

## Researchers turn glucose into gasoline

Written by Administrator

Sunday, 14 August 2011 20:01 -

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Houston, Texas – Researchers at Rice University have unveiled a new method that rapidly converts simple glucose into biofuels and petrochemical substitutes.

In a paper published in *Nature*, Rice's team described how it reversed the beta oxidation cycle, one of the most efficient of all metabolic pathways, to engineer bacteria that produce biofuel at a "breakneck pace." On a cell-per-cell basis, the bacteria produced butanol, a biofuel that can be substituted for gasoline in most engines, about ten times faster than any previously reported organism.

"That's really not even a fair comparison because the other organisms used an expensive, enriched feedstock, and we used the cheapest thing you can imagine, just glucose and mineral salts," said Ramon Gonzalez, lead co-author of the study.

The laboratory is in a race with hundreds around the world to find 'green' methods for producing chemicals like butanol that have historically come from petroleum.

"We call these 'drop-in' fuels and chemicals, because their structure and properties are very similar, sometimes identical, to petroleum-based products," Gonzalez said. "That means they can be 'dropped in' or substituted for products that are produced today by the petrochemical industry."

In the study, the team reversed the beta oxidation cycle by selectively manipulating about a dozen genes in the bacteria *E. coli*. Gonzalez said that some producers prefer to use industrial organisms other than *E. coli* and that many kinds of specialized molecules can be made, including algae or yeast.

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