

## Topic Page: [Biosensor](#)

Definition: **biosensor** from *Merriam-Webster's Collegiate(R) Dictionary*

 [pronunciation](#)

(1962) : a device that monitors and transmits information about a life process; *esp* : a device consisting of a biological component (as an enzyme or bacterium) that reacts with a target substance and a signal-generating electrochemical component that detects the resulting products or by-products

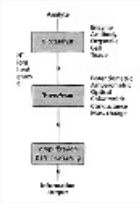


Image from:

[Biosensor configuration. \(After Rawson.... in \*The Encyclopedia of Ecology and Environmental Management\*. Blackwell Science](#)

### Summary Article: **biosensor**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

Device based on microelectronic circuits that can directly measure medically significant variables for the purpose of diagnosis or monitoring treatment. One such device measures the blood-sugar level of diabetics using a single drop of blood, and shows the result on a liquid crystal display within a few seconds.

Biosensors typically contain three separate functional parts: the sensor recognizing the target, the detector providing the response or readout, and a transducer to allow communication between these two. Target recognition in biosensors is typically achieved by a biomolecule, such as an antibody, a receptor, an enzyme, or a nucleic acid. This biomolecule will typically be immobilized, that is, firmly linked to a solid support. The readout can be an electronic signal to be shown on an LCD display or via a computer. Optical

signals can be converted into electronic ones by suitable detectors. It can also be a colour reaction to be checked by eye or by spectrometry. Ideally, a biosensor should be small, portable, and user-friendly even for untrained users. Home pregnancy-test kits are the most common example of such a biosensor.

The pregnancy test requires several biomolecules. The target, namely pregnancy-specific hormones in the urine, is first bound by immobilized antibodies located within the readout window. A second antibody, carrying an enzyme that will produce the colour reaction, then binds to the immobilized antibody-hormone complex.

In the laboratory, the widely used ELISA technique (see enzyme-linked immunosorbant assay), is based on a similar chain of molecular recognition events.

**APA**

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## APA

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## Chicago

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## Harvard

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## MLA

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