

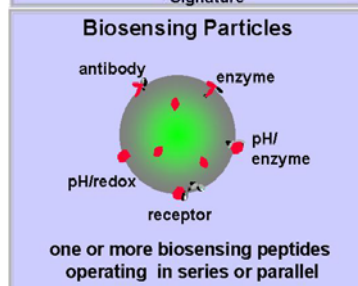
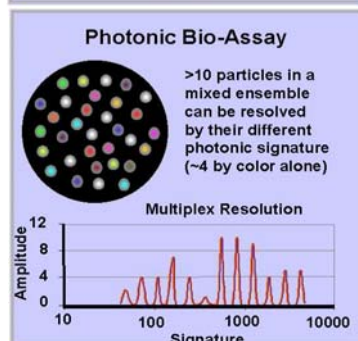
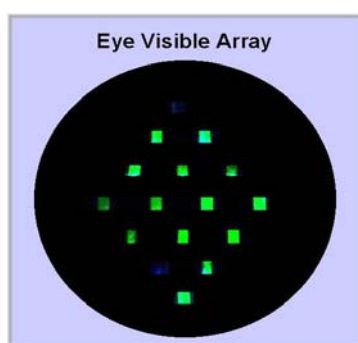
Multiplexed Bio-Assay

one pot diagnostics * ultrasensitive detection
in vivo diagnostics * drug delivery

Advanced Biomedical specializes in sensitive “one pot” homogeneous diagnostics suited to multiplexed bio-assays for low skill tests and simple automation solutions.

Unique particles are loaded with a variety of distinct labels, which become visible in response to specific binding of chemicals such as drugs, hormones and pesticides. Each particle is an integrated diagnostic device, whose distinct amplified response is coupled to a particular *bio-specificity*. Many different bio-assays can be performed in the same sample, including complex samples, *in situ* and *in vivo*. Sensitive detection is possible with low cost readers, including the naked eye.

ABL particles enable a variety of multiplexed bio-assay solutions:



- **Eye-visible test arrays** with ng sensitivity are possible because of high amplification (left). Multiple colors can be used to facilitate visual reading. Fluorescent readers can provide pg sensitivity.
- **Microfabricated or microelectronic array** devices can provide sensitive (pg/ng) low cost readout solutions.
- **Photonic detection** can be used to resolve at least 10 different bio-assays at the same spatial location by using ensembles of particles responding with different photonic signatures (left).
- **Very large numbers** (1000s) of different particles can be formulated to perform large-scale multiplexed bio-assays
- **Further increases in sensitivity** can be achieved by counting single particles - for example with flow cytometers.

ABL particles provide versatile integrated diagnostic devices because all components of the bio-assay are incorporated into the same small particle. This makes them highly suited for multiplexing.

The interior of the particles can be loaded with a variety of amplifying labels tailored to a variety of optical and electrical reader technologies. Examples include colours, fluorescent lifetime, and electrical conductivity. Multiplexing is achieved by combining different particles sensitised to different measurands, each being detected by its own unique signature.

The particles are not simply labels to which different bio-specific binding ligands are attached. Uniquely they also respond bio-specifically to binding reactions. In the outer wall of the particles are small peptide-based biosensors, which trigger quantitative signal development. Biosensing peptides with different specificities can also be incorporated into the same particle to respond to more than one set of specificities.

ABL Versatile Multiplexed Bio-Assay Solutions

Particle Supply, Solutions and *Licenses Available

Advanced Biomedical Ltd
Saddleworth Business Centre
Huddersfield Road, Delph
Oldham OL3 5DF UK
Tel: +44 (0) 1457 875798
Fax: +44 (0) 1457 871088

*patents apply WO 98/41535, 99/20252,
99/38009, 02/059147, GB 0311948.4

info@advanced-biomedical.co.uk
www.advanced-biomedical.co.uk