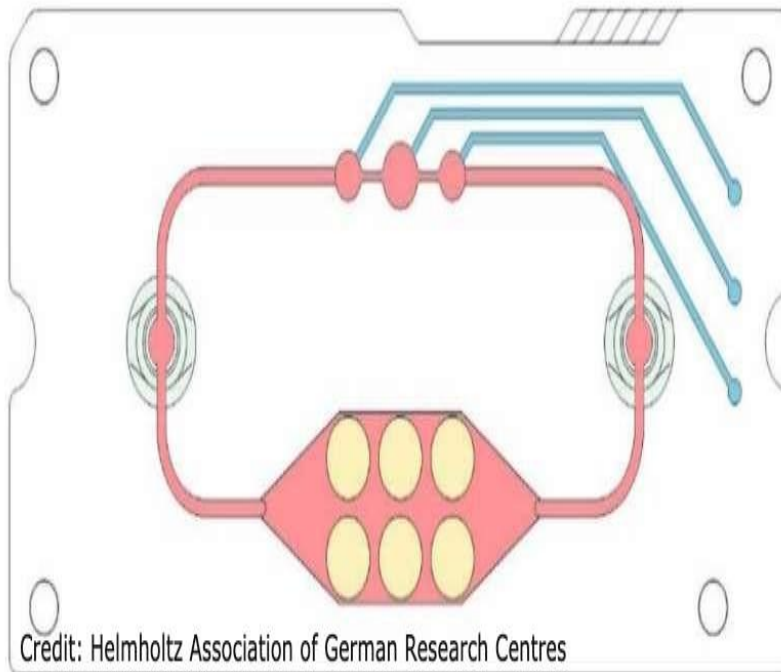


German scientists devise new method to spare animals in cancer research
From [CAARE Citizens for Alternatives to Animal Research](#)
January 2023

Exploring mini-labs as an alternative to animal testing for evaluating radiopharmaceuticals

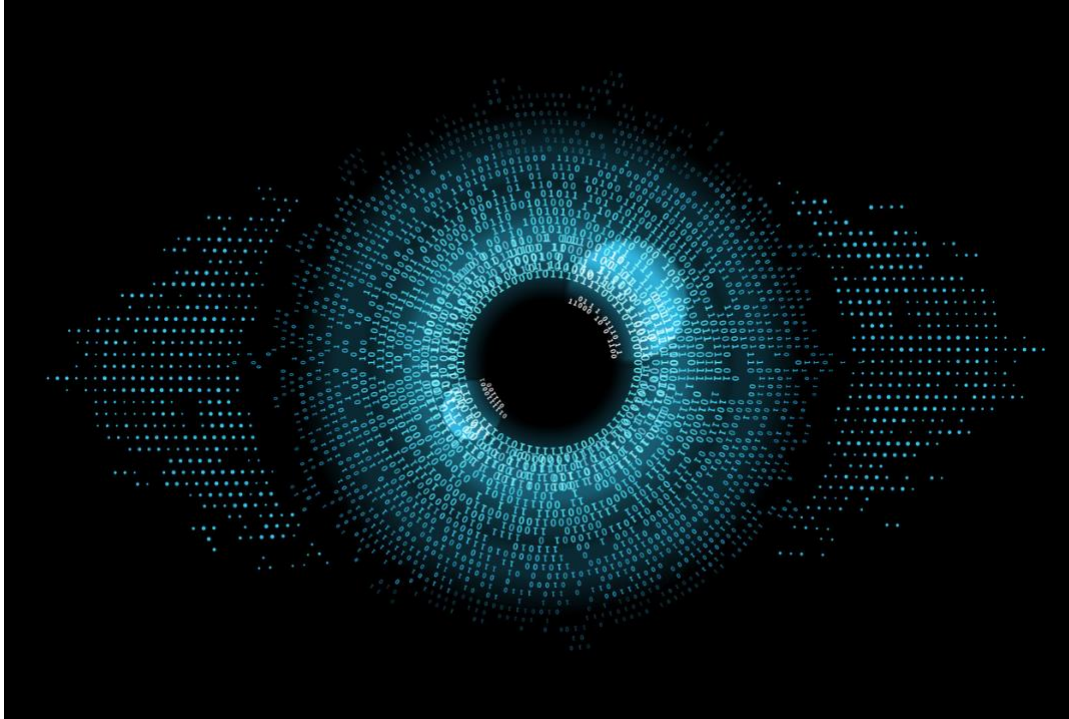


A new development in cancer treatment uses radiopharmaceuticals, radioactive drugs that detect and destroy cancer cells from the inside. To test their efficacy, scientists need to assess the binding characteristics, a process tested on animals.

But now scientists at the Fraunhofer Institute for Material and Beam Technology IWS in Dresden and the Helmholtz-Zentrum Dresden-Rossendorf (HZDR) in Germany, are developing an [alternative way of testing new therapeutics](#) that is more humane and more human-relevant. Co-author Dr. Wiebke Sihver states “Animal models often lack important references to the human organism”.

These researchers are creating cultured microphysiological chip systems with valves and channels that can replicate human physiology far more accurately than testing on animals. Their intent is to use these systems to test radiolabeled substances that are used in cancer therapy. Results are so far promising and researchers plan to conduct further testing with the aim of using these human-based chips to test the binding efficacy of future radiopharmaceuticals.

Two separate eye diseases may contribute to common blinding eye condition



A new [human-based study](#) from scientists at Mount Sinai School of Medicine found that two distinct eye diseases may be contributing factors to a common blinding eye condition called age-related macular degeneration (AMD)

Eighteen volunteers underwent optical coherence tomography (OCT), a retinal imaging technique, so researchers could measure drusen and SDDs, cholesterol-containing deposits that are known to cause AMD. They compared this data with previous scans and found that drusen and SDD actually involve two distinct processes associated with AMD.

Because levels of drusen and SDDs can be easily measured in an OCT, scientists recommend that they be used to diagnose and counsel patients.

Mice are typically used in AMD research, but scientists note that little progress has been made from animal experiments of AMD.

Blood-based markers may reveal Alzheimer disease ten years before symptoms show



A team of scientists led by the Karolinska Institutet in Sweden have been [researching potential biomarkers](#) using human-based methods that can aid in earlier diagnosis of Alzheimer's.

They analyzed blood plasma samples over the course of years from 33 patients with a mutation that causes Alzheimer's and compared samples with 42 relatives without the mutation. They discovered that glial fibrillary acidic protein (GFAP) measurements started increasing about ten years before patients with the Alzheimer's mutation began to notice symptoms.

GFAP levels could be used as a biomarker for early diagnosis, which can in turn lead to earlier treatment and slower disease progression.

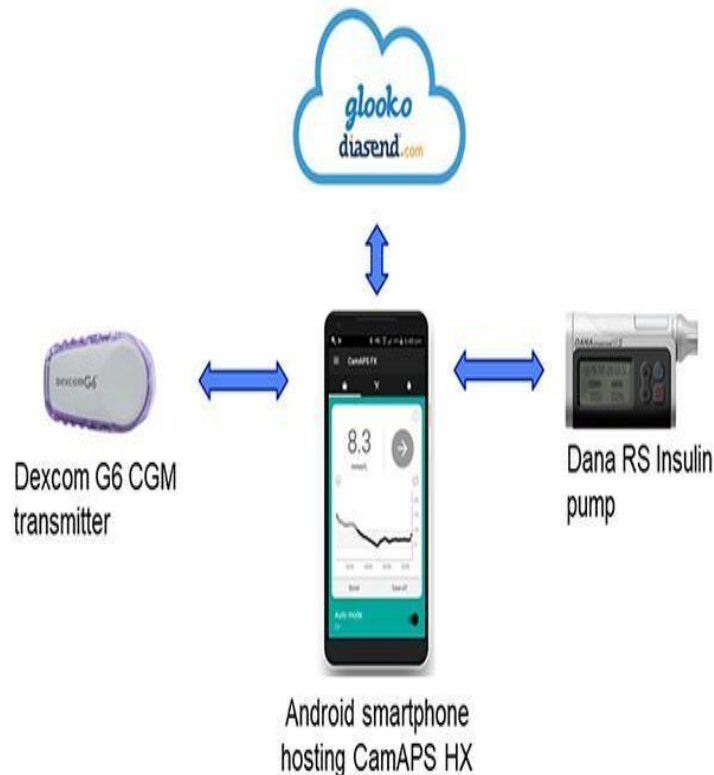
Fewer cases of melanoma among people taking vitamin D supplements



Scientists at the University of Eastern Finland Kuopio University Hospital researched the [impact of vitamin D supplementation on melanoma](#) by studying humans instead of testing on animals, whose skin is vastly different from that of humans. Doctors evaluated almost 500 participants and assigned them a melanoma risk category of low, moderate, or high. Scientists obtained their medical history, including any supplementation with vitamin D.

After evaluating the results they found that regular vitamin D supplementation was associated with a much lower chance of melanoma. This builds upon previous research that demonstrated that vitamin D supplementation was associated with less aggressive melanoma in skin cancer patients.

Artificial pancreas successfully trialed for use by type 2 diabetes patients



Credit: University of Cambridge

While decades of research into diabetes using animals has shed insufficient insight, scientists at the Wellcome-MRC Institute of Metabolic Science at the University of Cambridge have created an [artificial pancreas](#) from human cells that can help patients with type 2 diabetes control their insulin levels.

The device contains a glucose monitor and insulin pump and is connected to an app that runs an algorithm that can ensure glucose levels remain in the target range. Building on previous human studies using an artificial pancreas for type 1 diabetes and type 2 patients requiring dialysis, scientists have expanded the results to a wider population of patients with type 2 diabetes.

The device was safe and effective and easier to implement than other devices because it was fully automated.