Non-invasive Measurements of Olfactory Perception and Cognition in Human

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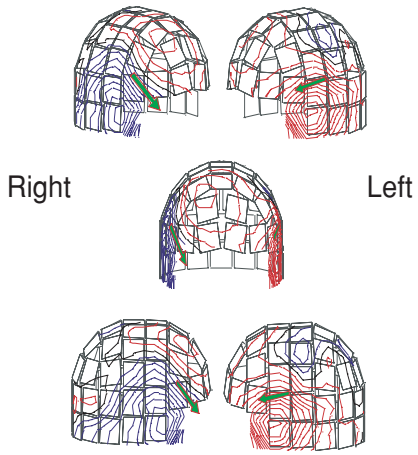
Perception and cognition of our senses are in general interpreted as a dispersive processing in human brain. However, an information processing of olfaction is unknown until now. Recently we have measured human olfaction non-invasively using magnetoencephalography(MEG). From these MEG experiments we found the olfactory nervous centers estimated in orbito-frontal cortex using odorant stimulation synchronized with respirations. Another olfactory experiment of MEG odd-ball paradigm was tested by using two odorants (a pleasant odor and an unpleasant one). This response of P300m revealed an olfactory cognitive component different from perception. These results suggest a new television transmitting odors in future.



Two equivalent current dipoles estimated as olfactory centers with MEG mapping on the brain

Elucidating the Bacterial Metabolism

- Cellular Activities Visualized at the Atomic Scale -

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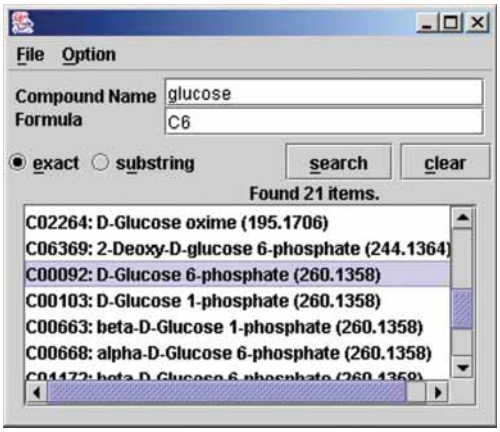
For an understanding of complex cellular activities, insight into the synthesis and degradation of organic compounds within a cell, its metabolism, is of primary importance. I have devoted my efforts to the digitization of the cellular metabolism by building databases for compound structures, enzymatic reactions, and metabolic pathways. In these databases, biological activities are described at the atomic scale. Using graph algorithms, tracer experiments can be performed on a computer. At present, metabolic data for E.coli and B.subtilis are available.
http://www.metabolome.jp



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