

## **Organic Electronics for health monitoring**

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Bio-recognition is a fundamental mechanism in biological processes in living systems, and it is widely exploited in technological and health applications. Organic Electronics is an emerging technology perfectly suited to connect electrical and biological worlds, thanks to the biocompatibility of many materials, and the ability to communicate with the living systems through both ionic and electronic currents. Moreover, one of the main innovative features of Organic Electronics is the idea that materials properties of the components can be selectively tuned through chemical modification or designed synthetic procedures. This talk will focus on recent strategies to realize biosensors based on organic transistors using as sensing elements antibodies, peptide aptamers and enzymes immobilized on one electrode surface or directly on the organic semiconductor. The works here presented will show successful biosensing strategies towards different kinds of biomarkers related to health issues, ranging from small molecules (e.g., uric acid and dopamine) to proteins (e.g., phosphorylated tau protein, cytokines), and the possibility of using the devices to study the thermodynamics of biomolecular recognition between sensing elements and target analytes in solution.