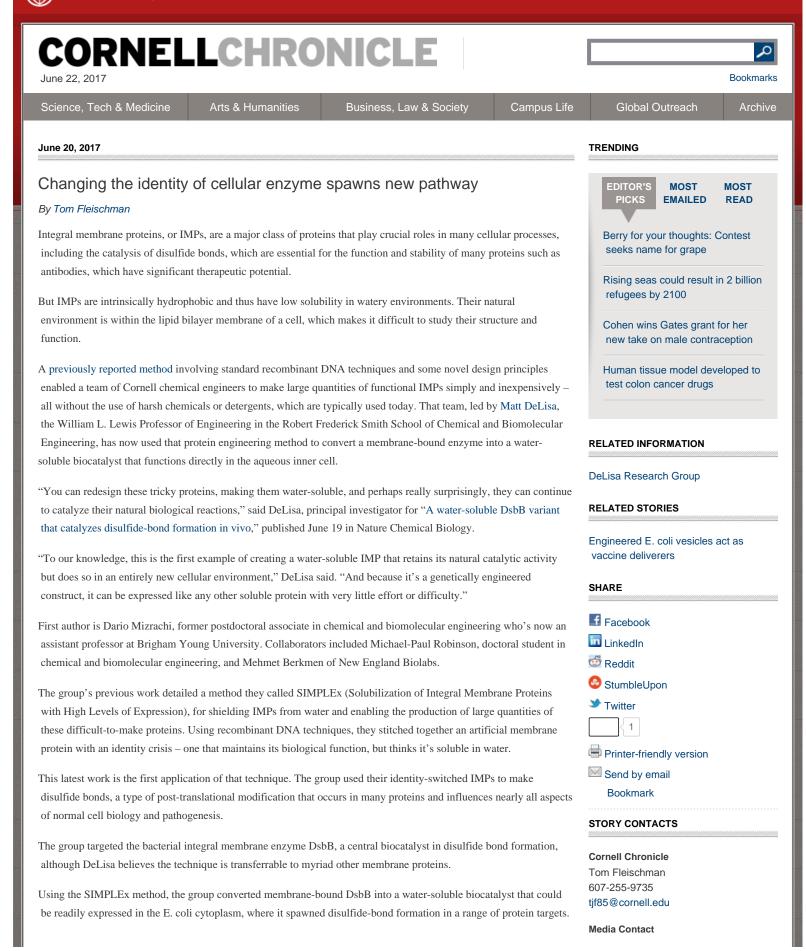
Cornell University



Changing the identity of cellular enzyme spawns new pathway | Cornell Chronicle

Disulfide bonds are key players in many therapeutic proteins, such as monoclonal antibodies. Many cancer drugs employ these molecules, which can mimic or enhance the immune system's attack on tumor cells.

The ability to take the catalyst out of the lipid membrane and put it in the cytoplasm, DeLisa said, allows scientists to make these antibodies in potentially more favorable locations in the cell.

"We could make this pathway in the cytoplasm ... [or] we could move everything to a different subcellular compartment like the periplasm, or potentially take the entire pathway out of the cell and reconstitute it in a cell-free system," DeLisa said. "The point is, we create a tremendous amount of flexibility in terms of making these bonds by essentially turning a membrane protein into a soluble enzyme."

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