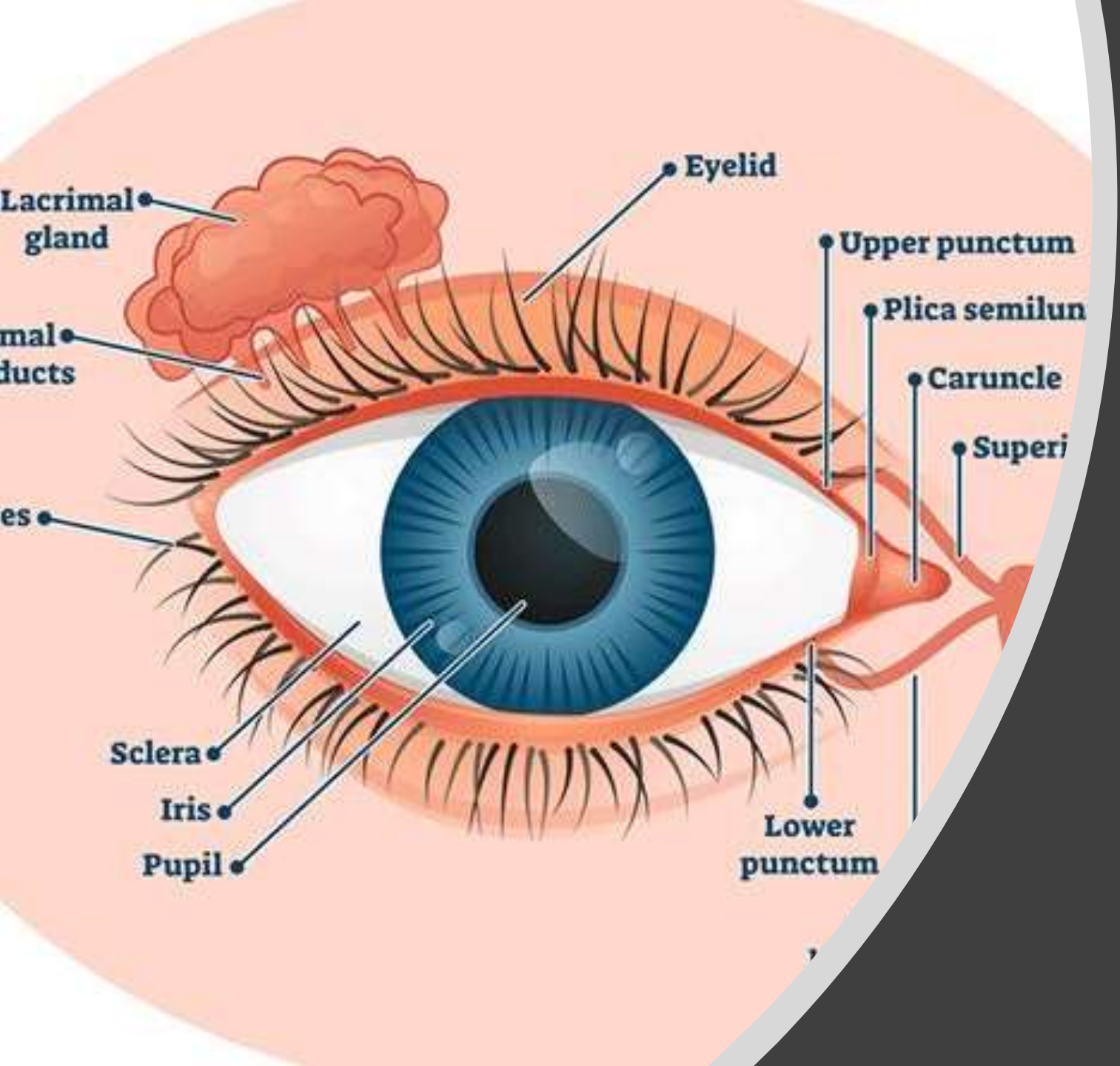

Nothing to cry about: The development of tear duct organoids

Amy Helms

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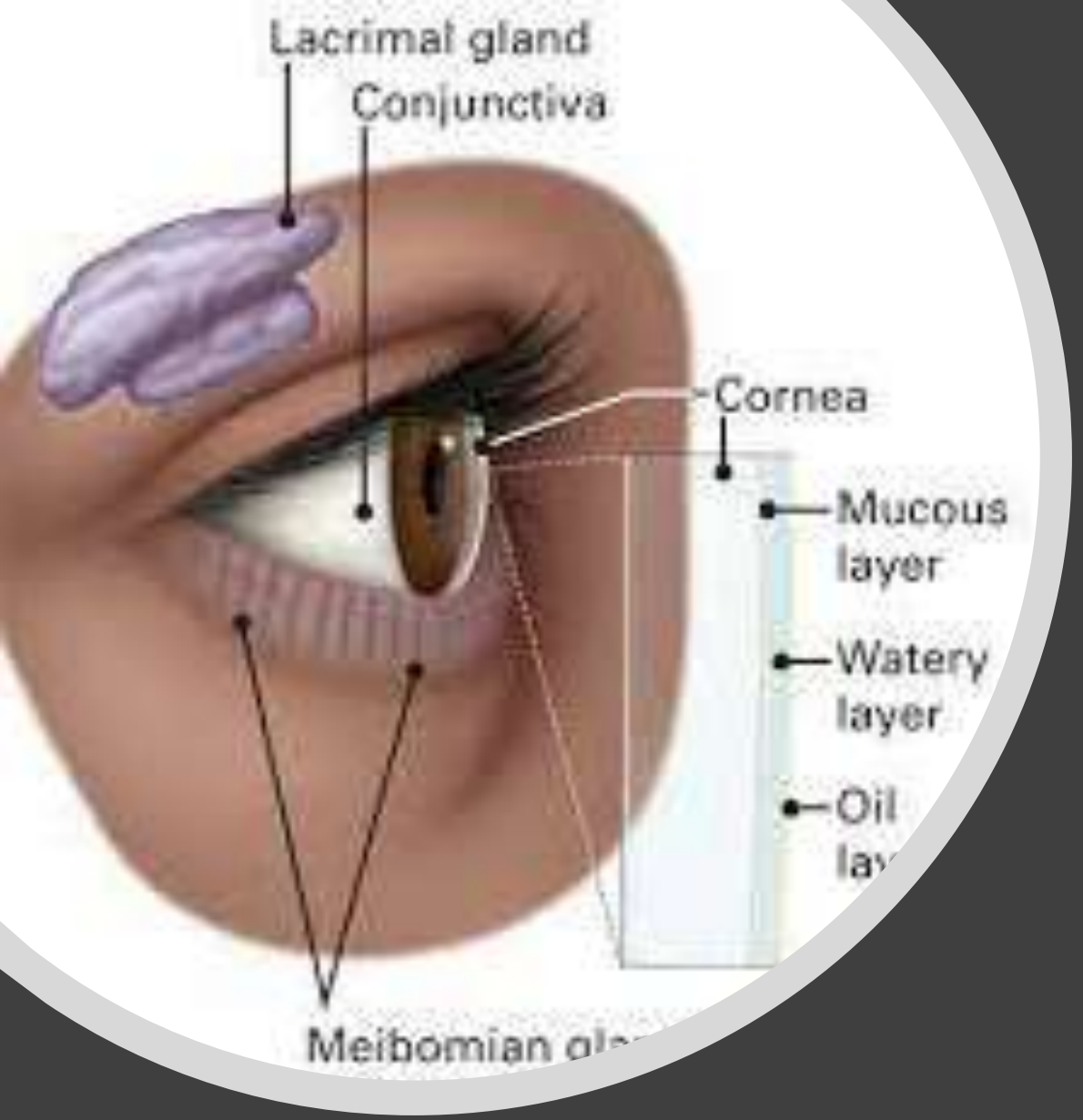
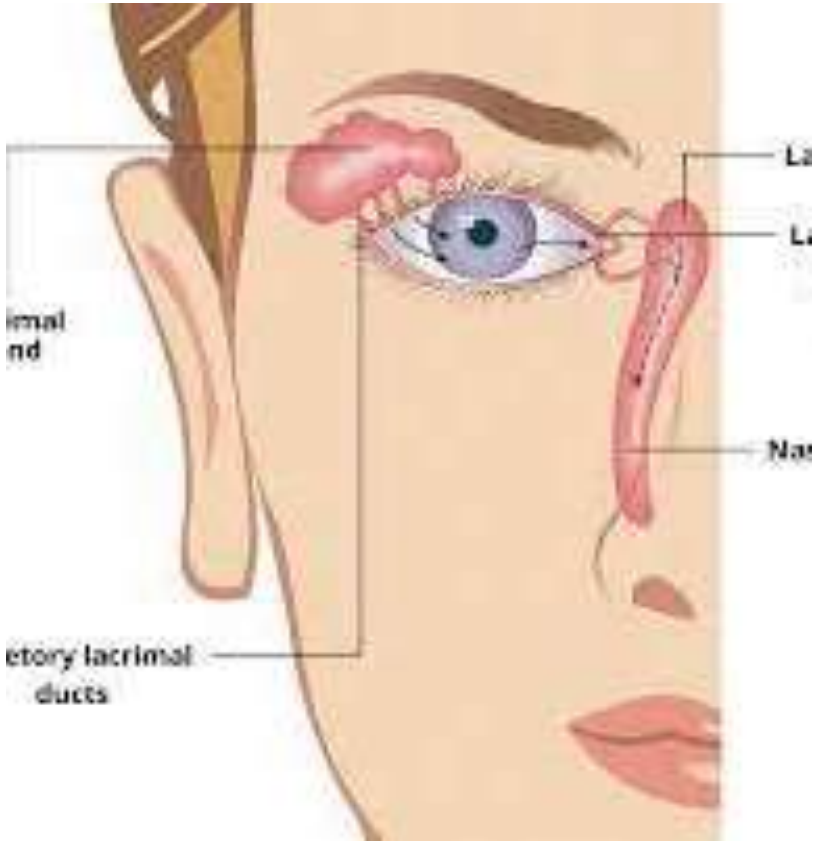


Osaka University Team Created…

- Three-dimensional functional lacrimal organoid from a two-dimensional eye like organoid that was created from human stem cell!



What is new?

- Osaka University Team demonstrated a method that generates a three-dimensional human stem cell derived organoids that are similar to tear ducts, or lacrimal glands.
- This is the same Team that previously developed a two-dimensional eye like organoid by using human induced pluripotent stem cells and they also noted the preces of lacrimal gland like cells within the organoids.

Why would and How do they create 3D Lacrimal gland organoids?

- The Osaka Team isolated the lacrimal gland progenitor cells from their 2D human eye like organoids.
- Then cultured the progenitor cells population, that expressed early markers for lacrimal gland development, which resulted in the successful formation of the 3D lacrimal gland organoids.
- The Osaka Team transplanted the lacrimal gland organoids into rodents that had their lacrimal gland partially or fully removed.
- The Osaka Team found that after the transplants that the organoids were able to differentiation into mature lacrimal gland tissue.

So What?

- The Osaka Team showed that these stem cells that generated the 3D lacrimal gland organoids are able to help those with damaged lacrimal gland tissue.
- The target audience for this type of treatment would be those with severe dry eyes caused by lacrimal gland damage, like those with Sjogren's Syndrome.

Citation

- Osaka University. (2022, May 2). Nothing to cry about: The development of tear duct organoids. *ScienceDaily*. Retrieved August 27, 2022 from www.sciencedaily.com/releases/2022/05/220502120453.htm
- Ryuhei Hayashi, Toru Okubo, Yuji Kudo, Yuki Ishikawa, Tsutomu Imaizumi, Kenji Suzuki, Shun Shibata, Tomohiko Katayama, Sung-Joon Park, Robert D. Young, Andrew J. Quantock, Kohji Nishida. Generation of 3D lacrimal gland organoids from human pluripotent stem cells. *Nature*, 2022