PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

A map of smells

ArticleInfo		
ArticleID	:	3773
ArticleDOI	:	10.1186/gb-spotlight-20000921-03
ArticleCitationID	:	spotlight-20000921-03
ArticleSequenceNumber	:	210
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2000–09–21 OnlineDate : 2000–09–21
ArticleCopyright	:	BioMed Central Ltd2000
ArticleGrants	:	
ArticleContext	:	130591111

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Odorants are detected by a vast collection of receptors in the nose. Individual sensory neurons probably express a single receptor, and all the neurons that express a particular receptor converge on a few topographically fixed glomeruli in the brain's olfactory bulb (OB). Researchers are keen to see whether there is any functional sorting of olfactory information during this projection process, and now in the October Nature Neuroscience Uchida *et al*. find that, indeed, odorants with different functional groups are detected by different areas of the brain's olfactory bulb (*Nat. Neuro.* 2000, **3**:1035-1043). Carboxylic acids and aldehydes are detected in an anteromedial domain, whereas alcohols and ketones are detected in a lateral domain. Especially within the anteromedial domain, odorants of increasing carbon chain length are detected by clusters of glomeruli that are nested in more anterior and lateral positions. This is in agreement with data demonstrating that olfactory neurons expressing related receptors project to neighboring glomeruli. The only question now is how this sorting takes place.

References

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5. Olfactory neurons expressing closely linked and homologous odorant receptor genes tend to project their axons to neighboring glomeruli on the olfactory bulb.