

Work with us!

Find out how you can work with NREL in the following research areas:

- *Bio-prospecting*
- *Strain improvement*
- *Conversion to fuels*
- *Fuel testing*
- *Techno-economic analysis*
- *Life cycle assessment*
- *Siting analysis*
- *Compositional analysis.*

Let's develop promising technologies together!

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NREL Biomass Program: www.nrel.gov/biomass

DOE Biomass Program Links:

U.S. Department of Energy's Biomass Program:
www.eere.energy.gov/biomass/

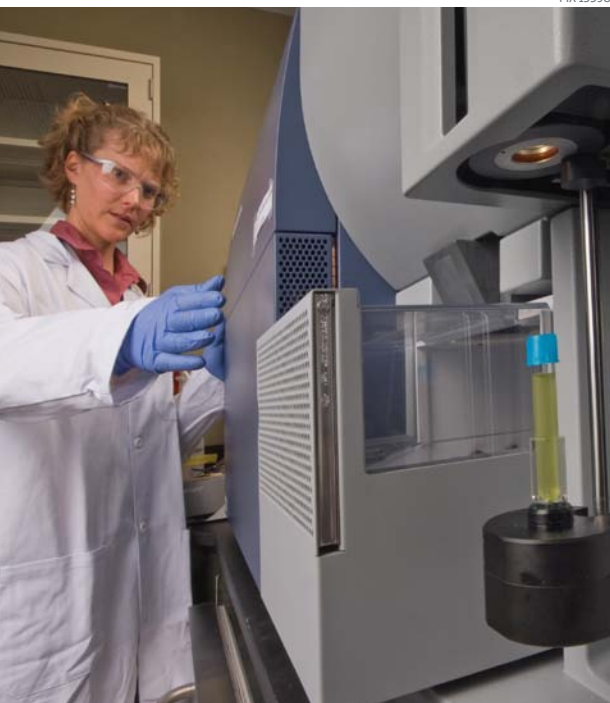
National Algal Biofuel Technologies Roadmap:
www.eere.energy.gov/biomass/pdfs/algal_biofuels_roadmap.pdf



Accelerating Commercialization of Algal Biofuels Through Partnerships



PIX15598




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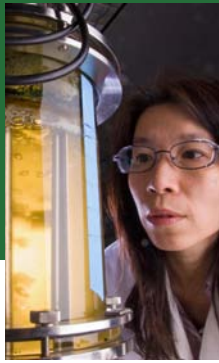
Overcoming algal biofuels challenges with fundamental and applied R&D.

NREL is accelerating algal biofuels commercialization through:

- Advances in applied biology
- Algal strain development
- Development of fuel conversion pathways
- Techno-economic analysis
- Development of high-throughput lipid analysis methodologies.

NREL scientists and engineers are addressing challenges across the algal biofuels value chain, including algal biology, cultivation, harvesting and extraction, and fuel conversion.

Through partnerships, NREL can share knowledge and capabilities in the following areas.



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Algal Biology

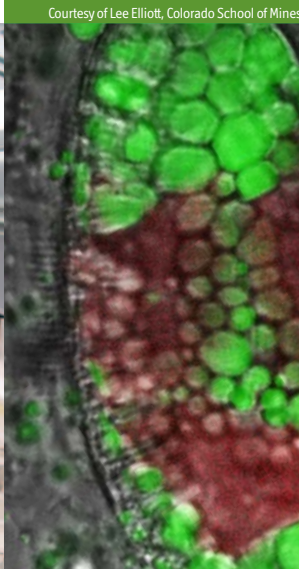
A fundamental understanding of algal biology is key to developing cost-effective algal biofuels processes.

NREL scientists are experts in the isolation and characterization of microalgal species. They are identifying genes and pathways involved in biofuel production. In addition, they have developed a high-throughput, non-destructive technique for assessing lipid production in microalgae.

Cultivation

NREL researchers study algal growth capabilities and perform compositional analysis of algal biomass. Laboratory-scale photobioreactors and 1-m² open raceway ponds in an on-site greenhouse allow for year-round cultivation of algae under a variety of conditions. A bioenergy-focused algal strain collection is being established at NREL, and our laboratory houses a

cryopreservation system for long-term maintenance of algal cultures and preservation of intellectual property.



Courtesy of Lee Elliott, Colorado School of Mines

Harvesting and Extraction

NREL is investigating cost-effective harvesting and extraction methods suitable for a variety of species and conditions. Areas of expertise include cell wall analysis and deconstruction and identification and utilization of co-products.

Fuel Conversion

NREL's excellent capabilities and facilities for biochemical and thermochemical conversion of biomass to biofuels are being applied to algal biofuels processes. Analysts are also testing algal fuel properties to measure energy content and ensure compatibility with existing fueling infrastructure.

Cross-cutting Analysis

NREL scientists and engineers are conducting rigorous techno-economic analyses of algal biofuels processes. In addition, they are performing a full life cycle assessment of the entire algae-to-biofuels process.

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Courtesy of Nature Beta Technologies, Ltd.

