



Barry Kuppermann, M.D., Ph.D.

Hope for Preventing Retinal Eye Diseases

Eye Institute at the forefront of retinal disease research and prevention.

“My entire professional goal is to prevent retinas from dying and to alleviate blindness,” declares Barry Kuppermann, M.D., Ph.D. That’s a big order, but Kuppermann doesn’t just sit around wishing. He is actively involved at

The University of California, Irvine – along with Cristina Kenney, M.D., Ph.D., two technicians and four international fellows – doing retinal cell toxicity research. Kuppermann’s team is focused on studying ways to maximize the efficacy of ophthalmic drugs while minimizing their side effects. He explains, “We want to protect eyes from damage caused by

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strong medications, such as steroids. This class of drugs is widely used and wonderfully potent in the eye, but toxic to retinal cells and can also cause glaucoma and cataracts.”

Kuppermann and his team publish in scientific journals on a regular basis about this project. It’s an area generating a lot of interest with scientists and physicians, who consider it an exciting and novel concept.

Using an artificial mammalian retina as a model, the researchers are testing three different cell lines in culture. The lines involve: 1) *pigment epithelial cells* 2) *neurosensory retina cells* and 3) *cells that line retinal blood vessels*.

This work – which is progressing very rapidly – involves four basic steps:

1. *Testing cells in culture*
2. *Testing a variety of drugs for their toxicity on the cells and documenting results*
3. *Determining the type of toxicity and how it is mediated (current phase of work)*
4. *Researching how to block that toxicity (phase scheduled this summer)*

“Knowing we have the potential to help people around the world drives our efforts,” Kuppermann says. “With this research, we can dramatically expand therapeutic options for retinal diseases. The core vision and philosophy of our lab is to make existing eye treatments even better by maximizing the effects of drugs while minimizing their complications.”