Restoring eyesight, human embryonic stem cell trial marks major milestone

Wills Eye Institute ophthalmologist Carl Regillo delicately placed 100,000 cells beneath the retina of 52-year-old Maurie Hill's left eye. She was rapidly losing her vision due to Stargardt disease, an inherited macular dystrophy similar to the much more common dry age-related macular degeneration (AMD).

Maurie's disease was far along, the normally lush forests of photoreceptor cells in the central macula area severely depleted, especially the cones that provide color vision. Would the introduced cells nestle among the ragged remnants of her retinal pigment epithelium (RPE) and take over, restoring the strangled energy supply to her remaining photoreceptors? They should, for the cells placed in Maurie's eye weren't ordinary cells. They were derived from human embryonic stem cells (hESCs).

Partly because deriving hESCs until just a few years ago required destroying early human embryos, research using less objectionable stem cells accelerated. And while so-called "adult" and induced pluripotent stem cells (iPSCs) don't require embryos and match patients so that the immune system isn't provoked, embryonic stem cells remain the "gold standard" for scrutinizing a disease's beginnings as the ball-of-cells early embryo folds into layers, contorts, develops organs, and grows.

I've waited 15 years to see human embryonic stem cells, or their "daughter" cells, make their way through clinical trials. And thanks to Maurie's sharing her story, I'm witnessing translational medicine.

Read full, original article: Human Embryonic Stem Cells Finally Reach Clinical Trials: Maurie's Story