Breakthrough to boost drug testing accuracy

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(PhysOrg.com) -- An international team of chemical engineers, chemists and pharmacists has made a major breakthrough that will significantly boost the accuracy and speed of drug testing.

Dr Michael Stockenhuber from the University of Newcastle collaborated with colleagues at the University of Cardiff in Wales to find for the first time how complex molecules and imprinted polymers (synthetic plastic materials) bind together.

The research will optimise the design of polymers so that they can detect and separate enzymes, proteins and drugs in complex mixtures such as blood.

"With this discovery, scientists testing for performance enhancing drugs will be able to coat an electric probe with a polymer and dip that probe into blood," Dr Stockenhuber explained.

"An electrical signal would quickly and accurately indicate the presence of the drug. Polymers used in current testing methods do not stick to the blood as efficiently and the results are not as precise or fast as they could be."

The second major benefit of this research is its ability to control the delivery of drugs to specific parts of the body.

"Controlling the direction of drugs in the human body would be particularly helpful with very potent drugs that fight cancer," Dr

Stockenhuber said.

"Mixing the polymer with a drug means that it can be directed straight to the unhealthy cells unlike current drugs, which kill all cells."

The research has been published in the Royal Society of Chemistry (RSC) Journal of December 2008.

Provided by University of Newcastle