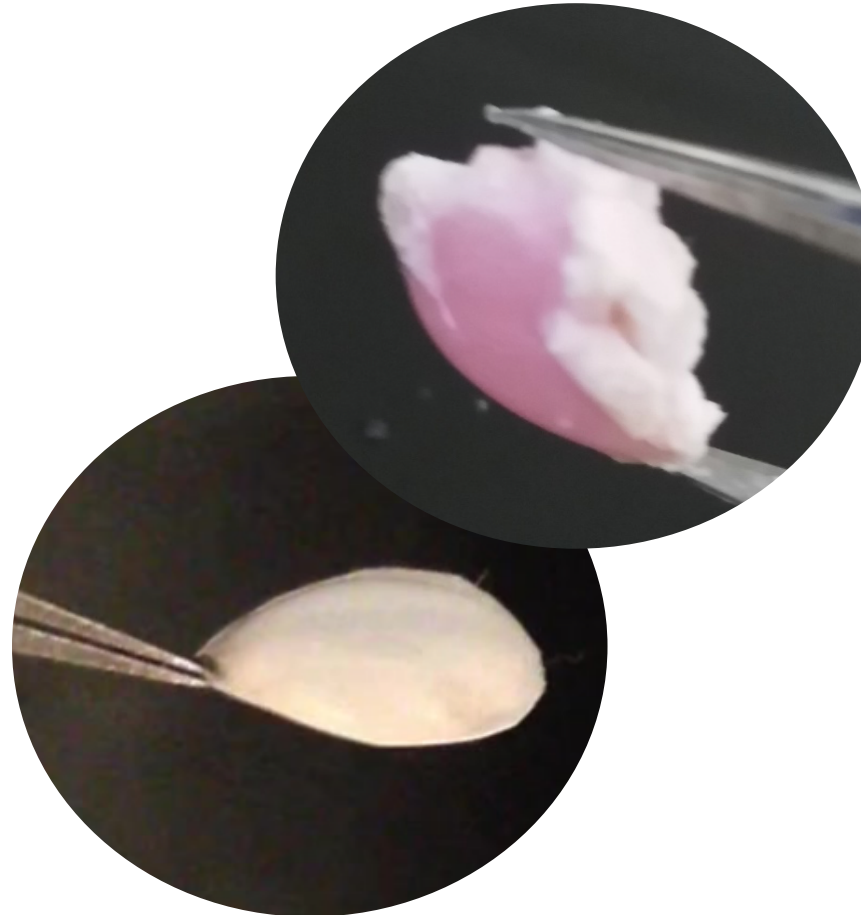


BioGellics

Salvador Borrós Gómez
18th October 2019
Salvador.borros@iqs.url.edu





Jaw reconstruction



Hip implants



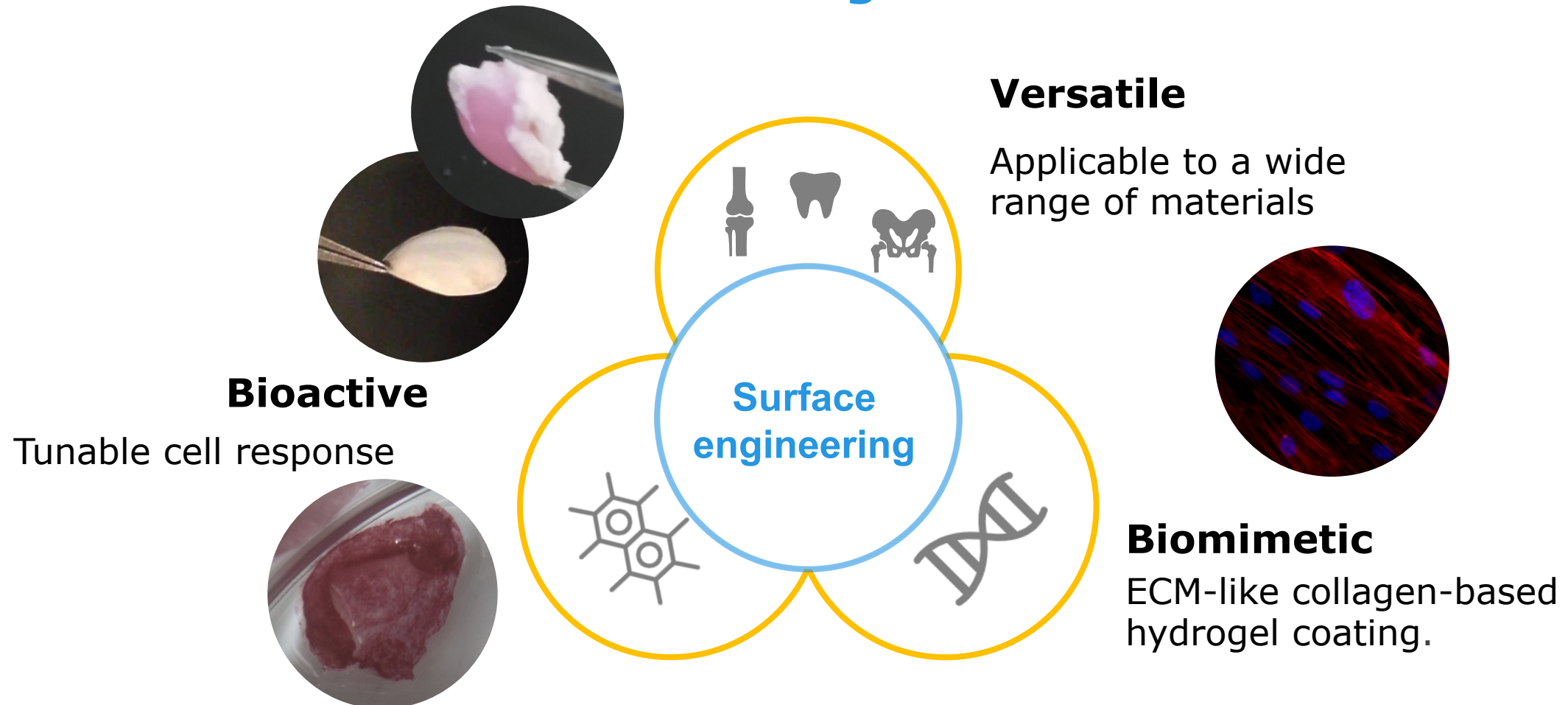
Dental implants



Knee implants

**LACK OF TISSUE INTEGRATION OF
IMPLANTABLE MATERIALS**

Coating technology that enhances tissue integration



Biomimetic Collagen-based hydrogel attached onto a **bone-like bioceramic**



- ✓ No discontinuity through the scaffold
- ✓ Hydrogel composition tailored layer by layer
- ✓ Higher mechanical stability

Biomimetic Collagen-based hydrogel attached onto a **bone-like bioceramic**



- ✓ No discontinuity through the scaffold
- ✓ Hydrogel composition tailored layer by layer
- ✓ Higher mechanical stability

**European Patent Application
EP 18382929.0**

**CARPMAELS
& RANSFORD**

Coating **technology** that enhances tissue integration

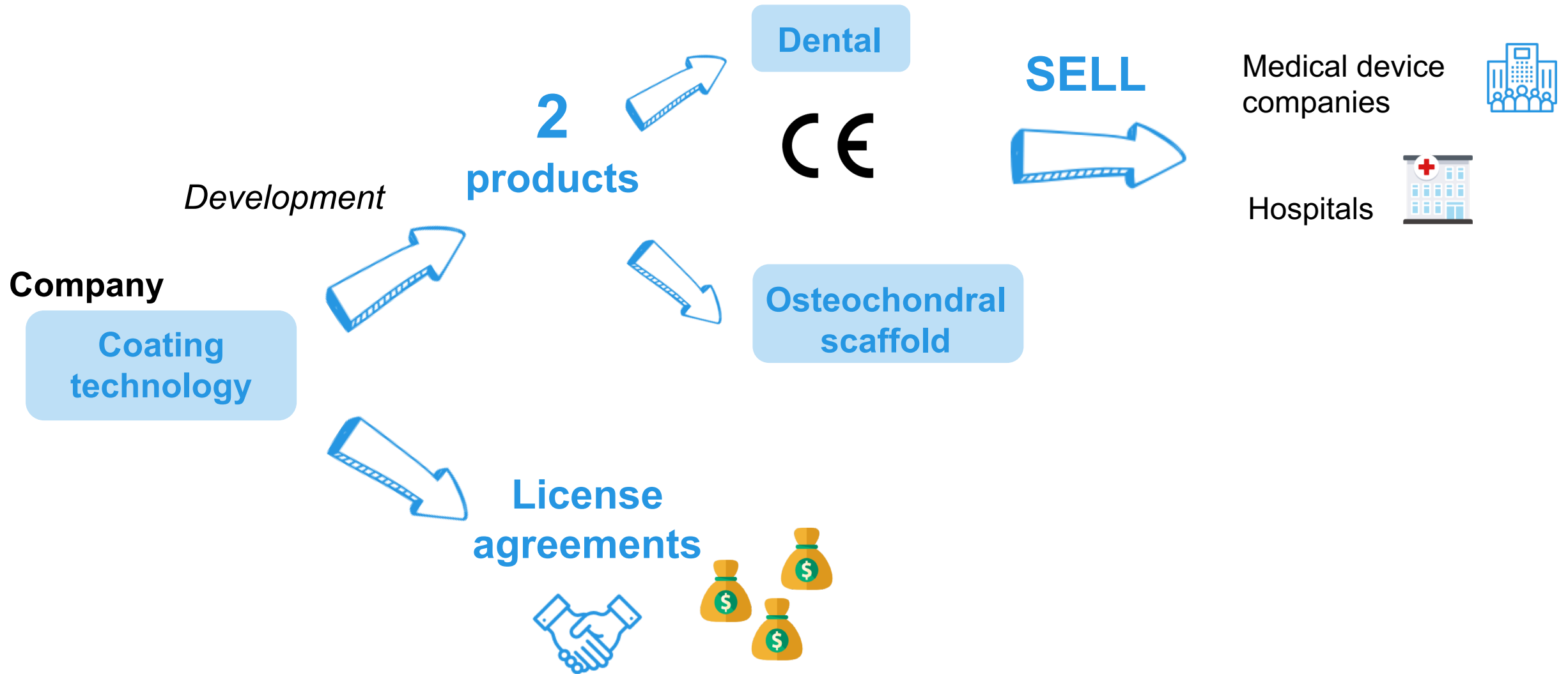


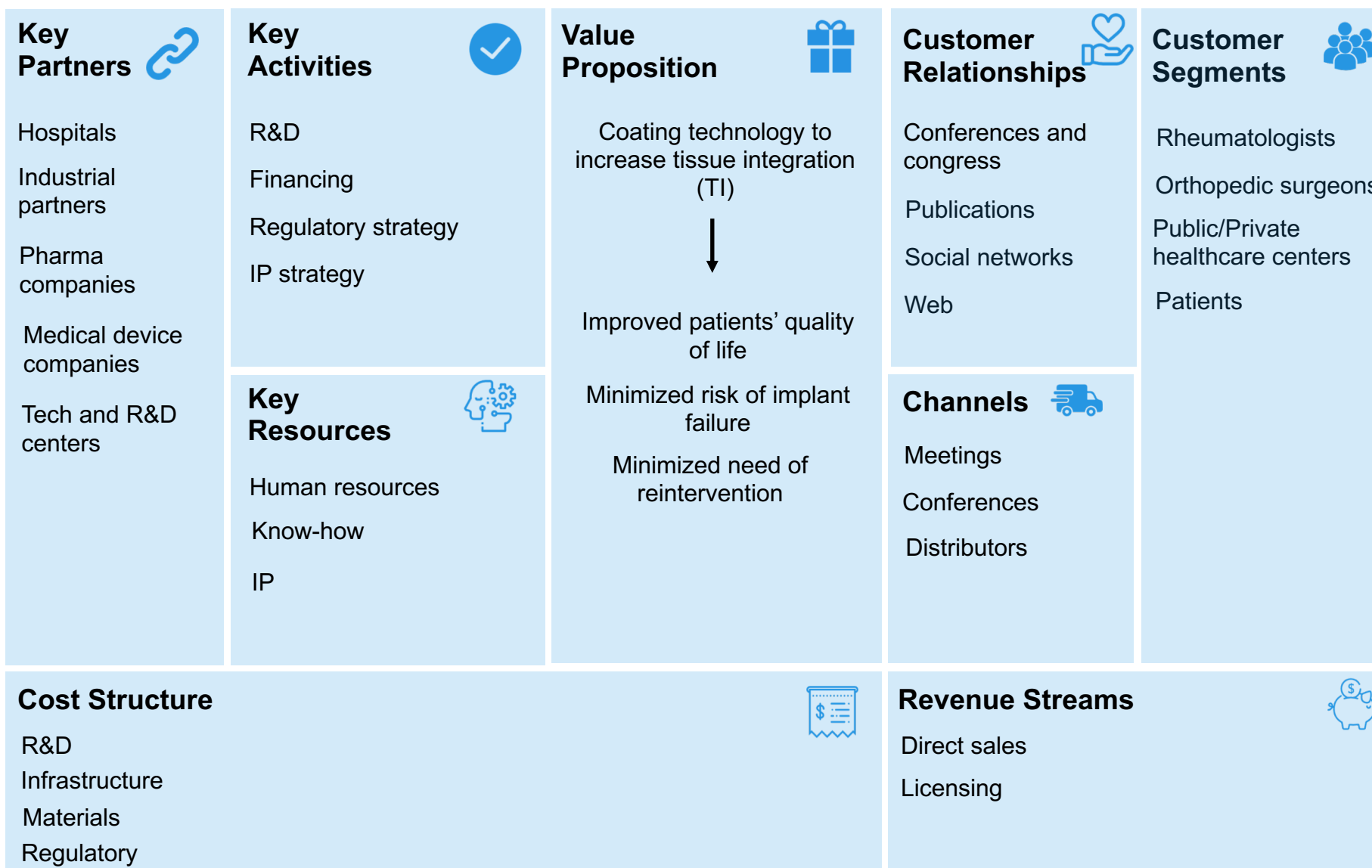
**Osteochondral
scaffold**

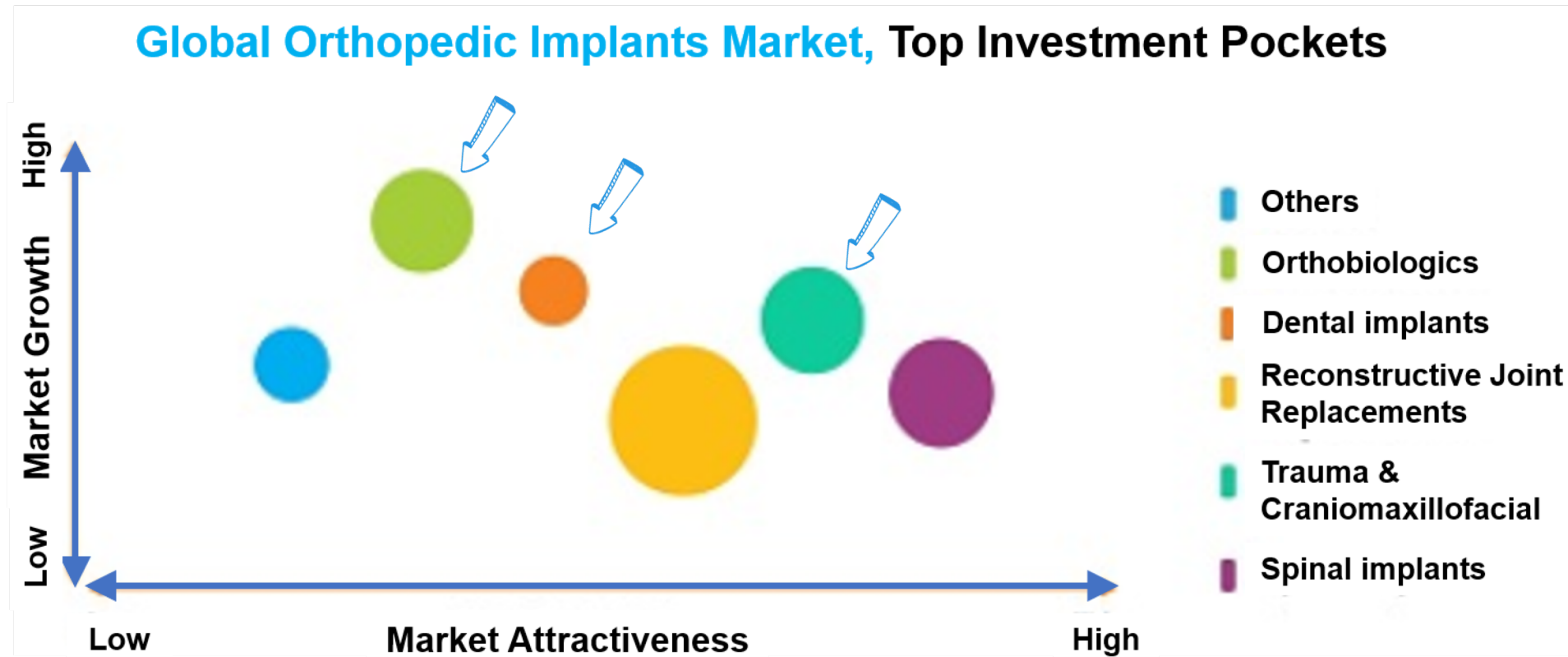
**PEEK-based
dental guides**



Technology validation



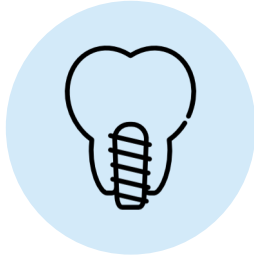




Our competitors: Osteochondral repair



	Gradient structure	ECM mimics	Market	FDA	EU
OUR SOLUTION	✓	✓	✗		
Chondromimetic™	✗	✓	✗		
Trufit™	✗	✗	✗		
MaioRegen®	✗	✓	✓	✗	✓
OsseoFit® plug	✗	≈	✓	✓	✗
Bioseed®-C	✗	✗	✓	✗	✓
Agili-C™	✗	✗	✗		
Hyalofast	✗	✗	✓	✗	✓



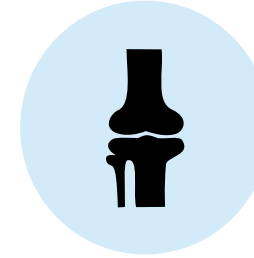
Potential Industrial Partner

PEEK-OPTIMA™ with 15 years of clinical history.



Medical Partner

Experience working with PEEK implants and prostheses



Potential Industrial Partner

- Chondroitin sulfate & hyaluronic acid manufacturer
- Arthrosis drugs portfolio
- Focused R&D on cartilage repair

Available strategies

- Plasma treatments to increase wettability
- Nano-structured coatings

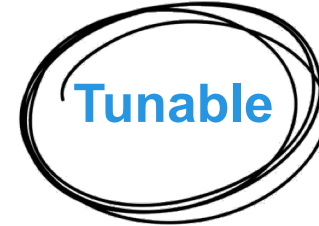


Bioactive coatings such as
nano-hydroxyapatite



Aggressive coating methods that can
damage PEEK structure

Our proposal



Bioactive surface

- **ECM mimics** both **chemically** + **physically**
- Induce a **desired cell response**
- Good **bone-tissue** interface

Provide a good
anchoring to the gums



Osteoarthritis (OA)

240 M
affected people¹



OA

affects

80%

people > **65 years** in
developed countries



Surgery

for end-stage **knee OA**
is performed on

658,000

Americans / year²

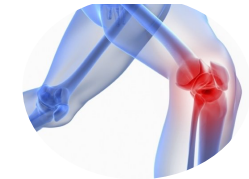


Knee OA

contributes > than

\$27 bn

/ year healthcare costs³

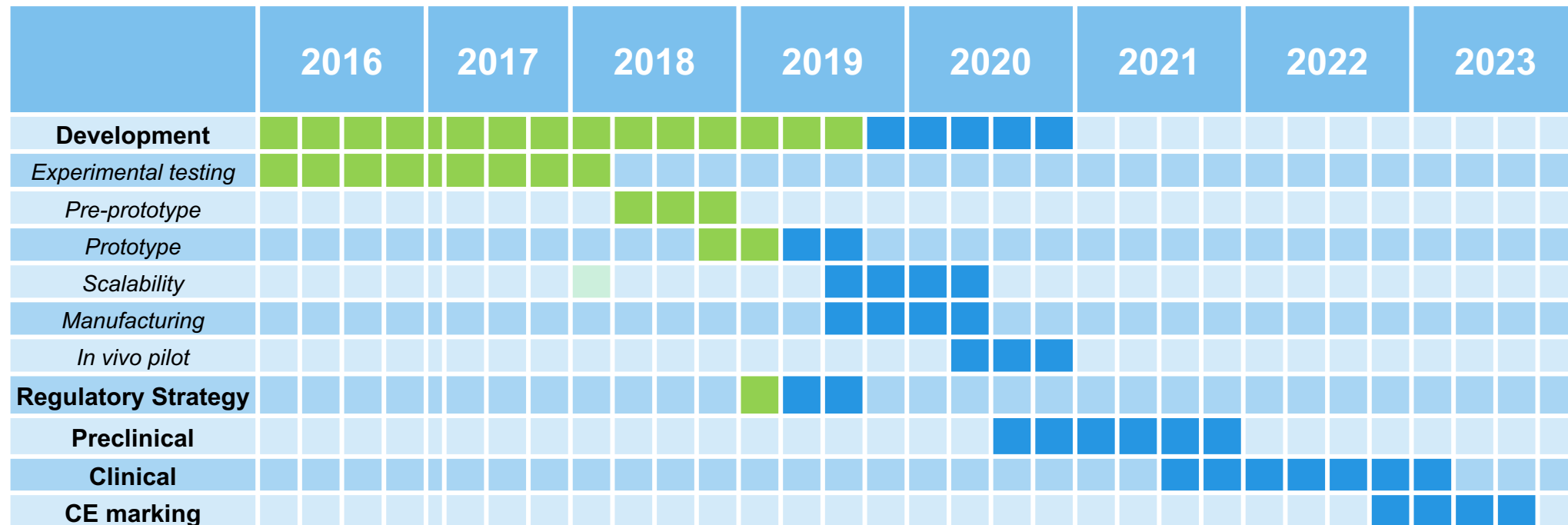


¹OAFI Foundation

²Bhandari M, et al. Clinical and Economic Burden of Revision Knee Arthroplasty. Clin Med Insights Arthritis Musculoskeletal Disord. 2012.

³Losina E, et al. Lifetime Medical Costs of Knee Osteoarthritis Management in the United States: Impact of Extending Indications for Total Knee Arthroplasty. Arthritis Care Res (Hoboken). 2015; 67: 203-215.

- ❌ **Too Risky**
- ❌ **Regulatory Changes in the next years**
- ❌ **Investing**
- ❌ **Need for a Strong Team**



PEEK-BASED DENTAL IMPLANTS



	2016				2017				2018				2019				2020				2021			
Development																								
Experimental testing																								
Pre-prototype																								
Prototype																								
Scalability																								
Manufacturing																								
In vivo pilot																								
Regulatory Strategy																								
Preclinical																								
CE marking																								



Salvador Borrós Gómez

IQS Engineer, PhD, Full Professor at IQS, IP and Scientific Leader of GEMAT.

16 patents and 157 publications. 31 PhD thesis supervised, 8 in active and more than 100 master thesis supervised.

Projects: 7 EU Projects and 10 National Projects as IP

Awards: Talgo Award to the Innovación Tecnológica 2002; Bioentrepreneurs XXI Award (2009) to Best Business Plan for Sagetis Biotech;

Premi Innovació Col·legi d'Enginyers Industrial de Catalunya, 2011.

Co-founder and CSO of Tractivus, Sagetis Biotech, Aortyx and Sailing Technologies, Co-founder of Flubetech and Khalkos.



Anna Mas Vinyals

Chemical Engineer (IQS), MSc., PhD in Bioengineering, CIMTI Project Manager

1 publication.

Postgraduate in Innovation and R&D Project Management, UOC

Winner of Pare Salvador Gil SJ Award for the Best Master Thesis in Bioengineering (2015)

Board Member of Alumni Association of IQS (AIQS) (2016 – now)

Member of the Research Ethics Committee of Research of Universitat Ramon Llull (URL) (2016 – December 2018)

URL Student Council, IQS Academic Board Representative. (2016 – December 2018)



Laura Figueras Esteve

Biotechnologist (IQS), MSc. (IQS)

1 publication

Member of Associació de Biotecnòlegs de Catalunya (ASBTEC) 2014-2017

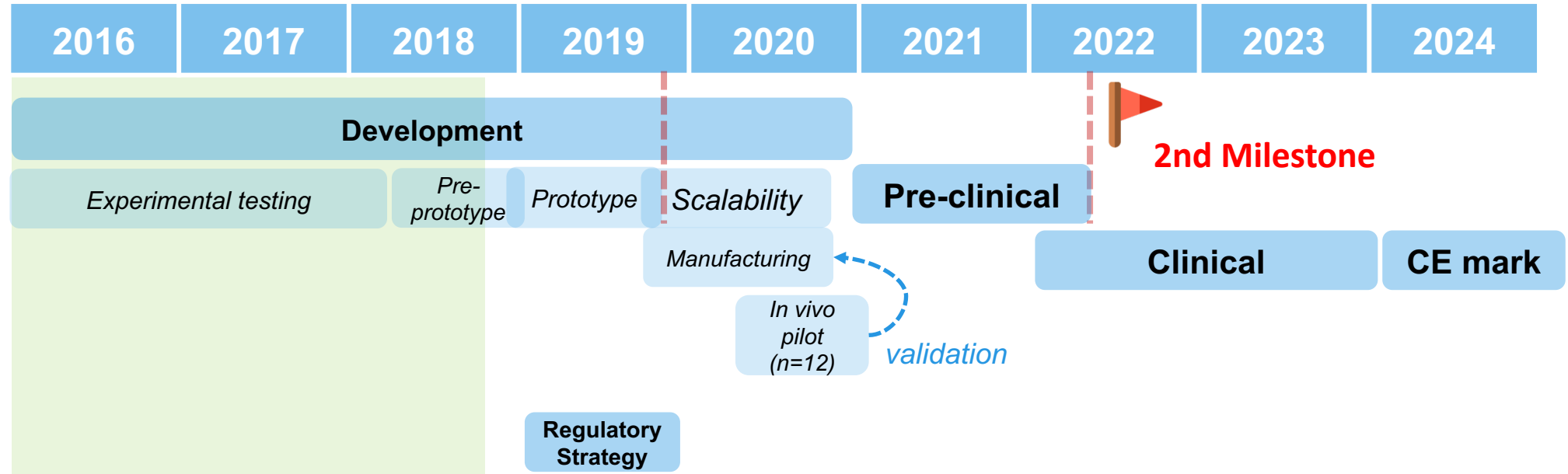


April M. Craft, PhD

Assistant Professor of Orthopaedic Surgery at Boston Children's Hospital and Harvard Medical School

2 patents and 10 publications.

Wide experience on cartilage development biology and development of therapeutics for disease attenuation and tissue regeneration and repair.



1st Milestone: PoC

- ✓ Pre-prototype
- ✓ Prototype
 - Detailed Design Specification
 - Design validation including a first *in vivo* approach (n=4)
- ✓ Regulatory strategy

430.000€



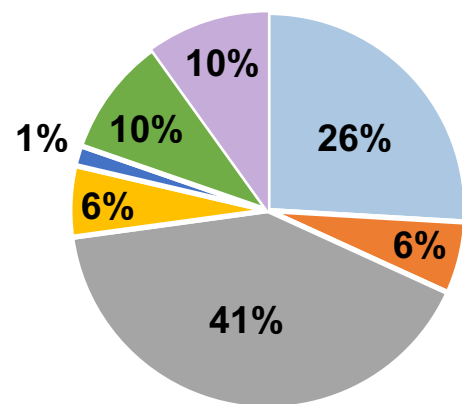
2nd Milestone: Fabrication + Preclinical

- ✓ Scalability
- ✓ Manufacturing (GMP)
- ✓ In vivo pilot (n=12)
- ✓ Preclinical

1'4M€



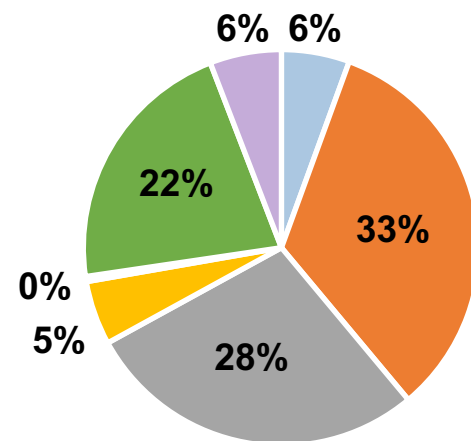
2019



424.250€

Prototyping
Implementation ISO13485
Initial EP Submission
Regulatory strategy development

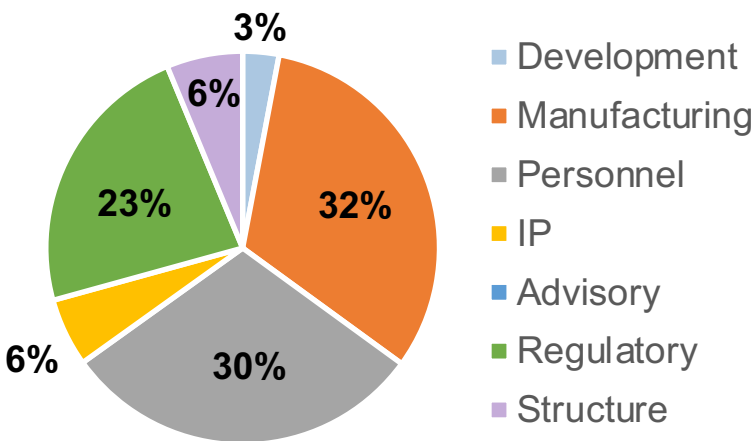
2020



719.200€

Scalability & Manufacturing
Validation ISO13485
PCT submission
Preclinical evaluation

2021



671.200€

Validation ISO13485
Preclinical evaluation

BioGellics

Salvador Borrós Gómez

18th October 2019

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- Preparation of new bussiness Canvas (presented before)
- Strength the networking with Dental Clinics in Catalonia
- New proof of concept on PEEK materials
- Active looking for seed funding
- Redesigning the team. Need for CEO
- New leadership
- Allocate the project as a research project to be developed using public funding

Confidential

People we have spoken

- Patricia Burés: Business consultant
- Raül Zurita: Investment consultant
- Carlos Bel: Team building consultant
- Oriol Cantó: Dentist
- Joan Carbonell Dentist
- Jordi Amat: Dentist

Confidential