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A Molecular Logic of Olfactory Perception

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Our perception of the world is shaped by the nature of our sense organs and the way in which sensory cells are wired into the brain. Perception is therefore governed by the genes that serve to mold our sensory systems and I will discuss how this may be accomplished for smell. Odor recognition is accommodated by over a thousand genes encoding odorant receptors. The isolation of these genes has allowed us to identify an olfactory sensory map in the brain that provides an internal representation of odor in the external world. The elucidation of an olfactory sensory map leaves us with a different order of problem: How are spatially defined bits of electrical information in the brain decoded to allow the perception of an olfactory image and appropriate behavioral output.