



**Category 1a: Bioenergy Conversion Processes – genomics, biochemistry, catalytic chemistry**

***1. Ethanol as an Energy Source and Terminal Reductant: Exploitation of Thermophilic Redox Enzymes in Catalyst Development and Screening***

Principle Investigator: David Berkowitz, Chemistry  
Co-Investigator(s): Paul Blum, School of Biological Sciences



<http://chem.unl.edu/faculty/eachfaculty/berkowitz.shtml>

The project is a new collaboration between a synthetic organic chemist (Berkowitz) and an archaeobacterial enzymologist (Blum) that aims to develop the biotechnological potential of thermophilic alcohol dehydrogenases for practical applications in energy transduction and asymmetric synthesis. The research seeks to define fundamentally new applications for ethanol, and provide new biotechnology opportunities for bioethanol producers.

The long term goals are to create new technologies for ethanol as the terminal reducing agent for the production of high value organics, and to provide a new tool for catalytic evolution of hydrogen from ethanol.

The Principal Investigators come at the science from entirely different disciplinary points of view in this first opportunity for collaboration. Significant dividends at the chemistry/biology interface are expected.