

'Recordable' proteins as next-generation memory storage materials

Move over, compact discs, DVDs, and hard drives. Researchers in Japan report progress toward developing a new protein-based memory device that could provide an alternative to conventional magnetic and optical storage systems, which are quickly approaching their memory storage capacities. Their study is scheduled for the March 4 issue of ACS' *Langmuir*.

Just as nature chose proteins as the memory storage medium of the brain, scientists have spent years exploring the possibility of similarly using proteins and other biological materials to build memory-based devices with the potential for processing information faster and providing greater storage capacity than existing materials.

Although a few protein-based memory materials have shown promise in experimental studies, developing such materials for practical use remains a challenge.

In the new study, Tetsuro Majima and colleagues used a special fluorescent protein to etch or “record” a specific information pattern on a glass slide. Using a novel combination of light and chemicals, the researchers demonstrated that they could “read” the pattern and subsequently erase it at will.

Thus, they demonstrated that the proteins could provide storage, playback, and erasure of information, the hallmarks of a successful memory device, the researchers say. In addition to conventional memory storage devices, the proteins also show promise for improved biosensors and diagnostic tests, they say.

Source: American Chemical Society

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