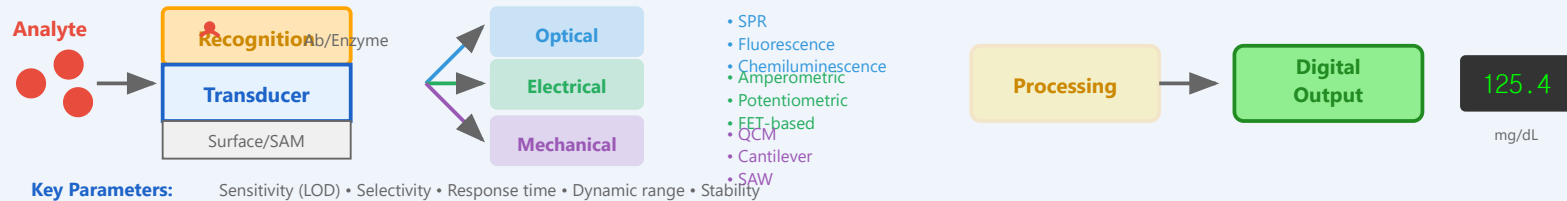
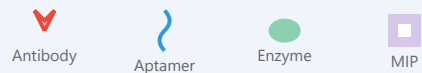


Biosensor Technologies

Biosensor Architecture & Signal Transduction



Recognition Elements



High specificity biorecognition layers

Transduction Methods

- Optical: SPR, SERS, fluorescence
- Electrochemical: CV, DPV, EIS
- Piezoelectric: QCM, SAW
- Thermal: Calorimetric

Surface Chemistry

SAMs: Self-assembled monolayers
PEG: Anti-fouling coating
Blocking: BSA, casein
Minimize non-specific binding

Signal Amplification

Enzyme cascades: HRP, ALP
Nanoparticles: Au, Ag enhancement
SERS: 10^6 - 10^{14} fold
Improve LOD to fM-aM range