

## ***Molecular basis of chemosensory perception***

Grant : PhD thesis (MSER)  
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Taste perception consists in a chemical stimulation of the gustatory receptors lying on the surface of the sensory cells. Transmembrane receptors involved in the perception of bitter, sweet and umami taste belong to the G protein-coupled receptors (GPCR) family for which very few experimental structures exist. The main objective of the thesis is to decipher the molecular processes involved in taste perception. Molecular modeling will be employed to provide relevant three-dimensional models, to understand the specificity of the recognition with respect to different sapid molecules and to decipher molecular mechanisms underlying the activation and the modulation of these transmembrane receptors.

The second objective is to identify new molecules that modulate the chemosensory perception. A better understanding of the interaction between smell and taste is essential. Indeed, the response of our organism, whether voluntary or not, to food intake is strongly influenced by both senses. The taste intensity of a nutriment, its hedonic properties, or our psychophysical response can be modulated by the simultaneous perception of an odor. A direct application of this thesis could consist in a focus on the sensory disorders (alteration or total / partial loss of taste and / or smell) that can lead to a risk of food overconsumption, malnutrition or even depression.

The candidate must have obtained a master's degree in chemistry, physics or biology and should be familiar with molecular modeling techniques. Knowledge of scientific computing under Linux environment and programming skills are clearly a plus.

The work of thesis will take place within the Chemistry Institute of Nice, UMR 7272 CNRS-UNS, in the group chemosim (<http://chemosim.unice.fr>). The candidate will work in a collaborative framework already established at the national (GDR Odorants-Odor-Olfaction) or international level (eg Monell Chemical Center...).

More Details : <http://chemosim.unice.fr/> and <http://icn.unice.fr/fiorucci>  
Apply online : <http://www.ed-sfa-unice.fr/>

### References:

- Ces molécules qui éveillent nos papilles. J.B. Chéron, J. Golebiowski, S. Antonczak, L. Briand, S. Fiorucci. *L'Actualité Chimique*, **2017**, 416, 11-18.
- The anatomy of mammalian sweet taste receptors. J.B. Chéron, J. Golebiowski, S. Antonczak, S. Fiorucci. *Proteins*, **2017**, 85, 332-341.
- Sweetness prediction of natural compounds. J.B. Chéron, J. Golebiowski, S. Antonczak, S. Fiorucci. *Food Chem.* **2017**, 221, 1421-1425.