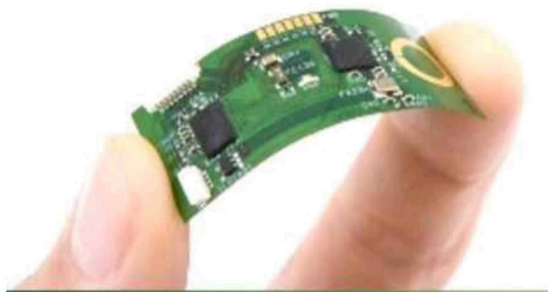


BIOSENSOR



CONTENT

- ▶ Introduction
- ▶ Principles of Biosensors
- ▶ Working of Biosensors
- ▶ Applications of Biosensors



WHAT ARE BIOSENSOR ?

- ▶ A biosensor is an analytical device, used for the detection of a chemical substance, that combines a biological component with a physicochemical detector



INTRODUCTION

- ▶ **Biosensors is an analytical device which converts a biological into an electrical signal**
- ▶ **It detects, records and transmits information regarding a physiological change or process.**
- ▶ **It determines the presence and concentration of a specific substance in any test solution..**

FATHER OF BIOSENSOR

Father of the Biosensor



Professor Leland C Clark Jnr
1918-2005

Considered the "father of biosensors," **Leland C. Clark Jr.** invented the first device to rapidly determine the amount of glucose in blood. Today many of the 18.2 million Americans with diabetes rely on Clark's original glucose sensor concept for self-monitoring.

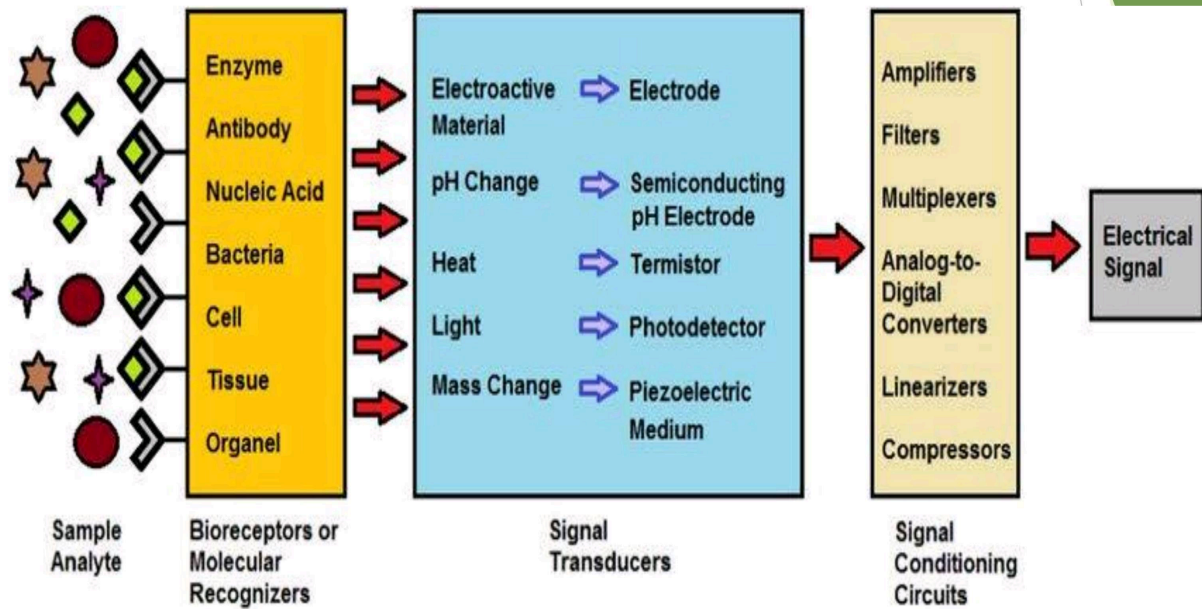
BASIC PRINCIPLE OF BIOSENSOR

- ▶ Basic principle of biosensor involved in three elements :
- ▶ First biological recognition element which is highly specific towards the biological material analytes produces.
- ▶ Second transducers detect and transduce signal from biological target receptor molecule to electrical signal which is due to reaction occur.
- ▶ Third after transduction signal from biological to electrical signal where its amplification is necessary and takes place and read out in detector after processing the values are displayed for monitor and controlling the system.

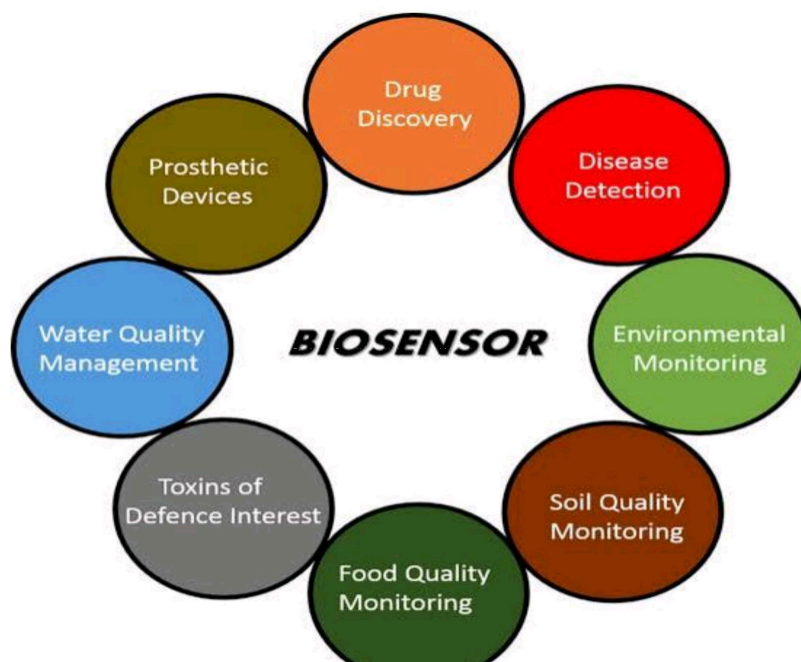
COMPONENTS OF BIOSENSOR

- ▶ The block diagram of the biosensor consists of three segments namely, sensor, transducer, and electrical circuit.
- ▶ i. **Sensor or detector:** The first segment is the sensor or detector which is a biological component. It is a biochemical receptor. It interacts with the analyte and signal the change in its composition as electrical signal.
- ▶ li. **Transducer:** The second segment is the transducer and it is a physical component which amplifies the biochemical signal received from detector, alters the resulting signal into electrical and displays in an attainable way.
- ▶ lii. **Electrical circuit:** It is the associated part which consists of Signal Conditioning Unit, a Processor or Micro-controller and a Display Unit.

WORKING OF BIOSENSOR



APPLICATION OF BIOSENSOR



THANK YOU !

The right side of the page features a complex, abstract composition of overlapping, semi-transparent green triangles and polygons. The colors range from a light, pale green to a deep, dark forest green. The shapes are layered, creating a sense of depth and movement. A thin, light-colored line also extends from the bottom right towards the center of the page.