

# Algae biofuels: the wave of the future

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Researchers at Virginia Bioinformatics Institute at Virginia Tech have assembled the draft genome of a marine algae sequence to aid scientists across the US in a project that aims to discover the best algae species for producing biodiesel fuel. The results have been published in *Nature Communications*.

The necessity of developing alternative, renewable fuel sources to prevent a potential [energy crisis](#) and alleviate greenhouse gas production has long been recognized. Various sources have been tried—corn for ethanol and soybeans for biodiesel, for example. But to truly meet the world's fuel needs, researchers must come up with a way to produce as much biofuel as possible in the smallest amount of space using the least amount of resources.

Enter algae. Unlike other crops like corn or soybeans, algae can use various water sources ranging from wastewater to brackish water and be grown in small, intensive plots on denuded land. While [algae](#) may still produce some CO<sub>2</sub> when burned, it can sequester CO<sub>2</sub> during growth in a way that fossil-fuel based energy sources obviously can't.

Scientists in VBI's Data Analysis Core (DAC), Robert Settlege, Ph.D., and Hongseok Tae, Ph.D., assisted in the assembly of the [genome](#) of *Nannochloropsis gaditana*, a [marine algae](#) that may be capable of producing the lipid yields necessary for a viable fuel source.

"Getting the data is now the easy part. What we're doing in the DAC is enabling researchers to move beyond informatics issues of assembly and

analysis to regain their focus on the biological implications of their research," said Settlage.

Further analysis revealed that with fairly straightforward genetic modification, *N. gaditana* should be capable of producing biofuel on an industrial scale, which may be the wave of the future in fuel research and production.

Provided by Virginia Tech

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