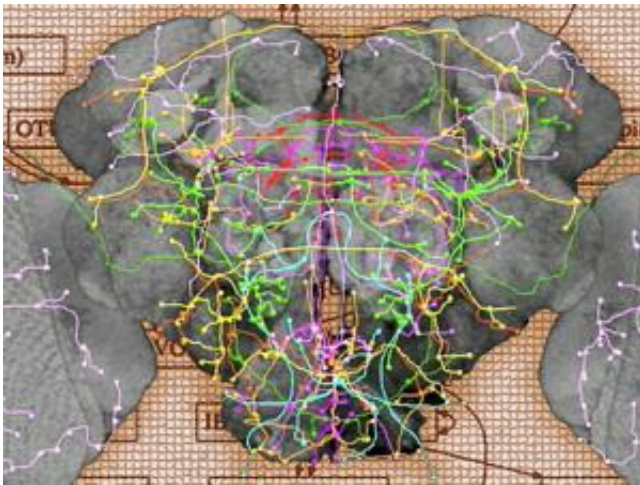


Computer Technique Creates Map of a Fruit Fly Brain

April 12 2010, by Miranda Marquit



Credit: Hanchuan Peng, via ScienceNews

Researchers, led by Hanchuan Peng, at the Janelia Farm Research Campus at the Howard Hughes Medical Institute in Ashburn, Virginia are working to map the fruit fly brain in a way that highlights how neurons work together. The detail is done on a cell by cell basis that can provide insight into networks of neurons inside fruit fly brains.

In order to create the map of a fruit fly [brain](#), flies were modified genetically in such a way that certain neurons glow under laser light. Digital images from different [fruit flies](#) are combined, using computers. While the fruit fly brain isn't completely mapped out yet, the technique allows researchers to add to the knowledge base as more images are

made available.

The computerized map building is already yielding results, reports [ScienceNews](#):

[T]he variety of shapes found in the neurons of a wheel-shaped brain structure called the ellipsoid body “are just amazing,” Peng says. In the same fly, some of the cell bodies spread inside the ring, while others point outward in a complex lock-and-key arrangement. Finding such unexpected variation could mean that these neurons — which were thought to be nearly carbon copies of each other — have important functional differences.

Being able to map a fruit fly brain in this way, identifying the differences in neurons, could contribute to our understanding of the human brain. If this technique works on the fruit fly brain, considered one of the simplest brains with an estimated 100,000 neurons, there is a possibility that the technique could also be used to begin mapping the human brain. However, the human brain has billions of [neurons](#), and is significantly more complex than a fruit fly brain.

Even so, the idea that we could gain a greater understanding of how our own brains work is an exciting possibility to come out of this computer [brain mapping](#) technique.

More information: Laura Sanders, "Mapping the fruit fly brain," ScienceNews (2010). Available online: [www.sciencenews.org/view/gener... the fruit fly brain](http://www.sciencenews.org/view/gener...the_fruit_fly_brain).

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