

Chemical 'Keypad Lock' for Biomolecular Computers

March 19 2008

Chemists are reporting development of a "keypad lock" for accessing data from biomolecular computers, which promise to be powerful tools in many fields, including medicine and personal security.

Researchers at Clarkson University are reporting an advance toward a new generation of ultra-powerful computers built from DNA and enzymes, rather than transistors, silicon chips, and plastic. Their report on development of a key component for these "biomolecular computers" is scheduled for the March 26 issue of *ACS' Journal of the American Chemical Society*, a weekly publication.

In the new study, Prof. Evgeny Katz and colleagues describe development of a chemical "keypad lock," one of the first chemical-based security systems of its kind. The researchers note that years of effort have gone into developing biomolecular computers, which rely on chemical reactions rather than silicon chips to perform logic functions. Among their uses would be encryption of financial, military, and other confidential information. Only individuals with access to a secret "key" - a chemical key - could unlock the file and access the data.

The research by Katz and colleagues solved one part of this technological challenge: the security code. They identified a series of naturally occurring chemical reactions that act as a "keypad lock." In laboratory studies, they demonstrated that by adding the correct series of chemicals, the lock could be opened to access the computer. On the other hand, adding the incorrect chemicals to the system acts as a wrong

password and prevents access to the computer, they say.

"In addition to the biomolecular security applications, the enzyme-based implication logic networks will be extremely important for making autonomous decisions on the use of specific tools/drugs in various implantable medical systems."

See the full article at:

pubs.acs.org/cgi-bin/abstract.cgi/jacsat/asap/abs/ja7114713.html

Source: Clarkson University

Citation: Chemical 'Keypad Lock' for Biomolecular Computers (2008, March 19) retrieved 2 May 2024 from <https://phys.org/news/2008-03-chemical-keypad-biomolecular.html>

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