

Sensing properties of porphyrinoids functionalized nanostructures: from human screening to chiral selectivity

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The molecular framework of porphyrinoids, such as porphyrins and corroles, is a flexible tool to design receptors for sensor arrays [1]. Mass and optical transducers are particularly suitable to capture the whole spectrum of interactions occurring between receptors and volatile compounds. For instance, arrays of porphyrins coated QMB have been used in breath analysis arrays to identify lung cancer [2], tuberculosis [3] and to sort stem cells according to their differentiation step [4]. The bouquet of porphyrinoids based chemical sensors can be modified and improved introducing hybrid materials made of porphyrinoids coated metal-oxides nanostructures [5]. Interestingly, the sensor properties exceed those of the constituents and are influenced by the materials morphology. These features enable the development of more efficient and reliable sensor arrays.

references

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