

News Release

333/20e
October 21, 2020

BASF experts to share research insights at the first ever virtual IFSCC Congress 2020

- **From October 21-30, BASF and its research partners will give four podium presentations and lead six poster sessions about cutting-edge research in Personal Care.**
- **Topics cover a wide range of recent research projects related to innovative skin and hair care solutions.**
- **The event will be hosted in Yokohama, Japan, and will be held in a virtual format for the first time due to the ongoing Covid-19 pandemic.**

Yokohama, Japan – October 21, 2020 – Experts from BASF will share insights into their recent innovative research activities at the thirty-first Congress of the International Federation of Societies of Cosmetic Chemists (IFSCC) from 21 to 30 October 2020. For the first time ever, the event will be held virtually to protect the safety and health of the scientific community during the Covid-19 outbreak. Instead of holding live presentations, video recordings and supporting material will be made available for participants to download on-demand for the duration of the congress. Representatives from BASF and its research partners will hold four podium presentations and lead six poster sessions.

The world's first 3D bioprinted immune skin model

A solution for rapid and reliable testing of products addressing reactive skin will be presented in a podium session. There is a strong need for better testing systems showing how ingredients or finished products affect or can improve sensitive or allergic skin. Scientists from BASF and its partner CTIBiotech have developed a 3D

full-size bioprinted model of human skin that contains immune system cells such as macrophages. Testing has demonstrated that this model is suitable for screening molecules and ingredients for inflamed skin conditions like Atopic Dermatitis.

Using iPSC technology to create a 3D autologous hair bulb model

A new 3D model of the cellular interactions between ectodermal and mesodermal cells in human hair follicles will also be presented. These interactions control hair cycle, growth, shaft quality and pigmentation. Current animal models do not reflect human physiology and 2D *in vitro* cultures cannot reflect *in vivo* mechanisms. This creates high demand for a 3D model that can be used to study the hair follicle and validate new active ingredients. BASF has worked together with TissUse GmbH in Berlin, Germany, to create an *in vitro* 3D hair bulb model based on three cell types derived from induced Pluripotent Stem Cells (iPSCs). The resulting model has a structure very close to the *in vivo* hair bulb and has delivered promising results.

A new 3D microbiotic skin model for Atopic Dermatitis

In addition, BASF experts are going to share their findings from research into a Reconstructed Human Epidermis (RHE) model that is able to mimic the impairments of the skin barrier observed in Atopic Dermatitis (AD). In recent years, *in vitro* models have been developed that can reproduce some of the pathophysiological features of this increasingly common condition – but not all of them. BASF and its partners from Toulouse University, France, have developed an RHE model that is able to better mimic the impairments of the skin barrier observed in AD at the physical, microbial and immune levels. This new model has strong potential for *in vitro* screening of cosmetics or therapeutic compounds for AD.

New findings on effects of emollients on the biomechanics of skin

In a fourth podium session, new findings on the beneficial effects cosmetic emollients can have on dehydration induced mechanical stress in the skin will be presented. Emollients are widely used in skin-care formulations for a number of reasons, e.g. they help to keep skin feeling soft, smooth and moisturized, and are also used to modulate formulation characteristics such as spreadability and haptics. However, little is known about how the molecular structure and chemical functionality of an emollient affect the barrier and biomechanical properties of the human stratum corneum. Scientists from BASF and Stanford University have generated new insights on potential effects of emollients on skin barrier function,

hydration and biomechanics. BASF will be able to leverage these insights to develop new and improved skincare solutions based on its broad emollient portfolio.

Poster sessions exploring several exciting research projects

On top of the four podium presentations, R&D teams from BASF will provide six poster sessions that share findings from a range of projects. The topics covered will include a new *in vitro* method for evaluating the effect that anti-pollution rinse-off products have on the hair's natural oil, sebum. Another session will explore two methods of tackling the negative effects of airborne pollen on the skin and hair. In addition, representatives from BASF will present insights into a droplet-based microfluidic testing method that can be used to screen the impact of cosmetic ingredients on microbial communities in the skin.

Poster sessions led by BASF will also discuss a new hydrogel composition that delivers enhanced freshness and lightness sensations without compromising on the texture or rheological properties of the formulation. Another BASF team will describe a new reactive conditioning approach to improving the mechanical strength of hair fibers by triggering a Maillard reaction in hair fibers. Lastly, one session will deal with an original clinical protocol that has been used to evaluate the emotional experience of consumers when applying a cream for dry and sensitive skin that contained a novel molecular patch.

BASF experts on the scientific program

Podium Presentations	
Cutting-Edge Life Science Podium 16	Oussama El Baraka (TissUse GmbH): A new 3D-autologous iPSC-derived hair bulb model .
Cutting-Edge Life Science Podium 24	Maxime Legues (CTIBiotech): The world's first 3D Bioprinted immune skin model suitable for screening drugs and ingredients for normal and inflamed skin.
Cutting-Edge Life Science Podium 25	Sabine Pain: A new 3D microbiotic skin model for a better understanding of Atopic Dermatitis
Future Formulations and Functions Podium 43	Prof. R. Dauskardt (Stanford University): Exploiting Emollient Structure and Chemical Functionality for Future Formulation Technologies Affecting Skin Barrier and Biomechanical Function

Poster sessions	
Cutting-Edge Life Science Poster 117	Development of an <i>in vitro</i> method for evaluating the anti-pollution efficacy of rinse-off products on sebum
Cutting-Edge Life Science Poster 119	Combined approaches to fight negative effects of pollen
Cutting-Edge Life Science Poster 147	First-time use of a droplet-based microfluidic method to screen ingredients on skin microbial communities
Future Formulations and Functions Poster 185	Synergistic Hydrogel System with New Sensory Benefits – Cool Quench
Novel Concepts Poster 319	Improving happiness: the final and essential customer wish
Novel Concepts Poster 348	Maillard Reaction for Mechanical Strengthening of Hair Fibers

About the Care Chemicals division at BASF

The BASF division Care Chemicals offers a broad range of ingredients for personal care, home care, industrial & institutional cleaning, and technical applications. We are a leading global supplier for the cosmetics industry as well as the detergent and cleaner industry, and support our customers with innovative and sustainable products, solutions and concepts. The division's high-performance product portfolio includes surfactants, emulsifiers, polymers, emollients, chelating agents, cosmetic active ingredients and UV filters. We have production and development sites in all regions and are expanding our presence in emerging markets. Further information is available online at www.care-chemicals.basf.com.

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. More than 117,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €59 billion in 2019. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depository Receipts (BASFY) in the U.S. Further information at www.basf.com.