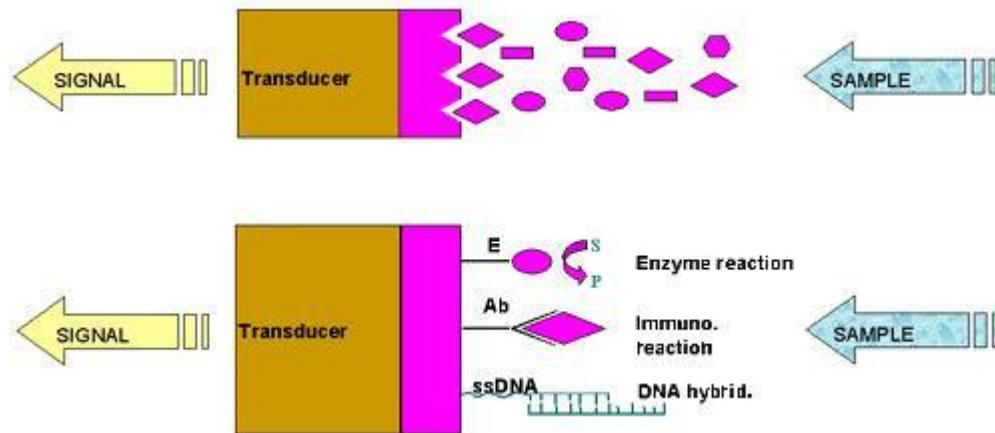


MicroNeedle BioSensors



SUB-MICROLITER ASSAYS

Microneedle chips are ideally suited for use with integrated miniaturized biosensors. Biosensors allow biological or biochemical measurements to be made promptly, so that appropriate action can be taken. In the case of diabetics, a glucose biosensor can measure the quantity or concentration of glucose in the bloodstream, so that the user can inject insulin as needed.

The drawing above shows the basic biosensor concept. A sample is drawn into the chamber via the integrated microneedle where it reacts with the sensing structure within the chamber. Molecular recognition moieties immobilized within the structure select the analyte and cause an electrochemical transducer to generate an electrical signal in quantitative response to the analyte presence. Molecular recognition systems can include: enzymes, antibodies, or segments of DNA or RNA. Examples of laboratory prototype assays integrated into microneedle chips include: blood glucose, blood lactate, blood alcohol, enzyme inhibition due to exposure to organophosphate nerve agent or pesticides



Medical and Biotech
Developments, Inc.

WHAT MAKES A GOOD BIOSENSOR?

- Accuracy/Precision - Our biosensors provide clinically acceptable accuracy and precision over relevant ranges of analyte measurement.
- Sensitivity - Small changes in sensed analyte levels are detectable within clinically meaningful limits.
- Specificity - Uric acid, acetaminophen, and ascorbic acid, the most common interferents in blood, do not affect the accuracy or sensitivity of our biosensors.
- Simplicity - Lower cost, and less likely to be incorrectly made.
- Continuous - Close monitoring of patient analyte levels over time may be critical in some medical situations. Several of our biosensors are designed for such use.