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Design of Biomimetic Electronic Nose And Electronic Tongue

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The design of biomimetic electronic nose and electronic tongue is presented. First, the smell and taste sensors mimicking mammalian olfaction and gustation are described; then, some mimetic signal processing methods for the recognition of odorants and tastants are also developed. Finally, olfactory and gustatory cell-based biosensors are presented, which are based on the mimetic bioelectronic nose and bioelectronic tongue research, trying to culture living olfactory and taste cells on the surface of chips, that can detect odorants and tastants using microelectronic chips such as those based on field effect transistors (FETs), microelectrode arrays (MEAs), and light-addressable potentiometric sensors (LAPSs) to record action potential and identify the extracellular chemical and biological substances.

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