

Smart Contact Lenses

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"Smart" contact lenses that measure pressure within the eye and dispense medication accordingly could be made possible using a new material developed by biomedical engineers at UC Davis.

Tingrui Pan, assistant professor of biomedical engineering, and postdoctoral researcher Hailin Cong started with a material called polydimethylsiloxane (PDMS). They developed a method for placing powdered silver on the PDMS in a precise pattern, to create conductive wires. The silver also has antimicrobial properties.

The researchers were able to shape the PDMS-silver into a contact-lens shape, and show that it could function as a simple pressure sensor. Glaucoma, a build-up of pressure in the eye, is a leading cause of blindness worldwide. A contact lens that could continuously measure pressure within the eye and relay the data to a computer would allow doctors to learn more about glaucoma and improve patient treatment.

The researchers plan to apply for approval to begin trials of the lenses in humans, Pan said. They are collaborating with Professor James Brandt of the Department of Ophthalmology at the UC Davis School of Medicine.

A paper describing the fabrication technique was published in the July 2008 issue of the journal *Advanced Functional Materials*.

Source: UC Davis

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