

PMC-ef2a

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**



(20402)

RECIPIENT:University of Delaware**STATE:** DE

PROJECT TITLE : Engineering yeast consortia for surface-display of complex cellulosome structures: A consolidated bioprocessing approach from cellulosic biomass to ethanol

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0000988	GFO-0000988-001	EE988

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

DOE proposes to provide Federal funding to the University of Delaware who would perform laboratory research using genetically-modified *Escherichia coli* and *Saccharomyces cerevisiae* (brewers yeast) to produce a synthetic yeast consortium for direct fermentation of cellulose to ethanol. This work would be performed at the University of Delaware, Colburn Laboratory 208, 212, and 220 located in Newark, Delaware, and at the University of California, Riverside. Approximately 1500 square feet of Colburn Laboratory space equipped for microbial engineering and biofuel production would be used to perform this research.

Four tasks are defined:

- Develop an engineered consortium for cellulose hydrolysis by intercellular complementation
- Construct yeast strains displaying complex cellulosomes
- Construct functional consortium for efficient cellulose hydrolysis and ethanol production
- Project Management and Reporting

Project management and some DNA analysis would be conducted at the University of California, Riverside (UCR) Chemical Engineering laboratory of Professor Nosang Myung, while the remainder of the research would be conducted at the University of Delaware. The UCR facility meets California/OSHA laboratory standards, and investigators would document and implement experiment SOPs to adequately protect humans and the environment. All other laboratory activities would be conducted at the University of Delaware and would conform to state and federal safety regulations. A university-approved recombinant DNA protocol would be required prior to research. The University of Delaware Biosafety Committee has designated this work BSL 1, a designation for activities using GMOs that are not pathogenic to humans or plants. GMO-containing waste would be autoclaved and marked as a biohazard.

The project would be laboratory scale; less than kilogram quantities of chemicals would be consumed, and all wastes would be managed using state-approved storage and disposal methods. No regulated air emissions would result from these activities.

The Department of Energy has determined that activities described in the funding request to conduct bench-scale microbiological/biochemical research enabling yeast to perform both direct hydrolysis of cellulose and production of ethanol constitutes renewable energy research; and would be consistent with a B3.6 Categorical Exclusion as defined in 10CFR 1021.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

John A. DuWaldt 9.13.11

DOE Funds: \$599,966
Cost Share: \$152,870
Total Funding: \$752,836

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

Kyntin Ke
NEPA Compliance Officer

Date: _____

9/13/2011

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____

Field Office Manager

Date: _____