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a new joint-research laboratory between the RMeS U1229 unit
and HTL,
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regenerative medicine.

LabCom GELMECS



BIOMATERIALS FOR REGENERATIVE MEDICINE



11TH WORLD BIOMATERIALS CONGRESS
11 - 15 December 2020

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PRESS RELEASE

LabCom GELMECS, a new joint-research laboratory between the RMeS U1229 unit and HTL, unveils its roadmap at the 11th World Biomaterials Congress and launches into the markets of hydrogel-based biomaterials for regenerative medicine.

Nantes, 10 December 2020

The WBC Congress, which brings together the international community of biomaterials researchers, is the opportunity for the company and the research laboratory to jointly present the roadmap and the first results of the shared laboratory, whose activities started in January 2020. Besides, Dr. Glenn Prestwich, Science and Innovation Advisor to HTL, and President's Distinguished Professor at Washington State University Spokane, will address the first successes from this collaboration during the congress.

The creation of a **shared laboratory (LabCom)**, a joint-research facility between the RMeS U1229 research unit and HTL, is part of a common desire to develop hydrogels for the pharmaceutical industry, tissue engineering, and assisted cell therapy.

LabCom GELMECS



BIOMATERIALS FOR REGENERATIVE MEDICINE

Working together for 4 years already on an initial application to implement a new method of cross-linking (patented RMeS technology) of hyaluronic acid (a specialty of HTL), the two bodies looked objectively at the need and necessity to build a shared laboratory together to respond to the expectations and needs of both bodies.

These new biomaterials using silanized hyaluronic acid have demonstrated their pertinence in terms of interest and efficiency for the creation of injectable bone replacements and cement foams for bone regeneration. A new CIFRE thesis co-directed between RMeS and HTL will explore the use of these new biomaterials for osteoarticular regeneration.



Photo credits: HTL

For the **RMeS research unit**, which has been developing silanized hydrogels for the past twenty years with more than a dozen potential applications, the joint-venture is an exceptional opportunity to obtain production of its molecules under cGMP (pharmaceutical standards) conditions in order to anticipate the first clinical trials in the domain of the skeleton and cardiology.

It is also a means to go all the way with scientific strategies and anticipated valuation in order to realize them in phase 1 trials and then propose them to patients.

RMeS is one of the French research laboratories specializing in regenerative medicine of the skeleton, bone, periodontitis, cartilage, osteoarthritis, and the intervertebral disc.

HTL, located in Javené near Fougères (France), is specialized in the production and development of high-quality injectable biopolymers used by the pharmaceutical and medical device industry worldwide. HTL produces molecules that are of particular interest to RMeS for its research projects in skeletal regenerative medicine.

Through this shared laboratory, the challenge is to develop new uses of hyaluronic acid and polymers developed by HTL as innovative hydrogel solutions in order to position itself in the market of medical devices and regenerative medicine.

The creation of this shared laboratory represents an unprecedented opportunity for HTL to promote new uses for its hyaluronic acid and its other biopolymers. It represents a major axis of development for the company, which wishes to offer its clients more sophisticated molecules to create innovative solutions for patients.



Photo credits: HTL

LabCom GELMECS is the basis of future academic and industrial consortia, which will be able to offer numerous collaborations and applications in the pipeline thanks to the additional collaboration between RMeS/Industries on already existing applications. **SATT Ouest Valorisation**, which helped set up the LabCom dossier, will continue its support in these new collaborations of partnership research.

PRESS KIT

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THE RMeS RESEARCH UNIT

(Regenerative Medicine and Skeleton)



The RMeS laboratory (UMR U1229), led by Jérôme Guicheux, is a research center created in January 2017, following LIOAD U791, with certification from the National Institute of Health and Medical Research (INSERM), the University of Nantes, and the National Veterinary School (ONIRIS).

RMeS, UMR 1229 INSERM/UN/ONIRIS, is located in the Faculty of dental surgery building on the Nantes CHU campus.

The goal of the laboratory is to support basic, translational, and clinical research related to 4R medicine (i.e., replace, repair, regenerate, and reprogram) related to skeletal diseases and aging.

Diseases of the skeleton are caused by developmental abnormalities, growth disorders, repair dysfunctions, aging, or acquired pathologies. Among these illnesses, the laboratory is particularly interested in the discovery of new therapeutic strategies for bone regeneration, arthritis, discarthrosis, periodontitis and peri-implantitis, and dental pulpitis.

Due to the increase in clinical situations where skeletal tissues are lost or compromised (bone, cartilage, teeth, disc, etc.), research efforts are also focused on the use of stem cells, ceramics and calcium phosphate cements, and hydrogels for the development of reconstructive and regenerative therapies.

RMeS comprises 110 people, including doctors, veterinarians, pharmacists, dentists, biomaterials specialists, biologists, chemists, doctors, tissue engineers, Ph.D. students, and students. RMeS is composed of two independent research teams (STEP and REGOS) surrounded by 5 technological platforms and shared administrative services.



Pierre WEISS

Responsible for Labcom GELMECS, Head of the Regos team at the INSERM laboratory: RMeS, Regenerative Medicine and Skeleton, Professor of dental surgery at the Faculty and in the Nantes Hospital Centre, in the Department of dental biomaterials. Pierre Weiss is also Vice President of the French company BIOMAT, and on the occasion of the WBC congress, he will be appointed [Fellow Biomaterials Science and Engineering \(FBSE\)](#), a title in recognition of his work at the international level

For the two research teams, Step and Regos, the challenges of 4R osteoarticular medicine are clear. At the crossroads of state-of-the-art discoveries, the team materializes the impact of innovations that should change the management of joint and skeletal diseases, encouraging the paradigm shift from “aging well” to active aging with a healthy skeleton.

The INSERM, the University of Nantes, and ONIRIS have a wealth of talented people and knowledge in various biomedical domains, and our Medical Campus has a long tradition of encouraging collaborative research, especially in the fields of biotherapies and regenerative medicine especially since the creation of Bioregate, the regional network of regenerative medicine



HTL



HTL, a world leader in the production of Hyaluronic Acid and other biopolymers, is engaged in the development of biomaterials for regenerative medicine by the creation of a shared laboratory with the RMeS U1229 research unit.

The principal medical applications of Hyaluronic Acid (also called hyaluronan) in ophthalmology, rheumatology, and aesthetics represent a global market of 10 billion dollars, which is characterized by sustained growth. It is an opportunity that HTL intends to capture to strengthen its leadership at the global level. The company, located in Javéne near Fougères, is building a new production unit for medical-quality Hyaluronic Acid, which will be operational in 2021.



“The future of HTL depends on its ability to innovate by contributing to the creation of new solutions for the future, in partnership with its direct clients,” asserts Yvon Bastard, CEO of HTL. “Medical developments, large and small, very often arise from the collaboration between industrialists, researchers, and practitioners from different disciplines. We therefore need these partnerships with public research, but also with start-ups: these are just as likely to contribute to great therapeutic advances, such as regenerative medicine or implantology.”

A pioneer in the production of Hyaluronic Acid by fermentation in the early 90’s, HTL later became the player of reference for the medical quality of this biopolymer. The investment strategy of the French biotechnological company gained momentum in 2017 with the construction of a new R&D laboratory, followed in 2018 by the commissioning of a new pilot factory for fermentation and purification.

“HTL is equipped for the development of molecules in GMP (pharmaceutical standards) conditions, from the laboratory to the industrial stage. We have dual expertise in biotechnology and chemistry. This shared structure will allow us to develop innovative solutions in many application sectors, such as rheumatology and regenerative medicine. This LabCom is the result of collective work initiated several years ago between HTL and the teams from the University of Nantes. They are resources that could be of interest to many clients and research partners,” explains Anthony Bresin, Director of R&D at HTL.

The HTL solutions are used by leading companies throughout the world in premium products such as injections for cataract surgery, osteoporosis treatment, filling wrinkles, or in topical form for the treatment of ocular dryness. HTL is specialized in the development of tailor-made high purity and high-quality biopolymers, meeting each of the specific needs of the pharmaceutical and medical device industries. It is also the only supplier that can produce Hyaluronic Acid from very low to very high molecular weight by fermentation.



Photo credits: Charles Crié

HTL exhibits at the virtual WBC (World Biomaterials Congress) from 11 to 15 December 2020.

WBC²⁰₂₀
virtual

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THE SATT OUEST VALORISATION



Since 2012, the Satt Ouest Valorisation works every day to be the bridge between public research and the socio-economic world. It simplifies and professionalizes the transfer of innovations produced by French academic research to companies.

At the service of public research, attentive to the needs of industrialists, the efforts of the SATT aim to develop the knowledge economy related to the intelligent specializations of the territories, to meet the innovation needs of the companies, and bring about the emergence of structuring projects in line with societal issues.

The teams of the SATT Ouest Valorisation, attentive to the needs of public research laboratories in Brittany and the Pays de la Loire and companies, offers a complete and tailor-made range of services.

The SATT Ouest Valorisation, as a subsidiary dedicated to the Valorisation of the University of Nantes, France, proceeded with the technology transfer to HTL in 2019 and signed a license to exploit the patent.

As an extension of technology transfer, the SATT Ouest Valorisation assisted the HTL Biotechnology Company and the University of Nantes (the UMR Rmes Research Unit) in laying down the basis for a long-term collaborative R&D strategy, providing partners with expertise and competencies on national arrangements.

The partners were awarded the LabCom GEMECS, recognized by the ANR, enabling the construction of an innovation roadmap over 5 years, along with young researchers in the framework of CIFRE.



The LABCOM arrangement of the French ANR (National Research Agency)



The LabCom process: bridging between SMEs or ISEs and research laboratories; a source of innovation and competitiveness.

The goal of the LabCom (Joint laboratories public research organizations - SMEs/ ISEs) program of the ANR (National Research Agency) is to encourage and support players involved in academic research to create structured partnerships through the co-construction of “Shared Laboratories” between an SME or an Intermediate-Sized Enterprise (ISE) and a research organization laboratory.

The goal of the program is to support a shared vision between industrialists and academics in the role of research in the capacity of the SME-ISE company fabric to produce economic value over time and thus be part of a common and concerted long-term strategy and to co-construct a common future.

The “shared laboratory” concept between a company and a research laboratory has existed for many years but only attracted big companies that were capable of financing this merger of clear interest towards innovation. However, the SMEs and intermediate-sized companies (ISEs) are in particular need of expertise and academic facilities to improve their capacity for innovation and competitiveness.

That is how, starting from the observation that the transfer of research results to SMEs and ISEs could be developed, the ANR launched the “LabCom” call for projects for the first time in 2013: a real incentive for the academic laboratories and SMEs/ISEs to work together on the same scientific project.

Since 2013, 160 shared research bodies or LabComs have been selected for LabCom funding and accredited by the ANR. These are all industrial partners who support the transfer of technology from public laboratories in connection with the institutions’ valuation structures. This program was more convincing to SMEs, which make up 63% of LabCom’s industrial partners, ahead of VSEs (23%) and ISEs (14%).

The end goal is the joint creation of know-how and the exchange of knowledge in order to generate innovation, competitiveness, and employment.

Through this bilateral program, the ANR seeks to harness the expertise of researchers for the benefit of companies and share the problems inherent to companies with the researchers.

The ANR provides financial support to the research laboratory for three years while the company works using its own funds. The challenge of LabCom is to perpetuate this collaboration beyond three years, thanks to the self-financing generated by the innovations developed.

A shared laboratory is set up after the submission of an application and selection by the ANR.

The LabCom is established around:

- a common governance
- a research and innovation roadmap
- a means of working together to operate the roadmap
- a strategy to ensure the valuation of the working partnership enabling the LabCom to be sustainable

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