

Biosensor

Biosensor

Device that uses a biological element as an intimate part of a sensor

- Organism-based biosensor
- Cell-based biosensor
- Biomolecule-based biosensor

Organism-Based Biosensor

- Human – 5 senses
(2 chemical senses)
- Canary – sensing for methane in coal mine
(more than 100 years ago)
- Fish, Daphnia – water quality
- Dog – drug, explosive

Cell-Based Biosensor

- Magnetic bacteria – water quality
- Olfactory biosensor – smell sensing

Organism- or **cell-based biosensors** are not specific for certain compounds but are capable of **responding to a wide range of biologically active compound** and offers the potential to **gather information content.**

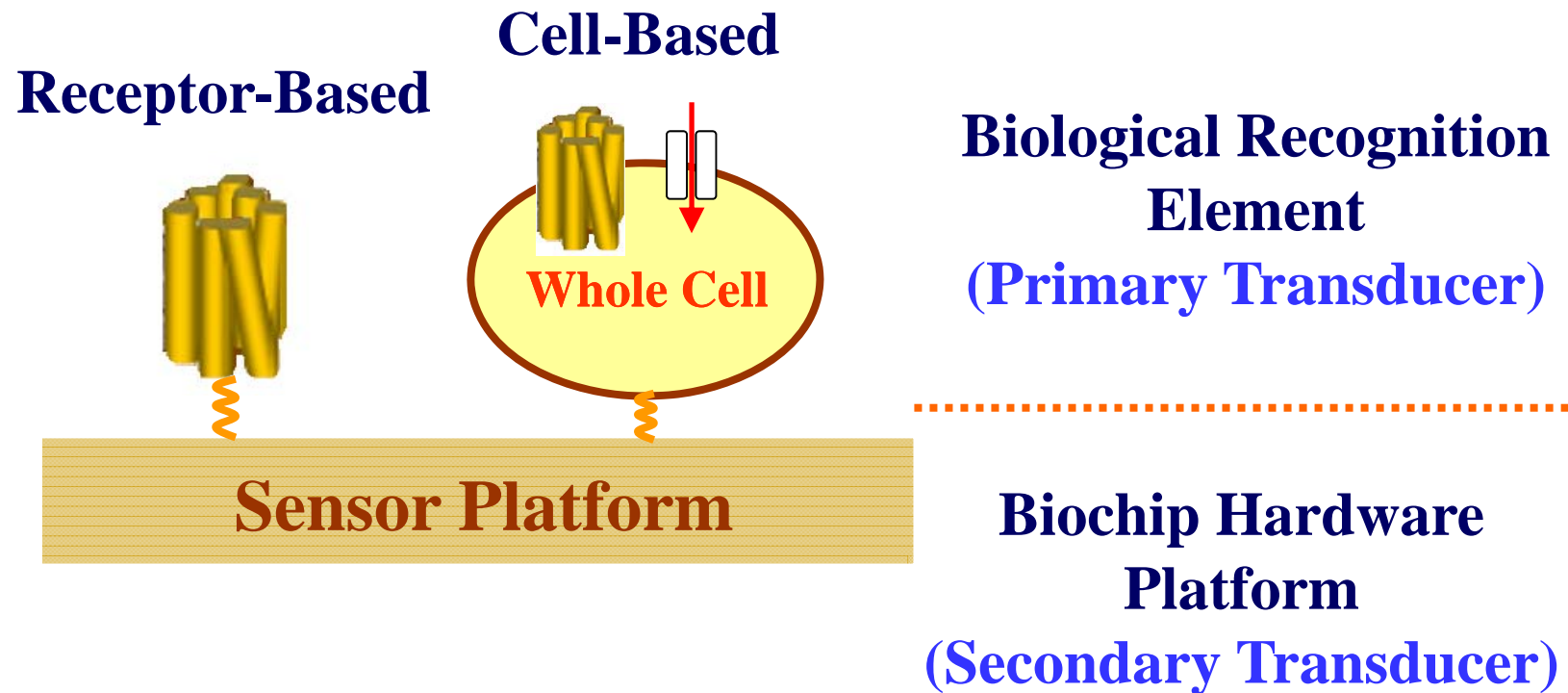
Biomolecule-Based Biosensor

- Protein – enzyme, antibody, receptor
- DNA, RNA
- Aptamer

Olfactory Biosensor

- Cell-based Biosensor
- Receptor-based Biosensor

Primary & Secondary Transducers



Primary & Secondary Transducers

- **Primary transducer**

- **Biomolecule**
- **Specificity**

- **Secondary transducer**

- **electrode, transistor, thermistor, optical device**
- **QCM (Quartz Crystal Microbalance)**
- **SPR (Surface Plasmon Resonance)**