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## ABSTRACT:

### Peptide-based Biomimetic Optoelectronic Nose for Odor Analysis

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Nowadays, odor analysis has attracted increasing interest in diverse fields such as environmental monitoring, food and beverage industries, medical diagnosis, perfume and cosmetics industry, etc. In complementary to traditional analytical methods, electronic nose (eN) is an instrument composed of an array of sensors with differential selectivity and an appropriate pattern-recognition system, capable of recognizing simple or complex odours. Most existing eNs use inorganic materials such as metal oxide semiconductors and organic materials such as polymers as sensing elements. Despite of their good sensitivity, one of their main drawback is the lack of selectivity. In such a context, in the last decade, we have been focusing on the design of novel biological sensing materials for the development of eN. By combing peptide microarray with an optical detection system surface plasmon resonance imaging (SPRi), our biomimetic optoelectronic nose is very efficient for odor analysis in terms of sensitivity, selectivity and stability. [1-5] Our technology has been transferred and led to the creation of a start up company. Today, we continue upstreaming research for further improvement of the performances of such systems and explore their potential applications in various domains.

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