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JOINT PRESS RELEASE

Gattefossé & CTIBiotech develop world's first Bioimpedance 3D Bioprinted skin chips to link cosmetics lab testing to humans.

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The developed model that allows fast and non-invasive measurement of sebum production should improve the predictivity of *in vitro* tests of sebum-regulating ingredients.

Sebum is a complex lipids mixture secreted by sebocytes and deposited in stratum corneum for helping to the skin barrier function. Disruption of sebum production leads to common skin diseases, including acne or atopic dermatitis; it also contributes to the development of oily or dry skin and impacts both appearance and beauty of the skin.

Solutions to develop more efficient cosmetics still require more predictive testing ranging from lab data to humans. Success of lab-to-donor data is not easy and quite often fails because of no proper translational readouts.



Gattefossé and CTIBiotech therefore joined forces to develop a relevant 3D bio printed model integrating sebocytes for measuring non-invasive parameters *in vitro* as on real humans while at the same time giving laboratory readouts.

Bioimpedance (also known as bioelectrical impedance analysis) has been widely used to monitor our personal health and body composition and adjust diet and lifestyles accordingly. Using connected scales, Gattefossé and CTIBiotech used bioimpedance to evaluate changes in the local environment of a 3D skin model integrating sebocytes. Measurement of such a non-invasive electrical activity allowed us to follow in real-time the sebum production, in addition to laboratory readouts dealing with cellular, matrix and tissue development.





Prof. Colin McGUCKIN
President and Chief Scientific Officer
CTIBiotech

Bioimpedance has long been used in our bathroom scales and by dieticians to understand general body composition. Application of this to skin is a natural advance on this, but the real innovation comes from developing real-time analysis for oil changes. We advanced our 3D printed full thickness skin models with an integrated bioimpedance chip connected to monitor changes. Linking cosmetics screening in this way advances faster towards human tests and increases our ability to make more effective products.



Dr. Nicolas BECHETOILLE
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Head of Biology Lab, Gattefossé

Full thickness skin models containing sebocytes have reproducible oil production which is increased by linoleic acid and reduced by TOFA, and remarkably this is characterized by significant changes in bioimpedance in both printed tissues and culture supernatants surrounding them. Bioimpedance, linked to the sebum production thus proves to be an in vitro non-invasive proper parameter and measurable in real-time, to design ever more predictive and effective testing, since 3D models described here and linked with a simple chip system, accurately mirror changes within skin models as on live donors.



This work will be presented at the 32nd IFSCC Congress in London, 19-22 September 2022

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About Gattefossé

The Gattefossé Group is a community of employees, all driven by a dual mission: the performance of its products and the personalized support of its customers.

Gattefossé develops, manufactures and sells pharmaceutical excipients and cosmetic ingredients of natural origin for the health and beauty industries worldwide, through its 12 affiliated companies and network of global agents and distributors in 80 countries. Specialist in lipid chemistry and plant extraction, Gattefossé offers recognized expertise in formulation using its 4 Technical Centers of Excellence in France, China, India and the United States.

Environmental and social issues have always been part of the culture of this French family business, founded in Lyon in 1880. Today, Gattefossé relies on a purposeful CSR approach to build its innovation and development strategy.

About CTIBiotech

CTIBiotech develops and produces predictive models of human tissues and cells for biomedical, pharmaceutical and dermatocosmetic research and development. CTIBiotech hosts a team of world-class experts who have pioneered innovation in bioengineering, 3DBioprinting and regenerative medicine over the past 30 years.

CTIBiotech partners with public and private organizations to develop innovative solutions for the efficacy and safety testing of active ingredients, dermatocosmetics, drug candidates, cell therapies and medical devices.

Further information: www.ctibitech.com