Scientific Image Contest

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The Association for Research in Vision and Ophthalmology

*An asterisk indicates the description has been shortened. To view the full description, please go to ARVOConnect.

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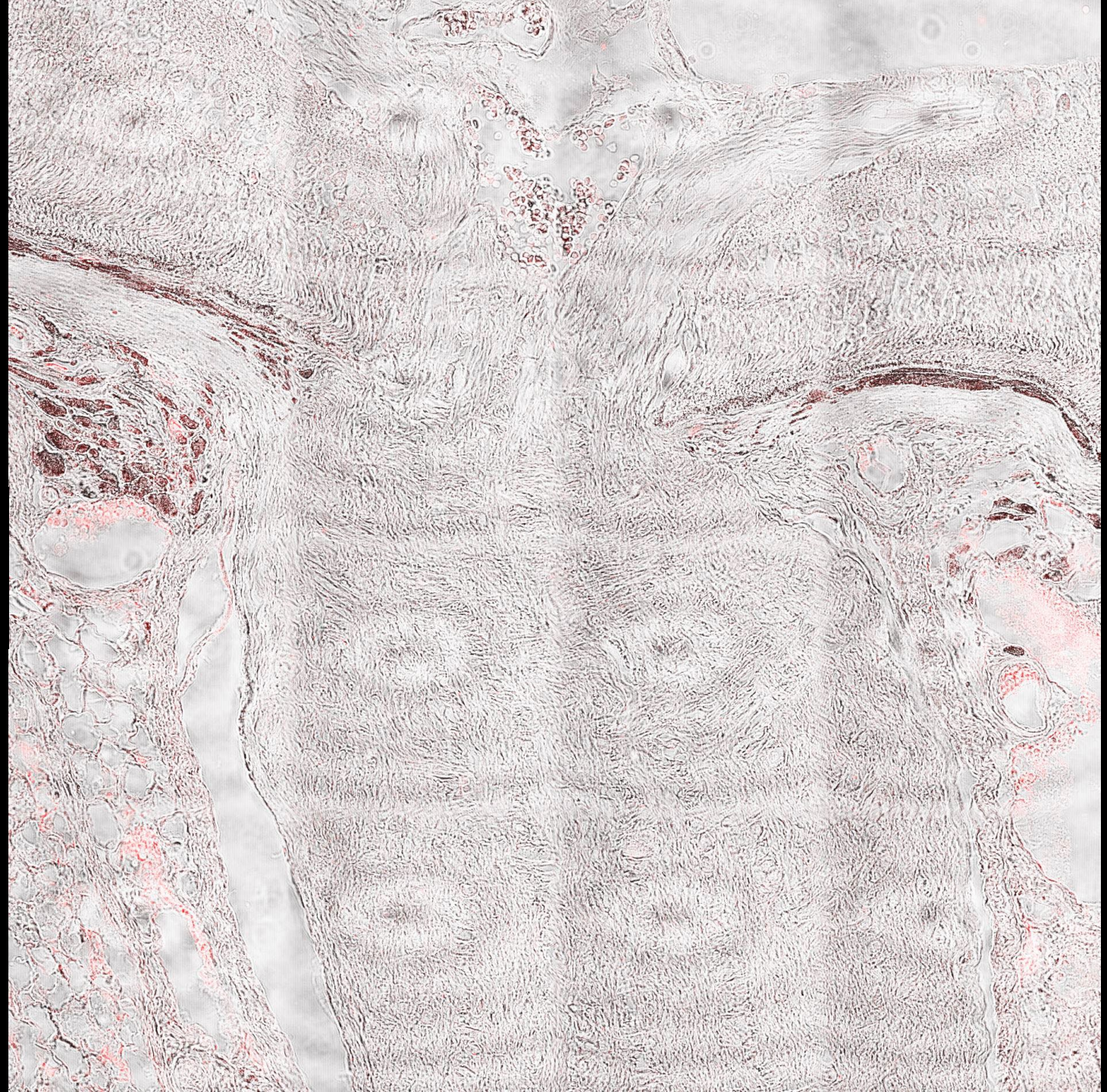
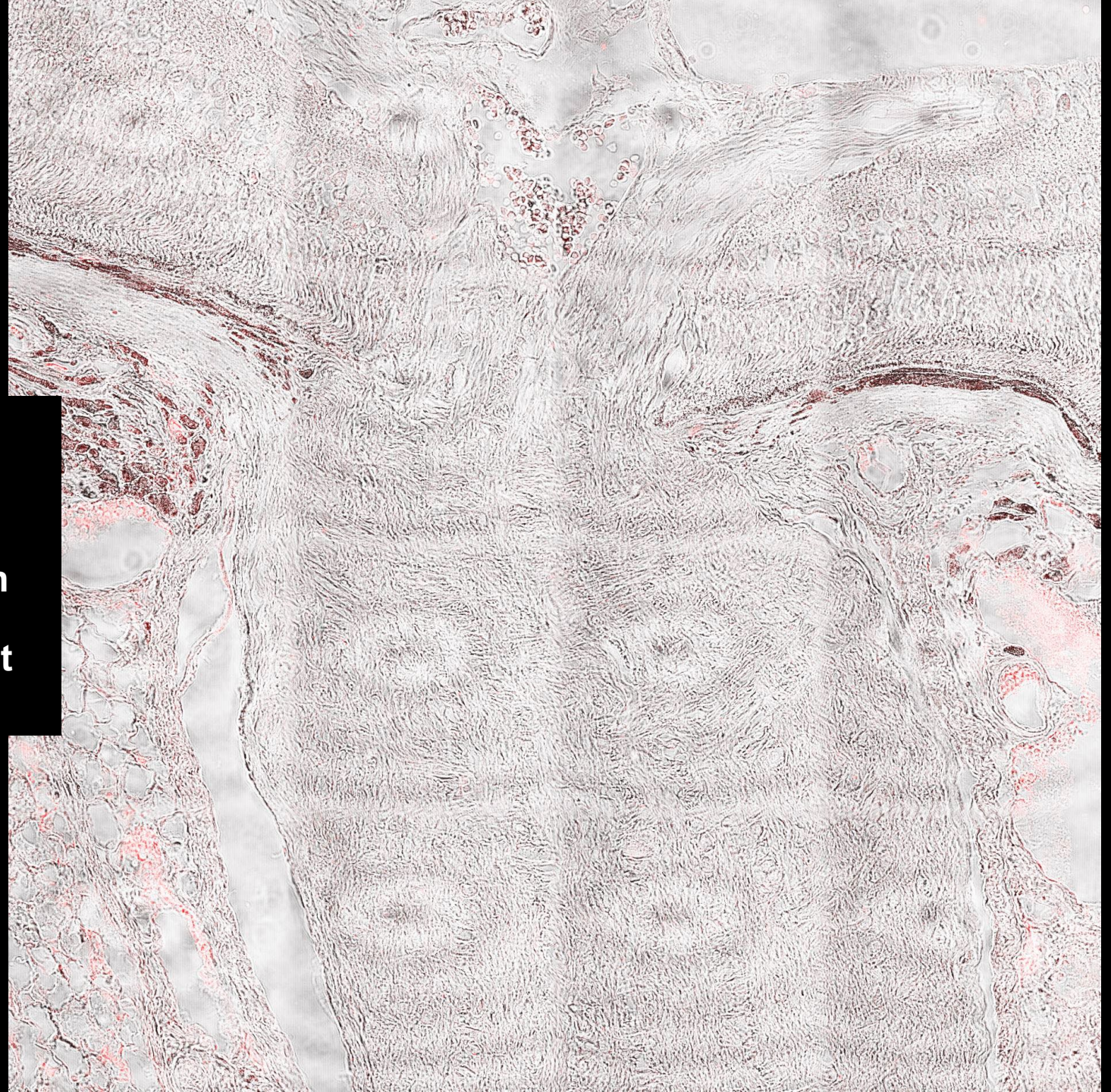
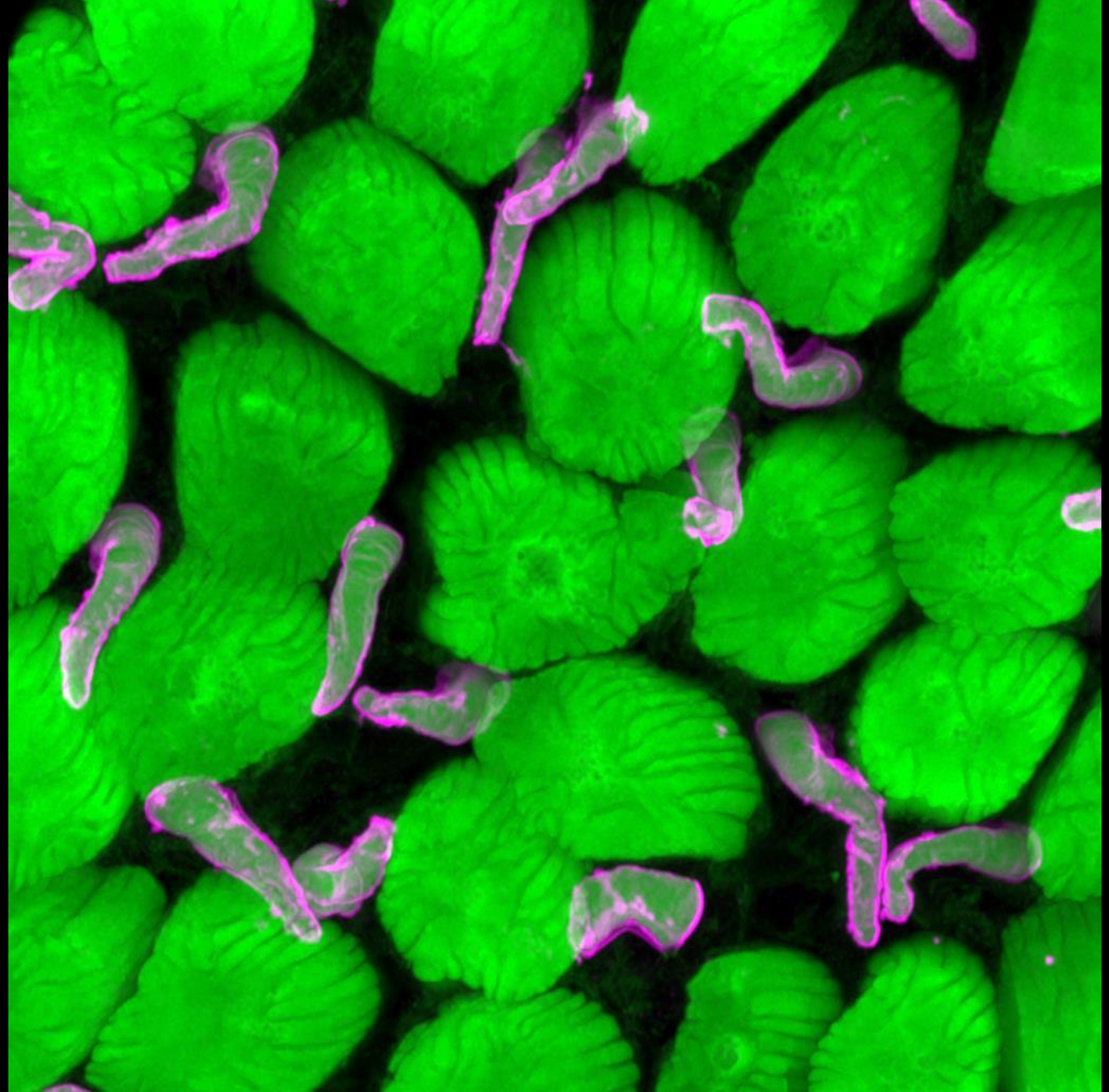


Image by
Karen Joos, MD,
PhD, FARVO

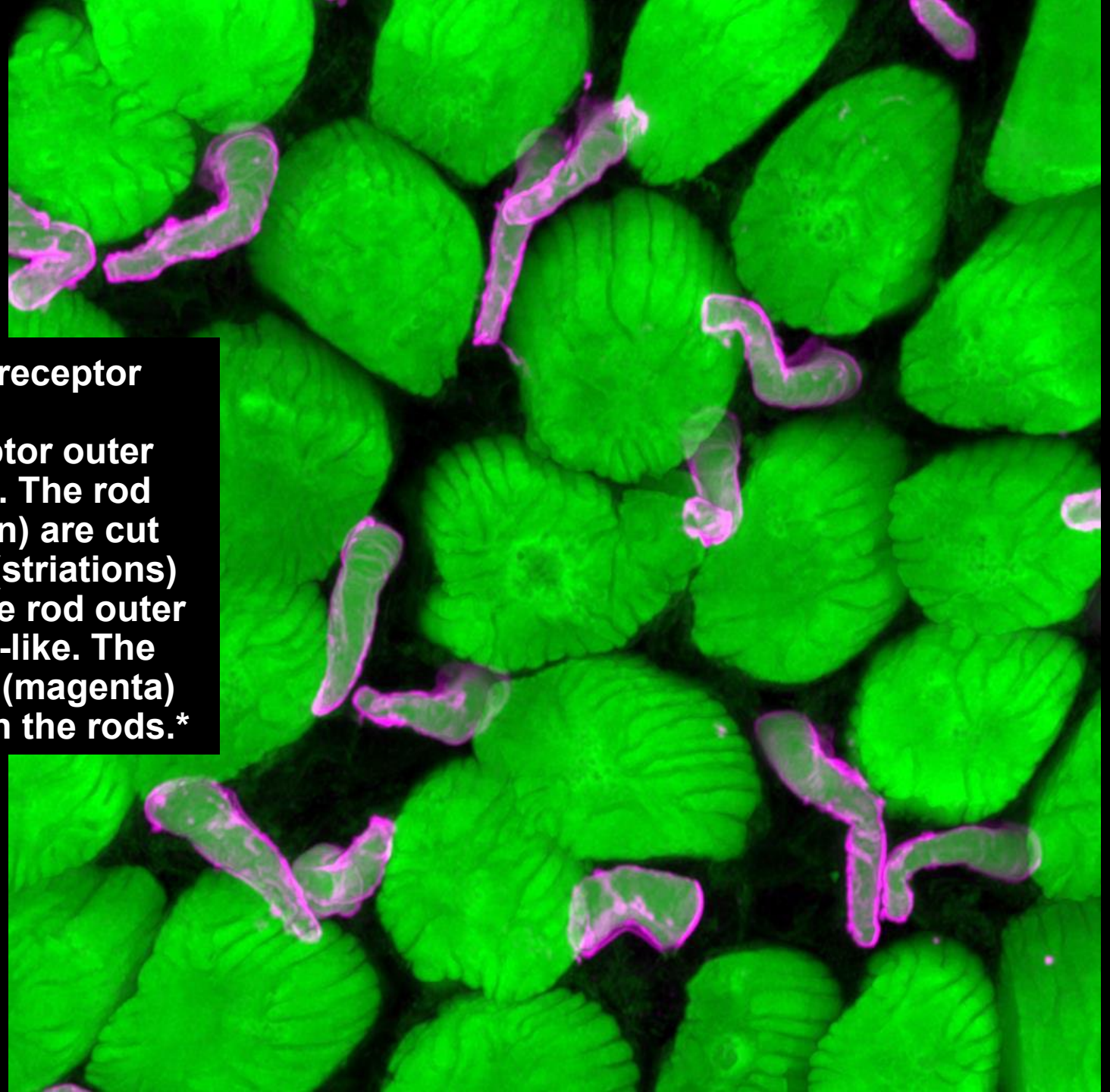


Zeiss 880 confocal micrograph of a mouse optic nerve with ocular hypertension with an artistic Differential Interference Contrast (DIC) microscopy.

Image by
Brittany Carr, PhD



Context for the photoreceptor outer segment image:
These are photoreceptor outer segments from a frog. The rod outer segments (green) are cut so that the incisures (striations) are visible, making the rod outer segments look flower-like. The cone outer segments (magenta) are much smaller than the rods.*



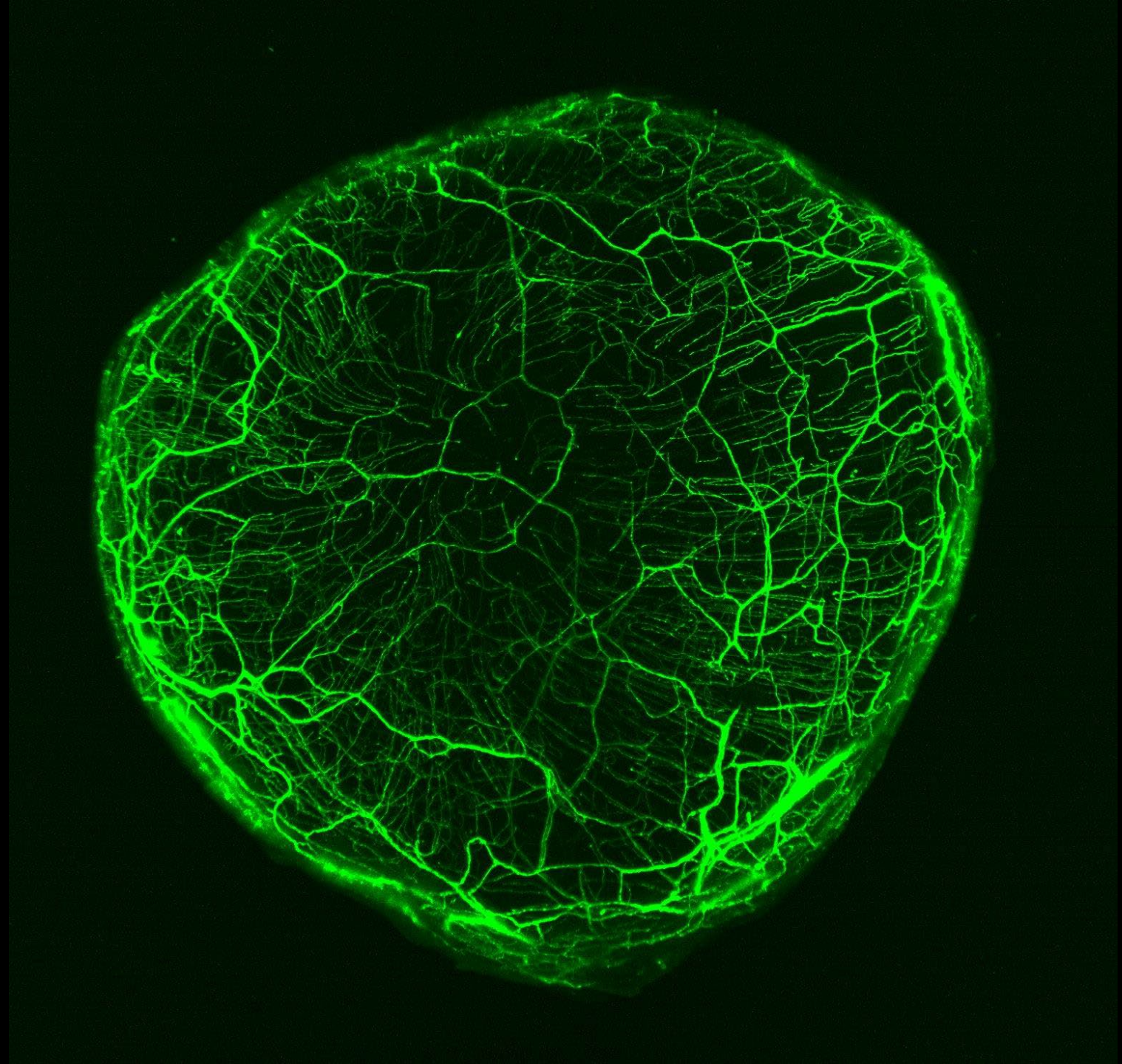
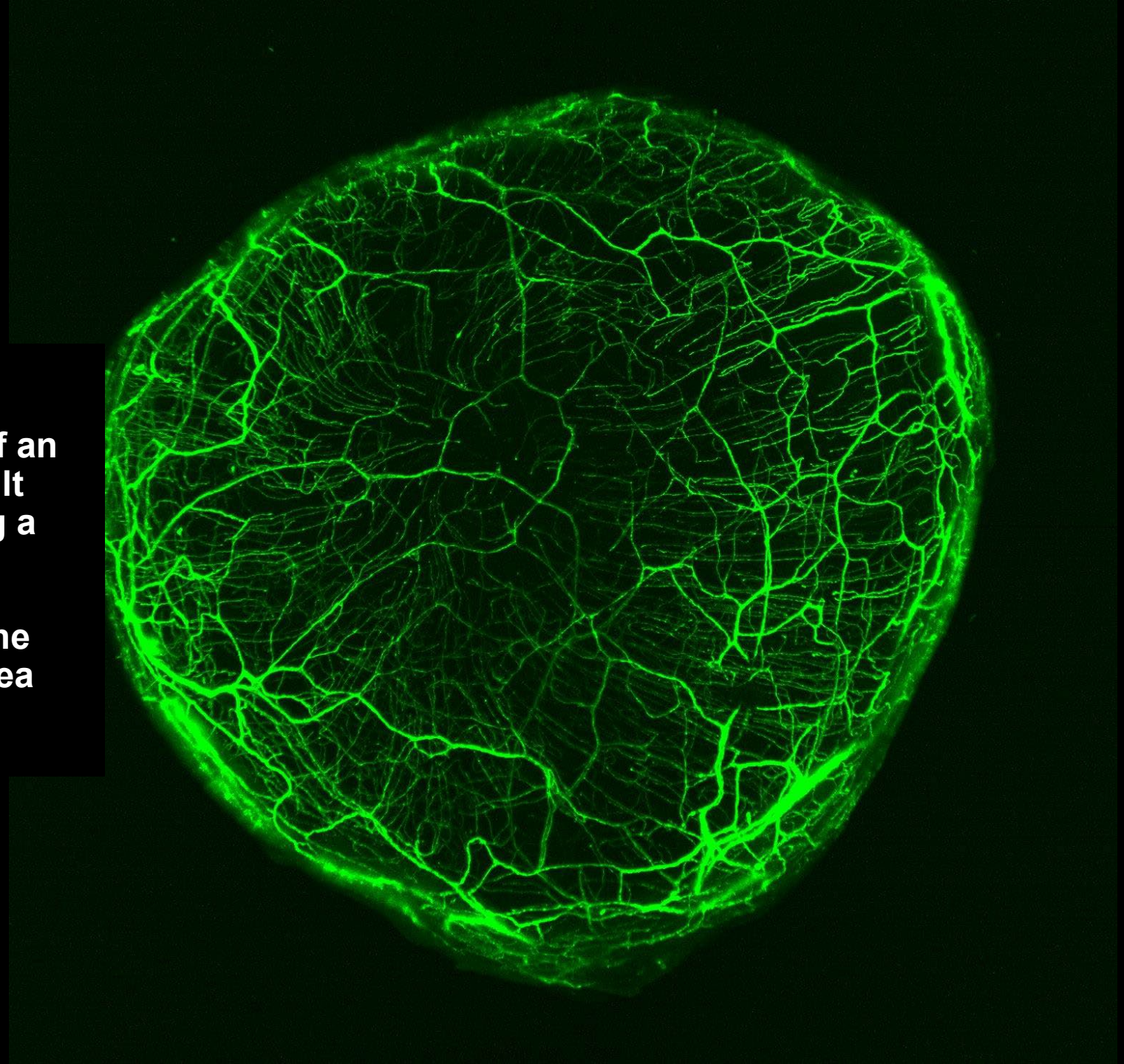
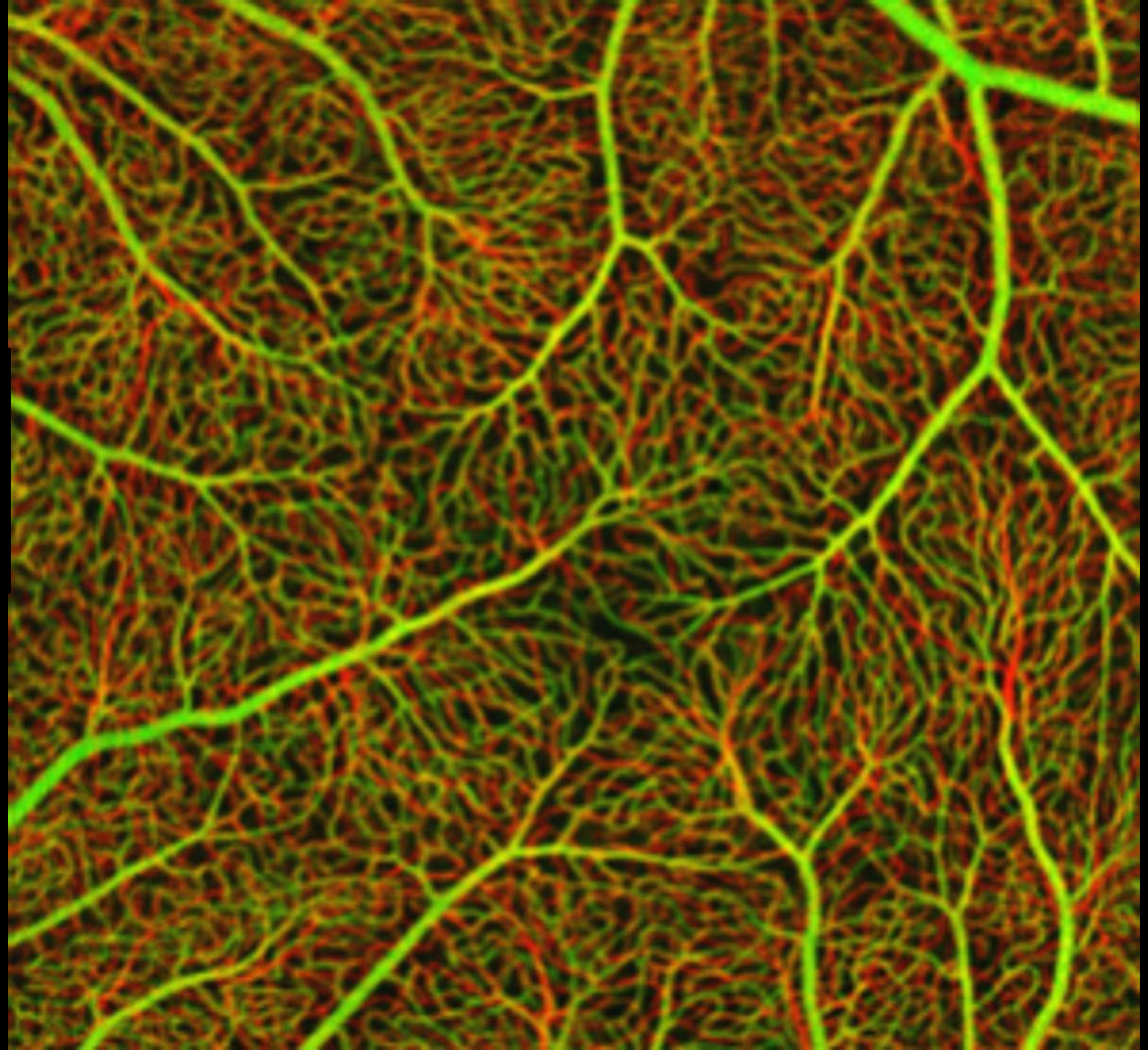


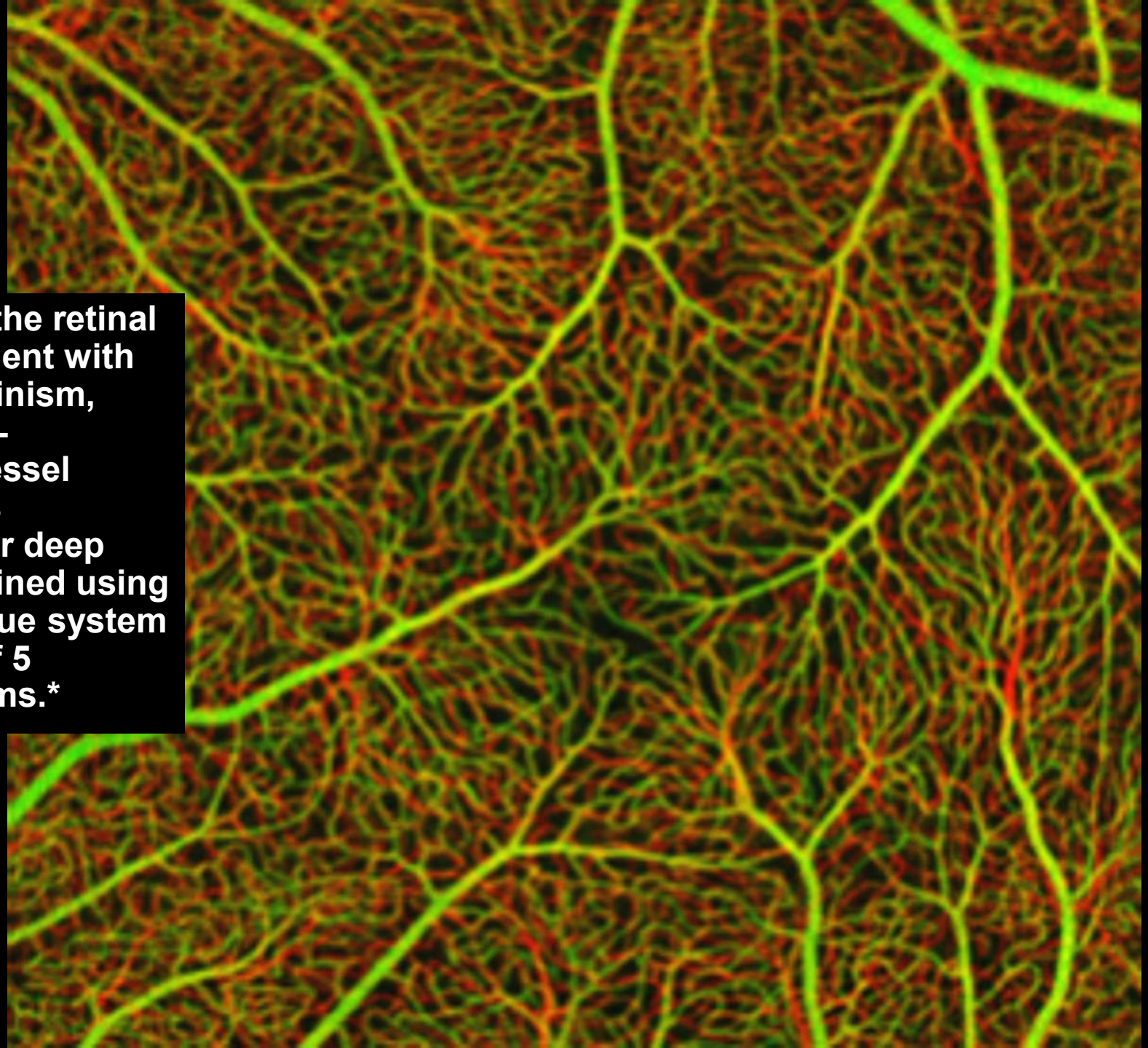
Image by
Bianca Bigit, MS



Maximum intensity projection of a full-thickness capture of an intact Thy1-YFP adult mouse cornea using a Zeiss Light Sheet 7(agarose-mounted, 1.3RI) illuminating the architecture of cornea nerves.

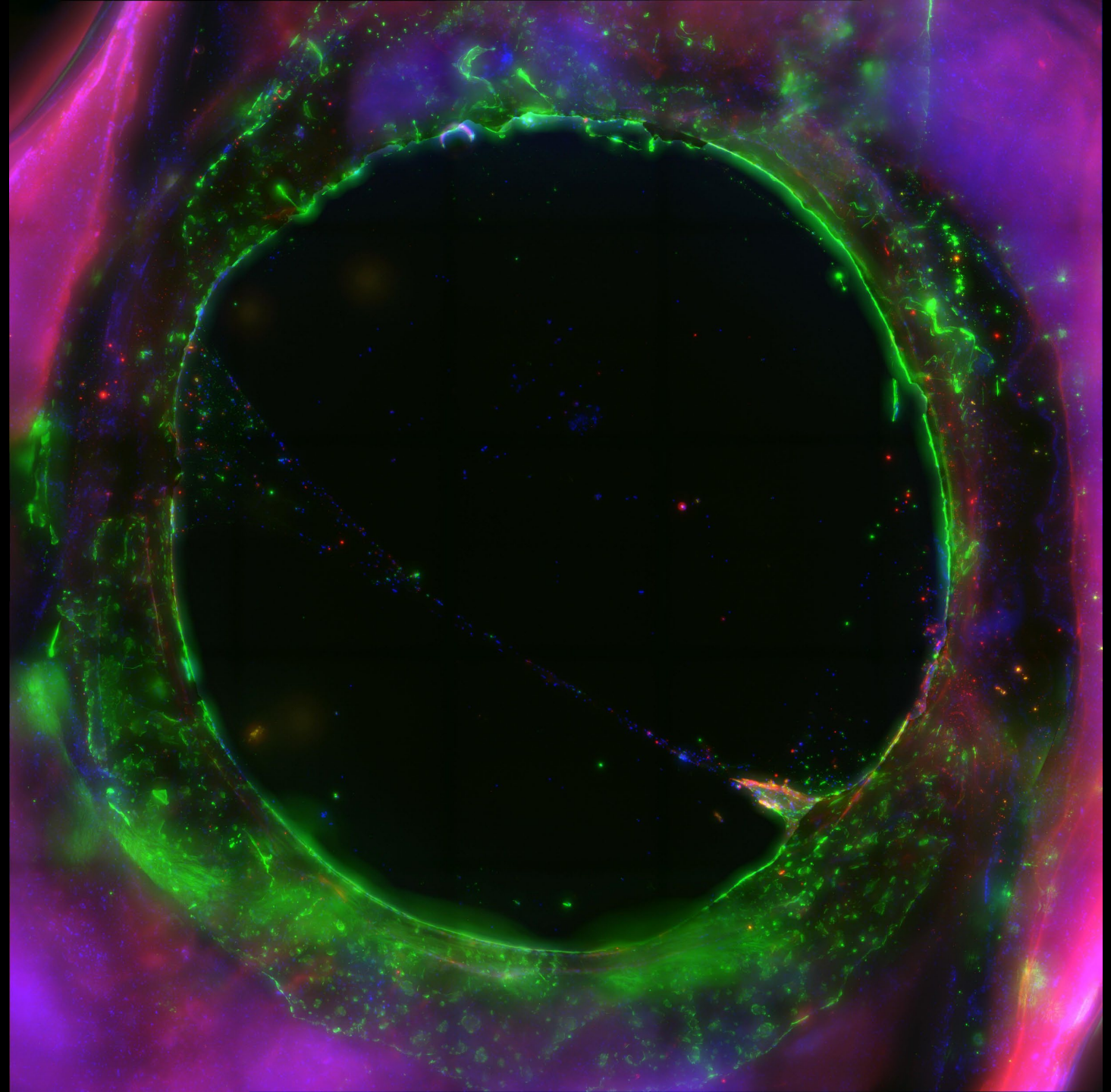
Image by
Joseph Carroll,
PhD, FARVO

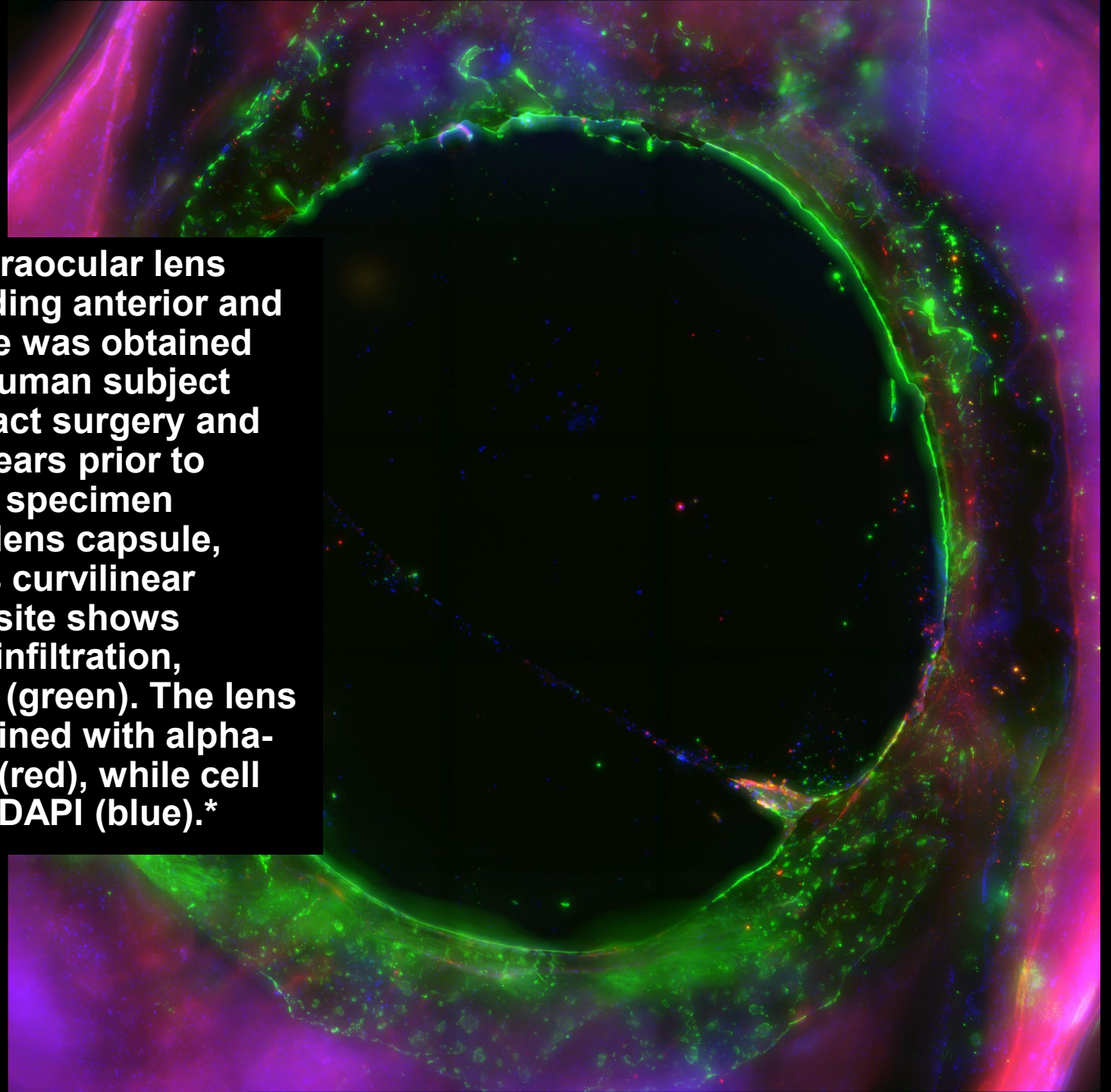




This is an image of the retinal vasculature in a patient with oculocutaneous albinism, obtained using OCT-angiography. The vessel depth is encoded as superficial (green) or deep (red). This was obtained using the Optovue Angiovue system and is an average of 5 individual angiograms.*

Image by
Anton Lennikov,
PhD, MD





The complex of an intraocular lens (IOL) and its surrounding anterior and posterior lens capsule was obtained from an 83-year-old human subject who underwent cataract surgery and IOL implantation 18 years prior to tissue collection. The specimen includes the IOL and lens capsule, where the continuous curvilinear capsulorhexis (CCC) site shows significant fibroblast infiltration, stained with vimentin (green). The lens capsule is counterstained with alpha-smooth muscle actin (red), while cell nuclei are marked by DAPI (blue).*

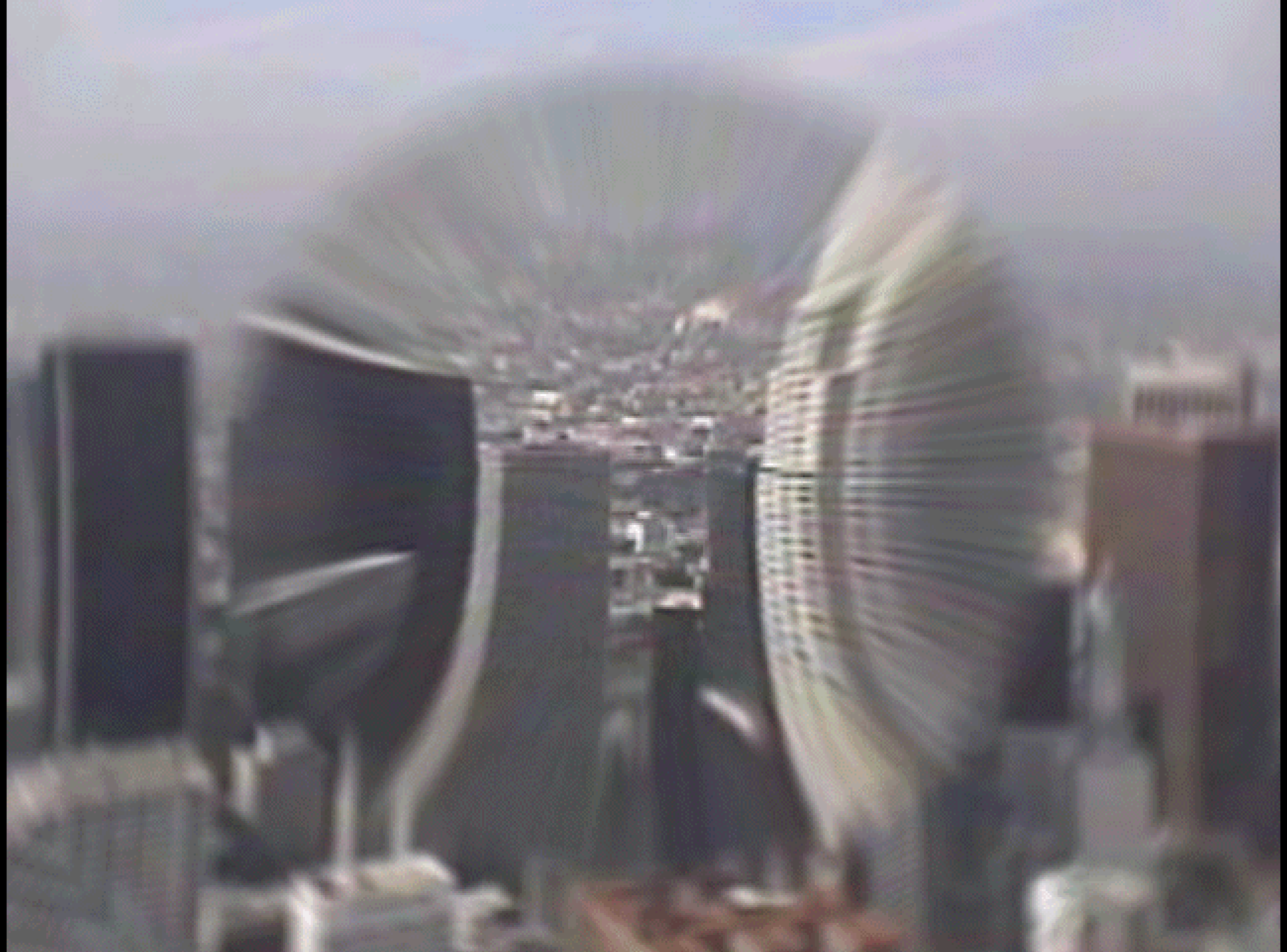
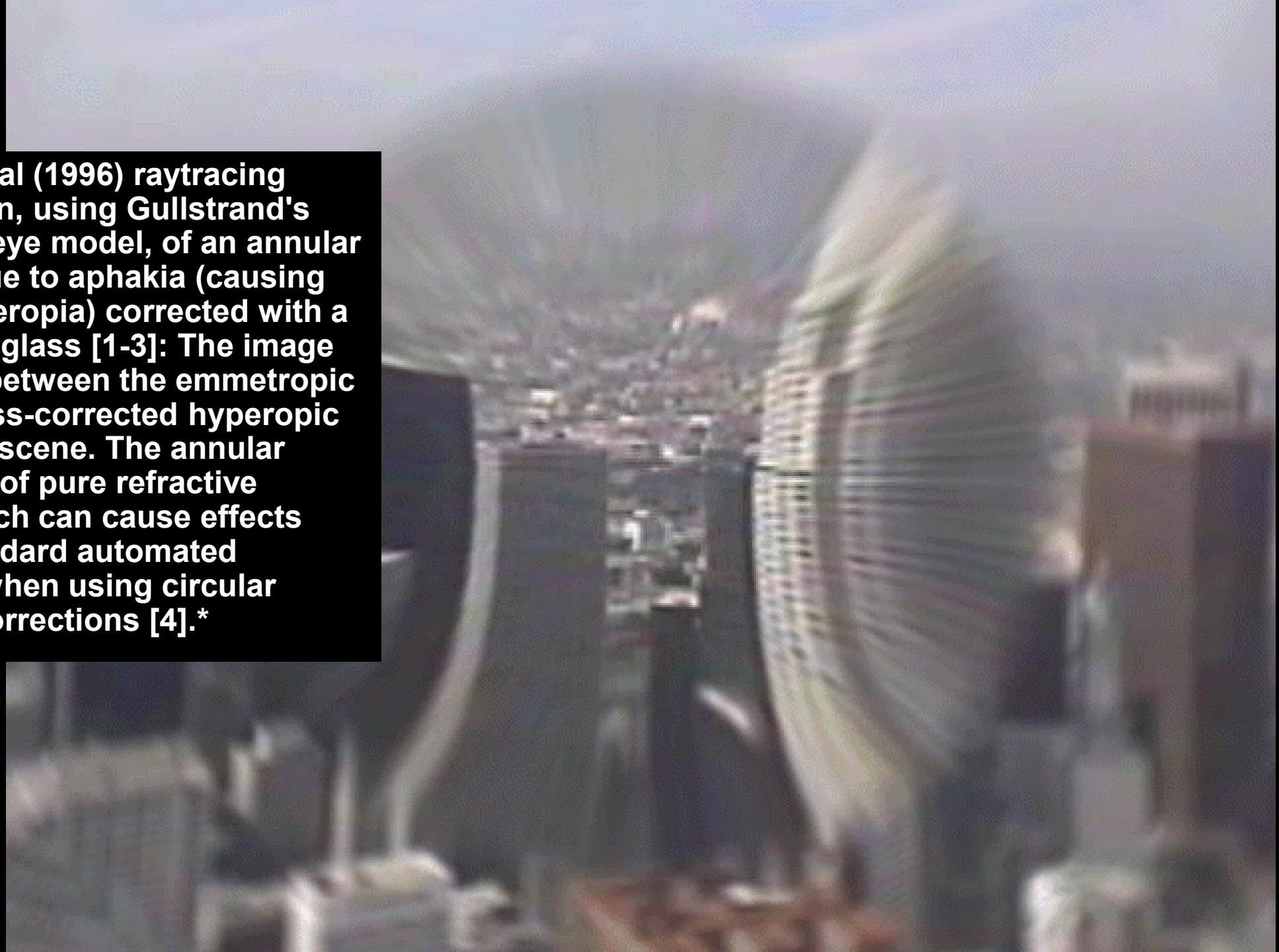


Image by Wolfgang Fink, PhD, FNAI, FARVO, LFSPIE, FPHMS, FAIMBE, SMIEEE



Foundational (1996) raytracing visualization, using Gullstrand's schematic eye model, of an annular scotoma due to aphakia (causing severe hyperopia) corrected with a circular eyeglass [1-3]: The image alternates between the emmetropic and eyeglass-corrected hyperopic view of the scene. The annular scotoma is of pure refractive nature, which can cause effects also in standard automated perimetry when using circular eyeglass corrections [4].*

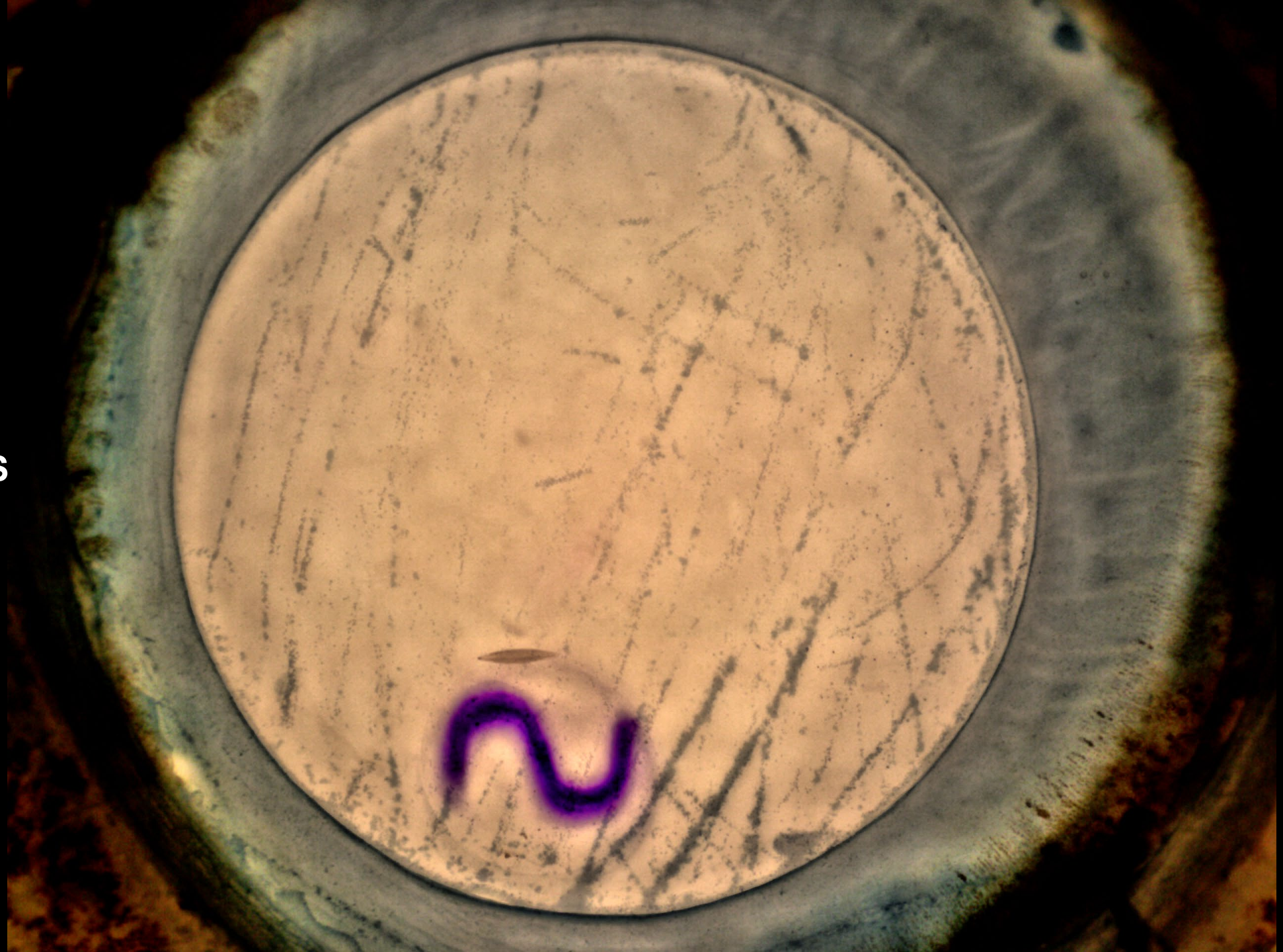
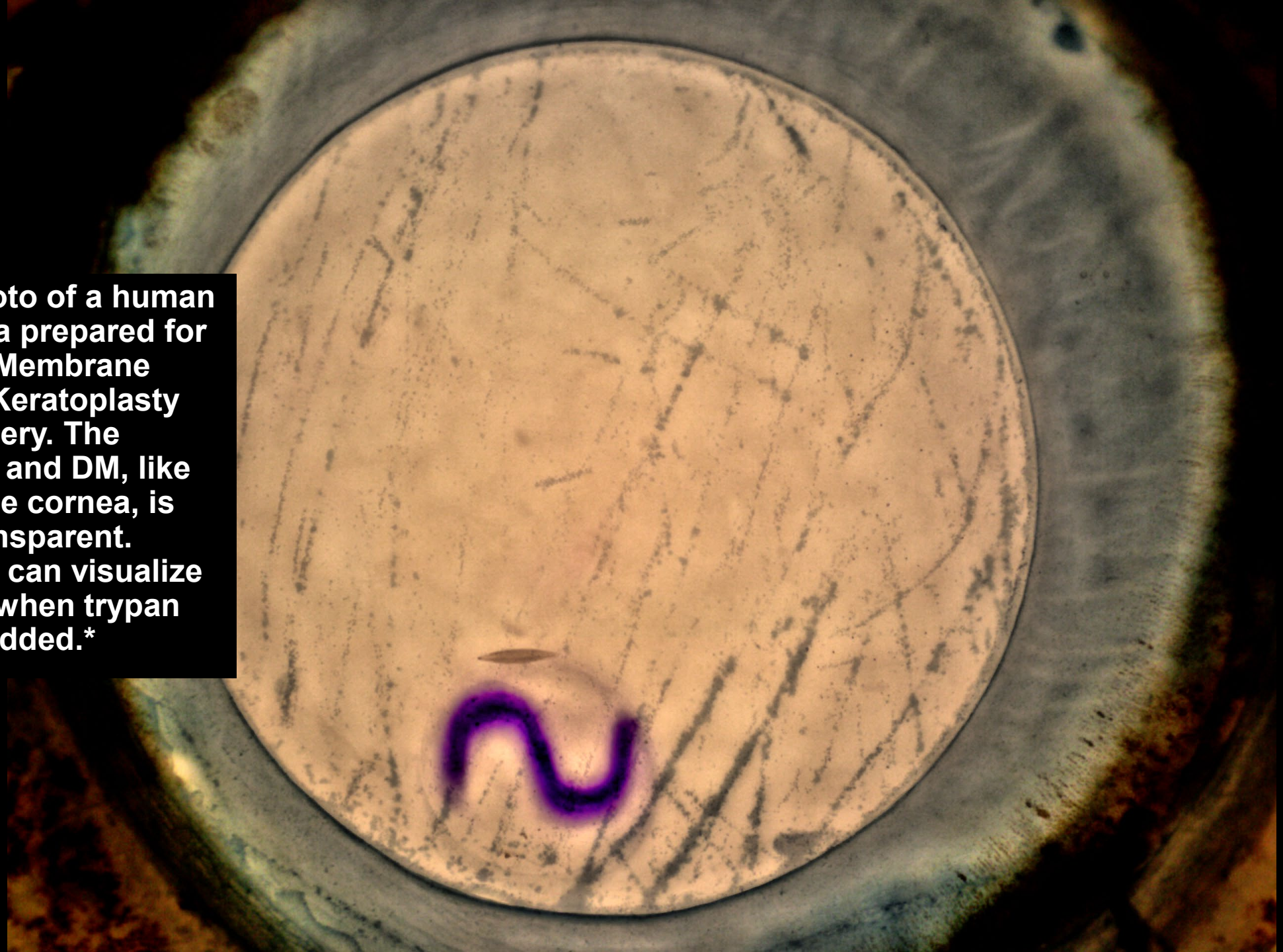


Image by Peter Bedard, MS



Here is a photo of a human donor cornea prepared for Descemet's Membrane Endothelial Keratoplasty (DMEK) surgery. The endothelium and DM, like the rest of the cornea, is normally transparent. However, we can visualize it's features when trypan blue dye is added.*

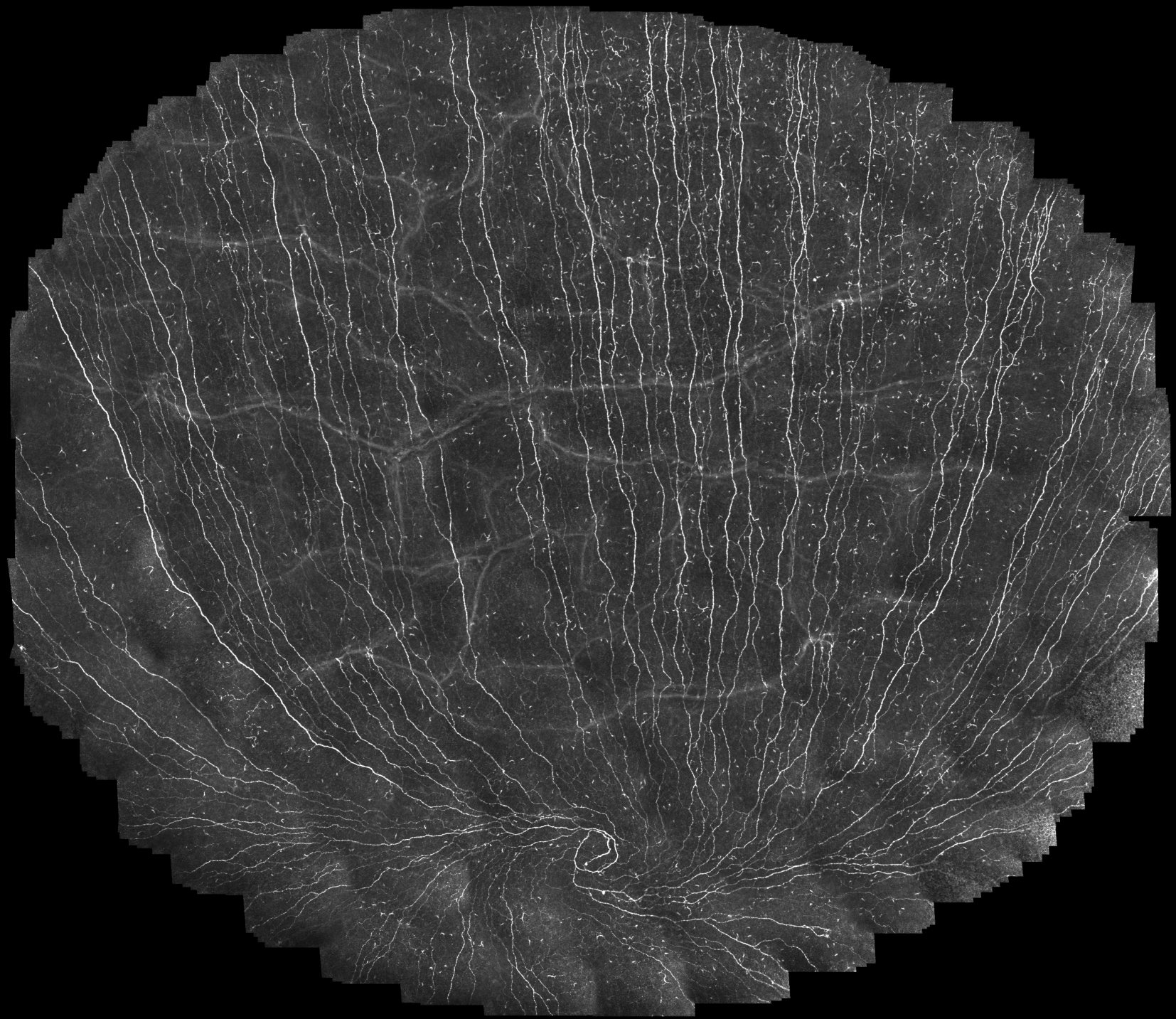
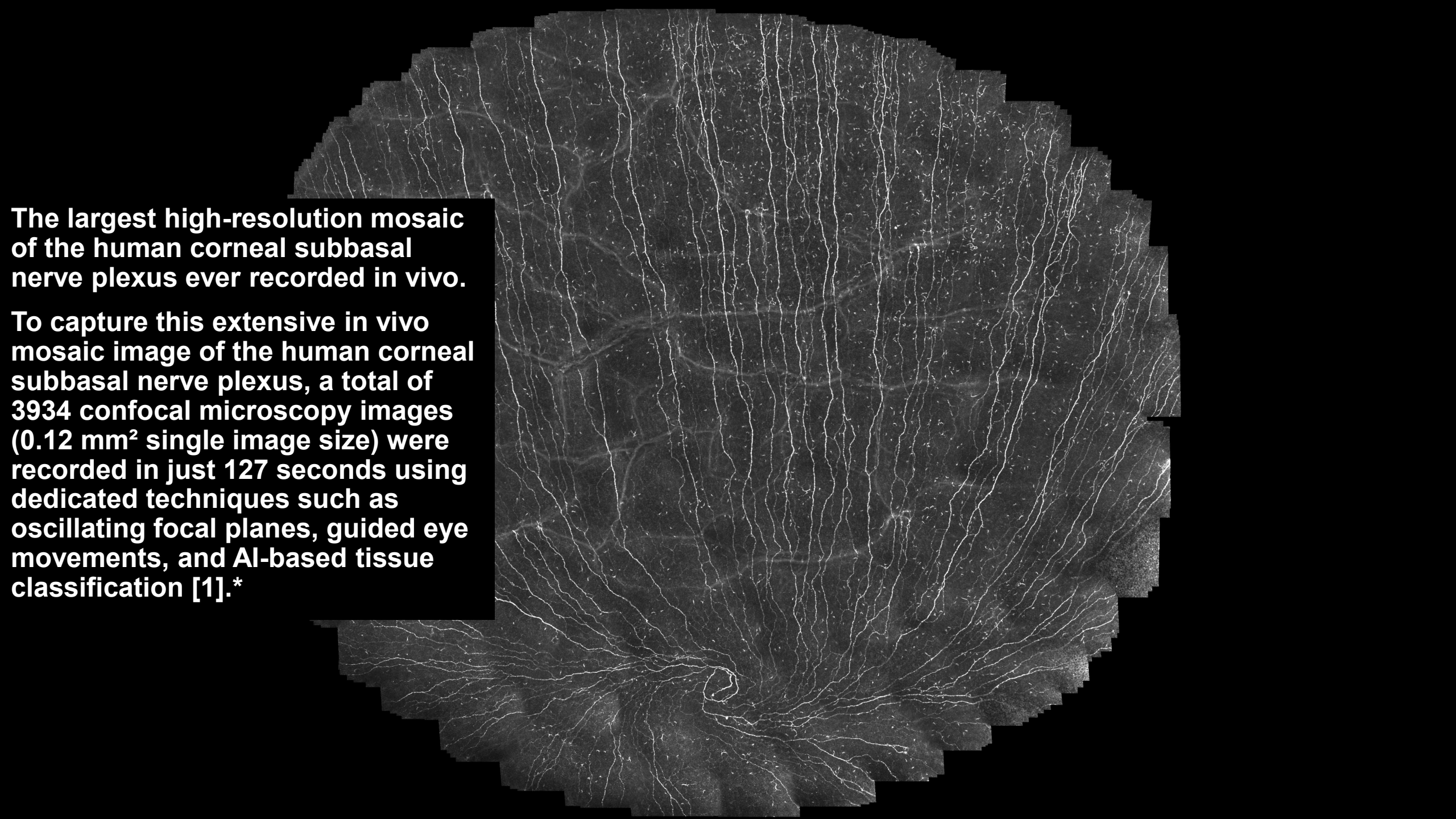


Image by Sebastian Bohn, PhD, MS



The largest high-resolution mosaic of the human corneal subbasal nerve plexus ever recorded in vivo.

To capture this extensive in vivo mosaic image of the human corneal subbasal nerve plexus, a total of 3934 confocal microscopy images (0.12 mm² single image size) were recorded in just 127 seconds using dedicated techniques such as oscillating focal planes, guided eye movements, and AI-based tissue classification [1].*

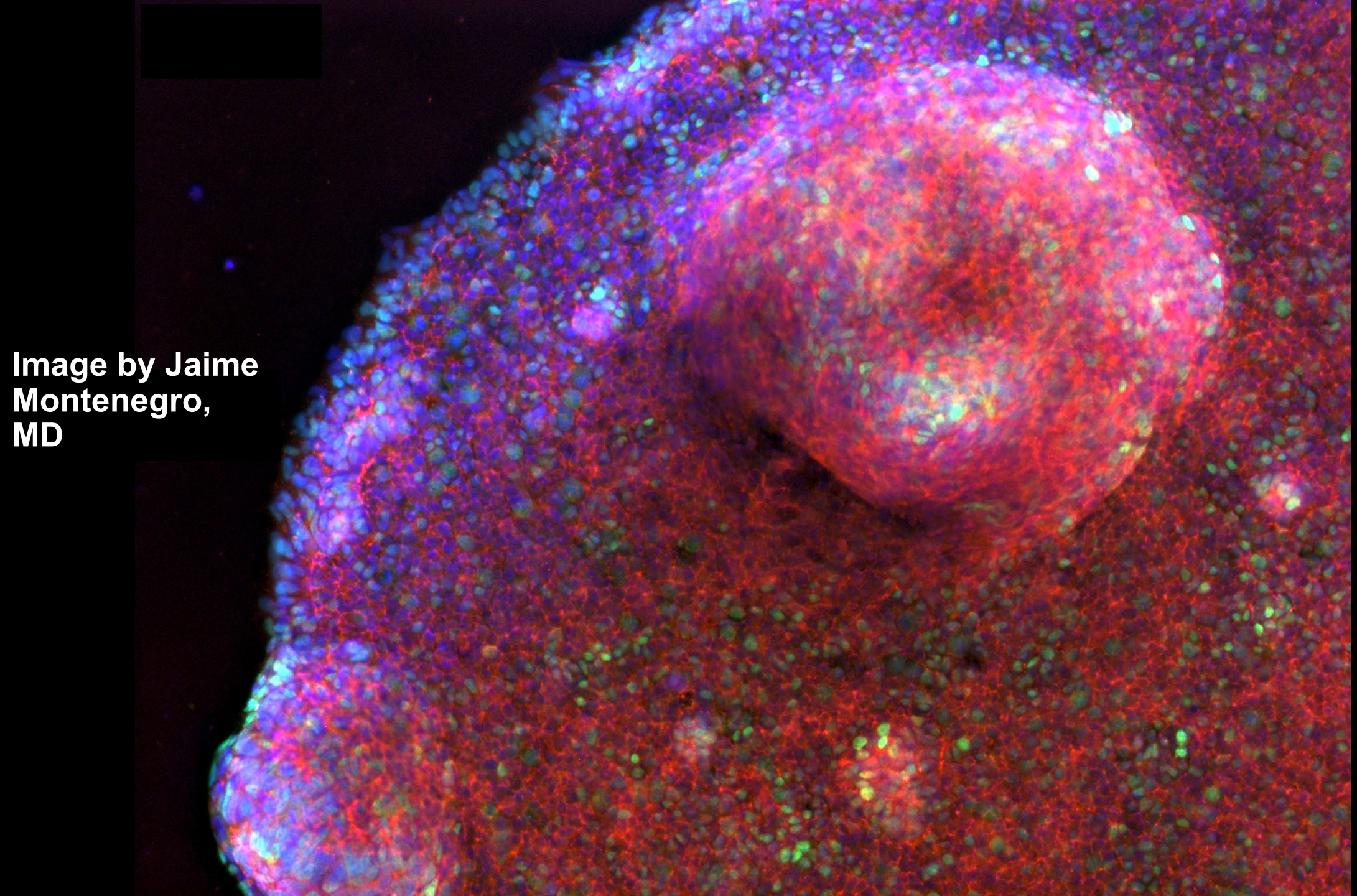
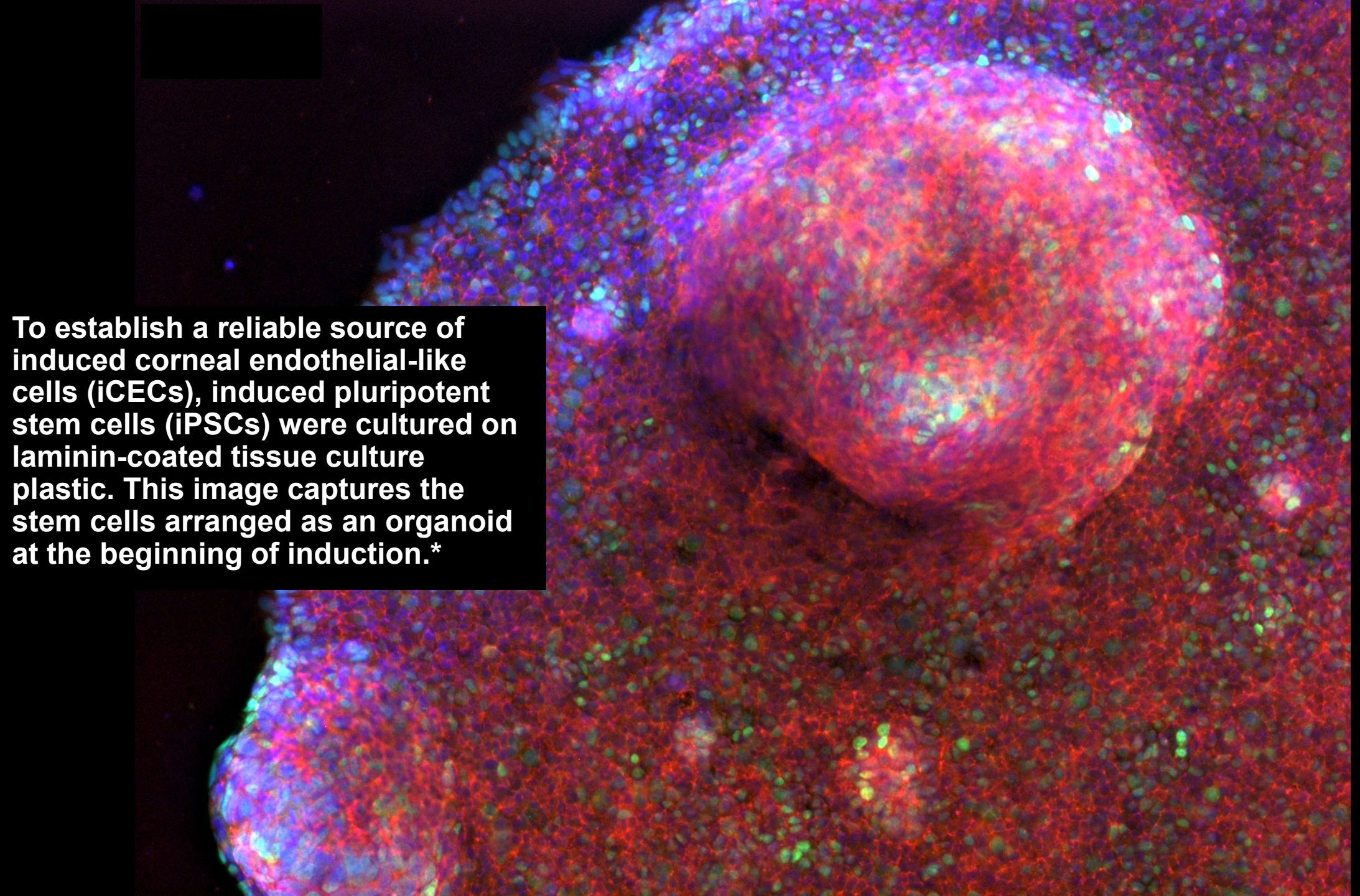


Image by Jaime Montenegro, MD



To establish a reliable source of induced corneal endothelial-like cells (iCECs), induced pluripotent stem cells (iPSCs) were cultured on laminin-coated tissue culture plastic. This image captures the stem cells arranged as an organoid at the beginning of induction.*

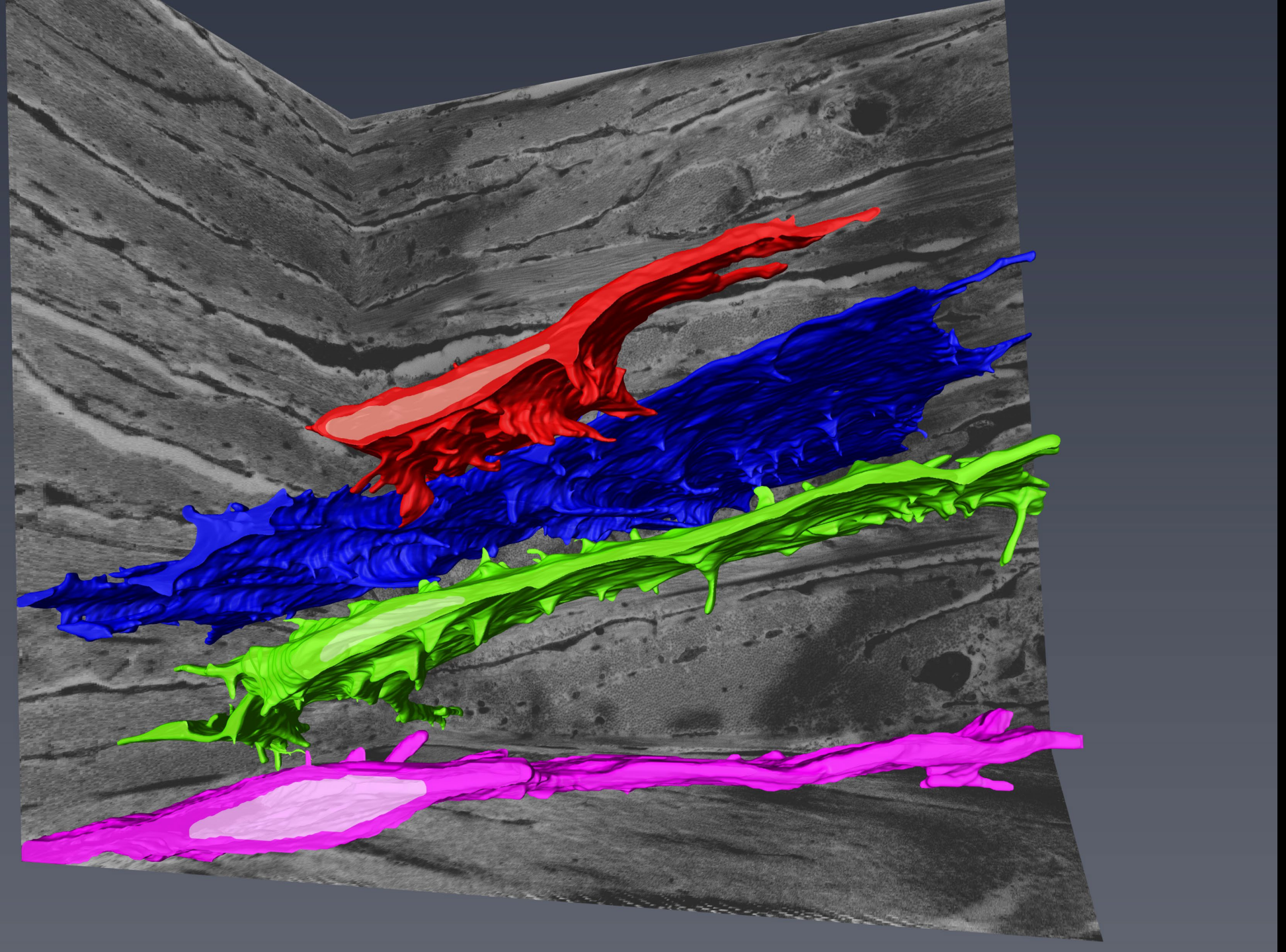


Image by Suharsha Paidimarri, MOpt

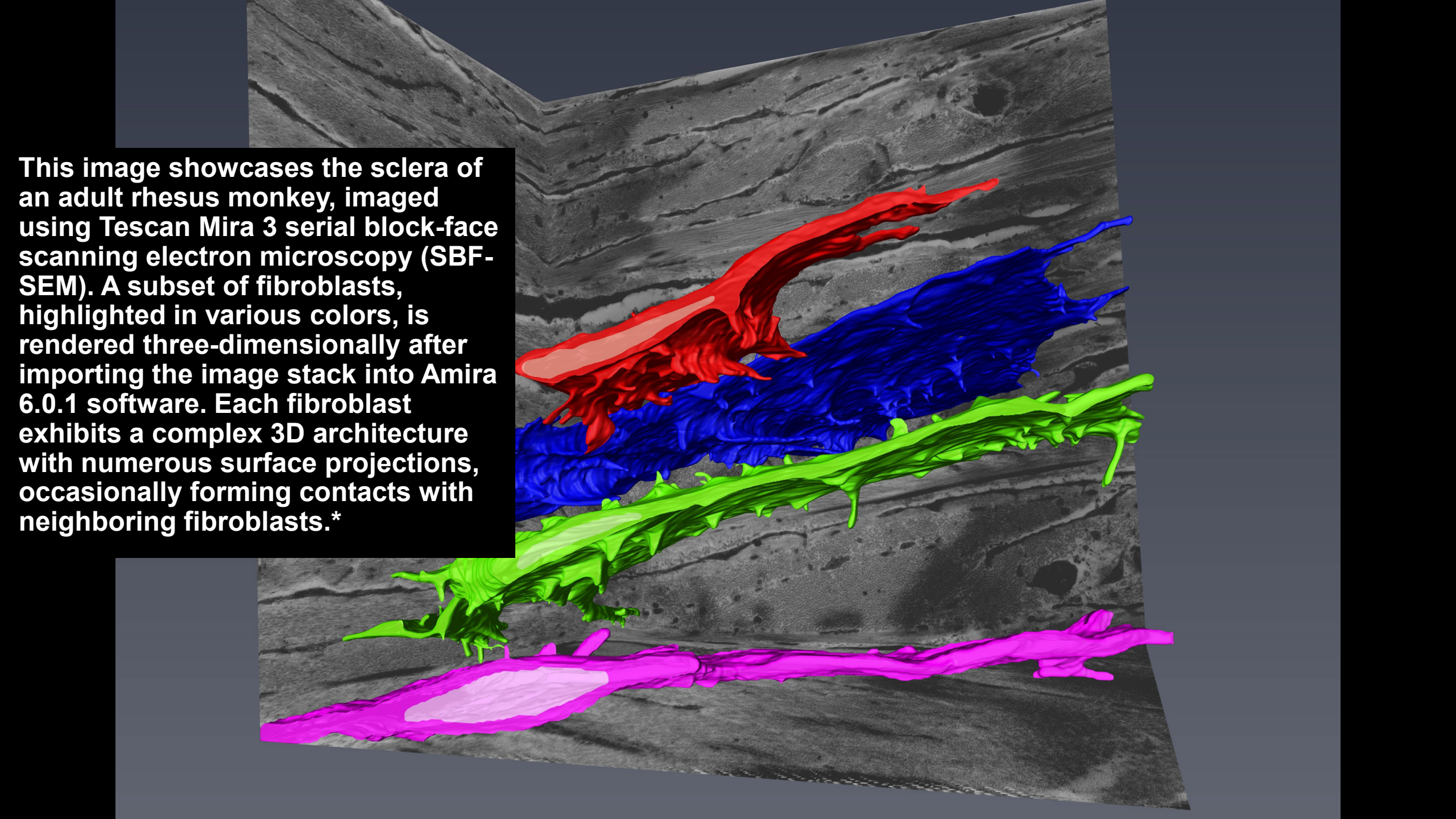
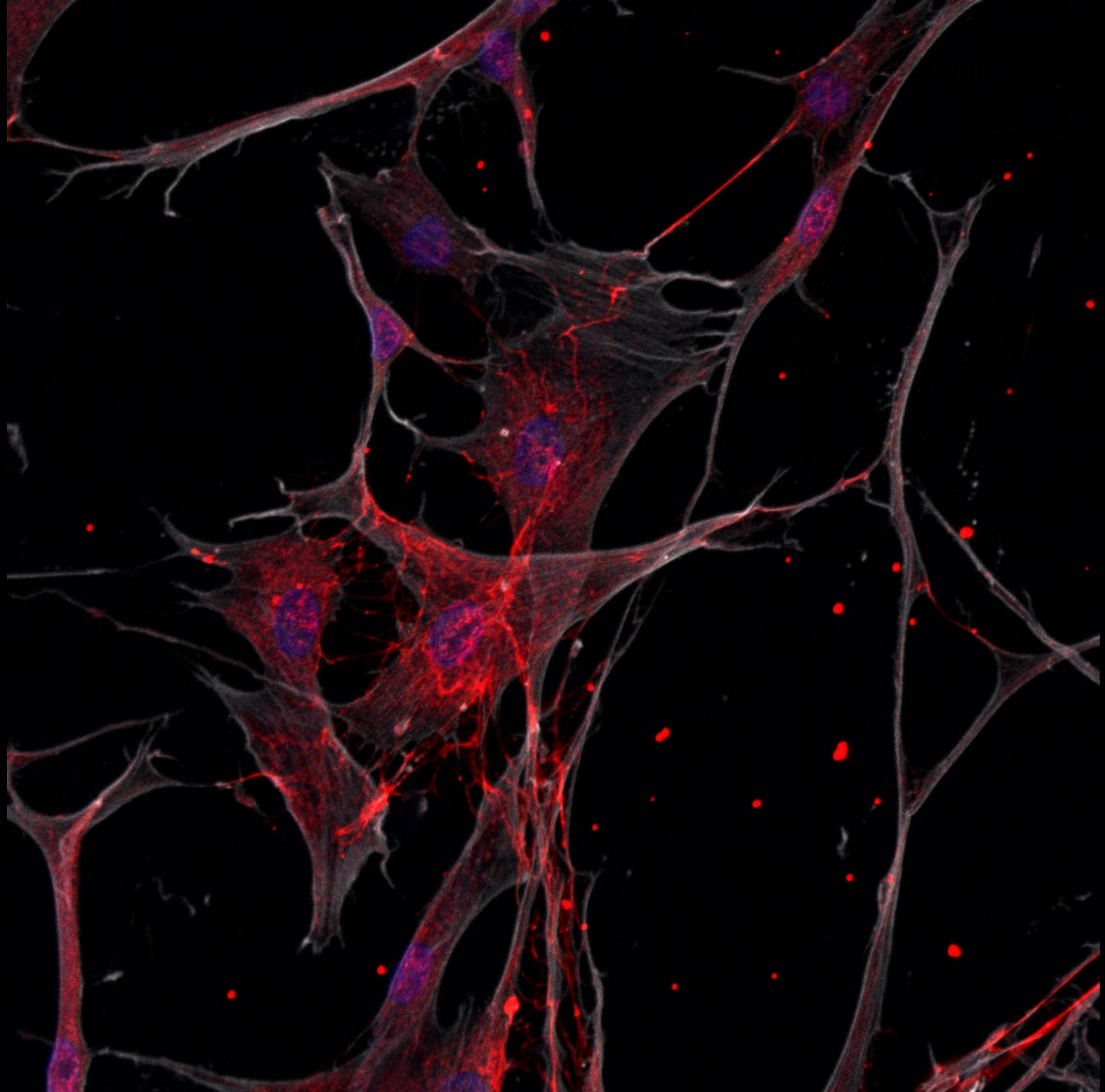
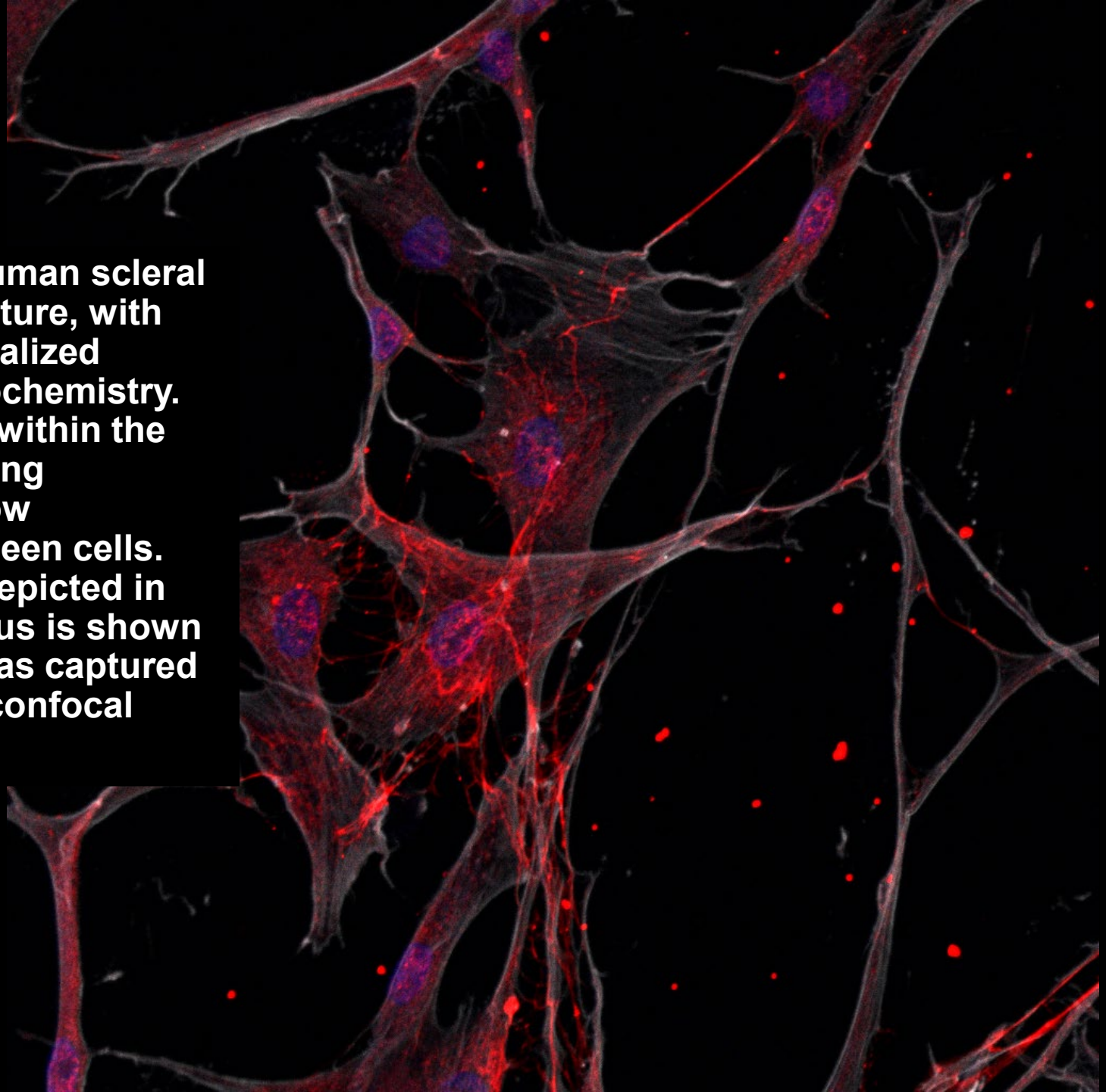

This image showcases the sclera of an adult rhesus monkey, imaged using Tescan Mira 3 serial block-face scanning electron microscopy (SBF-SEM). A subset of fibroblasts, highlighted in various colors, is rendered three-dimensionally after importing the image stack into Amira 6.0.1 software. Each fibroblast exhibits a complex 3D architecture with numerous surface projections, occasionally forming contacts with neighboring fibroblasts.*

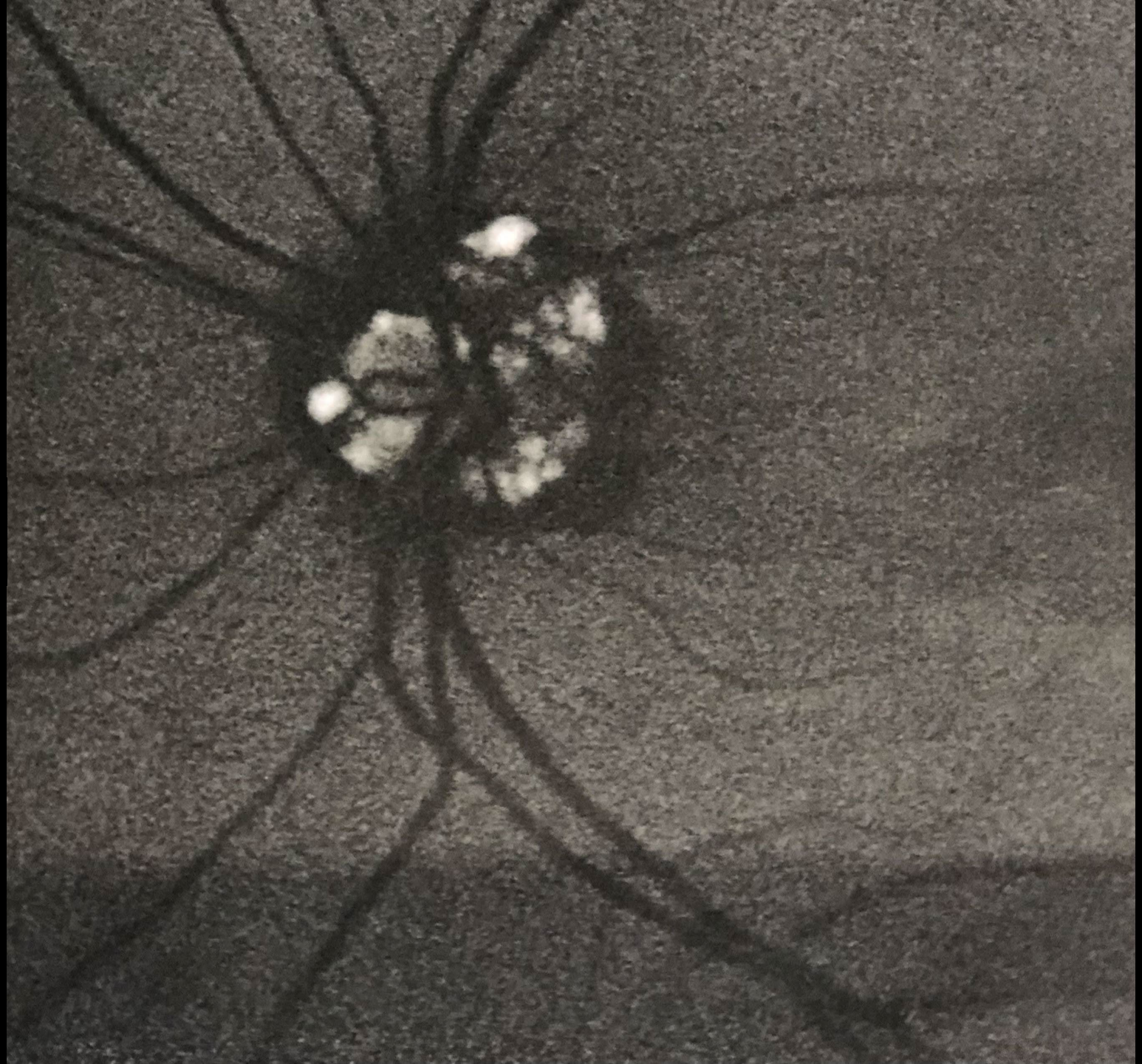
Image by Jacinth Priscilla Jacob Jayakumar, BOptom

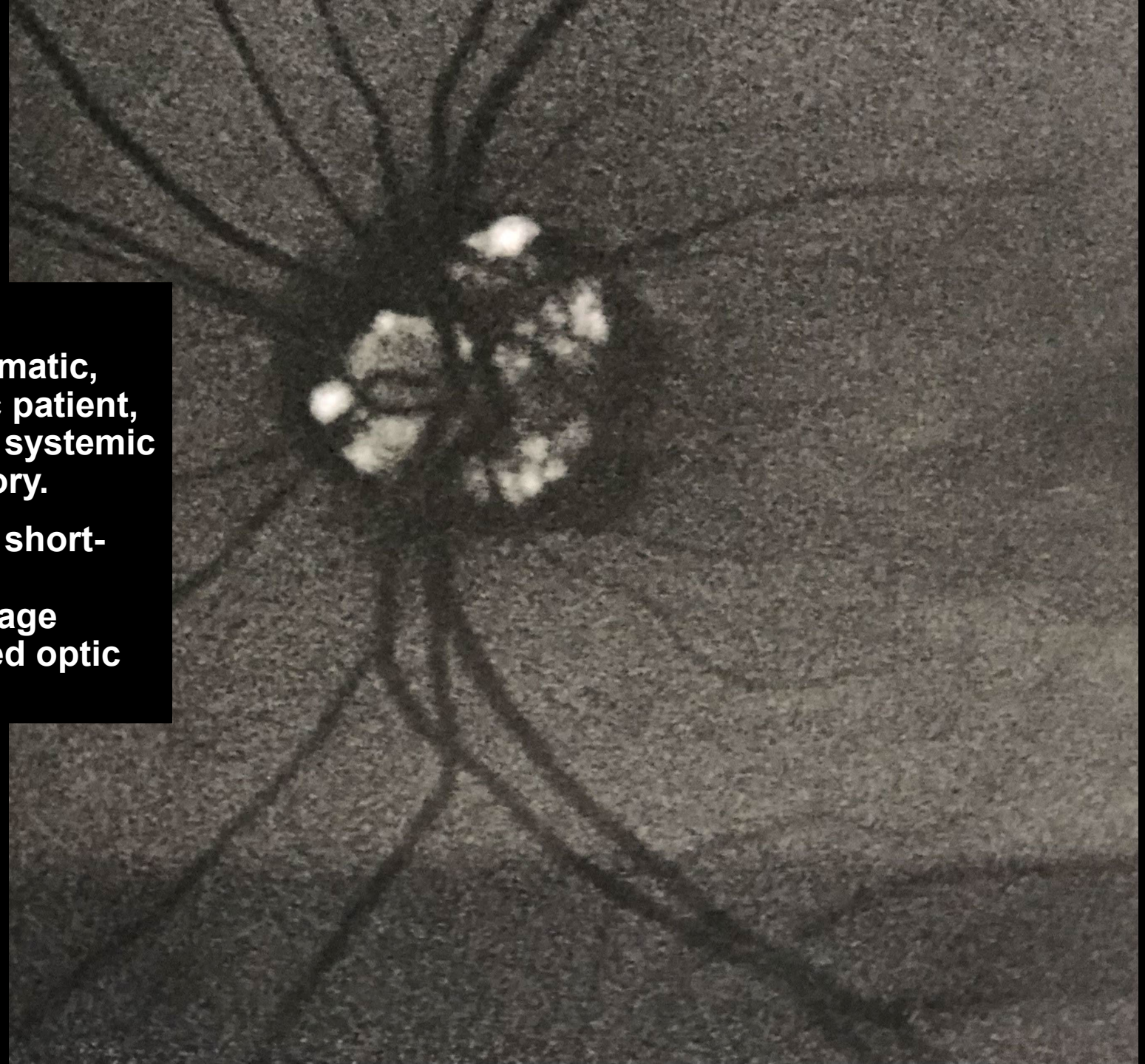




This image shows human scleral fibroblasts in cell culture, with fibronectin (red) visualized through immunocytochemistry. Fibronectin appears within the cell cytoplasm, forming connections that allow communication between cells. Actin filaments are depicted in gray, while the nucleus is shown in blue. The image was captured on a Zeiss LSM 800 confocal microscope.*

Image by Helena Filipe, MD, MMEd





Glowing in the dark

57-year-old asymptomatic, slight hypermetropic patient, with uneventful past systemic and ophthalmic history.

Immediate blue light short-wavelength fundus autofluorescence image (Spectralis) confirmed optic disc drusen.*