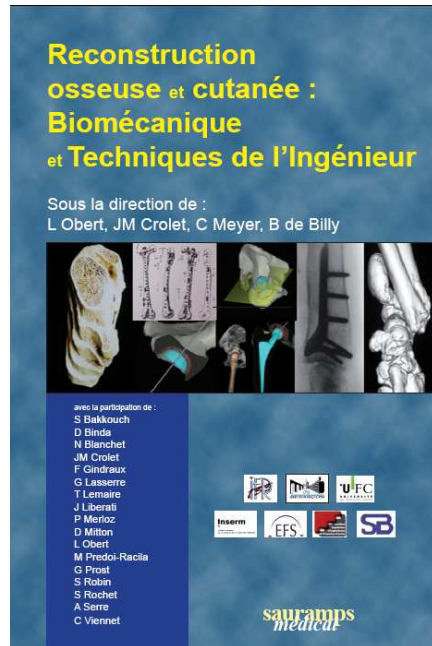


Sauramps Medical (Edition 2007)



Sauramps Medical (Edition 2008)



Healthy and Pathological Bone Remodeling and Regeneration

International Partners

Medartis AG (4051 Basel, Switzerland), Stryker Biotech (HopKinton, USA)

French Partners

Industriels : Alcis (25), Arex (91), Bioexigence (25), Johnson & Johnson (92), Newclip (44), Novotec (69), Sauramps (34), Statice Santé (25), Stryker (69), Synthès (25), TBF (69), Urgo (21)

Institutionnels : ARD Franche-Comté, CHU Besançon, Clinical Investigation Center (CIC) Besançon, EFS Bourgogne Franche-Comté, IPV (25), ISIFC (25), Université de Franche-Comté (INSERM UMR_S 645 / IFR133 ; EA 4267 ; EA 4268 ; CNRS UMR 6174 / Institut FEMTO-ST, CNRS UMR 6623), Université de Haute Alsace (CNRS LRC 7228)

Contacts

Pr Jean Marie CROLET

OsPR2 President

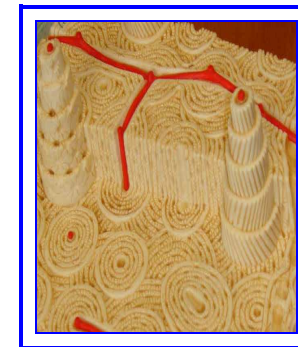
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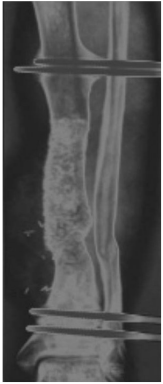
For more information: www.ospr2.fr



**Besançon (25)
France**



The losses of bony substances: A delicate problem !



The **mechanisms of consolidation** are not always elucidated and the therapeutic failures are not explained. Also the needs so much in therapeutic innovations than in more fundamental understanding of implied phenomena are essential.

On a general point of view, three different but interdependent types of research must be distinguished: **fundamental biological research** (process of the life), **biomedical research** (mechanisms, diagnoses, new treatments of the pathological life) and **clinical research** (evaluation of new therapeutic and of new technological diagnostic processes).

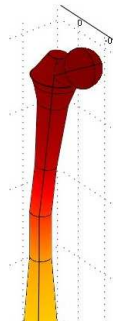
Chronic wounds and cutaneous defects

Chronic wounds such as leg ulcers, due to **healing impairments**, are disabling for patients and represent one of the principle grounds for dermatological consulting.

OsPR2 is a research team

This team is at the interface between **Life Sciences** and **Engineer Sciences** with a pluridisciplinary approach on **bone** and **skin**:

- Biological experiments
- Mechanical analyses
- Modelizations and numerical simulations
- Clinical investigations



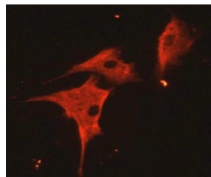
Actual developments

Recent surgical techniques as self-induced membrane whose indications in urgency or in oncologic surgery still remain to explore

Contribution of new techniques of 3-D imagery

Inflammatory articular pathologies using type B synovial cells in primary culture

Role of BMP and mesenchymal stem cells



Use of radio frequencies for anti-tumoral applications

Better understanding of traumatic pseudarthrosis

Contribution of modelizations (SiNuPrOs) and of numerical simulations for multi scale physical behavior of the bone (health and pathological)

OsPR2 wants to be an international center of formation

OsPR2 is a team of **researchers, engineers** and **surgeons** who combine their energy on the same site to the same objective: the regeneration of **bone** and **skin**. They wish to share the knowledge that they acquire with the greatest number of colleagues. It is already the case with the orthopaedic and maxillofacial surgeons at the **University hospital of Besancon** (France) and with the students of ISIFC (www.isifc.univ-fcomte.fr) which is the most important French formation of biomedical **International courses** for surgeons or biomedical engineers, organized under the care of the International Bone Research Association (www.ibra.ch) are also available, the aim being to teach the newest operating techniques and advances in orthopaedic and maxillofacial surgery, including seminars on the recent advances in the discipline and presentations in operating theater.

OsPR2 offers services of research and developments



OsPR2 can develop **cellular therapy products** for bone repair using **mesenchymal stem cells** (MSC) according to "Good Practice Laboratory".

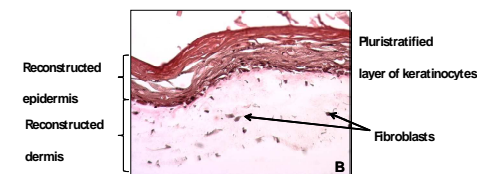
- MSC selection from bone marrow, adipose tissue, blood,...
- MSC expansion and/or osteodifferentiation using growth and/or osteoinduction (FGF2, .BMPs,...) factors
- **Phenotypic** and **functional** controls by specifics immunostaining (CD73, Osteocalcine, ...) and colorations (Von Kossa, Goldner trichrome,...), cloning tests
- **Prototypes** realization of cellular therapy products associating MSC with different matrix (bone synthetic or natural, hydrogels,...)
- Developments – with partners - of **bone repair animal models** (mice, rats, rabbits and sheeps) and realization of (demineralised or not) histological analyses

OSPR2 offers both **clinical and basic research** expertises in orthopaedic and maxillofacial surgery concerning biomechanics in the field of osteosynthesis devices and bone regeneration (guided bone regeneration and bone substitutes), in biological analyses, in modelization and in mechanotransduction investigations.



Research works related to **cutaneous pathologies** concerns:

- Comprehension of underlying physio-pathological mechanisms, involving phenotypic alterations of cutaneous cells (mechanical behaviour and capacities of synthesis)
- Development of skin substitutes with therapeutic purpose



In vitro reconstructed skin