WEB WATCH

Dana BrainWeb

If your family and friends assume that your neuroscience training provides a wealth of neurological knowledge on everything from Alzheimer's disease to Tourette's syndrome then you might want to bookmark Dana BrainWeb. This site is part of the Dana Alliance for Brain Initiatives, a non-profit organization of more than 200 neuroscientists that was formed to help provide information about the personal and public benefits of brain research and receives philanthropic support from the Charles A. Dana Foundation.

The Dana BrainWeb contains a growing list of diseases (23 at present) that affect the brain and spinal cord, with new categories and links added on a quarterly basis. The site is edited by Cathleen Coffey and is aimed at people with brain disorders, their families and caregivers and seeks to provide information that will be useful for the layperson. By simply following a link from the main page to the disease of interest the reader obtains a list of four recommended sites, each of which has a short introductory paragraph describing the contents of the site and some of the links contained within. These links usually provide descriptions of the disease in question, answers to frequently asked questions, treatment options, support for families and care providers, and numerous sources of more information and guidance.

One of the main attributes of this site is that the Dana Alliance for Brain Initiatives recommends the web sites and provides a short review of the content of each site. This adds a useful element of quality control. The Dana BrainWeb also sensibly cautions that the information provided is not a substitute for medical advice, and urges the reader to consult their doctor for diagnosis and treatment.

Peter Collins

SYNAPTIC PHYSIOLOGY

Shouts and murmurs in the dendritic tree

An old problem in the study of synaptic integration has been to establish whether dendrites have mechanisms to increase the strength of distal synapses, or if the influence of these connections on axon potential generation is actually small because they are attenuated while travelling towards the cell body. Although this problem was laid out more than 40 years ago by Rall's theoretical analysis, the experimental attention it has received has been surprisingly scarce. Now, in the September issue of *Nature Neuroscience*, Magee and Cook have revisited this question to discover that distal synapses do count as much as proximal ones because the farther they are from the soma, the stronger they get.

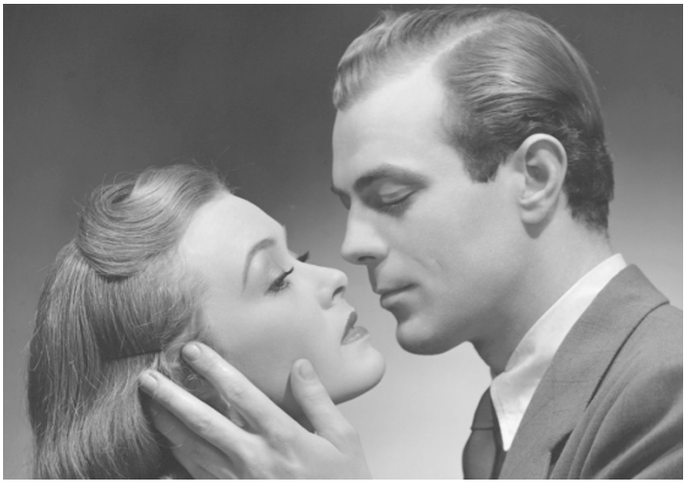
Magee and Cook measured synaptic currents simultaneously from the soma and from the apical dendrite of a single hippocampal pyramidal cell, and varied systematically the recording site on the dendrite. By evoking transmitter release close to the dendritic recording, they obtained compelling evidence that the cable properties of the dendrite filter the synaptic currents, reducing their amplitude. At the same time, however, synapses get stronger with increasing distance from the cell body and, as a consequence, the amplitude of the responses at the soma is homogeneous regardless of the site of synaptic input.

What are the cellular mechanisms that account for this amplitude normalization? We do not know yet, but there are several likely possibilities, such as an increase in the number of vesicles

CHEMICAL SENSES

Two steps closer to the ultimate perfume

Our long-standing interest in the study of pheromones underwent a renaissance five years ago, after the cloning of their putative family of receptors. Since this breakthrough, our understanding of the molecular logic of this sensory system has continued to grow, and two reports published last month are the latest important advances in the field. In the first report, which appeared in the September 1 issue of *Science*, Holy *et al.* have begun to unravel the neural code used by the neurons of the vomeronasal organ (VNO). In the second, published in the September issue of *Nature Genetics*, Rodriguez *et al.* have identified what seems to be the first human pheromone receptor.



Holy and his colleagues at Harvard took on the technically demanding challenge of recording simultaneously from numerous mouse VNO neurons and tested their responses to a well known source of pheromones — mouse urine. They observed that, in contrast to most cells in other sensory systems, VNO neurons did not adapt to the continuous presence of the stimulus. More importantly, they found that only a small fraction of cells responded equally well to urine from either sex, as most of them showed preference for either male or female urine. Moreover, another class of VNO neurons could even distinguish between the urine of two animals of the same sex, a finding that, according to the authors, could be related to the recognition of individual differences. Although these are the first steps towards deciphering the neural code of the VNO, they already point to profound questions. How are these differences in firing pattern interpreted by the accessory olfactory bulb? Do prolonged, repeated exposures to the urine of a single mouse lead to enduring changes in the code?

Meanwhile, down the Atlantic coast, Rodriguez and his colleagues at Rockefeller have cloned what looks