



Improved Industrial Biocatalysts



Researchers at the University of North Carolina at Chapel Hill have developed improved catalytic activity in lipases, which could enable significant improvements for industrial biocatalysts in applications ranging from pharmaceuticals to biodiesel production.

Benefits

- Reduces cost of synthesizing select compounds in the pharmaceutical, cosmetics, food, chemical, and energy sectors
- Enables application of lipases in previously cost-prohibitive applications



For More Information

If you would like more information about this technology or UNC - Chapel Hill's technology transfer program, please contact:

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The Technology

The technology presented here was developed in the lab of Professor Dhiren Thakker at UNC School of Pharmacy, and is based on the first report of lipase hyperactivation via a mechanism involving cysteine alkylation. Specifically, a lipase modified to comprise several steroidal moieties showed several-fold increase in catalytic activity *in vitro*. Enhancement of lipase activity by alkylation in this way is likely applicable to lipases in general and potentially other enzymes.

The enzyme class of lipases is perhaps the most widely used industrial biocatalyst and finds its use in the synthesis of a variety of compounds in the pharmaceuticals, cosmetics, foods, chemical, and energy sectors. The annual global market for lipases is in the billions of dollars and is predicted to grow in part due to the potential for using lipases in hydrolysis of triglycerides in biodiesel production. Enhancing lipase properties therefore presents an opportunity for development of cheaper products as well as finding new use for lipases in sector where they are currently not cost-effective.

Opportunity

UNC's Office of Technology Development seeks to stimulate development and commercial use of UNC-developed technologies. UNC is flexible in its agreements, and opportunities exist for joint development, academic or commercial licensing (exclusive, non-exclusive, and field-of-use), publishing, or other mutually beneficial relationships. UNC is pursuing U.S. and international intellectual property protection for this innovation. Intellectual property comprising the described technology is published and has international application number PCT/US2008/005486.