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## Nanotechnology

### Scientists at Syracuse University target soft matter

2008 JUN 2 - (VerticalNews.com) -- According to recent research from the United States, "We have already seen a decade of single-molecule science involving protein nanopores, and many lessons have been learned from the extensive studies in this exciting realm. Given the promise of the single-molecule nanopore technique for ultra-rapid sequencing of nucleic acids, most of these investigations have been focused on understanding the transit of single-stranded DNA through a protein nanopore."

"In contrast, the biophysical and biotechnological applications of polypeptide translocation through a protein nanopore have not been pursued as aggressively. However, recent explorations have shown that a mechanistic understanding of polypeptide translocation at unprecedented single-molecule resolution can be achieved using high-resolution, time-resolved single-channel electrical recordings with nanopores and protein design. Moreover, these efforts have begun to unravel the complexity of the protein-pore interactions that involve various thermodynamic forces," wrote L. Movileanu and colleagues, Syracuse University.

The researchers concluded: "Finally, combining recordings of single-channel electrical currents through nanopores with protein engineering proves to be not only a novel single-molecule analytical tool for the detection, examination, and characterization of polypeptides, but also a critical element for prospective high-throughput screening devices in drug design and proteomics."

Movileanu and colleagues published their study in *Soft Matter* (Squeezing a single polypeptide through a nanopore. *Soft Matter*, 2008;4(5):925-931).

For additional information, contact L. Movileanu, Syracuse University, Dept. of Physics, 201 Physics Bldg, Syracuse, NY 13244, USA.

Publisher contact information for the journal *Soft Matter* is: Royal Society Chemistry, Thomas Graham House, Science Park, Milton Rd., Cambridge CB4 0WF, Cambs, England.

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