

June 27, 2017

MEDICAL DEVICE BUSINESS APPLICATIONS TECHNOLOGIES CONTRACT MANUFACTURING MED TECH RESOURCES VIDEOS LEADERSHIP

Macular degeneration recreated on a chip

June 20, 2017 By [Danielle Kirsh](#) [Leave a Comment](#)



Tohoku University researchers say they've recreated retinal diseases such as macular degeneration on a chip for disease modeling and drug screening.

A research team from the Graduate Schools of Engineering and Medicine at Tohoku University cultured human retinal cells and vascular endothelial cells to replicate the outermost structure of the retina.

Retinal cells exposed to hypoglycemic and hypoxic conditions after maturity allowed endothelial cells to move to the side of retinal cells which would damage them. The whole process repeats neovascularization in age-related macular degeneration.

Age-related macular degeneration is an eye condition that is the leading cause of vision loss in people older than 50. It causes damage to the macula at the center of the retina, blurring the sharp, central vision needed for straight ahead activities like driving, according to the [National Eye Institute](#).

Organ-on-a-chip technology is fairly new and ocular organs-on-a-chip have rarely been tested. These in vitro cell culture models eliminate the need for animal models while allowing researchers to study specific molecules-of-interest and recreate chronic and complex diseases.

The research team thinks that the recreation of age-related macular degeneration on a chip will help with disease modeling and will completely eliminate the need for animal models, which often comes into question because of the ethics of it.

[Want to stay more on top of MDO content? [Subscribe to our weekly e-newsletter.](#)]

You may also like:



['Organs-on-chips' technology: FDA testing groundbreaking science](#)



[Harvard touts 1st 3D-printed organ-on-a-chip with integrated sensing](#)



[Lab-on-a-chip, organ-on-a-chip provide alternative to animal testing](#)

Filed Under: [Eyes](#), [In-Vitro](#), [Innovation](#), [Research & Development](#), [Slider](#) Tagged With: [age-related macular degeneration](#), [medtech](#), [optical](#), [Tohoku University](#)

Speak Your Mind

MDO Digital Edition



Subscribe to Medical Design & Outsourcing. Bookmark, share and interact with the leading medical design engineering

magazine today.

[View Back Issues](#)

[Subscribe](#)



DeviceTalks is a conversation among medical technology leaders. It's events, podcasts, webinars and one-on-one exchanges of ideas & insights.

[Visit Website](#)

Enewsletter Subscriptions



Tweets by [@MedTechDaily](#)

[MedDesignOutsourcing](#) @MedTechDaily

Big question for #3dprinting + #medtech : What does a part need to be designed like to be effective + economical? #DeviceTalks #c3dmaterials

2h

MedDesignOutsourcing Retweeted

[NAMSA](#) **NAMSA**

[Embed](#)

[View on Twitter](#)

POST COMMENT

Medical Design & Ou...

 Follow
+1

+ 74

MassDevice



The Medical Device Business Journal. MassDevice is the leading medical device news business journal telling the stories of the devices that save lives.

Visit Website

DeviceTalks



DeviceTalks is a conversation among medical technology leaders. It's events, podcasts, webinars and one-on-one exchanges of ideas & insights.

Visit Website

Subscribe Today



Medical Design & Outsourcing covers the technical advancements in the design, development, and contract manufacturing of medical devices and equipment.

Subscribe Today

Medical Design & Outsourcing

- Advertising
- Contact Us
- Enews Sign Up
- Subscribe to Medical Design and Outsourcing Magazine

