

## Product News

### **Lonza's RAFT™ 3D Cell Culture System Enables Corneal Modeling for Research into Potential Blindness Cure**

**Cologne (DE) / Walkersville, MD (USA), 14 November 2016** – Lonza's RAFT™ 3D Cell Culture System has been used to develop corneal models for research into treatment for a painful and potentially blinding corneal disease. During a recent *Nature* webinar, now available on demand, Julie Daniels, Professor of Regenerative Medicine and Cellular Therapy at University College London, explained how her laboratory has successfully developed multilayer corneal models using RAFT™ 3D Cell Cultures and applied this research to address the current gaps in limbal stem cell deficiency (LSCD) treatment. Her lab aspires to take their research to the next level – that is, into clinical applications – with the ultimate aim of improving patient care.

Limbal epithelial stem cells (LESCs) are responsible for maintenance and repair of the corneal surface. Injury or loss of these cells can lead to LSCD in which the cornea becomes opaque, vascularized and inflamed, potentially leading to blindness. Transplantation of cultured human limbal epithelial cells (hLE) sourced from the patient or from cadaver tissue on human amniotic membrane (HAM) may restore vision but clinical graft manufacture can be costly and unreliable. Alternative carrier methods are sought that display the correct optical and mechanical properties to be as transparent as possible, that improve treatment reliability and that also have the capability to expand and carry cells to the cornea.

Professor Daniels' team has developed a reliable and robust tissue equivalent to HAM that uses Lonza's RAFT™ 3D Cell Culture System. Her team's research shows promising opportunities to potentially improve treatment success rate for LESC deficiency. Although RAFT™ 3D Cell Culture System offered by Lonza is not suitable for clinical transplantations, it offers a stepping stone to potentially develop a clinical-grade equivalent method that can replace HAM.

"3D cell culture is transforming cell biology and tissue engineering applications," explains Lubna Hussain, Product Manager at Lonza. "There is a trending shift within research to more biologically relevant models to understand cell behavior and improve outcomes for human diseases. The RAFT™ 3D Culture System creates cell cultures within high-density collagen scaffolds that are robust and transparent, making the system particularly suited to support research into corneal applications."

An important differentiator of the RAFT™ 3D Cell Culture System from other 3D platforms or 2D culture methods is its usability in developing complex *in vitro* models. The versatility of the system has been particularly beneficial in applications where a multi-layer co-culture setup is difficult to achieve with alternative methods, such as in corneal modeling.

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More information on how the RAFT™ 3D Cell Culture System can be used for corneal models and how to access the webinar can be found on [www.lonza.com/raft-applications](http://www.lonza.com/raft-applications).

### About Lonza

Lonza is one of the world's leading and most-trusted suppliers to the pharmaceutical, biotech and specialty ingredients markets. We harness science and technology to create products that support safer and healthier living and that enhance the overall quality of life.

Not only are we a custom manufacturer and developer, Lonza also offers services and products ranging from active pharmaceutical ingredients and stem-cell therapies to drinking water sanitizers, from the vitamin B3 compounds and personal care ingredients to agricultural products, and from industrial preservatives to microbial control solutions that combat dangerous viruses, bacteria and other pathogens.

Founded in 1897 in the Swiss Alps, Lonza today is a well-respected global company with more than 40 major manufacturing and R&D facilities and approximately 9,800 full-time employees worldwide. The company generated sales of CHF 3.8 billion in 2015 and is organized into two market-focused segments: Pharma&Biotech and Specialty Ingredients. Further information can be found at [www.lonza.com](http://www.lonza.com).

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