



POSITION: Postdoctoral Research Fellow

JOB ID: 62514

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 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 that comprises world-class resources and expertise in one facility, which is located in Emeryville, California. The goal of JBEI is to use rapidly advancing scientific techniques, such as systems and synthetic biology, to accelerate the development of the nation's biofuels industry. JBEI is managed by Lawrence Berkeley National Laboratory with partner employees from five internationally recognized scientific institutions: Sandia National Laboratories, Lawrence Livermore National Laboratory, the University of California at Davis, the University of California at 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 a Sandia employee at JBEI, this postdoctoral appointee will be part of the Technologies Division's diverse research team of biochemical engineers, biologists, chemical engineers, computational scientists, and chemists. The team is 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 analyses of targeted environmental samples. The team is using enzyme engineering, high-throughput genomics, biochemistry, and molecular biology to engineer enzymes compatible with the chemical pretreatment of cellulosic biomass for downstream conversion to liquid biofuels. The team is also using directed evolution and bioinformatics to improve the catalytic activity, stability, and product inhibition of engineered enzymes. The postdoc will carry out the experimental work, including protein engineering, the cloning and expression of proteins, assay development, and the kinetic characterization of proteins. The postdoc will have access to state-of-the-art detection and liquid-handling technologies and will use these to discover novel biocatalysts for the production of second-generation biofuels.

Required and Desired Qualifications

A recent PhD (conferred within the past five years) is required for this position, as are a strong academic record and experience in biology, molecular biology, biochemistry, chemistry, microbiology, or engineering sciences. Candidates with experience in molecular biology, chemistry, or biochemistry are preferred. Other required qualifications include (1) experience with enzyme kinetics, protein expression, protein purification (especially Akta FPLC) bacterial culture, fermentation, cloning, and expression; (2) independent research skills, such as designing, executing, and interpreting experiments; (3) several first-author papers published or accepted in well-recognized, peer-reviewed journals; (4) excellent communication skills; (5) the ability to work in a fast-paced, multidisciplinary collaborative team in a production-oriented setting similar to that found in the pharmaceutical industry; (6) the ability to create new and innovative technologies and implement them on high-throughput systems; and (7) the ability to work with liquid-handling robotic automation and laboratory information management systems.

Desired qualifications include (1) proficiency with operating common equipment/instrumentation found in an enzymology laboratory (e.g., CD, DSC, ITC, DLS, and Biacore) in a high-throughput setting, (2) experience with bioinformatics, and (3) a familiarity with current sequence analysis software.

Application Procedure

Apply at Sandia's employment website: <http://ca.sandia.gov/casite/employment/>. Click on Browse current job openings, and type the Job ID number **62514** into the Keywords box. Click on the Search button to access this job opening, and complete an online application.

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