

Body

Compound restores transparency to mouse lenses, human lens tissue

By Pete Farley (UCSF News) on November 5, 2015

A chemical that could potentially be used in eye drops to reverse cataracts, the leading cause of blindness, has been identified by a team of scientists from UC San Francisco (UCSF), the University of Michigan (U-M), and Washington University in St. Louis (WUSTL).

Identified as a "priority eye disease" by the World Health Organization, cataracts caused when the lenses of the eyes lose their transparency affect more than 20 million people worldwide. Although cataracts can be successfully removed with surgery, this approach is expensive, and most individuals blinded by severe cataracts in developing countries go untreated.

Reported November 5 in *Science* [1], the newly identified compound is the first that is soluble enough to potentially form the basis of a practical eye-drop medication for cataracts.

Cataracts are primarily a disease of aging. As is seen in neurodegenerative conditions such as Alzheimer's disease and Parkinson's disease, a hallmark of the condition is the misfolding and clumping together of crucial proteins. In the case of cataracts, the affected proteins are known as crystallins.

Crystallins are the major component of fiber cells, which form the eyes' lenses, and the unique properties of these cells make them particularly susceptible to damage, said Jason Gestwicki [2], PhD, associate professor of pharmaceutical chemistry at UCSF and co-senior author of a paper on the new research, most of which was undertaken in Gestwicki's laboratory at the U-M Life Sciences Institute.

Continue reading ... [3]

Read more about this research led by the IND's Gestwicki lab [4] in *Scientific American* [5] and *Smithsonian.com* [6].

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Links

[1] <http://www.sciencemag.org/content/350/6261/674.full>

[2] <http://profiles.ucsf.edu/jason.gestwicki>

[3] <https://www.ucsf.edu/news/2015/11/176886/eye-drops-could-clear-cataracts-using-newly-identified-chemical>

[4] <https://ind.ucsf.edu/gestwickilab.ucsf.edu>

[5] <http://www.scientificamerican.com/article/eye-drops-show-promise-in-treating-cataracts-without-surgery/>

[6] <http://www.smithsonianmag.com/innovation/chemical-compound-could-melt-away-cataracts-180957285/?no-ist>