Combining *in silico* with experimental approaches to decipher the chemical senses

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This morning, you may have enjoyed a cup of coffee or tea and felt that its aroma had stimulated your sense of smell. The volatile molecules in your favourite morning beverage are recognized by the olfactory receptors (ORs) expressed in your olfactory epithelium. But among your 400 ORs, which ones were activated by these molecules?

To answer this complexe question, and more generally to determine the molecular recognition spectrum of ORs, we design the Molecule to Olfactory Receptor **M2OR** database (https://m2or.chemsensim.fr/), which brings together 75,050 bioassay experiments for 51,683 distinct OR-molecule pairs [1]

This meticulous curation of bibliographic data offers a comprehensive understanding of the current state of ORs deorphanization. It will be of a major interest to teams dedicated to building predictive models of the combinatorial code as the database offers the largest compilation of experimental OR-molecule pairs.

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[1] M. Lalis, M. Hladiš, S. Abi Khalil, L. Briand, S. Fiorucci, J. Topin*. M2OR: a database of olfactory receptor–odorant pairs for understanding the molecular mechanisms of olfaction, Nucleic Acids Research, 2023;, gkad886, https://doi.org/10.1093/nar/gkad886