

## Animal testing is almost always wrong

From CAARE Citizens for Alternatives to Animal Research  
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*With a ninety percent failure rate, animal testing is almost always wrong. Morally it is **always** wrong, which is compounded by the fact that it's scientifically unjustifiable. It's time for a revolution in biomedical research and CAARE is working to be at the forefront of that transformation.*

*In the coming months, we will work to introduce legislation that will compel NIH to devote significantly more resources to non-animal methods, and issue a plan to begin phasing out animal experiments. If we are to see cures and breakthroughs for our most pressing diseases, then we must remove animals from the research labs.*

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## Patients-on-a-Chip – Why Artificial Intelligence Will Be the Tipping Point to Remove the Faulty Reliance on Animal Testing in Drug Discovery



In an editorial in “Drug Development and Delivery”, Isaac Bentwich, CEO of biotechnology company Quris, [explains why artificial intelligence plus human biology is key to eliminating animal experimentation](#).

Predicting which drugs will be both safe and effective has been hindered by the use of inadequate models. Bentwich states: “The reliance on inaccurate animal testing models to try to determine human efficacy creates massive time, cost, and safety challenges for drug development efforts. **Animal testing**”, he adds, “**is so ineffective in predicting clinical safety and efficacy that it is almost always wrong**”.

Bentwich points out that the newly passed FDA Modernization Act will pave the way for human-relevant methods to be used with more frequency. According to the author, full implementation of these technologies can only come from proper utilization and integration of AI, machine learning, nanotechnology, organs on chips and stem cells, while eliminating animals.

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### **Ten-minute scan enables detection and cure for commonest cause of high blood pressure**



Researchers at Queen Mary University of London, Barts Hospital, and Cambridge University Hospital [carried out human clinical research](#) that led to a new type of CT scan to detect hormone producing nodules that can cause hypertension.

The new CT scan treats hypertension that is the result of elevated aldosterone secretion from the adrenal glands. This is typically treated by a catheter test that is invasive and less thorough. For this study, 128 patients with hypertension caused by elevated aldosterone underwent a scan of the adrenal glands. In two-thirds of these patients, a benign nodule was identified as the cause and removed. This was not only just as accurate as the catheter test, but when it was combined with a urine test, doctors were able to predict which patients would sustain normal blood pressure without lifetime drug treatment. This human-specific research is impossible to carry out with animal experiments, which have failed to produce effective treatments for hypertension.

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## Predisposition to accidental awareness under anesthesia identified by neuroscientists



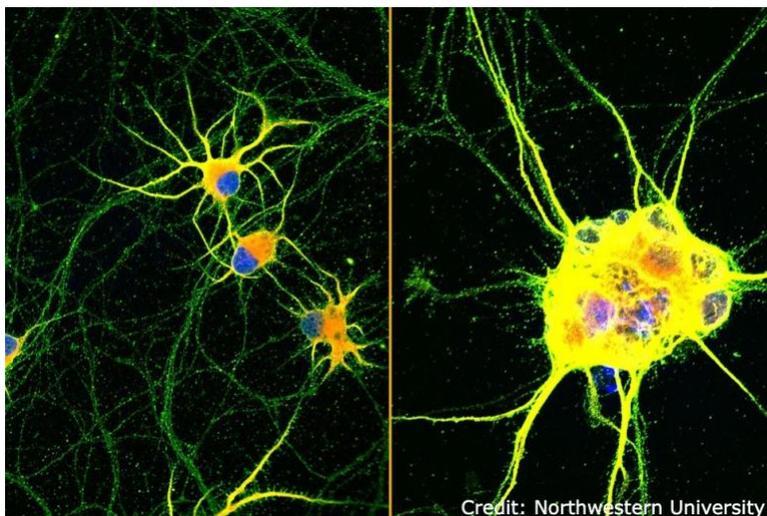
For unknown reasons, some people retain a level of awareness while under anesthesia, including some who have experienced significant pain and psychological trauma as a result. To learn more about this problem, neuroscientists at Trinity College Dublin conducted a [human-based study](#) to explore some people's predisposition to accidental awareness while under anesthesia.

They examined the response time and brain activity of 17 healthy participants while they were awake and again while they were sedated with propofol. They found that three participants were unaffected in their response time while under anesthesia and that they exhibited key differences in the fronto-parietal regions of the brain.

This insight, which would not have been possible to identify in animal experiments, could allow doctors to predict which patients will need higher levels of anesthesia.

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## Mature 'lab grown' neurons hold promise for neurodegenerative disease

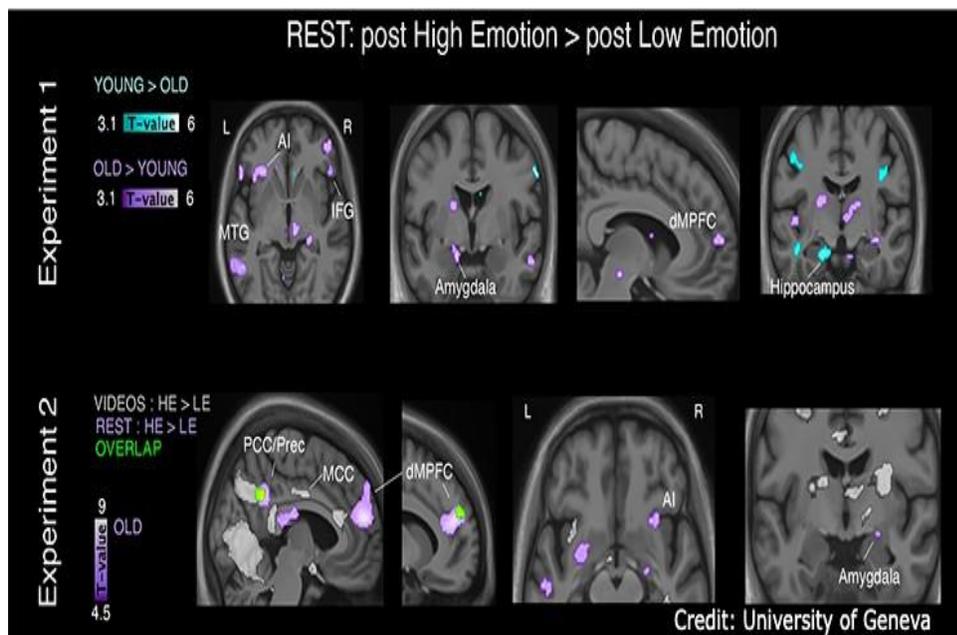


For the first time, a team led by researchers at Northwestern University has [developed lab-grown mature human neurons](#) that may advance treatments for neurodegenerative diseases and traumatic injuries. While scientists had already been able to create neurons from human induced pluripotent stem cells (iPSCs), these were immature and reflected an embryonic or early postnatal stage. Using a new human-based technique called “dancing molecules”, researchers were able to produce mature neurons with greater signaling and branching capability that more closely resemble neurons of an aging human.

The researchers believe this technology allows for large-scale production of patient-derived neurons that can be used for cell transplant therapies without the problem of rejection. Future research is required, but this human-relevant development points to potential therapies to treat spinal cord injuries and neurodegenerative disease like Parkinson’s disease and Alzheimer’s disease.

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### Managing emotions better could prevent pathological aging



Neuroscientists at the University of Geneva conducted a [human-relevant study](#) to explore the theory that negative emotions such as anxiety and depression may promote dementia.

Volunteers watched short clips showing people in neutral situations or experiencing suffering while undergoing functional MRI brain scans to view the brain’s response. First, scientists compared scans from 27 volunteers over 65 with 29 young adults and then repeated the experiment with 127 older adults.

The scientists found that older adults’ neuronal connections showed a significant amount of emotional inertia, meaning that the brain tended to remain in the negative state for longer than in younger subjects. They are currently testing the impact that managing emotions might have on older adults’ brains, such as through meditation, and exploring whether this could prevent or delay the onset of Alzheimer’s disease.