Effective Point-of-care (POC) Small Analyte Diagnostics

A portable system for efficient measuring of prohibited drugs, steroid hormones, pharmaceuticals, environmental toxins etc.

CHALLENGE
Increasing need for a robust substance tester

Small molecules, such as pharmaceuticals, drugs of abuse, steroid hormones and toxins, are growing area of analytes and there is a big demand for a fast, sensitive, and specific diagnostic method for them. Current methods are either slow and expensive (e.g. mass spectrometry) or unreliable (competitive immunoassays).

Law enforcers and health care professionals urgently need a highly specific and reliable device to give precise and quick results. This accurate solution is ideal for roadside tests, detection of poisoning, and monitoring of medication, whether in the hospital or home.

SOLUTION
Fast homogeneous FRET assay for small analytes

We have developed a one-step, homogeneous non-competitive immunoassay for small analytes such as pharmaceuticals, drugs of abuse, steroid hormones and toxins. It is based on recombinant anti-immune complex antibodies enriched from phage display antibody libraries and utilization of fluorescence resonance energy transfer (FRET).

Performing the test is very easy and fast: After addition of the sample (e.g. saliva) results can be read within 1-2 minutes. Other steps such as washings are not needed. VTT has also developed a portable fluorometer for the measurement of the tests which makes it a true point-of-care diagnostic format. With this device the tests can be performed e.g. in doctor’s office, in ambulance or by a police in the roadside. Transportation of the samples to central laboratories for testing is not needed which saves time and money.
There are many application possibilities for this diagnostic format:

- Steroid hormones (menopause and andropause diagnostics...)
- Drugs of abuse (police, workplaces...)
- Pharmaceuticals (dosage balancing, overdose monitoring...)
- Toxins (environment, food...)

OUR INVENTION IS YOUR BUSINESS OPPORTUNITY

There are many application possibilities for this diagnostic format with a market size of hundreds of million dollars. The market size of drug-of-abuse point-of-care testing alone is over $150 million.

Technology Summary

Concise, homogeneous, and non-competitive immunoassay for small analytes using recombinant antibodies

Patent for this technology has been granted in many countries:
Non-competitive immunoassay for small analytes. PCT/FI03/00875.

COMPETITIVE ADVANTAGE

- Robust. The diagnostic method for small analytes is specific, sensitive, and fast.
- Flexible. Essentially applicable to any kind of small analytes.
- Faster than conventional methods. Homogeneous test format ensures fast assay kinetics.
- Cost-effective. Antibody phage display library technology provides excellent tools to develop novel binding specificities and establish new immunoassay principles with inexpensive production costs.

Available for Licensing

VTT offers exclusive and non-exclusive license depending on the technology partner.

Point-of-care (POC) testing applications

- Police
  Fast road side drug tests
- Emergency rooms, Ambulances
  Fast detection of poisoning etc.
- Doctor’s office or home
  Fast monitoring of medication

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