



Sandia National Laboratories • California

JOINT BIOENERGY INSTITUTE

POSITION: Postdoctoral Appointment - Enzymology

JOB ID NUMBER: 59527
LOCATION: Emeryville, CA

The Biofuel Challenge—Making Clean, Green, Renewable Energy a Cost-Effective Reality

In the fight against global warming, the need to develop clean, green, and renewable sources of energy has become an international call to action. The Joint BioEnergy Institute (JBEI), a newly established U.S. Department of Energy (DOE) Bioenergy Research Center, is responding by assembling an outstanding team of bioenergy scientists and researchers to meet the challenge.

JBEI is a multi-organizational research center comprising world-class resources and expertise located in one facility at Emeryville, California. The goal of JBEI is to use rapidly advancing scientific techniques, such as systems and synthetic biology, to accelerate development of the nation's biofuels industry. JBEI is managed by Lawrence Berkeley National Laboratory with partner employees from 5 internationally recognized scientific institutions: Sandia National Laboratories, Lawrence Livermore National Laboratory, University of California-Davis, University of California-Berkeley, and the Carnegie Institution for Science.

Sandians working at JBEI's Emeryville facility are essential partners in this aggressive bioenergy effort and will provide the technical expertise needed to produce clean, efficient, and cost-effective biofuels on a commercial scale.

Job Description

As an employee of Sandia at JBEI, this post-doctoral appointee will be part of research projects investigating the optimization of biofuels production from renewable lignocellulosic biomass with a focus on the enzymology of engineered enzymes as well as novel enzymes from metagenomic analysis of environmental samples. The research team is comprised of biochemical engineers, biologists, chemical engineers, computational scientists, and chemists. The multidisciplinary team is using a combination of enzyme engineering, high throughput genomic and proteomic techniques, biochemistry, and molecular biology to engineer enzymes compatible with the chemical pretreatment of cellulosic biomass for downstream conversion to liquid biofuels. We are using directed evolution as well as bioinformatics to improve the catalytic activity, stability and product inhibition of the engineered enzymes. The postdoctoral researcher would be in charge of carrying out the experimental work including protein engineering, cloning and expression of proteins, assay development and kinetic characterization of the proteins.

Required and Desired Qualifications

Required: Qualified candidates will have a recent PhD degree in biochemistry, biochemical or chemical engineering, molecular biology or related field with a strong record of academic achievement. Candidates will possess extensive experience in molecular biology methods, protein expression and purification, kinetic and biophysical characterization of enzymes. The candidates will have a strong publication record, good communication skills and the ability to work with multi-disciplinary teams.

Desired: Previous research with thermophilic bacteria/archaea, protein engineering, mathematical modeling and methods to assess enzyme kinetic behavior is highly desirable.

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