

TEAM: CHEMICAL BIOLOGY AND SUPRAMOLECULAR CHEMISTRY

Animateurs: Marie Christine DURRIEU et Yann FERRAND

Thematic axis : BIODEVICES, BIOMATERIALS & BIOENGINEERING



Animateur : Marie Christine DURRIEU

Permanent Members (21 / 10 HDR):

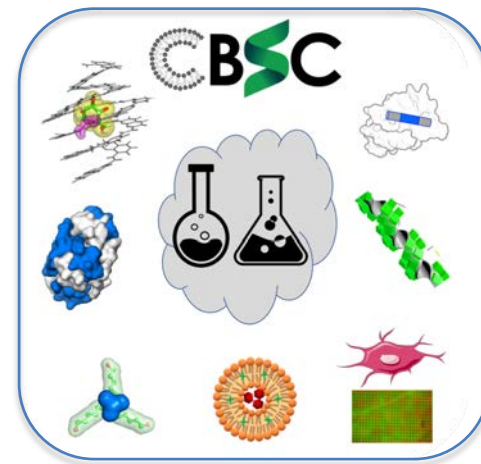
CNRS (11) : DR1 (2), DR2 (1), CRCN (7), AI (1)

UB (9) : PR1 (1), PR émer. (1), MdC (5), IR (1), IE (1)

INSERM (1) : DR2 (1)

Non Permanents (22) :

Post-docs (7), Doctorants (15)



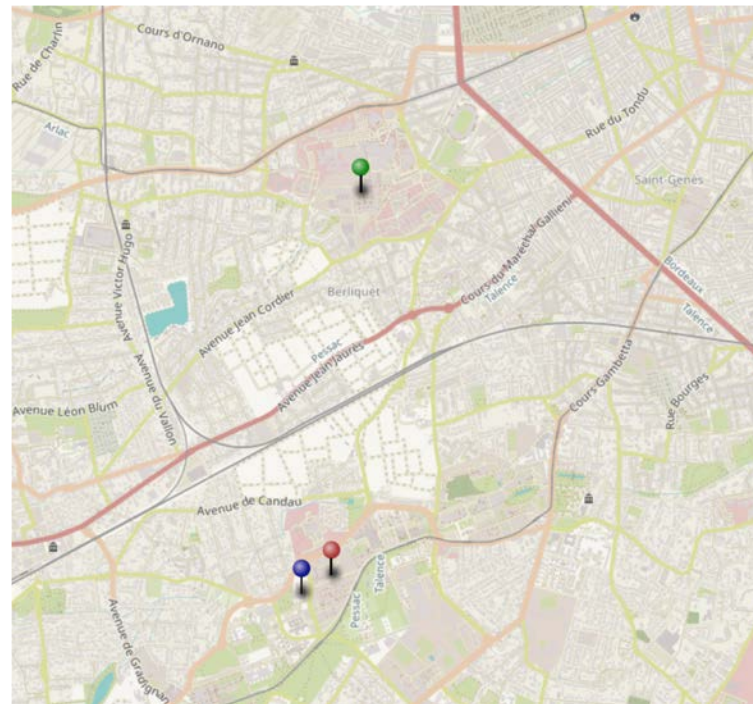
IECB, Building B13
Campus Pessac

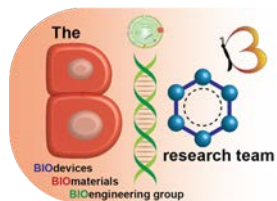
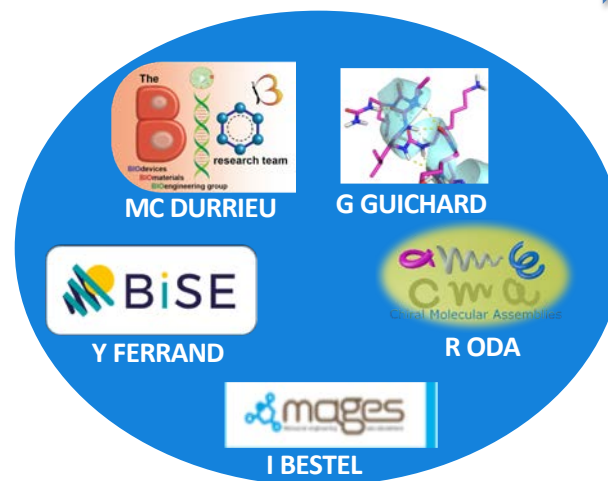
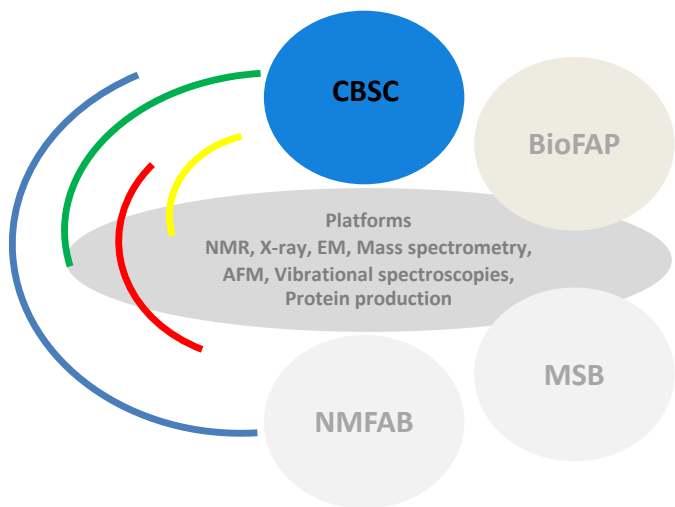
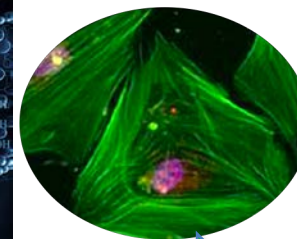
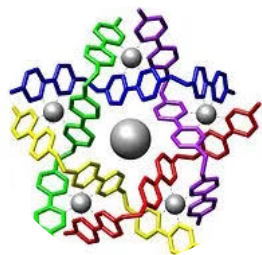


CBMN, Building B14
Campus Pessac



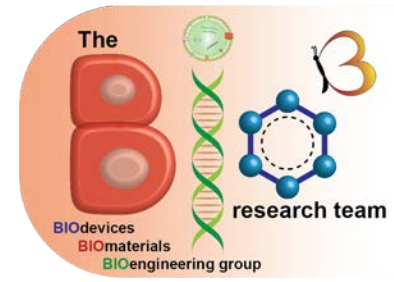
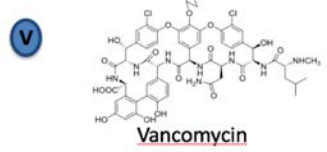
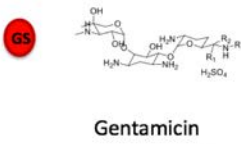
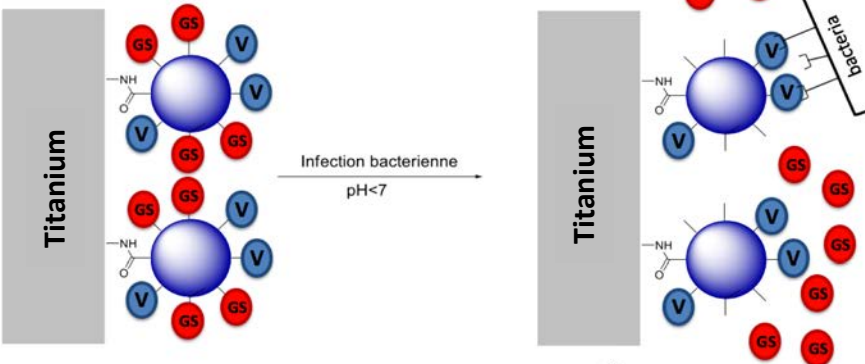
Bâtiment, UFR Pharmacy
Campus Carreire Bordeaux





BIOdevices, BIOMaterials & BIOengineering

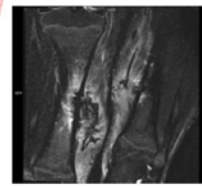
BIOACTIVE MATERIALS TO FIGHT BONE INFECTION



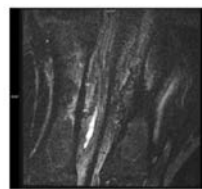
3 international patents

BIOMACROMOLECULES 2017 ; POLYM. CHEM. 2016

Virgin titanium



Titanium + Gentamicin



IRM after 7 days of implantation

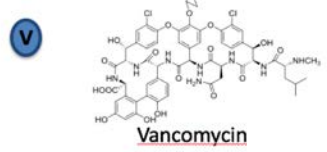
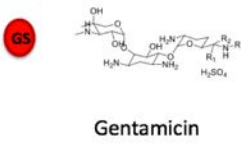
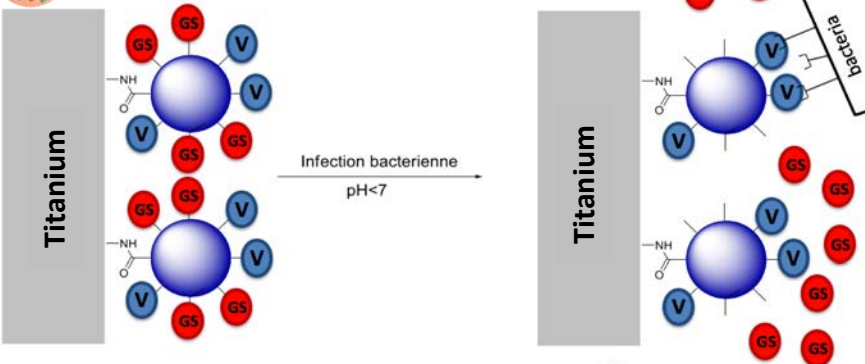


Animal experiments

MICRO/NANO-STRUCTURED BIOACTIVE SURFACES

BIOACTIVE MATERIALS TO FIGHT BONE INFECTION

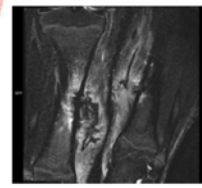
BIOACTIVE MATERIALS FOR BONE TISSUE ENGINEERING



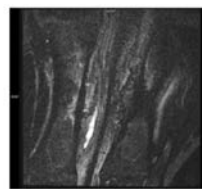
3 international patents

BIOMACROMOLECULES 2017; POLYM. CHEM. 2016

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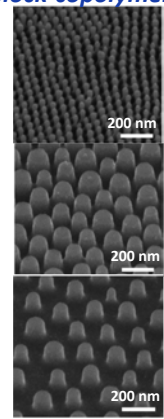


IRM after 7 days of implantation

Animal experiments

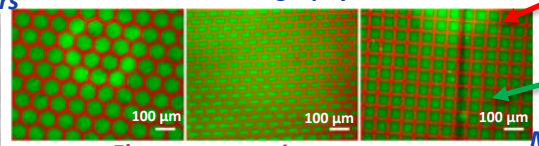


Self-assembly of diblock-copolymers



SEM

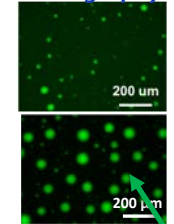
Photolithography



Fluorescence microscopy

Cell adhesion peptide
Cell differentiation peptide

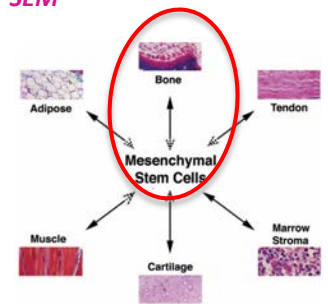
Maskless lithography



Fluorescence microscopy

Cell differentiation peptide

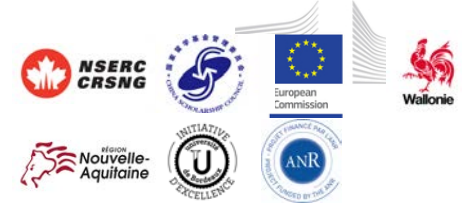
How to micro, nanostructure materials ?

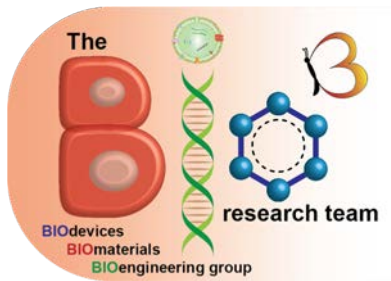


An interest in these surfaces to mimic extracellular matrix?

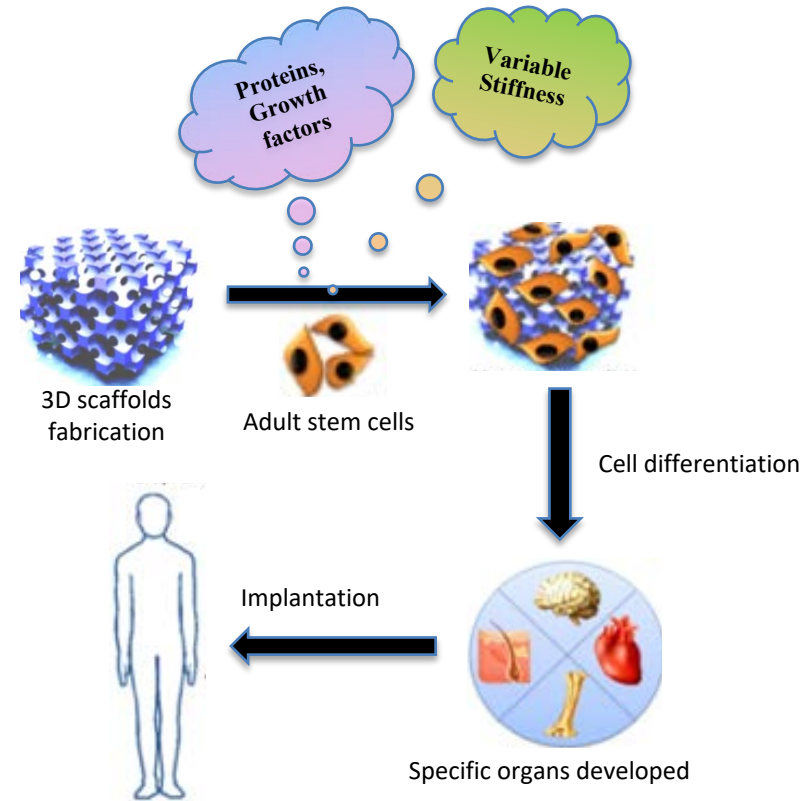
1 licenced patent

- NANOMEDICINE 2015 ;
- APPL SURF SCI 2016 ;
- ACTA BIOMATER. 2016 ;
- ACS NANO 2017 ; JBMRA 2018 ;
- ACS APPL BIO MATER 2019 ;
- ACS APPL. MATER INTERFACES 2019 ;
- JBMRA 2020





3D BIOACTIVE SCAFFOLD FOR BONE TISSUE ENGINEERING



PEG-based hydrogel



2020-2023

Polylysine-based hydrogel

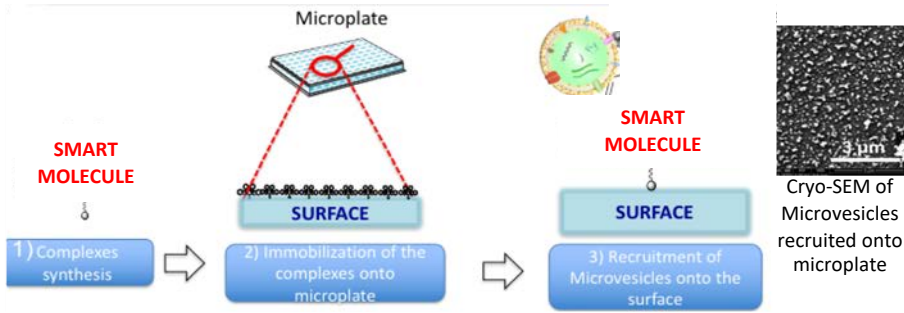


2021-2024

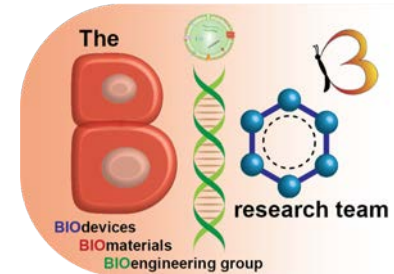
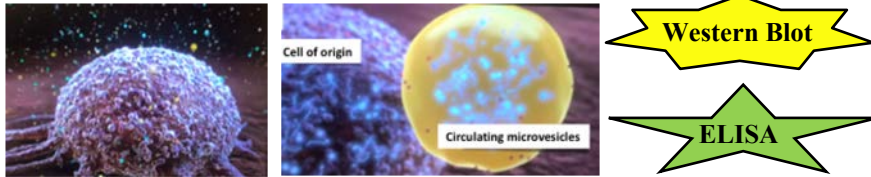


Submitted

EASY, FAST, ROUTINE EXTRACELLULAR VESICLES DETECTION ASSAY FOR THE EARLY



Extracellular vesicles: An interest for diagnosis ?



AQUITAINE SCIENCE TRANSFERT (2015-17)
Accélérateur d'innovations!

Nouvelle-Aquitaine (2017-22)

FRANCE PARKINSON (2018-20)

SPARK (2021-23)



CHU
Hôpitaux de
Bordeaux

IMN
RESEAU neurocampus
CENTRE D'INVESTIGATION CLINIQUE DE POITIERS

UroCCR
RESEAU FRANCAIS DE RECHERCHE
SUR LE CANCER DU REIN

BRIO
BOURDEAUX | Recherche Intégrée Oncologie

Soumis

UroCCR
RESEAU FRANCAIS DE RECHERCHE
SUR LE CANCER DU REIN

2 patents in 2019

1 licensing option is in the process of signature

1 start-up 2021

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
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|----- Annual joint training schools 2011 – 2019 -----|

IDS-FunMat (2010-19)

Project financed by FP7 Erasmus Mundus Joint Doctorate

40 Erasmus Mundus PhD Scholarships + **44** Local funding

Double /joint PhD degrees

3 Thematic Projects (**Health (materials for treatment of diseases)** (26 PhDs)), Energy, Information)

- 9 acad. Consortium Partners →
- **63** industry Associated Partners
- **7** Joint Training Schools / Workshops

Bordeaux (C)
Louvain
Liège
Darmstadt
Canada
Caen
Grenoble
Lisbon
UPMC Paris

EJD-FunMat (2015-2019)

Project financed by H2020-MSCA-ITN-2014

15 Marie Curie PhD Scholarships + **4** Local funding

Double/joint PhD degrees

6 Thematic Clusters (**Bone Tissue Engineering**, Photocatalysis, Photonics, Transparent conductors, lead-free Piezoelectrics, cellulose-based polymers.)

- 9 acad. Consortium Partners →
- **14** industry Associated Partners
- **5** Joint Training Schools / Workshops

Bordeaux (C)
Grenoble
Aveiro
Louvain
Liège
Darmstadt
Karlsruhe
Luxembourg
LIST

Fédérer l'ensemble des chercheurs impliqués



Demande vis-à-vis du GDR

- Favoriser les rencontres entre les acteurs afin de stimuler les synergies et les interactions entre équipes de recherche fondamentale, appliquée et des partenaires privés
- Promouvoir l'émergence de projets de recherche pluridisciplinaires aux échelles nationale et européenne.
- Aide au financement d'actions incitatives entre membres GDR

Besoin vis-à-vis du GDR

- Mettre en place de nouvelles collaborations
 - 3D scaffold synthesis (identifier un CR)
 - Nanopatterning de matériaux

offre vis-à-vis du GDR

Nos expertises (Fonctionnalisation de surface, Biomatériau, ingénierie tissulaire, biologie cellulaire)