

Bio-Sensor in Medication

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It is an absolutely unique design approach for treatment of any disease using electrical behavior of bio-molecules and nanotechnology.

Organic sensor i.e., biomolecules such as hormones or enzymes are highly sensitive. It can respond to very low level of input at very low frequencies (around 10 Hz) as well as high frequencies (around 80-90 kHz). Electrical behavior of biomolecules such as enzymes, dopamine, catecholamine (Epinephrine and Norepinephrine) are of great interest. Increase in blood pressure during stress, increases the pulse rate and the NE level and in that case a balanced dose of adrenaline is needed to neutralize the effect of NE so as to cool down the increasing BP. This behavior of NE can be exploited as biological sensor. If corresponding receptor of NE with proper interfacing electrodes is implanted inside the body, can control the secretion of NE and will act as a more efficient and powerful treatment tool than prolonged external medicine.

Biomolecular electrodes can be made with the help of nanotechnology. Biomolecules and metallic or semiconductor nanoparticles (NPs) enable the synthesis of biomolecules-NP hybrid systems where the unique electronic, photonic and catalytic properties of NPs are combined with the specific recognition and biocatalytic properties of biomolecules.

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