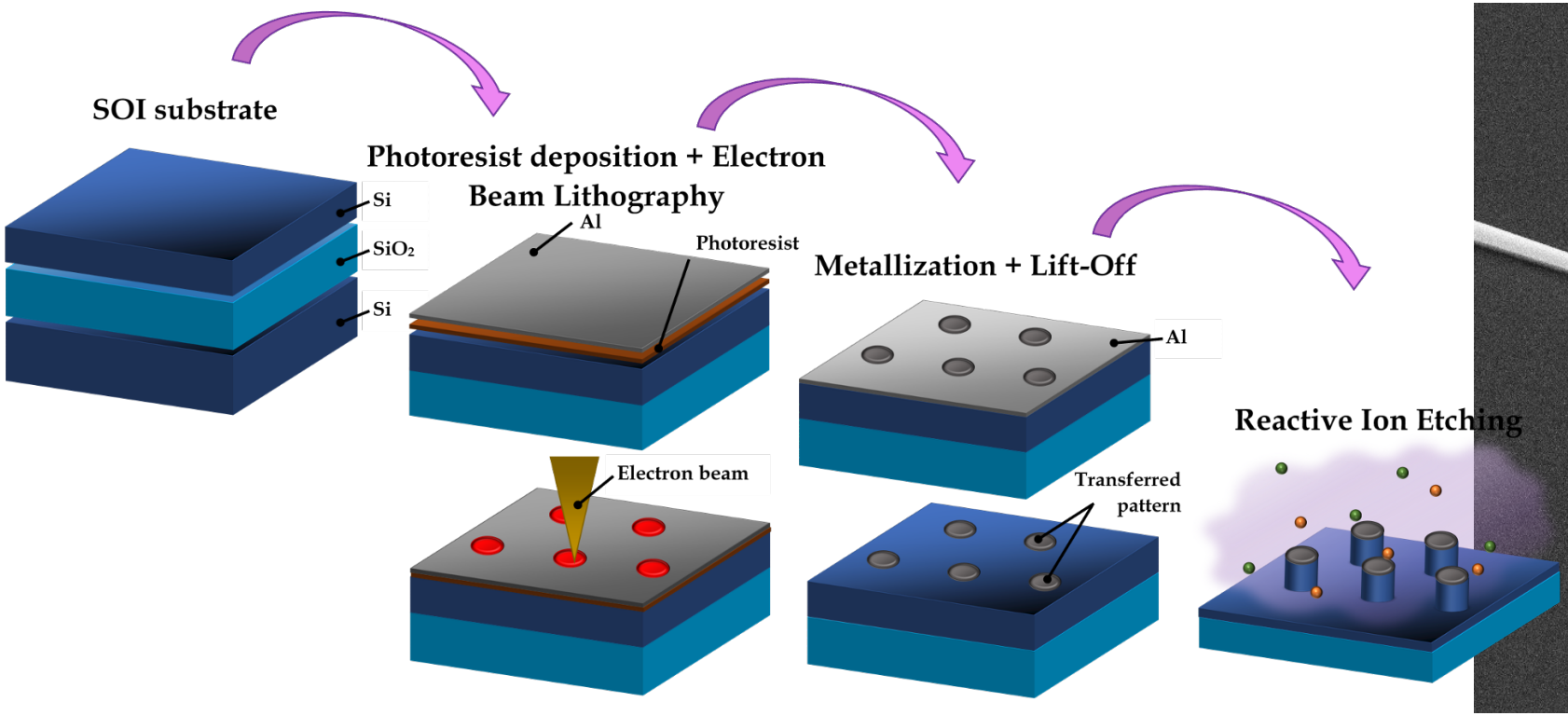


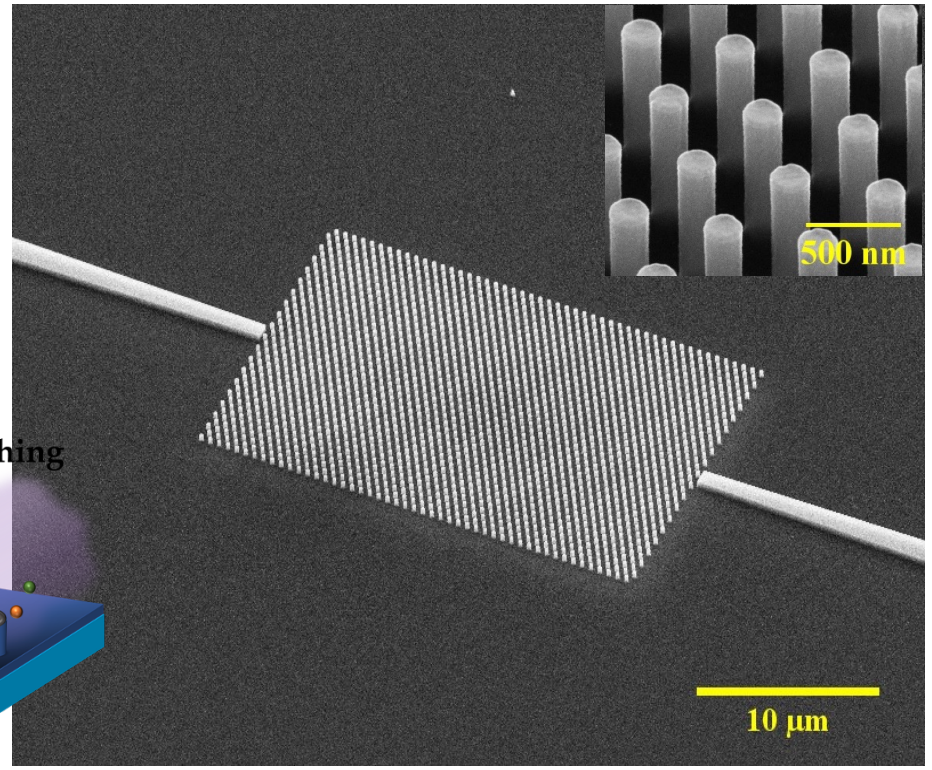
	Band diagram		Transmission-Reflection spectra	
	Min λ (um)	Max λ (um)	Min λ (um)	Max λ (um)
Air	1.129	1.836	1.112	1.841
H2O	1.312	1.886	1.287	1.896

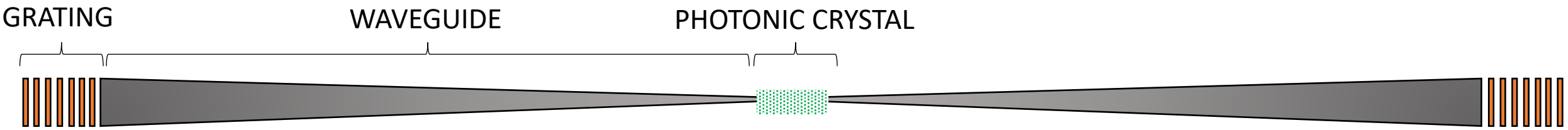


FDTD 2D simulation of light propagation in waveguides with different nanopillars.

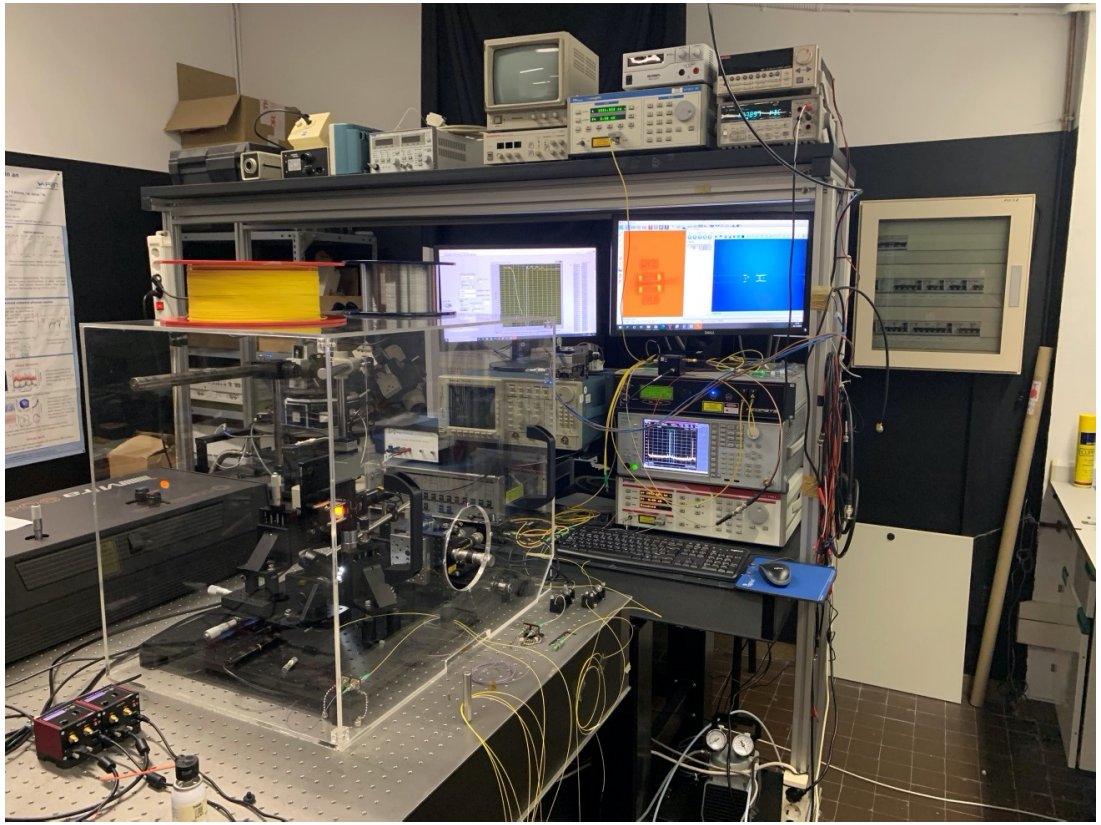
Design&Fabrication (DTU)



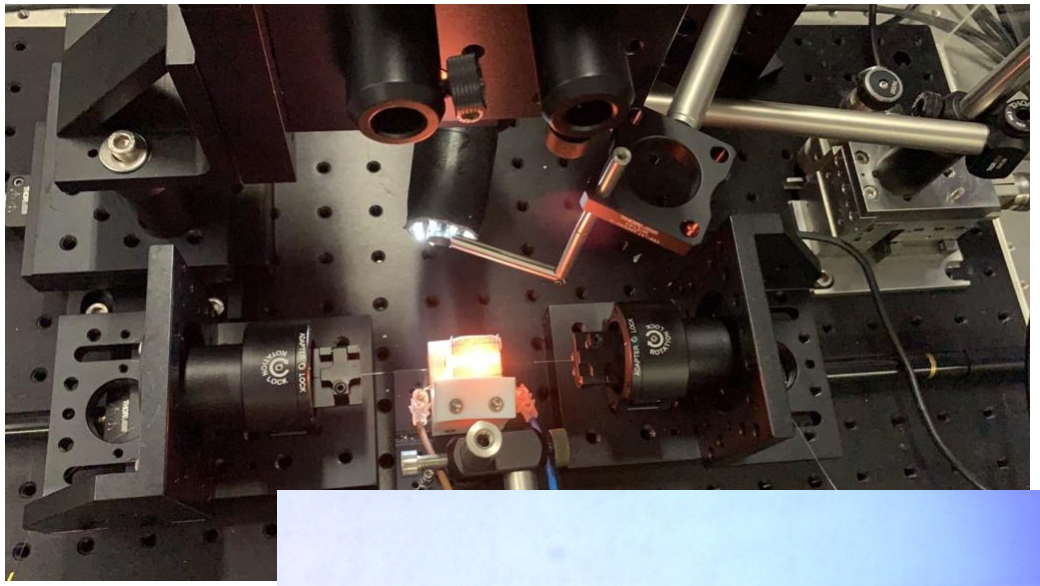




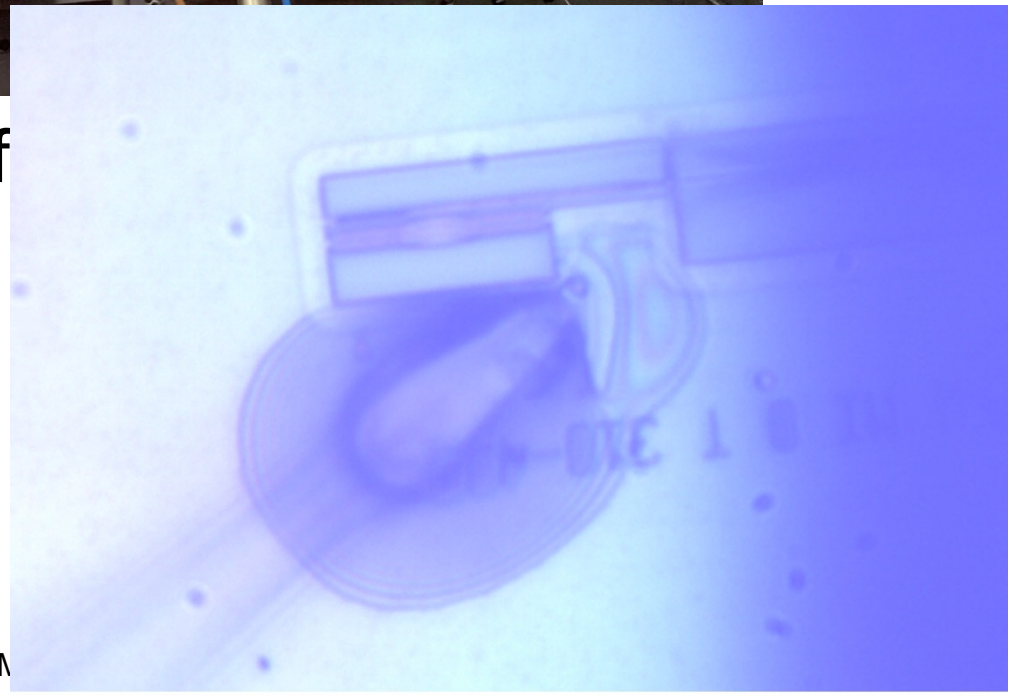
Photonic measurements



Laboratory for photonic devices



Optical f



Members

Mauricio Moreno
Design, simulation

Daniel Navarro
Photonic devices and measurements

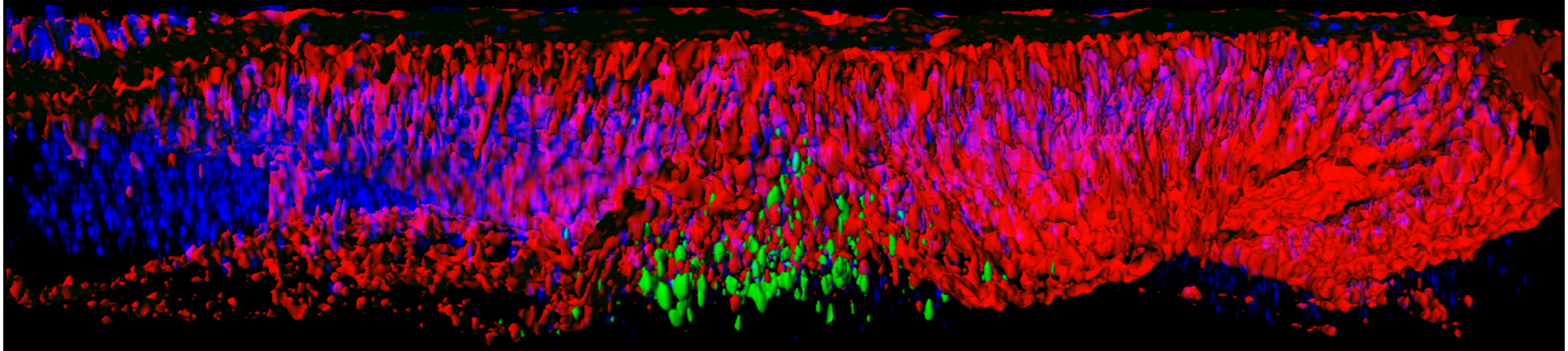
Elena López
Design, fabrication, simulation

Albert Romano
Design, fabrication

Sergi Hernández
Photonic devices

University of Barcelona (UB)
Institute of Biomedicine of the University of Barcelona (IBUB)
UB-IBUB partner of the StretchBio

Developmental Biology and Genomics Group



StretchBio
UB-IBUB

Florenci Serras
Montserrat Corominas

KoM October 6th 2021

UNIVERSITAT DE BARCELONA

OUR GOAL

HOW CELLS TALK TO EACH OTHER TO ACTIVATE GENETIC RESPONSES

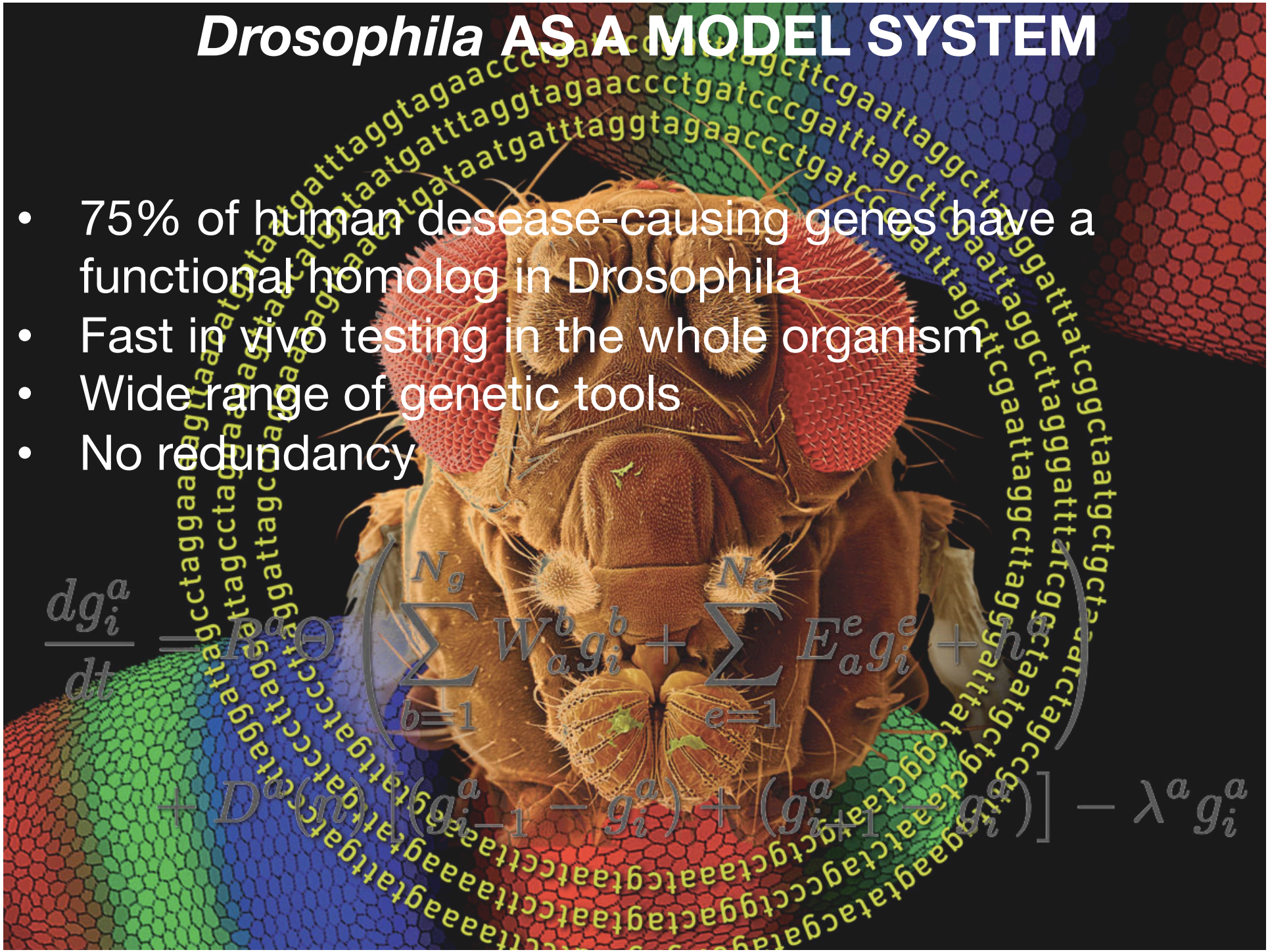
REGENERATION & DEVELOPMENT

a) Early molecular signals
b) Regeneration genes
c) Genetic and epigenetic responses
d) Trascriptomics and analysis of regulatory regions

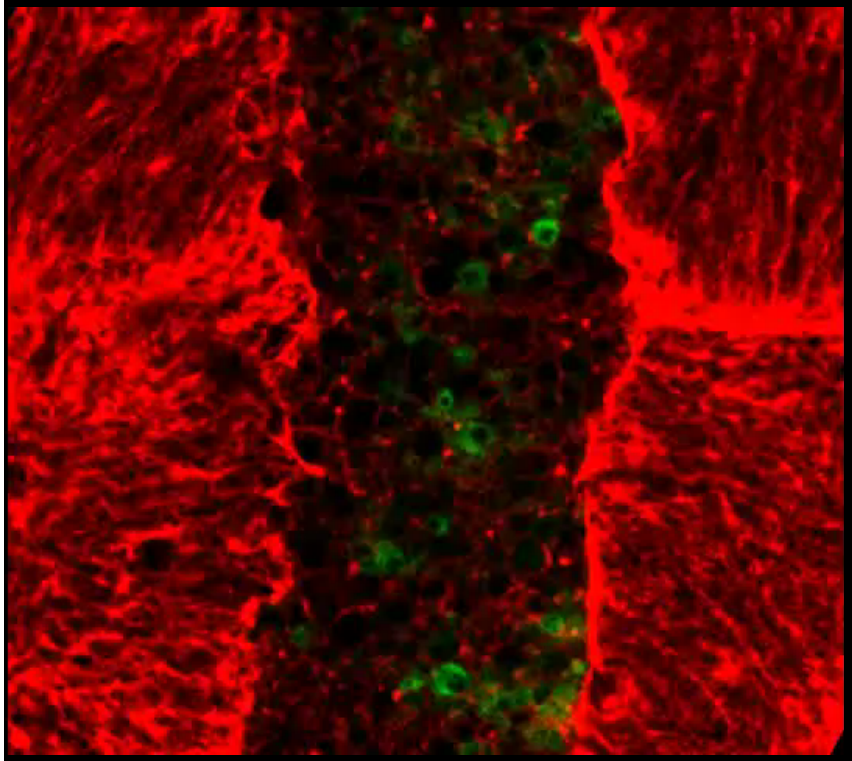
UNIVERSITAT DE BARCELONA

Drosophila AS A MODEL SYSTEM

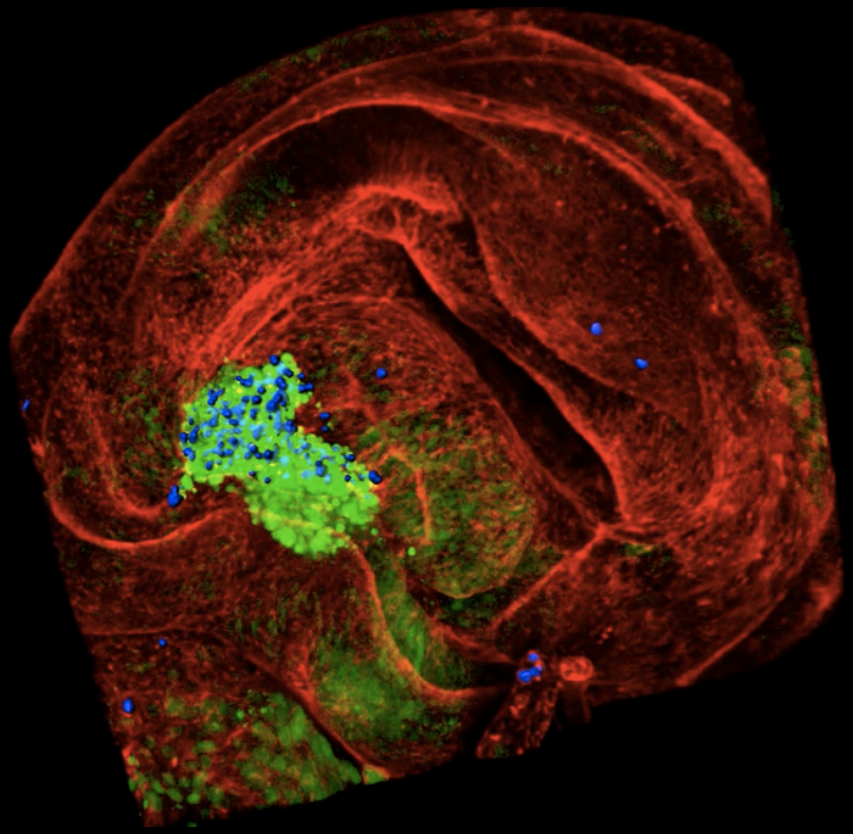
- 75% of human desease-causing genes have a functional homolog in Drosophila
- Fast in vivo testing in the whole organism
- Wide range of genetic tools
- No redundancy



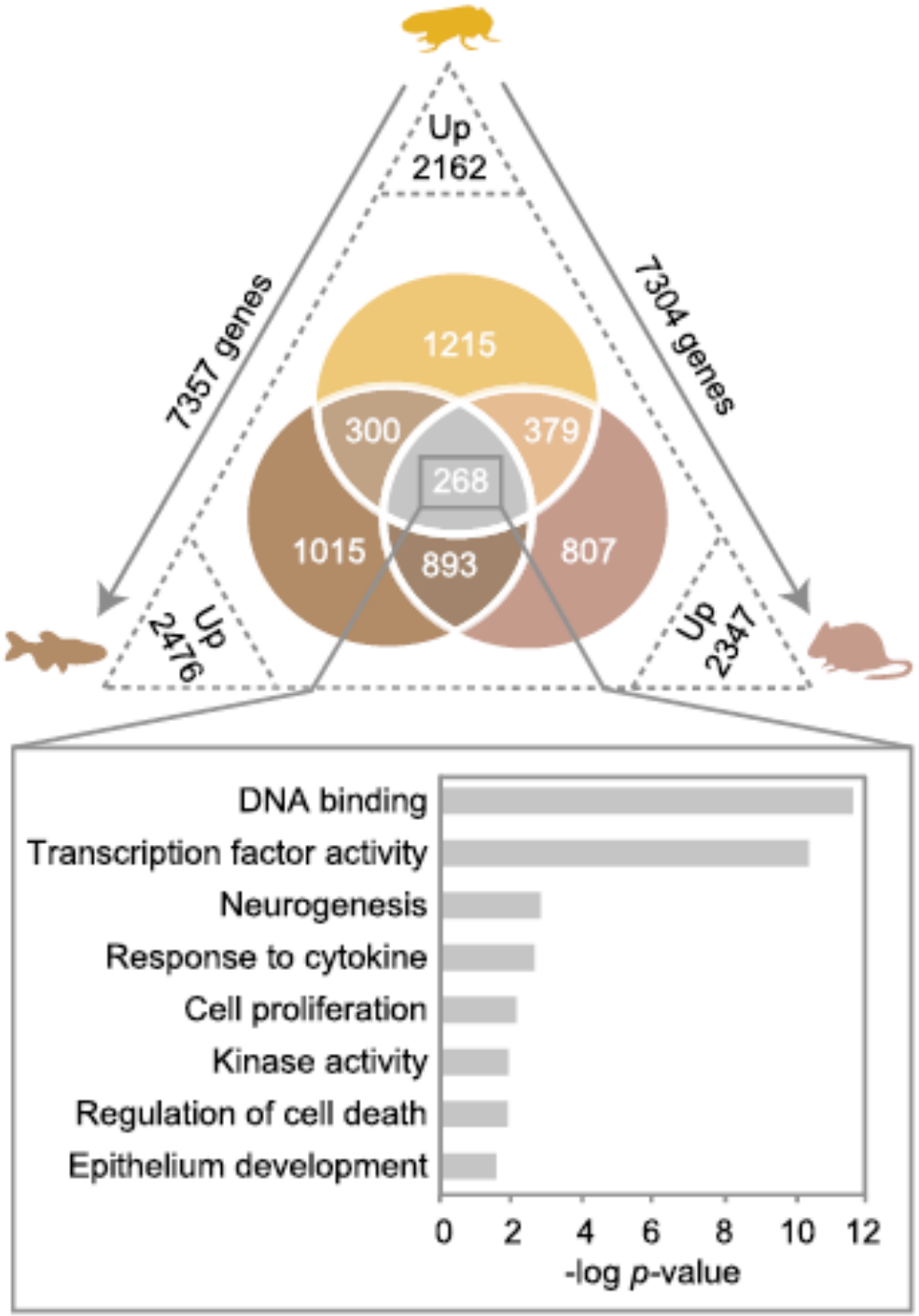
REGENERATION



TUMOROGENESIS

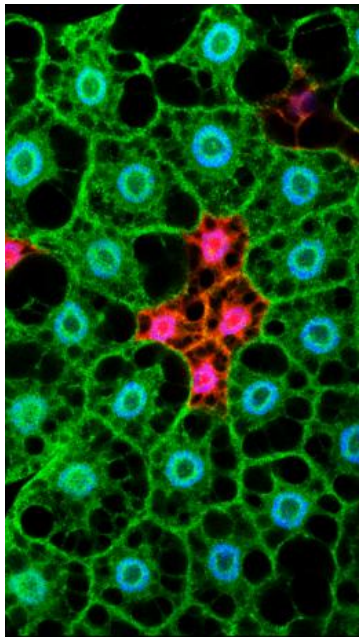


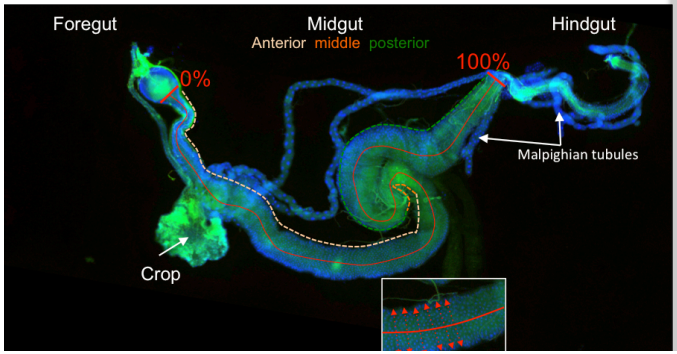
Cell shape changes are involved in the reconstitute of the tissue



Vizcaya-Molina et al., 2018

OUR EXPERTISE

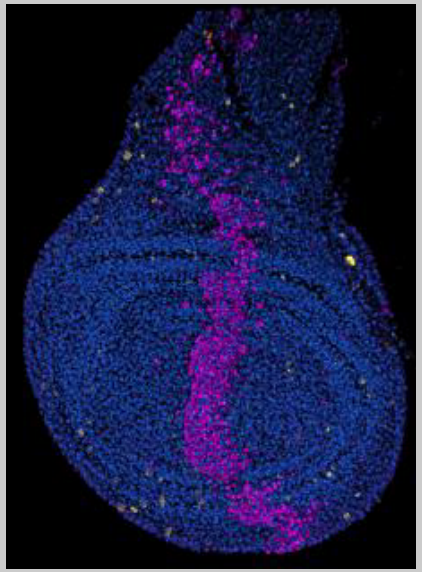




PROVIDE SOFT TISSUES FOR TESTING THE NANOPILLARS

Normal condition versus and genetically altered

- Imaginal Disc Epithelia
- Fat bodies (liver)
- Gut
- Cell Culture



Genetic alteration

- Tissues in regeneration
- Tissues in tumorogenesis

Aim:

- Cell & Tissue attachment to the naopillars
- Toxicity (Reporters)
- Superfussion with stressors and test responses

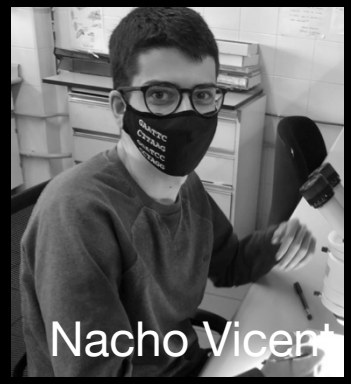
Montse Corominas

Mar Fernández

Palmira Llorens

José Esteban Collado

Carlos Camilleri



Nacho Vicent

Paula Climent

Ivan Sopena

GOBIERNO DE ESPAÑA
MINISTERIO DE ECONOMÍA Y COMPETITIVIDAD

UNIVERSITAT DE BARCELONA

Horizon 2020
European Union Funding
for Research & Innovation

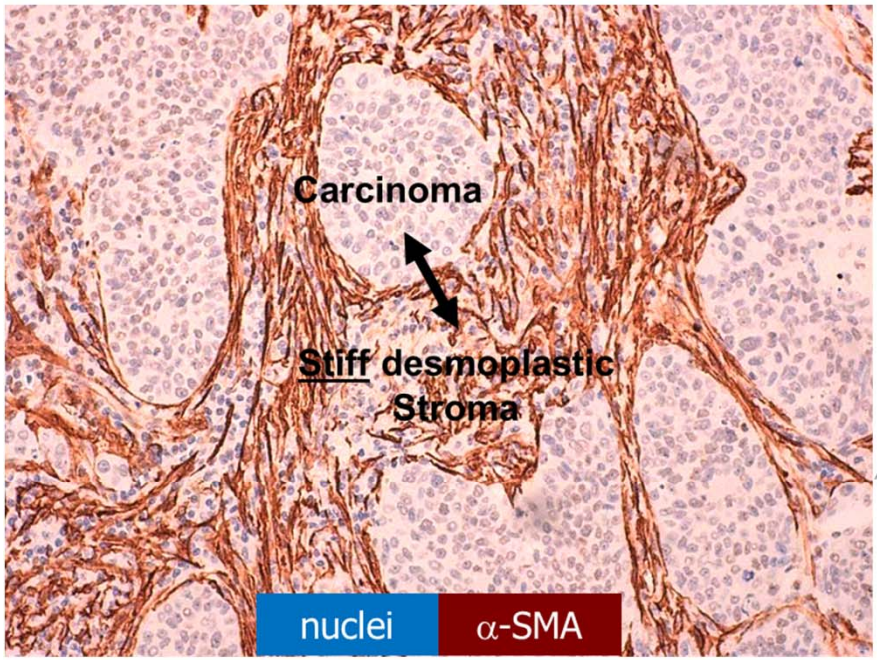
School of Medicine

+ Hospital Clínic

UNIVERSITAT DE BARCELONA

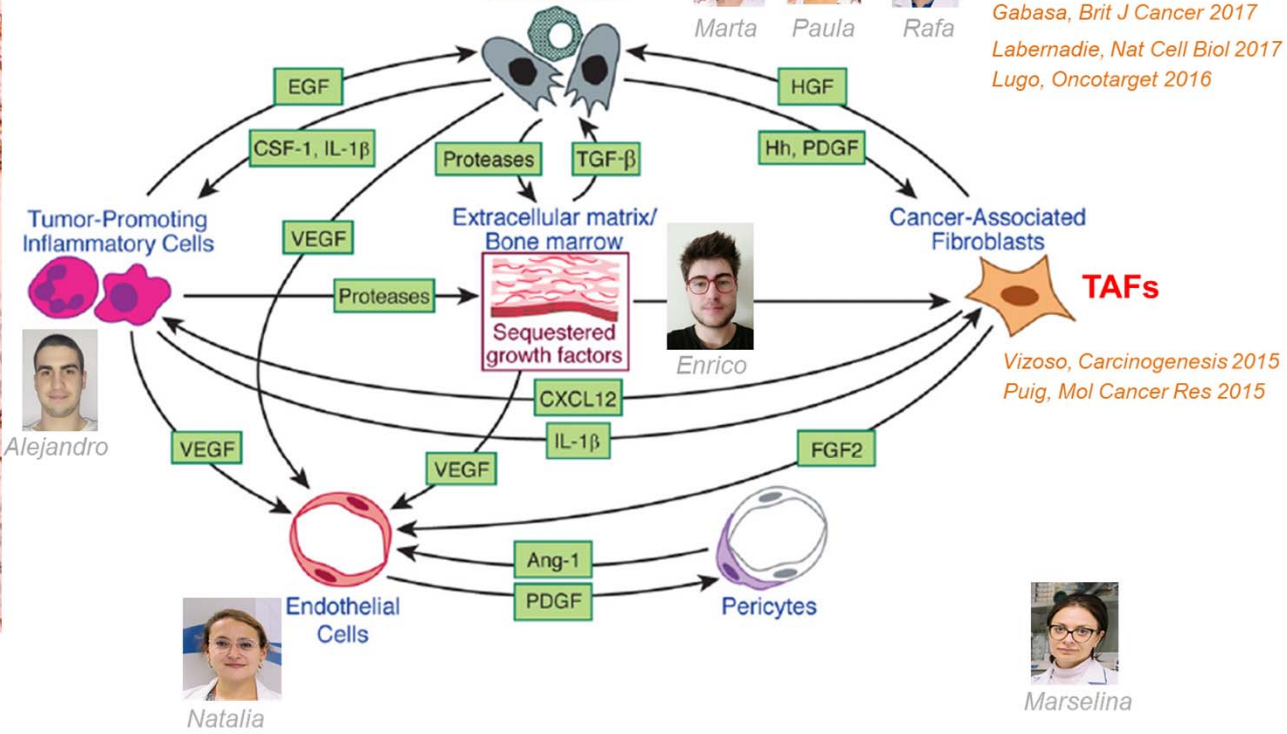
CLÍNIC BARCELONA Hospital Universitari

Tumor-associated fibroblasts in lung cancer progression & resistance to therapies



Hanahan, Weinberg, **Cell** 2010

Marhuenda, Am.J.R.C.M.B 2019




Marta


Paula


Rafa

Gabasa, Cancer Lett 2021
Ikemori, Cancer Res 2020
Alcaraz, Lung Cancer 2019
Sala, Int J C 2019
Gabasa, Brit J Cancer 2017
Labernadie, Nat Cell Biol 2017
Lugo, Oncotarget 2016

Enrico

Vizoso, Carcinogenesis 2015
Puig, Mol Cancer Res 2015

Alejandro

Natalia

Marselina

Basics of Lung Cancer

Lung Cancer highlights

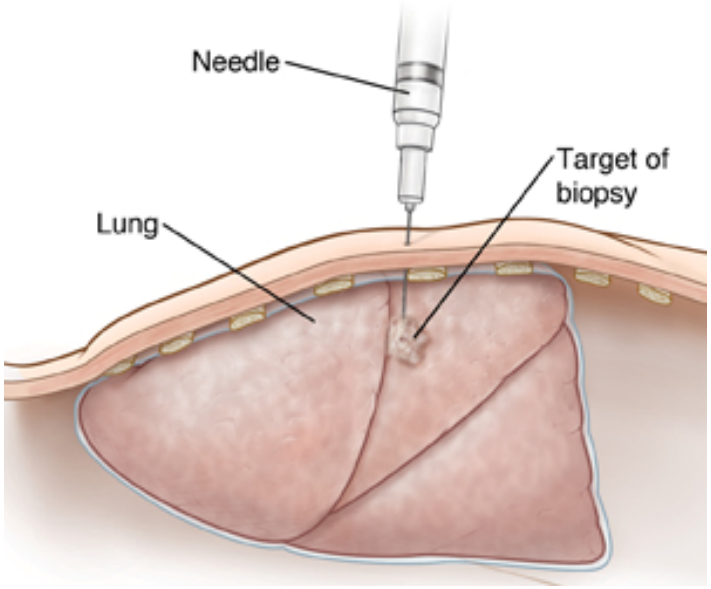
- 3rd most frequent cancer type (*after breast and prostate*),
- 1st cause of cancer related deaths worldwide (late diagnosis + suboptimal therapeutic responses)
- 5-year survival rate ~18%, very suboptimal compared to ~85-87% in breast and prostate

Urgent need to improve diagnosis and identify best therapeutic option (personalized medicine)

Surgical vs non-surgical patients

- Early stage → surgery (+ adjuvant therapy) → - best survival - samples for research
- Late stage → ~~surgery~~ therapy → - worse survival - very little sample (*needle biopsies*)

Lung needle biopsy

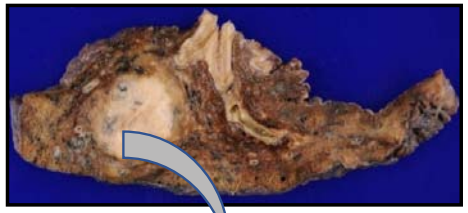


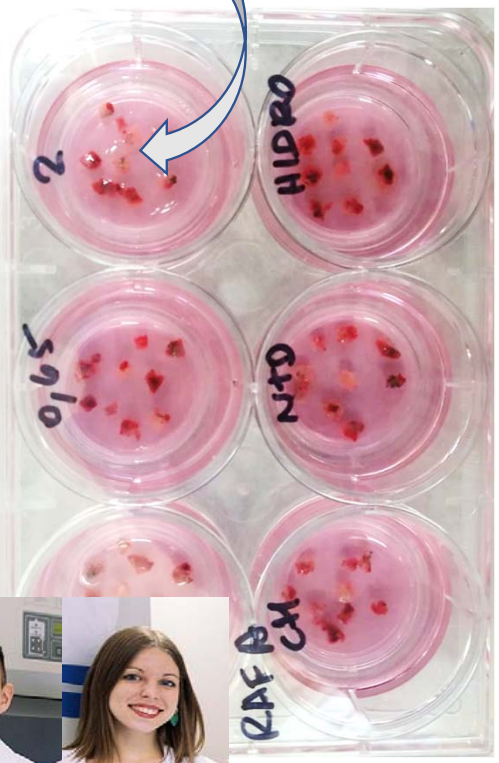
- Common dimensions:

1 mm diameter, 11-15 mm long

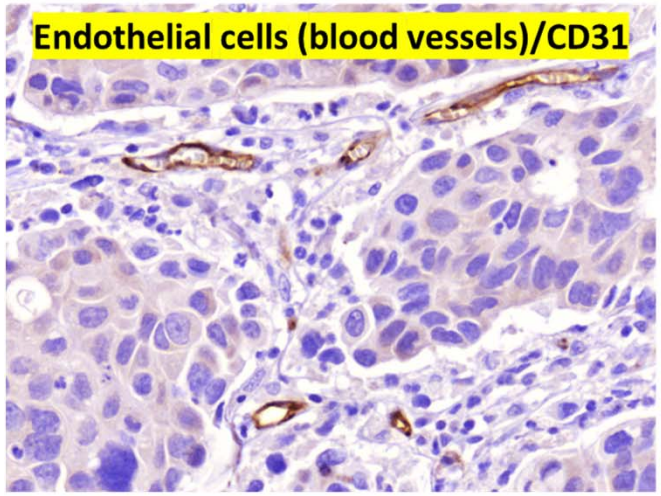
validation tissue biopsy samples from surgical lung cancer patients

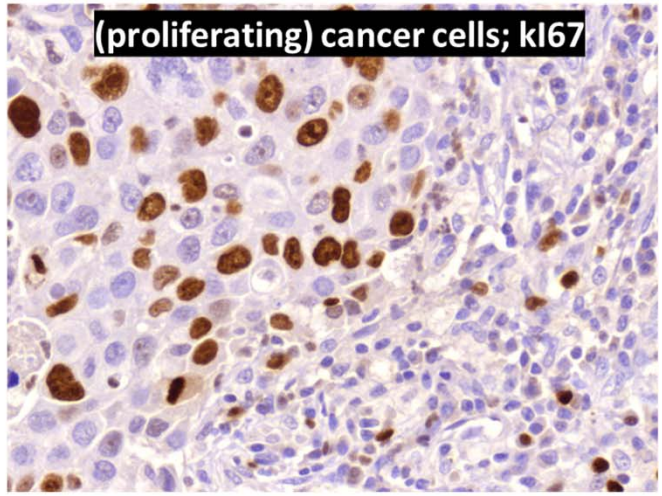
Precision cut (thin) samples from fresh tumors (“ex-vivo”)

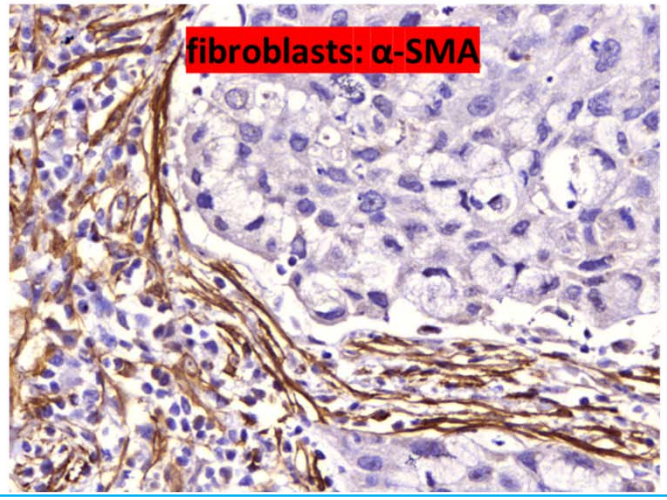


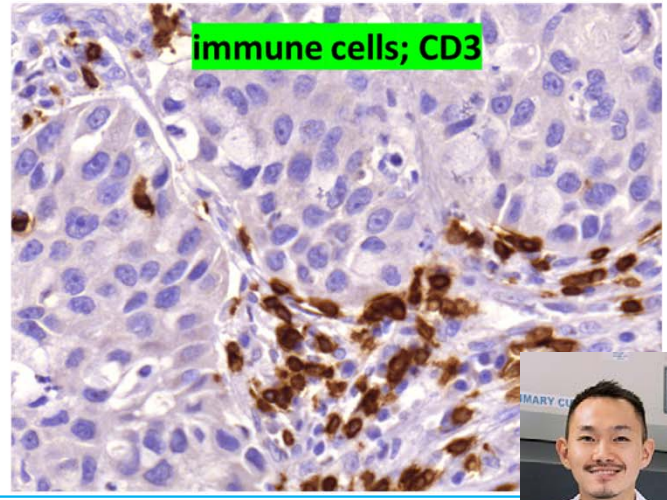


Histologic analysis of tissue viability up to 48h

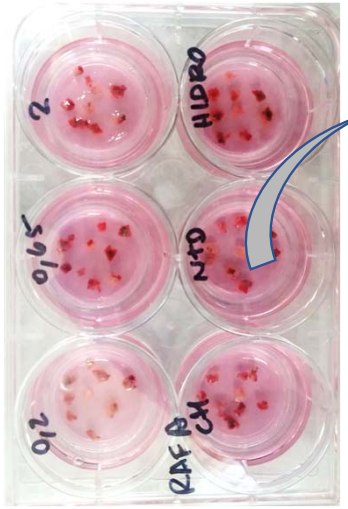


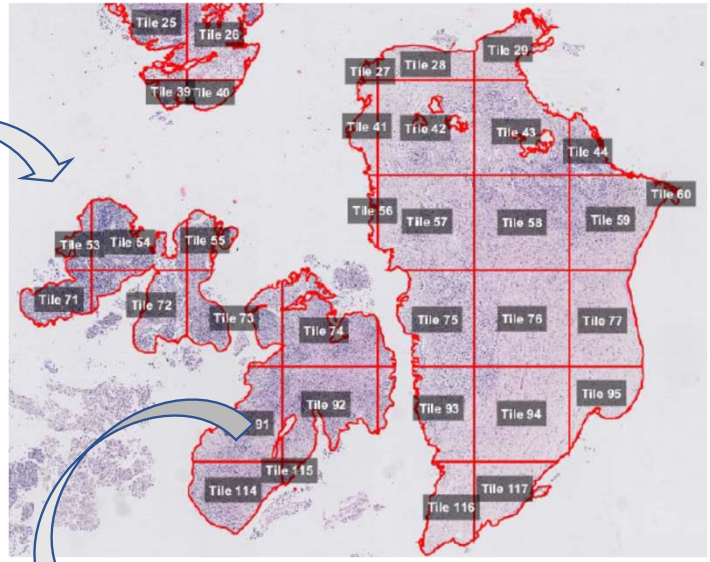




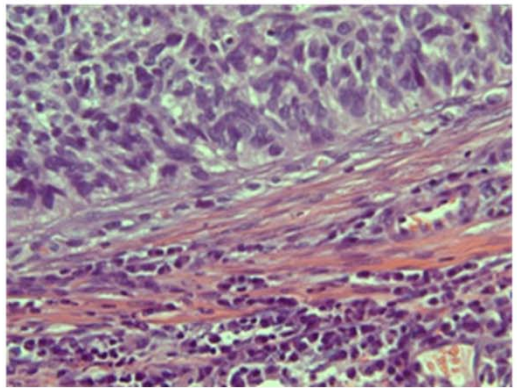


“ex-vivo” samples: example of quantitative image analysis with qupath

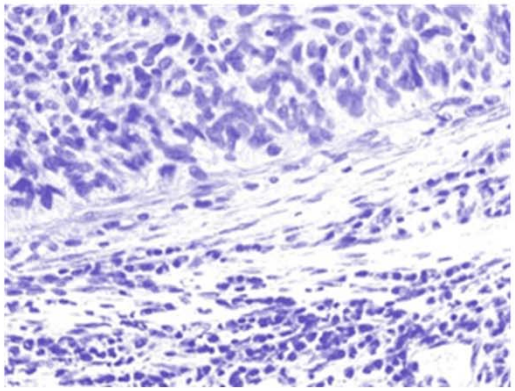




H&E staining
(nuclei + protein)



color deconvolution
(nuclei)



segmentation
(nuclei of fibroblasts)

“ex-vivo” samples: proof-of-principle and challenges

challenges

- Increase time-window + overcome drop in cancer cells
- Sterilization of the device
- Match resolution with tissue heterogeneity
- Cover tissue biopsy with liquid on top and bottom + POSITIVE CONTROLS
- Adapt to size restrictions of nanopillar system (thickness, width, length)

Vibratome Leica VT1000S

Able to cut thin tissue slices from **10 µm to 1 mm** (fresh and fixed tissues)

Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies – STRETCHBIO

WP2: Design and modelling of photonic crystals

Coordinator: UB (Mauricio Moreno)

Outline

1. Objectives of WP2
2. Structure of WP2: tasks, effort, methods
3. Deliverables & Milestones
4. Actual situation

1. Objectives

- Simulation and modelling of the deformation of nanopillars
- Modelling of the light guiding properties of photonic devices based on nanopillars
- Modelling the effect of nanopillar deformation on photonic properties
- Guidance to WP3 for the fabrication of the nanopillar array

2. Structure of WP2

- T2.1: Simulation and modelling of the deformation of nanopillars (DTU, UB) (M1-M12)

Simulation of the mechanical deformation of nanopillars under different horizontal forces using Finite Element Modelling programs.

- T2.2: Modelling of light transmission in photonic devices based on nanopillars (DTU, ALU, UB) (M1-M24)

Simulation of light transmission and reflection of resonant structures using Finite Difference Time Domain methods in the near infrared (NIR) wavelength range.

Simulation in air and liquid interpillar medium.

2. Structure of WP2

- T2.3: Study of the effect of nanopillar deformation on photonic devices (DTU, ALU, UB) (M7-M36)

Simulation of the effect of the deformation of different nanopillar(s) on light transmission and reflection.

Optimisation of structures to give rise to a change of, at least, 40% in light transmission or reflection.

Work packages, tasks, deliverables and milestones		Year 1				Year 2				Year 3				Year 4			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
WP2	**Design and modelling of photonic crystals (UB)**																
	T2.1: Simulation/modelling of the deformation		**D2.1**														
	T2.2: Modelling of light transmission			**D2.2**													
	T2.3: Study of the effect of nanopillar deformation					**D2.3**	**M2**				**D2.4**						

3. Deliverables/milestones

- D2.1: Report on relation deformation-force for the nanopillars (M6)
- D2.2: Report on photonic device based on nanopillar geometry (M9)
- D2.3: Viability report on photonic sensors based on bending nanopillars (M15)
- D2.4: Report on optimised photonic sensors based on bending nanopillars (M30)

Kick-off meeting – Barcelona, October 2021

WP presentation

Work package 3

Fabrication and characterization of the nanosensor

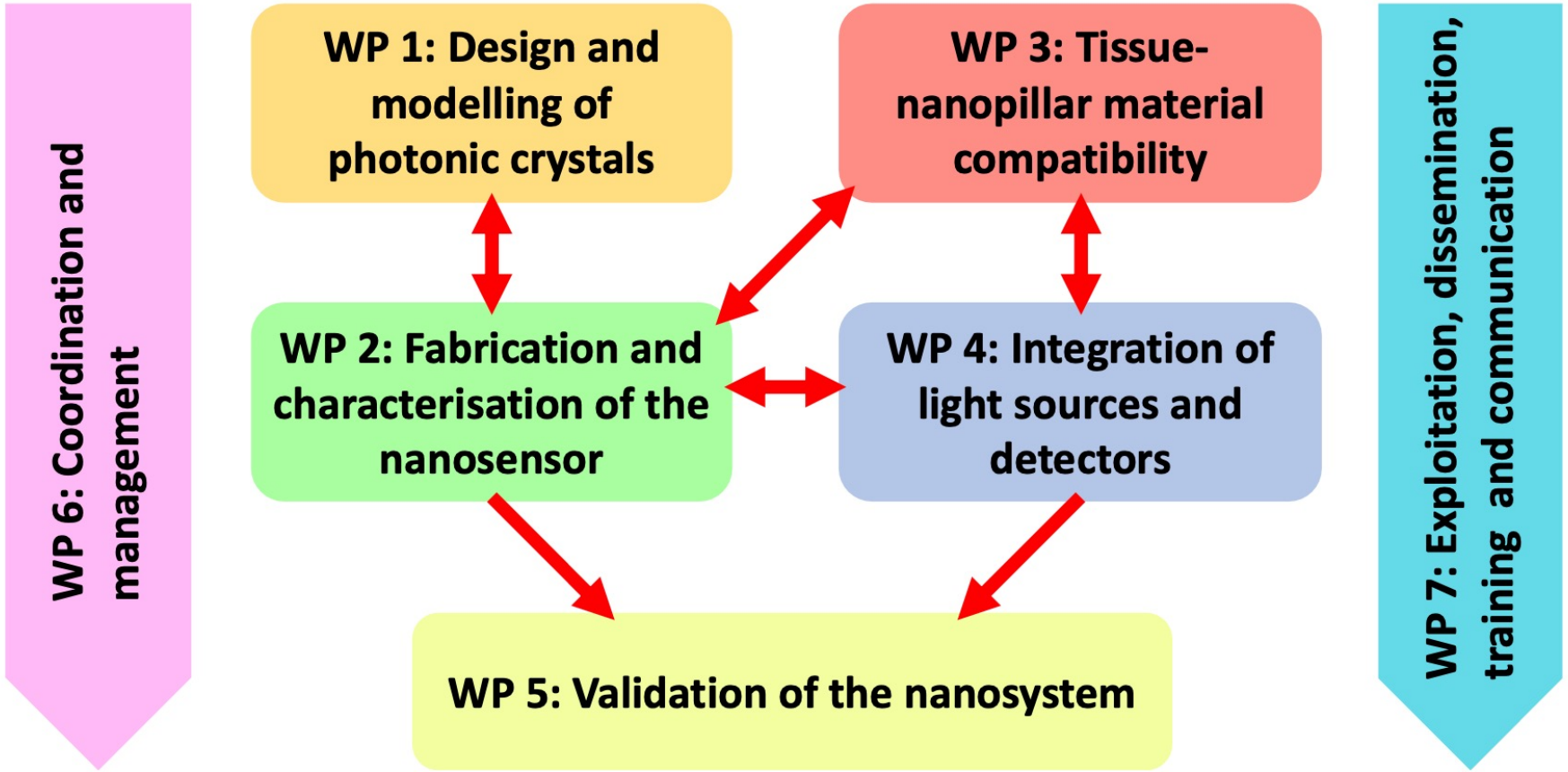
Work package number	2	**Lead beneficiary**		2 - DTU	
Work package title	Fabrication and characterisation of the nanosensor				
Participant number	1	2	3	4	5
Short name of participant	UBA	DTU	ALU-FR	LEITAT	RCELLL
Person months per part.	23	35	10	4	6
Start month	1	**End month**	45		

Objectives:

- **Fabrication** of nanopillar arrays and photonic nanosensors
- Experimental **characterization** of the photonic crystal, both in absence and presence of nanopillar deflection
- Nanopillars' **surface modification** for tuning tissue adhesion will be studied
- **Continuous fabrication** of nanopillar arrays for the other WPs

Work package 3

Fabrication and characterization of the nanosensor



Work package 3

Fabrication and characterization of the nanosensor

Task 3.1: Fabrication of nanopillars

- UBA: 4, DTU: 12, ALU-FR: 3
- M1-M45

Task 3.2: Measurement of the bending-force relation

- UBA: 6, DTU: 4
- M4-M18

Task 3.3: Light guiding through the nanopillar array

- UBA: 3, DTU: 6, ALU-FR: 2
- M7-M30

Task 3.4: Light guiding changes of an individual photonic nanosensor upon bending

- UBA: 7, DTU: 8, ALU- FR: 3
- M13-M36

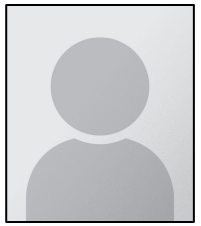
Task 3.5: Surface modification of the nanopillars

- UBA: 3, DTU: 5; ALU-FR: 2, LEITAT: 4, RCELL: 6
- M10-M36

Task 3.1: Fabrication of nanopillars

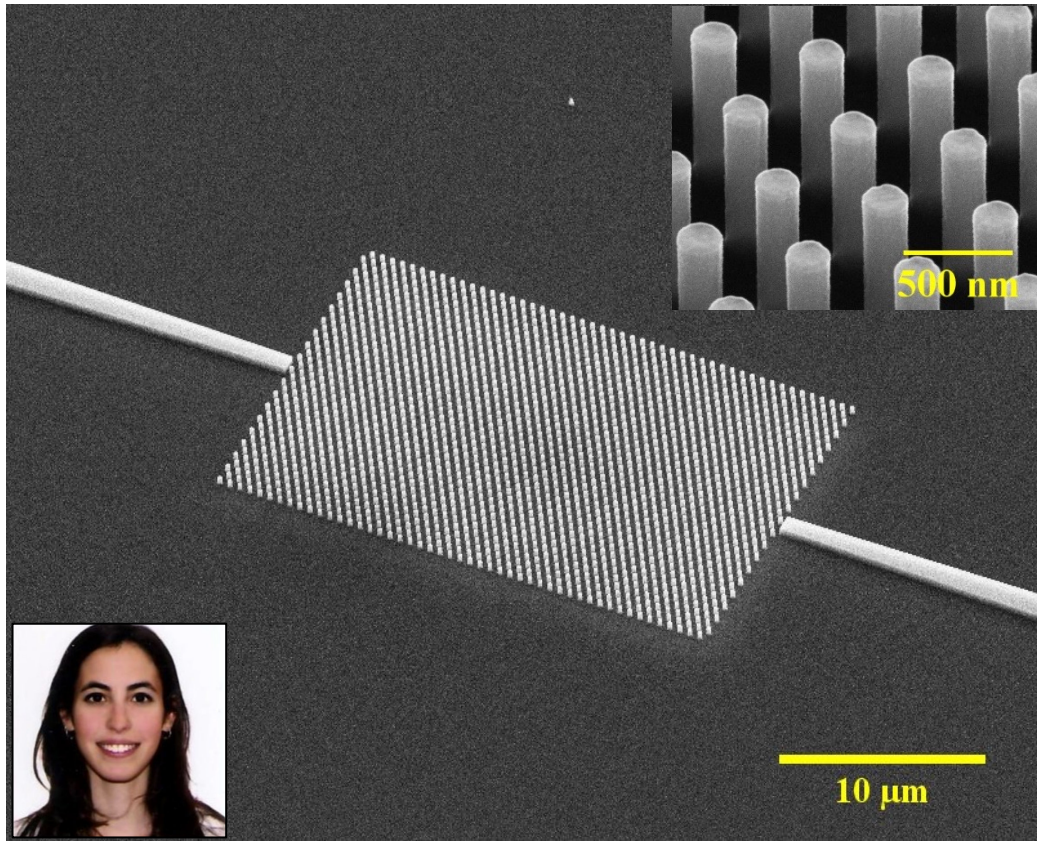
M1-M45, UBA: 4, DTU: 12, ALU-FR: 3

Christian Bertelsen
Postdoc



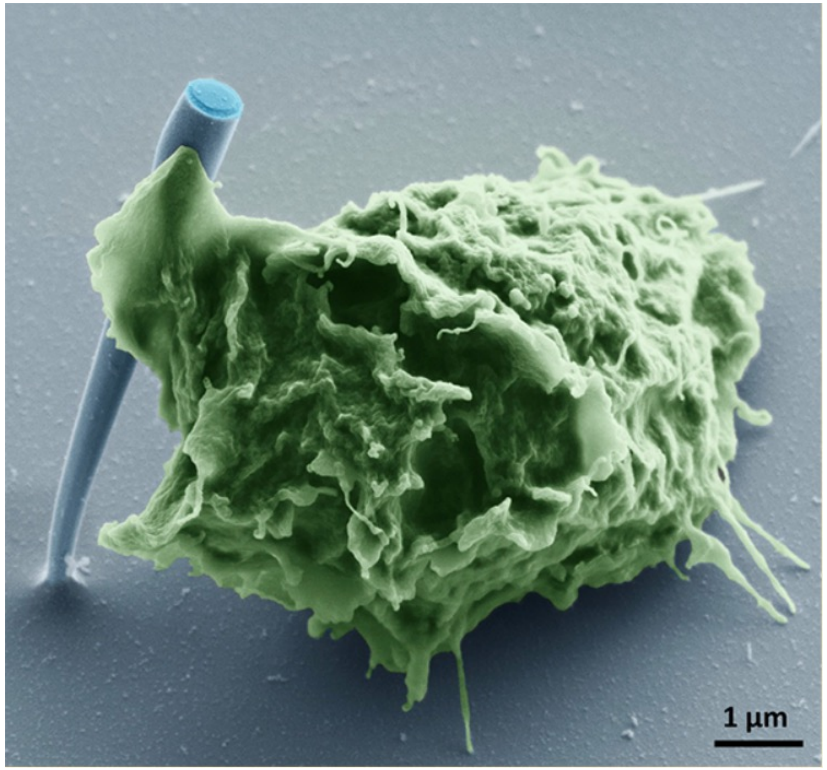
Unknown
PhD student (2022)

- **Fabrication** of the nanopillars at DTU **cleanroom** facilities (DTU Nanolab)
- **Initial fabrication** process of pillars is **established**
- **Changes** to the fabrication based on **characterization experiments** (mechanical, photonics, bio-compatibility)
- **Supply** of nanosensors and structures to other WPs



Task 3.2: Measurement of the bending force relation

M4-M18, UBA: 6, DTU: 4



P. Paulitschke et al., "Ultraflexible Nanowire Array for Label- and Distortion-Free Cellular Force Tracking," Nano Lett., vol. 19, no. 4, pp. 2207–2214, Apr. 2019, doi: 10.1021/acs.nanolett.8b02568.

- **Mechanical characterization** of the nanopillars in different environments
- Single **nanopillar bending**, e.g. using **AFM**
- **Resonance** frequency experiments to **validate** theoretical **model**
- Frequent **back-and-forth** comparisons with simulations in **WP2**

Christian Bertelsen
Postdoc

Maria Dimaki
Senior Researcher

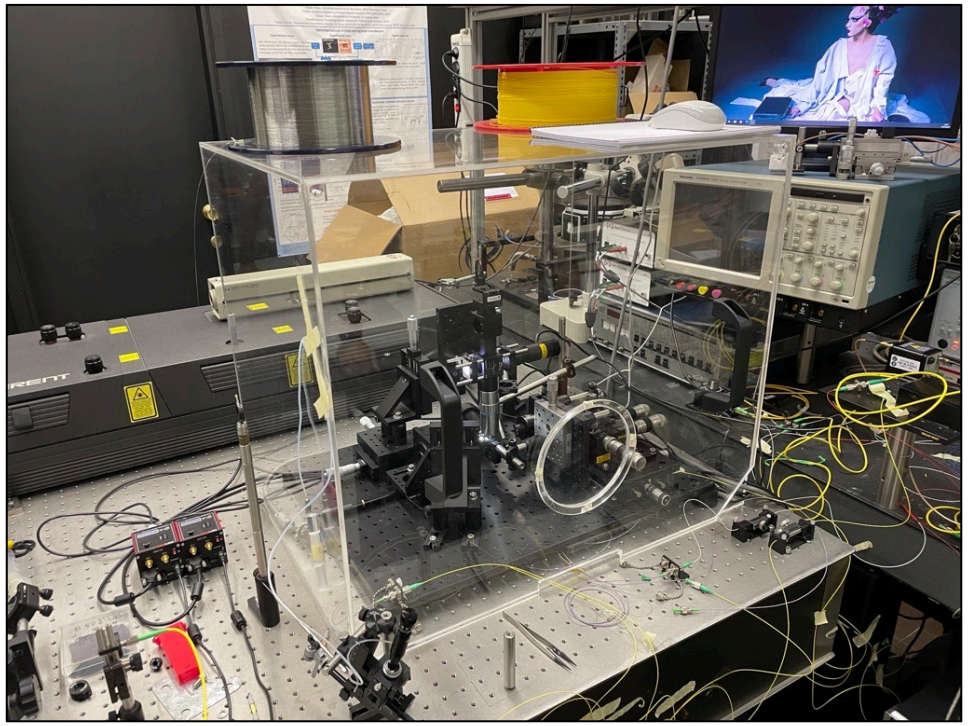
Task 3.3: Light guiding through the nanopillar array

M7-M30, UBA: 3, DTU: 6, ALU-FR: 2

Radu Malureanu
Senior Researcher

Christian Bertelsen
Postdoc

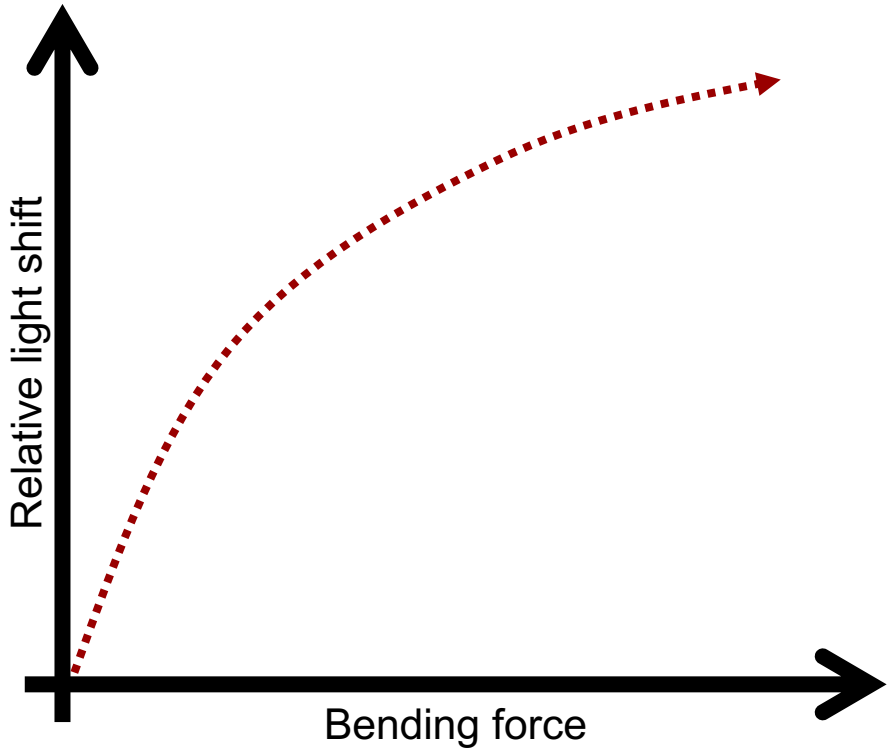
- **Characterization** of the properties of the **photonic crystal** in different environments
- Experimental setups at DTU Fotonik and UB
- **Comparison** with modelling in **WP2**



Setup in UB lab

Task 3.4: Light guiding changes of an individual photonic nanosensor upon bending

M13-M36, UBA: 7, DTU: 8, ALU- FR: 3

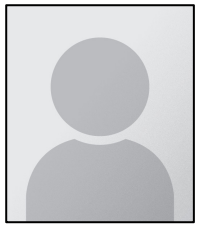


- **Combining** learnings from **task 2.2 and 2.3**
- Establish **experimental correlation** between **applied force** and **light guiding properties,** e.g. calibration curves
- Evaluate **performance** and **reproducibility** of the nanosensor

Maria Dimaki
Senior Researcher

Radu Malureanu
Senior Researcher

Christian Bertelsen
Postdoc



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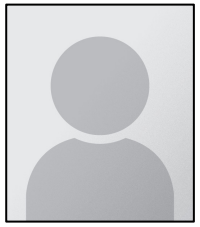
PhD student (2022)

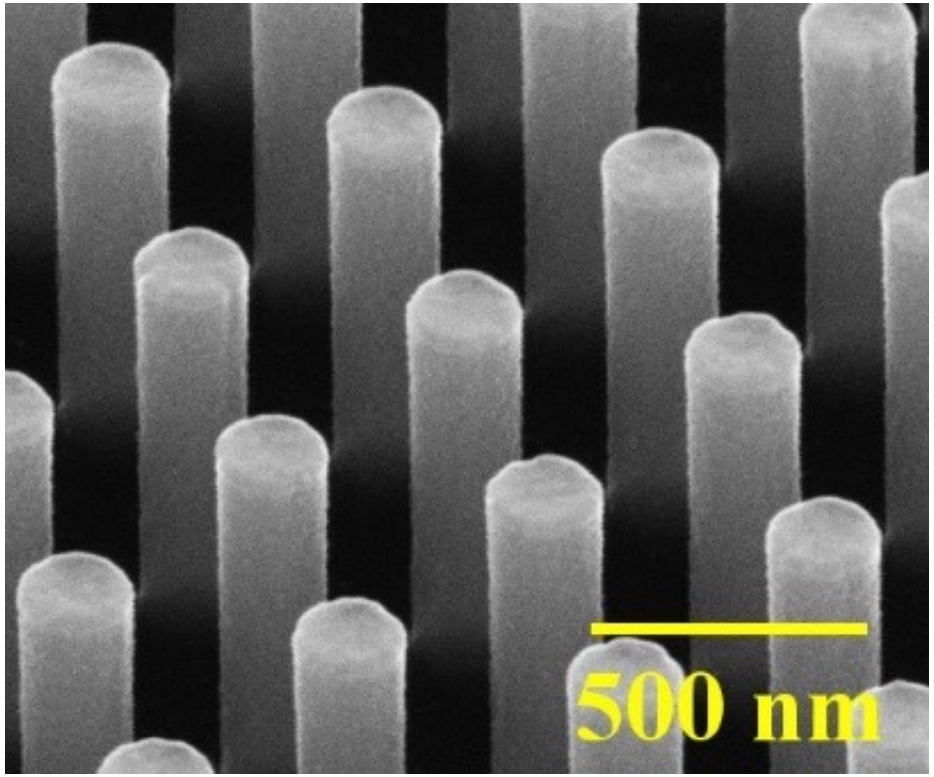
Task 3.5: Surface modification of the nanopillars

M10-M36, UBA: 3, DTU: 5; ALU-FR: 2, LEITAT: 4, RCELL: 6



Unknown
PhD student (2022)

- Post-fabrication **coverage** of nanopillars with **ultrathin layers** of biocompatible materials
- **Characterization** of surface layers
- Effects on light transmission and mechanical properties (linked to task 3.2 and 3.3)
- Close interaction with ‘WP4: Tissue-nanopillar material compatibility’



Work package 3 – Deliverables and Milestones

M3.1 →

D3.1: Guidelines for optimized semiconductor fabrication route
M9 - **June 2022**

D3.2: Report on the bending-force relation in nanopillars
M12 - **September 2022**

M3.2 →

D3.3: Prototype of photonic nanosensor based on nanopillars
M15 - **December 2022**

D3.4: Report on the photonic performance of the nanosystem
M21 - **June 2023**

M3.3 →

D3.5: Nanosensor based on nanopillars
M27 - **December 2023**

Fabrication
Supply to other WPs?

- When do you need substrates?
- Contact cvbe@dtu.dk ~2-3 months before
- Discuss the use-case and design
- Modifications, surface treatment, geometry, etc.
- Send by mail (DHL, FedEx, etc.)?


DTU

LEiTAT
managing technologies

StrechBio

WP4 Tissue-material compatibility (M1-M39)

Objectives & main goals

- Compatibility studies of living tissues-nanopillar array
- Successful adhesion of living tissues on top of the nanopillar array
- Minimisation of unwanted effects of the growing tissues on the nanopillars

Content & tasks

Task 4.1: Living tissue-nanopillar biocompatibility and tissue survival:
Under cell culture medium, the state of 3D cultures and tissues (from Drosophila and surgical lung cancer patients) will be studied with the aim of performing long term (up to 5 days) ex-vivo studies on top of the nanopillar array.

Task 4.2: Study of the adhesion of tissue-nanopillar
Studies will be started to analyse how the tissues adhere to the nanopillar top. If not successful, functionalisation of the nanopillar's surfaces will be required to promote such adhesion.
This will be performed in combination with Task 3.5 but considering also postprocesses for the biofunctionalisation which are not cleanroom compatible.

Task 4.3: Study of other issues affecting light propagation in the nanopillar array: Other problems affecting the interpillar medium or the nanopillar array, like the growth of 3D cultures and tissues along the nanopillar length. cannot be excluded, even taking into account the reduced interpillar dimensions.

Content & tasks

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Deliverables

D4.1 : Report on the nanopillar biocompatibility [12]

Viability tests of the cell survival upon prolonged contact with the nanopillar array will be reported. Results on bare, inorganically and organically functionalised surfaces will be compared, with the aim of achieving biocompatible surfaces.

D4.2 : Report on the adhesion of the tissues [21]

To correctly produce the bending of the nanopillars, good tissue adhesion is required. The study of the adhesion to the nanopillar array may directly, without intermediates, or after specific nanopillar functionalisation will be reported.

D4.3 : Report on living tissues issues affecting light propagation [24]

Several phenomena can occur during tissue growth, for example, the emission of cilia, that can penetrate into the nanopillar array, affecting light propagation. The impact of this and other phenomena on light transmission will be studied.

Deliverables

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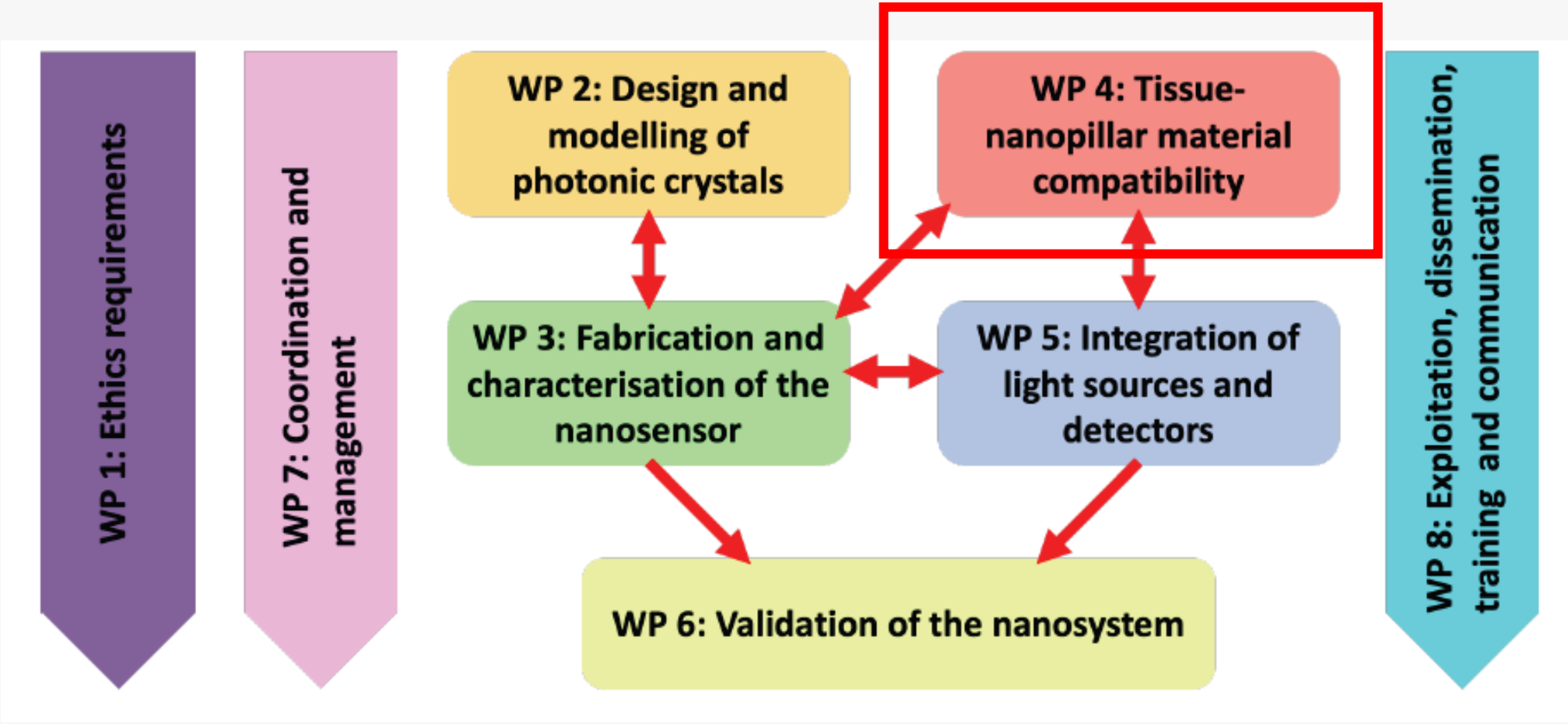
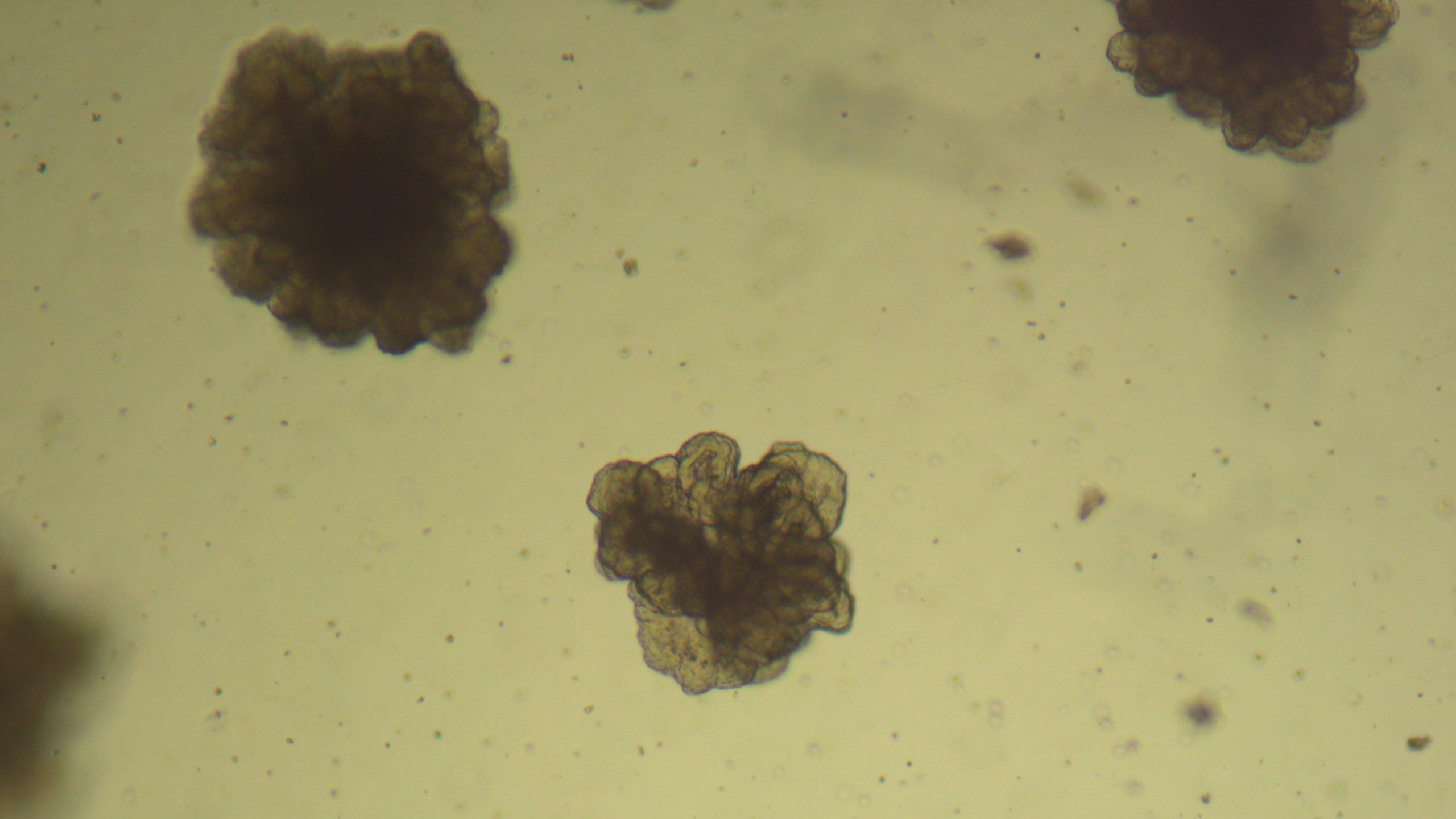
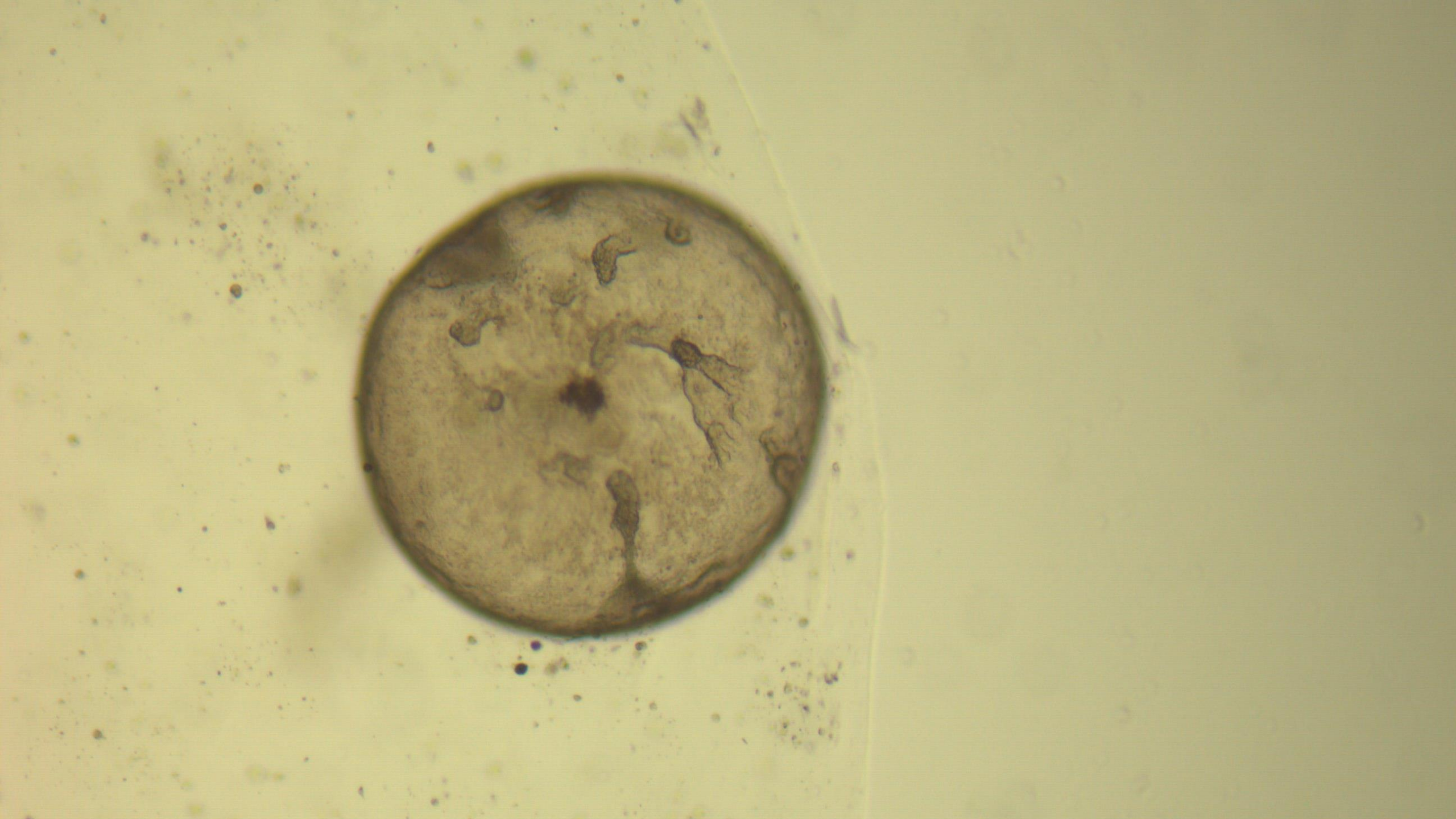
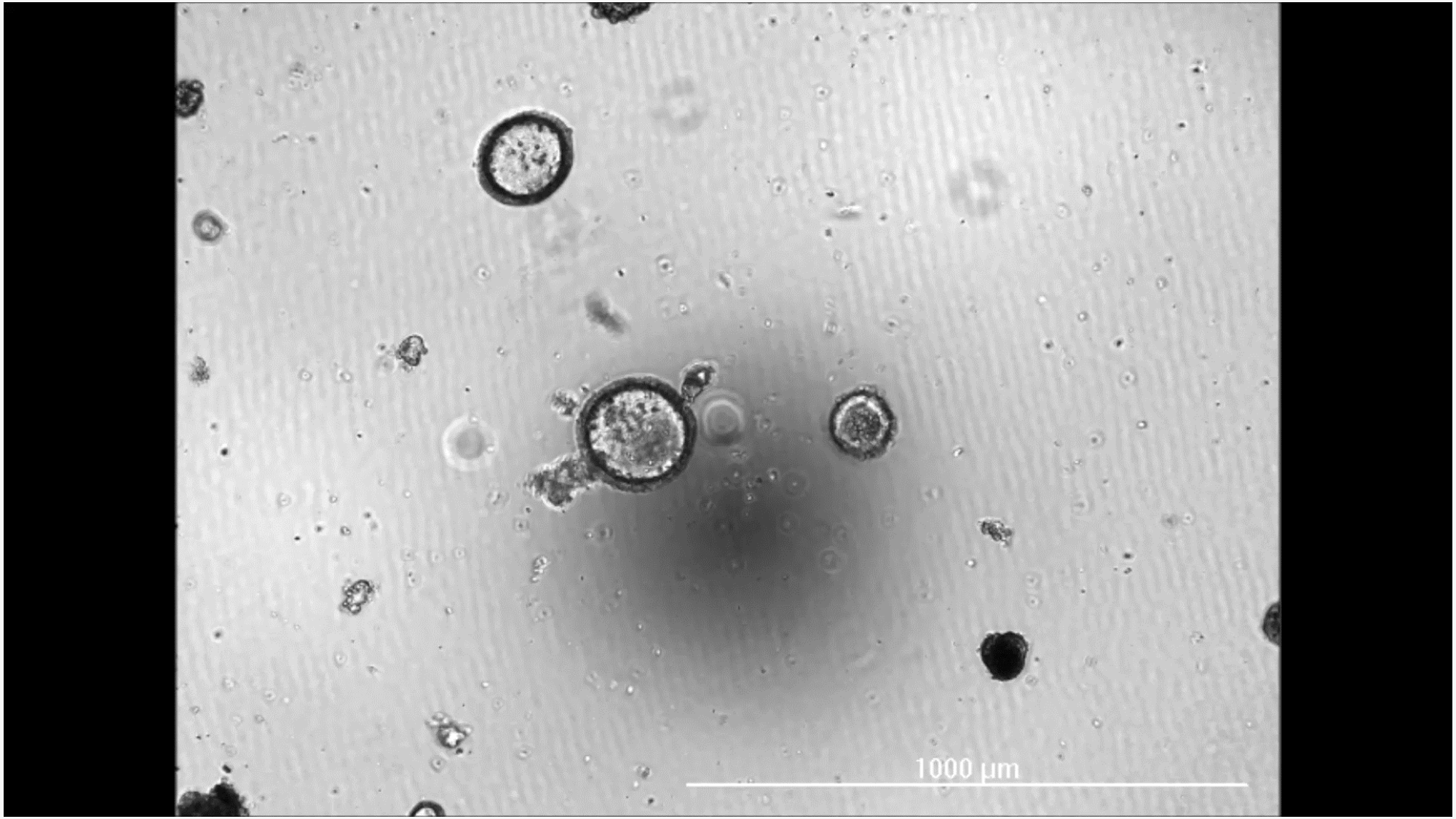
Involvement and roles of partners

Interaction with other WPs







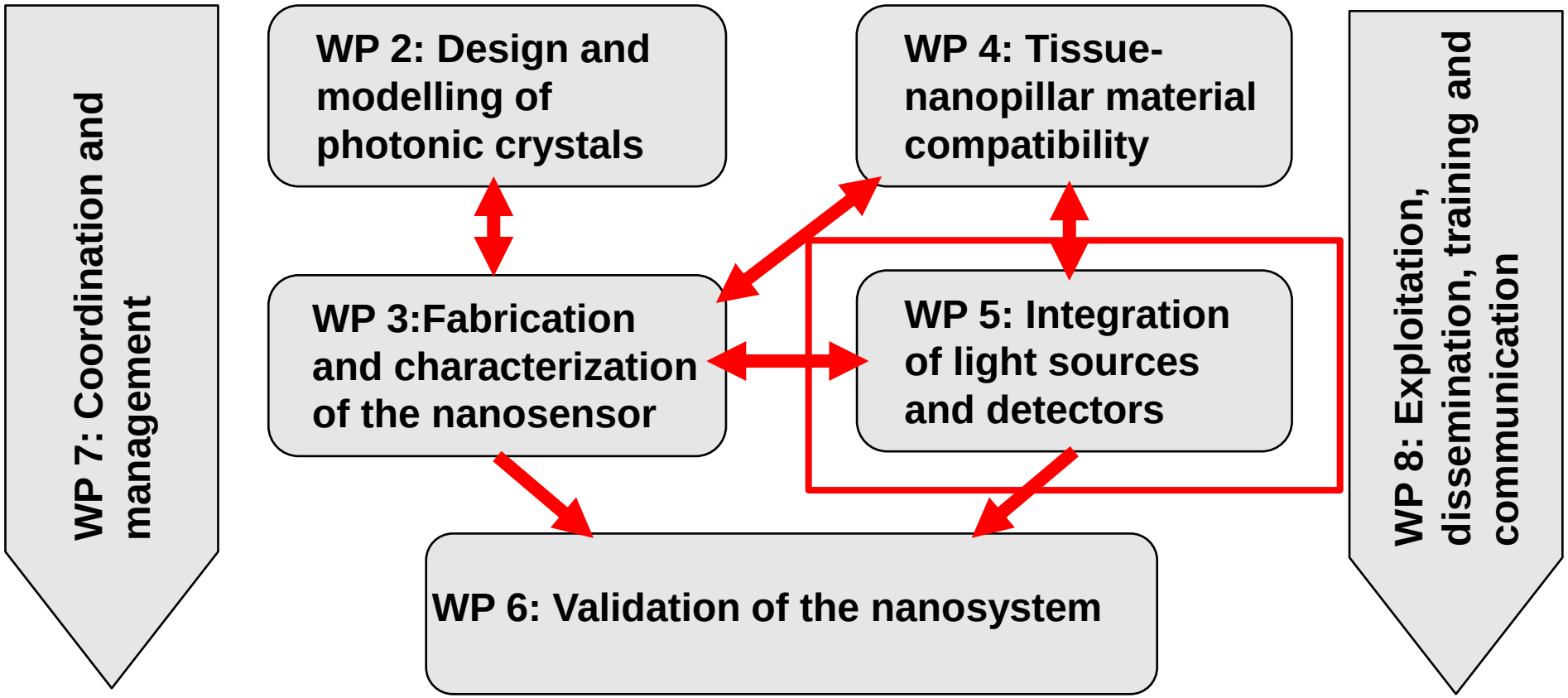

1000 µm

»StretchBio«
WP 5 presentation

Kick-off meeting 06.10.2021, Barcelona

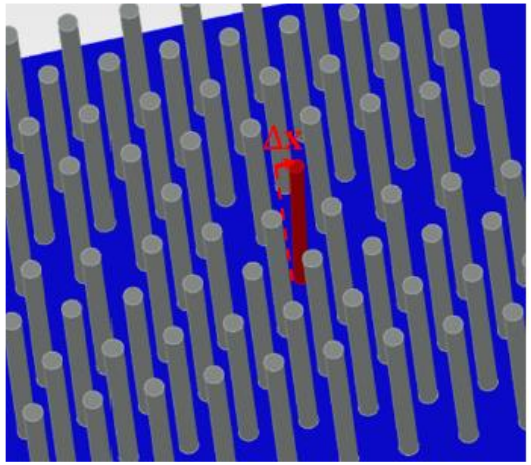
Jens Goldschmidt
Chair for Gas Sensors
Department of Microsystem Technologies IMTEK
Albert-Ludwigs-University Freiburg, Germany

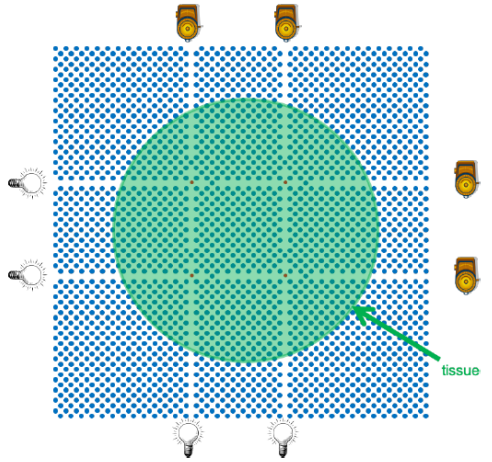
WP 5 – Integration of light sources and detectors



WP 5 – Objectives

- Design and fabrication of light coupling devices to nanopillar array
- Study on
  - Coupling schemes
  - Miniaturized detector schemes
  - Coupling of the detector to nanosystem
- Hybrid integration of the optical system
- Design of the experimental setup for complete optical source and detector coupling to the nanosystem





WP 5 – Tasks and timeline

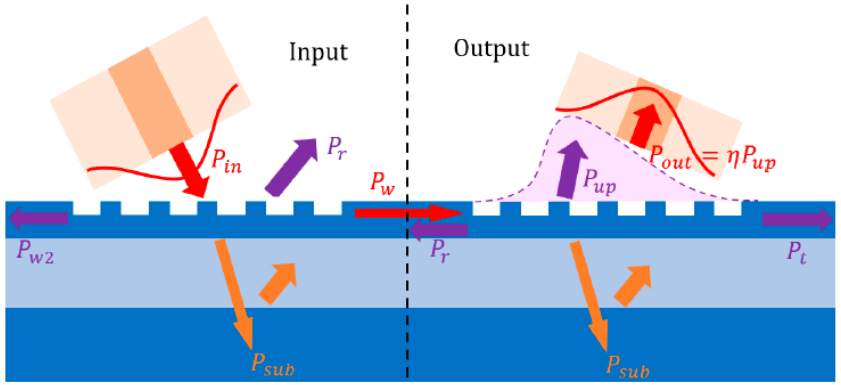
Task	Title	year 1				year 2				year 3				year 4			
5.1	Design of grating for light coupling to the nanopillar array (D5.1)				*												
5.2	Miniaturized photodetectors adapted to the nanopillar array (D5.2)						*										
5.3	Design of optical components for light splitting																
5.4	Design and implementation of the optical exciting and detecting system (D5.3, M5.1)									*	o						

* = Deliverable, o = Milestone

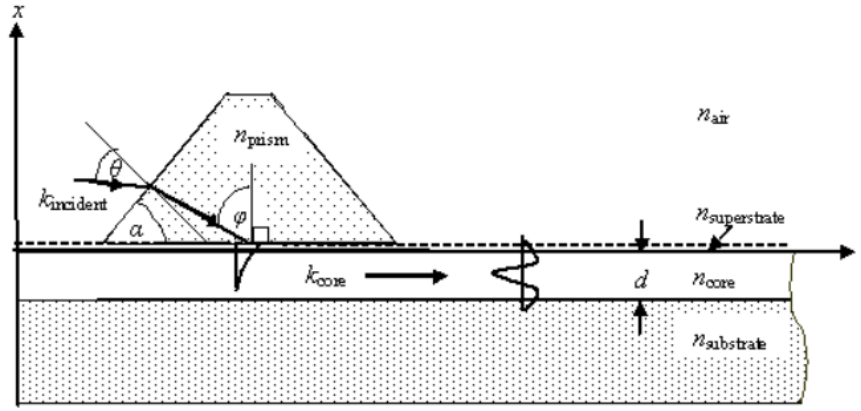
WP 5 – Content

Task 1

- Coupling of NIR sources to nanopillar array with optical gratings
- Simulation and simultaneous fabrication to the array of different grating geometries for optimized coupling efficiency → Study on coupling efficiencies and coupling angles
- Study on alternative coupling techniques like prisms



L. Cheng et al. Grating Couplers on Silicon Photonics: Design Principles, Emerging Trends and Practical Issues. *Micromachines* **2020**, *11*, 666.



https://www.ee.ucl.ac.uk/~mflanaga/java/PrismCoupler.html, 04.10.2021, 20:00

WP 5 – Content

Task 2

- Study on commercial and self-designed and fabricated photodetectors for adaption to the nanopillar array

Task 3

- Design of photonic devices to split and couple light into several nanosensors at the same time

→ Operation with one single NIR light source

- Design compatible with fabrication technology

Task 4

- Implementation of complete optical system to be coupled to nanopillar array (fully hybrid or partially integrated)
- Design for compatibility with microscopy setups

WP 5 – Deliverables and milestones

No.	Deliverable/milestone name	Type	Diss. level	Deliverable month
D5.1	Report on the design and fabrication issues of the optical grating	Report	Public	12
D5.2	Report on photodetector selection and characterization	Report	Public	18
MS7	Optical system coupled to the nanosensor			28

D5.1 Gratings have been selected for coupling the nanopillar chip to the light source and detector. The best configurations, compatible with the nanofabrication route, will be simulated, fabricated.

D5.2 Miniaturized photodetectors need to be used to fit the to nanopillar array. Both commercially available as ad-hoc designed detectors will be either adapted or designed.

MS7 An excitation and detection system should be ready, prepared to be combined with the nanopillar array. Verified through the existence of demonstrator D5.3.

WP 5 – Involvement and interaction with other WPs

	WP 1	WP 2	WP 3	WP 4	WP 5	WP 6	WP 7	WP 8	Total Person/Months per Participant
1 – UB	✓	31	23	39	26	40	20	11	190
2 – DTU		29	39	15	6	3	2	10	104
3 – ALU-FR		6	10	5	33	10	2	9	75
4 – LEITAT		0	4	13	0	19	2	4	42
5 – ReadyCell		0	6	9	0	16	2	16	49
Total Person/Months		66	82	81	65	88	28	50	460

ReadyCell

EASING YOUR SCREENING

Institut de Nanociència i Nanotecnologia

Exploitation, dissemination, training and communication (WP 8)

Exploitation, dissemination, training and communication

Agenda

- Objectives & main goals
- Content & tasks
- Involvement and roles of partners
- Interaction with other WPs
- Deliverables

Exploitation, dissemination, training and communication

Objectives

- Defining and implementing effective strategies of exploitation of StretchBio results and associated Intellectual Property.
- Planning scientific publications, presentation and organisation of conferences.
- Organising workshops and short-term missions.
- Organising online communication and outreach activities.

Exploitation, dissemination, training and communication

Description of Work

- Task 8.1: Patent Database and Exploitation Plan
- Task 8.2: Scientific Papers and Conferences
- Task 8.3: Workshops, Training and Short-term Missions
- Task 8.4: Communication and Outreach

Patent Database and Exploitation Plan

Exploitation, strategy for knowledge management and IP protection

- Evaluate the commercialization possibilities of the StretchBio project.
- Discuss the best model to manage IPR.
- Strong focus on young researchers.
  - to participate in the management of the knowledge generated
  - in the patenting of technology
  - in the creation and development of the commercialization

Scientific Papers and Conferences

Dissemination activities

- Publications in high-rank scientific journals.
  - Nature Nanotechnology, Nature Photonics, Cell, …
- Presentations at international conferences.
  - FET, Micro Nano Engineering, Meta, EMBL conferences, …
- Organisation of focused conferences or symposia.
- Open License for data not required for patent filing.
  - exchange of non-confidential information with other complementary EC projects and relevant stakeholders
  - need to decide which data will be made public

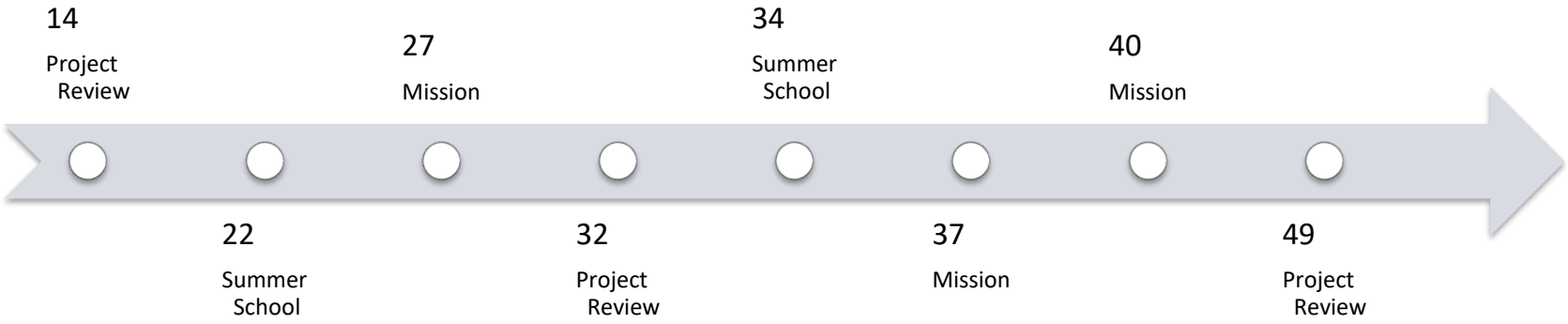
Workshops, Training and Short-term Missions

Dissemination activities

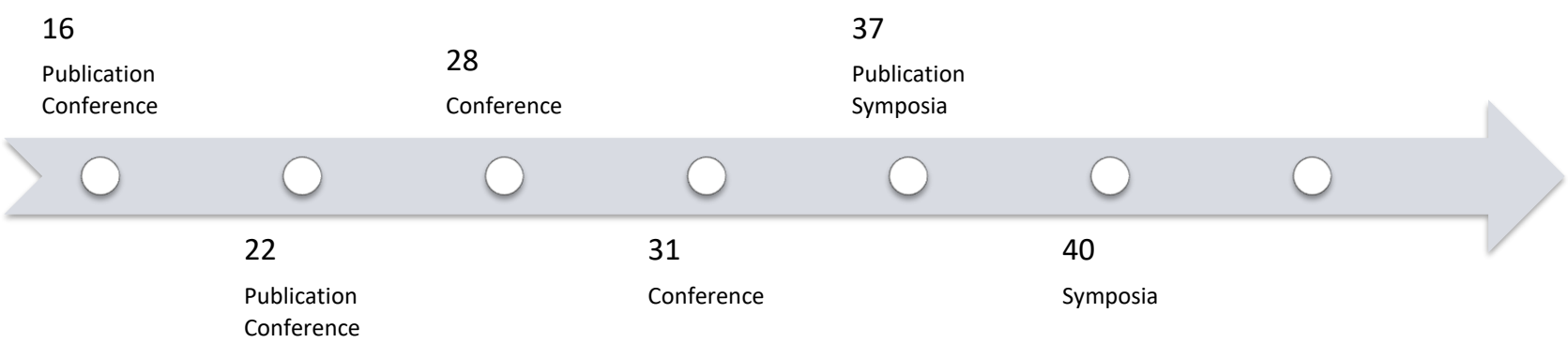
- Regular technical meetings.
  - to promote understanding of the different specialty fields
  - to share a common language
- Focused workshops and summer schools.
  - to address IPR strategy
  - to extend specific StretchBio concepts
- Short-term missions to favour synergies.

Dissemination Activities Calendar

Internal



External



Communication and Outreach

Promotion activities

- Website: http://stretchbio.eu/
  - containing a public area addressed to the scientific community, describing the StretchBio objectives, events, open positions, publications, workshops, …
- Social Networks:
  - Twitter, LindedIn and Instagram, 1x publication/week, for its immediacy in spreading news
  - additional ideas welcomed (YouTube videos, …)
- Demonstrations of impacts and benefits to the industry once a viable prototype has been developed.
- Targeted communication actions to policymakers and society to address potential social acceptability issues.

LOGO PENDING

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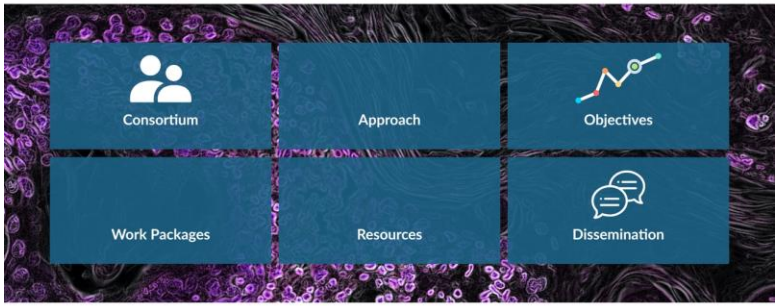
Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies (StretchBio)

StretchBio aims at developing a compact nanosystem for continuous label-free ex vivo monitoring of the mechanical stresses occurring in living tissue samples under anomalous disease-associated conditions, such as solid tumours and other "mechano-pathologies", with the goal of its use in drug screening and personalized medicine. Mechanical tension and stresses are considered key factors associated with the control of the growth and proliferation of tumoral cells as well as in human diseases that involve tissue rigidity alterations, including fibrosis, sclerosis or arthritis. The basic principle of StretchBio is a two-dimensional force sensor system for the continuous ex vivo monitoring of tissue mechanics based on the deformation of nanopillars and the readout of such deformations. The design and fabrication of this two-dimensional force measuring nanosystem needs to be addressed in the presence of liquid tissue culture media, which will constitute the interpillar medium.

The overall goal of the here proposed project is the design, development, fabrication and proof of application of an advanced compact nanosystem for the continuous label-free ex vivo monitoring and fast quantification of two-dimensional mechanical stresses induced by fresh tumour samples upon their treatment with drugs aiming to rescue normal tissue elasticity. The proposed approach will be a huge step forward both in the development of personalized medicine, as well as in the study of tissue growth as it occurs during development, with applications in cancer and regenerative biomedicine, and represents also an improvement in the development and application of bio-nanosystems.



Latest news

News title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

News title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

News title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

Events

New event! New event! New event! New event! New event! New event! New event! New event! New event!

6 october 2021

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LOGO PENDING

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The StretchBio projecte has recieved funding from the European Union's Horizon 2020 research and innovation programme under the FETOPEN grant agreement No XXXXXXX.

LOGO PENDING

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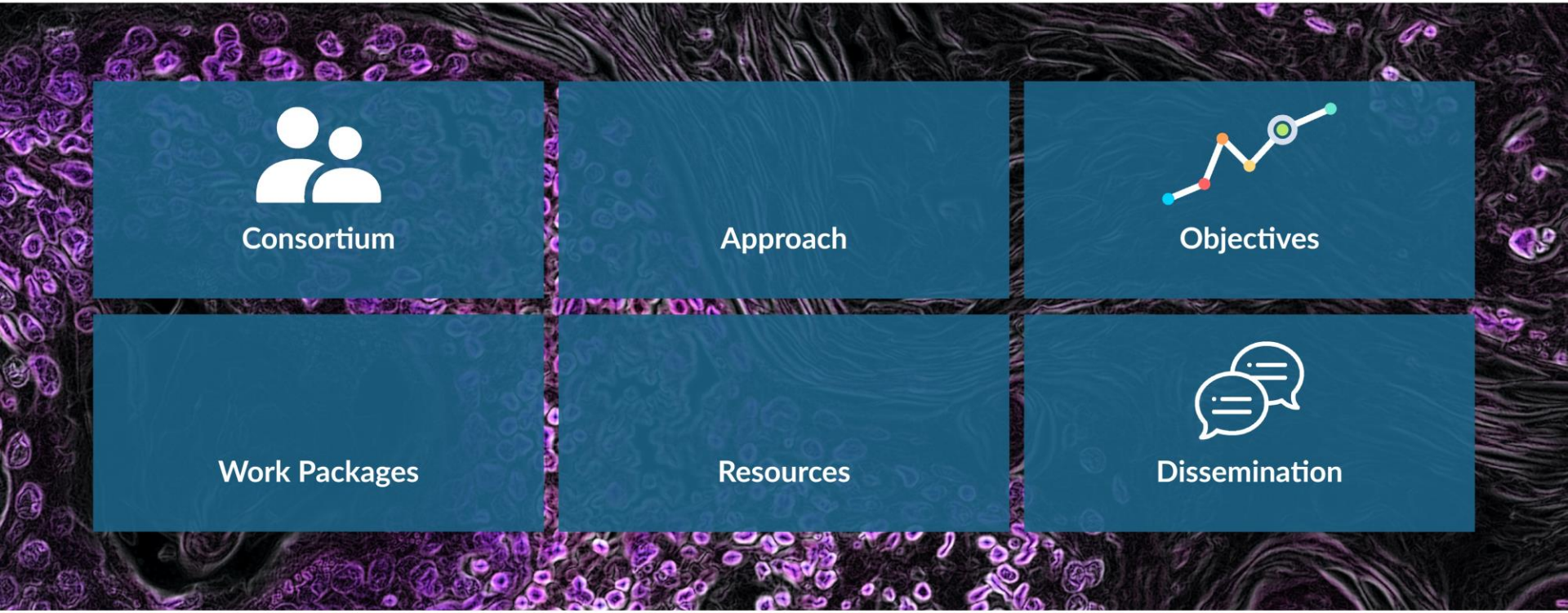
LOGO PENDING



LOGO PENDING

Latest news

News title, news title, news title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

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6 october 2021

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6 october 2021

Events

New event! New event! New event! New event! New event! New event! New event! New event! New event!

6 october 2021

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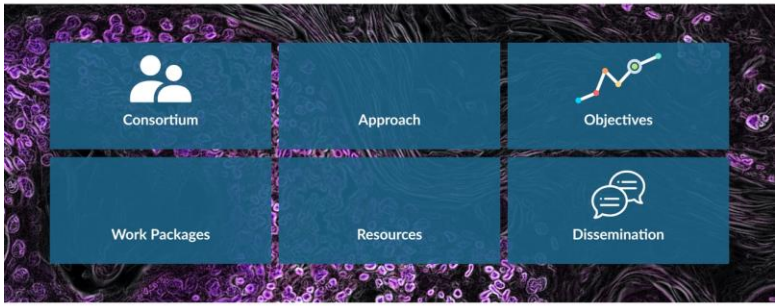
Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies (StretchBio)

StretchBio aims at developing a compact nanosystem for continuous label-free ex vivo monitoring of the mechanical stresses occurring in living tissue samples under anomalous disease-associated conditions, such as solid tumours and other "mechano-pathologies", with the goal of its use in drug screening and personalized medicine. Mechanical tension and stresses are considered key factors associated with the control of the growth and proliferation of tumoral cells as well as in human diseases that involve tissue rigidity alterations, including fibrosis, sclerosis or arthritis. The basic principle of StretchBio is a two-dimensional force sensor system for the continuous ex vivo monitoring of tissue mechanics based on the deformation of nanopillars and the readout of such deformations. The design and fabrication of this two-dimensional force measuring nanosystem needs to be addressed in the presence of liquid tissue culture media, which will constitute the interpillar medium.

The overall goal of the here proposed project is the design, development, fabrication and proof of application of an advanced compact nanosystem for the continuous label-free ex vivo monitoring and fast quantification of two-dimensional mechanical stresses induced by fresh tumour samples upon their treatment with drugs aiming to rescue normal tissue elasticity. The proposed approach will be a huge step forward both in the development of personalized medicine, as well as in the study of tissue growth as it occurs during development, with applications in cancer and regenerative biomedicine, and represents also an improvement in the development and application of bio-nanosystems.



Latest news

News title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

News title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

News title, news title, news title, news title, news title, news title, news title, news title

6 october 2021

Events

New event! New event! New event! New event! New event! New event! New event! New event! New event!

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LOGO PENDING

Home | About StretchBio | Objectives & WP | News & Events | Resources | Contact

The StretchBio projecte has recieved funding from the European Union's Horizon 2020 research and innovation programme under the FETOPEN grant agreement No XXXXXXX.

How do we communicate?

Active participation from all partners will be required

- Each partner must identify a person responsible for communication.
  - internal interactions, feedback, writing or validating news, ...
- Obligation to thank following the formula defined in the GA and to inform the Communication Leaders in advance of all actions.
  - participation in conferences, papers, news, …
- Retweets of project news are encouraged, as well as reposts in "local" language on the web or media of each partner’s institutions.
- Logo Proposal
  - vote to define mandatory deliverables and presentation templates

Exploitation, dissemination, training and communication

Deliverable	Due in	Milestone
Website	1 month	
Dissemination and exploitation plan	12 months	
Report on dissemination and training actions	27 months	Forecasted dissemination and training achieved
Report on communication and outreach	30 months	Efficient communication practice
Patent portfolio and updated exploitation plan	36 months	Satisfactory IPR generation

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Thank you for your attention

UNIVERSITAT DE BARCELONA

WP7 – Project Management

StretchBio Project – KoM (October 6th 2021)

Outline

- General comments and next steps
- Communication and reporting tasks
- Quality assurance and risk management plan

General comments and next steps

- Project Management Office (AR & FH) to lead **WP1** and **WP7 tasks**;
- Feedback to WP8 – meet high level requirements from the EC;
- WP1 will focus on ethics and privacy issues (high priority for EC services)
  WP7 to monitor the actual implementation of the project objectives
- Project launch (up to M6) intensive in terms of reporting;
- Liaison: Dr. Francisco Hernández (fhernandezra@ub.edu).

General comments and next steps

- First set of deliverables to be submitted at M1 (discuss later)

- Reporting periods according to the GA:

Intermediate PM	M6	28/02/2022
RP1*	M12	31/08/2022
RP2	M30	29/02/2024
RP3*	M48	31/08/2025

** Summer period! – Official submission up to 1 month in advance (reviewers)*

General comments and next steps

- Deliverables at M1:

D1.1	H-Requirement No.1	Ethics on the use of tissues samples from patients
D1.2	POPD-Requirement No.3	Privacy on the participation of patients
D1.3	OEI-Requirement No.12	Feedback from an Independent Ethics Advisor

- "Slight" delay requested and approved by the EC – M2;
- Active participation from the partners (inputs to D1.1 & D1.2)
- Objective: submission along 3rd week of October

General comments and next steps

Requested feedback (contact in parallel)

- Partners to confirm their DPO contact details – if not, provide data protection policy (ASAP)
- UB to shed light on the recruitment of patients, consent and the processing of data (e.g. anonymisation) – Pag 149
- Draft of D1.1 and D1.2 to be reviewed and validated by experts
- Contact in parallel (liaison?)

General comments and next steps

- Data Management Pla (DMP) @ M6 – draft to be prepared by us (UB).
- Distribution of a template to identify data categories and their flow.
- Consortium to decide which databases to be released in open repositories (i.e. zenodo.org)
- Please, do not forget “Open Publications” – if not paying….

Communications and reporting tasks

- After M6, hectic activity back to normal;
- Each WP leader to organize the internal work and follow-up of their collaborators;
- Deliverables to be ready for submission 1 week before the oficial deadline.
- PMO to conduct a monthly informal follow-up at WP level (leader)
- If there is a problem, please contact us inmediately!
- Financial follow-up every 6 months (UB services)

Quality assurance and risk management plan

- **Proposal:** “regular” deliverables to be reviewed by a peer – preliminary draft one month before submission deadline available;

- Deliverable templates to be available once the “project image” ready

- PMO will assign a reviewer to each deliverable in the coming days.

- Risks:

- To be updated every 3 months (i.e. COVID impact) – fast exercise but compulsory

Thank You!