

3rd International Conference and Exhibition on **Biosensors & Bioelectronics**

August 11-13, 2014 Hilton San Antonio Airport, San Antonio, USA



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A novel platform based on immobilized olfactory receptors, for detection odorant molecules characteristics of boar taint

We report a dose-dependent detection of androstenone in solution, as one of boar taint compounds, based on related OR 7D4 olfactory receptors immobilized on gold electrode through their 6-His tag and NTA-copper complex (Scheme 1), as visualized through fluorescence microscopy. Square wave voltammetry (SWV) is the method used to monitor the electrochemical transduction process. The relative variation of current Cu(I)-Cu(II) peak increases linearly versus log (concentration of androstenone) from 10^{-14} M to 10^{-4} M, in buffer solution. Negative tests were performed, using an unrelated odorant, helional, itself related a ligand. Cross-selectivity was also tested after immobilization.

Biography

Nicole Jaffrezic-Renault received her Engineering degree from the Ecole Nationale Supérieure de Chimie, Paris, in 1971 and the Doctorat d'Etat ès Sciences Physiques from the University of Paris in 1976. She joined Ecole Centrale de Lyon, France in 1984 and Claude Bernard University Lyon 1 in 2007. As Director of Research at the Centre National de la Recherche Scientifique, past President of the Chemical Micro Sensor Club (CMC2), President of the Analytical Division of the French Chemical Society, her research activities in the Institute of Analytical Sciences, include conception and design of (bio)chemical sensors and their integration in microsystems. She is President of the Analytical Chemistry Division of the Chemical Society of France. She coordinates several European and national projects for the development of microsystems for biomedical and environmental monitoring and for food safety. She published more than 500 papers with more than 7900 citations.

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