

Week 5 Summaries

Article 1: First Successful Implantation of Revolutionary Artificial Vision Brain Implant

The following article published by the Illinois Institute of Technology provides insight on a new implant that may be the key to restoring vision for the blind. The Intracortical Visual Prosthesis (ICVP) is the implant that can bypass the retina and the optic nerves and enable the information to go directly to the brain's visual cortex, which can interpret the surroundings. The first implantation was done on a participant with blindness at Rush University Medical Center and is the part of the Phase I study. A single system consists of 25 wireless stimulators and 400 electrodes, which can enable an individual with blindness to gain artificial vision. The study will further explore if participants are to navigate and perform basic tasks with the prosthesis. This implant may be a step closer to providing even partial sight to a completely blind individual and an important discovery to build upon for future vision restoration.

Article 2: New DNA computer assesses water quality

Synthetic biologists at Northwestern University were able to develop a system that can test water quality through a genetic network that can perform logical functions essential like a computer. It is a low cost, handheld device equipped with 8 test tubes which will grow green based on the concentration of the contaminate present in the water; each tube succession that glows green indicates a higher concentration. The test tubes ultimately behave as taste buds, similar to that of bacteria, by utilizing cell-free synthetic biology. The biologists take out the molecular machinery that bacteria use as their taste buds and put into a test tube. This biosensor is able to sense contamination in the water and then that information is fed into a genetic network which can perform logic. Julius Lucks and his team have successfully put the device at work, which detected concentration levels of zinc, an antibiotic and abs industrial metabolite. Having inexpensive devices that can check water quality can be useful for everyday individuals to make sure there are no high concentrations of contamination in the water supply.

Bibliography

@misc{illinois institute of technology_2022, title={First successful implantation of Revolutionary Artificial Vision Brain Implant}, url={<https://scitechdaily.com/first-successful-implantation-of-revolutionary-artificial-vision-brain-implant/amp/>}, journal={SciTechDaily}, author={Illinois Institute of Technology}, year={2022}, month={Feb}, abstract={ It's interesting because of how small of an implant it is and but it serves to perform an important function of restoring vision by relying the message directly to the brain. It is an important advancement in the medical technology field to help regain some vision for those with blindness, for which there is no cure for. }}

@misc{northwestern university_2022, title={New DNA computer assesses water quality}, url={<https://www.sciencedaily.com/releases/2022/02/220217122339.htm>}, journal={ScienceDaily}, publisher={ScienceDaily}, author={Northwestern University}, year={2022}, month={Feb}, abstract={ It is interesting because the device implements not only cells of bacteria but also a network that is able to process the output of the sensor. It is important especially in developing countries where the chances of the water supply becoming contaminated may be high due to factories and other outside contamination leading into lakes and their sources of water. }}