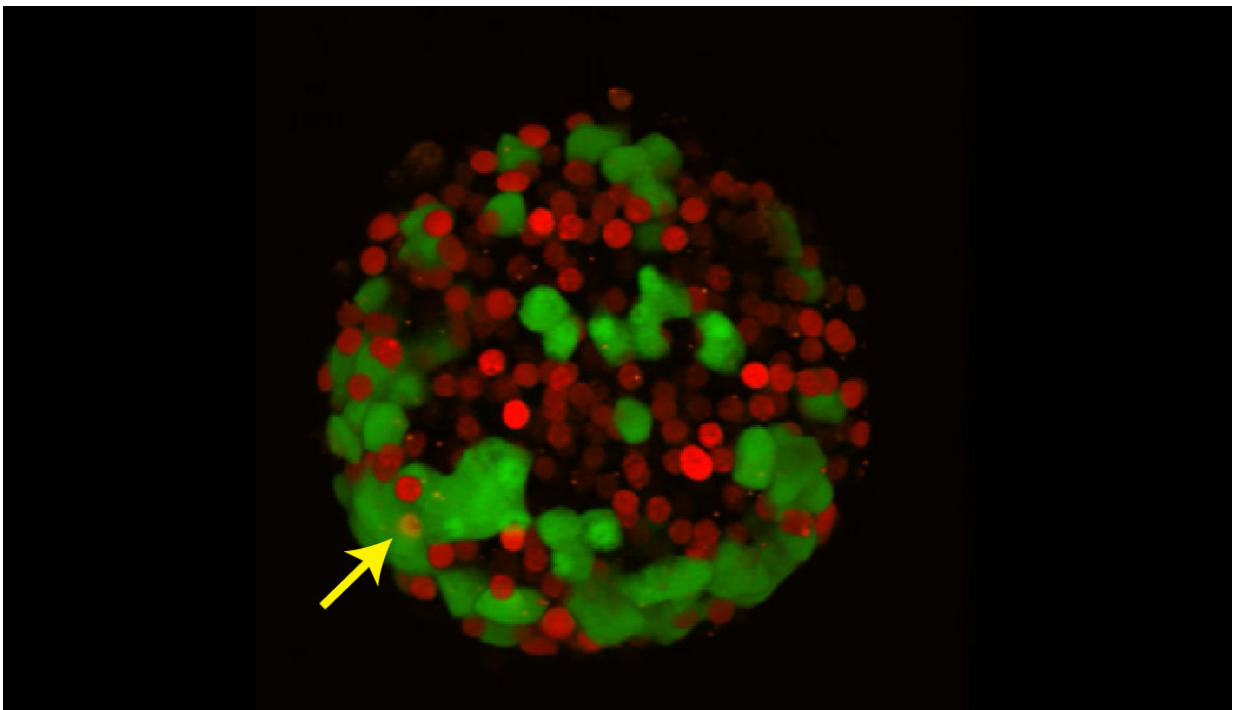


Study refutes using anti-malaria drug to treat diabetes, emphasizes importance of reproducibility in biomedical research

November 3 2017, by Greg Watry



An isolated pancreatic islet from mouse. Beta cells in the islets that make insulin are labelled in red and alpha cells, green. The arrow shows an alpha cell that spontaneously turned into a beta cell. Contrary to previous reports, UC Davis researchers showed that the antimalarial drug artemether did not turn alpha cells into new, insulin-producing beta cells. Credit: Mark Huisin, UC Davis

A drug used to treat malaria does not, after all, create new insulin-producing cells, according to a new paper from researchers at the University of California, Davis. The work, published in *Cell Metabolism* Nov. 2, refutes a study published in *Cell* in January.

In the United States, around 30 million people live with diabetes, according to the Centers for Disease Control and Prevention. So any news of a potential new treatment is a big deal.

"First we had hoped that we would be able to replicate the findings, but they didn't hold up," said Mark Huising, in the Department of Neurobiology, Physiology and Behavior, UC Davis College of Biological Sciences. "People with Type 1 diabetes, they see these stories come out and they think maybe there's something on the horizon and then nothing ever follows through," Huising said.

Understanding diabetes at the cellular level

The symptoms of Type 1 and Type 2 diabetes are quite similar but the underlying causes differ. In type 1 diabetes, the body fails to create enough insulin, a hormone produced by the pancreas that regulates cellular intake of nutrients. In Type 2 diabetes, [cells](#) no longer respond efficiently to insulin.

Insulin is produced in hormone-producing regions of the pancreas called islets. Within the islets are alpha and beta cells. Beta cells are integral to creating insulin.

"That's the cell that if you lose (insulin production), you get Type 1 diabetes," said Huising. So there is always interest in any process that might generate new beta cells to replace those lost in Type 1 diabetes.

An eye-catching 'discovery'

In early 2017, in a paper published in the journal *Cell*, a European team reported that the antimalarial drug artemether could convert [alpha cells](#) into functional beta cells. While alpha cells converting into [beta cells](#) had been described before, this was the first time an existing drug had been reported to stimulate the process and it caused a lot of excitement in the field, Huising said.

Outfitted with the precision tools to capture alpha-to-beta cellular conversion, Huising enlisted graduate student Sharon Lee to assist with replicating the original experiment.

"We were hoping, expecting, to confirm," Huising said. "We weren't able to."

The importance of reproducibility

For her experiments, Lee used pancreatic islets derived from mice. After around four months of experiments with artemether, it was clear that the drug was not triggering alpha to beta cell conversion, as the initial *Cell* paper had claimed.

Lee and Huising's paper highlights the importance of reproducibility, a perennial and hotly contested topic of concern at all levels of scientific research. It also demonstrates how routine lab assignments meant to educate students can provide the foundations for published research.

"It's important to realize that our work has an impact in the real world," Huising said. "We should continuously strive to hold ourselves and our peers to a higher standard, particularly when we talk about discoveries that promise a possible cure for [diabetes](#)."

More information: Talitha van der Meulen et al, Artemether Does Not Turn α Cells into β Cells, *Cell Metabolism* (2017). [DOI](#):

[10.1016/j.cmet.2017.10.002](https://doi.org/10.1016/j.cmet.2017.10.002)

Provided by UC Davis

Citation: Study refutes using anti-malaria drug to treat diabetes, emphasizes importance of reproducibility in biomedical research (2017, November 3) retrieved 24 April 2024 from <https://medicalxpress.com/news/2017-11-refutes-anti-malaria-drug-diabetes-emphasizes.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.