



# Expressing Yourself

The state-of-the-art technology used by researchers to identify active (expressed) genes in cells is the *microarray*: a “gene chip” imprinted, not with circuits, but with DNA. Active genes of fluorescently tagged cell samples placed on the chip reveal themselves when they bind with their DNA complements on the chip. The amount of data generated by this microscopic activity is enormous: just one row in an array can have 15,000 points.

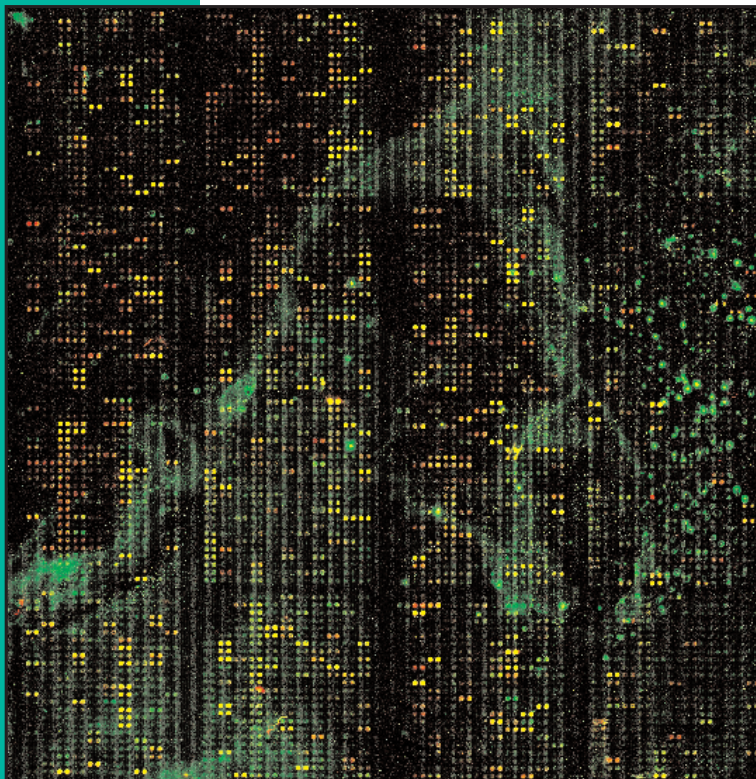


Image courtesy of Professor Rodney J. Scott and the Clive and Vera Ramciotti Functional Genome Array Centre.

Pattern recognition and image analysis are two fields which use mathematics to help extract important genetic information about several diseases, including Alzheimer’s and Parkinson’s, from microarray data. In the future, microarrays may enable an individualized approach to medicine, in which your doctor could use these chips to diagnose disease and determine the best treatment for your unique genetic profile.



The **Mathematical Moments** program promotes appreciation and understanding of the role mathematics plays in science, nature, technology, and human culture.