

Genetic engineering may help in mapping the human brain

With the completion of the Human Genome Project, biology's next big challenge will be to map the human brain, report Sara Reardon and Bob Holmes at *New Scientist*.

Leading scientists plan to map the activity and interconnections of individual neurons in high resolution, second by second. Exactly how this will be done is as-yet undecided, but *New Scientist* reports that genetic engineering may have a role to play:

... An activity map is meaningless if it only shows connections and firing patterns without giving any clue why a circuit fires, says Karl Deisseroth of Stanford University in California. One way to image these cause-and-effect relationships is through optogenetics, which involves genetically engineering mice so that their neurons fire when hit with a beam of light shone through the skull. The firing neurons leave a protein trail, allowing researchers to see which circuits responded to the light or other stimuli.

Similarly to how our understanding of genetics continues to transform the way we think about biology and human health, brain mapping projects have the potential to revolutionize the way we diagnose and treat mental disorders. Further down the line, these projects may lead to artificial intelligence that mimics human thinking, and help us to understand consciousness itself.

Read the original article here: [Mapping brain activity is neuroscience's lofty new goal](#)