Technology monitors myriad molecules

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A U.S. scientist has created a computer chip consisting of thousands of electrodes yielding molecules that bind to receptor sites.

Chemistry Professor Kevin Moeller of Washington University in St. Louis said the electrodes on the chip can be used to monitor the biological behavior of up to 12,000 molecules at the same time.

Moeller and colleagues are pioneering new methods for building libraries of small molecules on addressable electrode arrays so the molecules can be monitored in real-time and, in turn, used to probe the binding requirements of drug receptor sites.

The electrochemically addressable chips represent a new environment for synthetic organic chemistry, he said, changing the way chemists and biomedical researchers make molecules, build molecular libraries and understand the mechanisms by which molecules bind to receptor sites.

"We believe we can move most of modern synthetic organic chemistry to this electrochemically addressable chip," said Moeller. "It's a tool, still being developed, to map receptors. We're right at the cusp of things."

Moeller discussed the technology in a recent article in the *Journal of the American Chemical Society* and presented his work Monday in Chicago during the 211th National Meeting of the Electrochemistry Society.