



## Increased Lipid Accumulation and Carbohydrate Synthesis in Strains of Microalgae

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**Summary:** Modified microalgae that produce high levels of lipids and starch

**Description:** In this invention we report methods by which various strains of microalgae are manipulated. From these manipulations, the microalgae can be made to: 1) overproduce two principal building blocks for biofuels feedstocks, starch, and TAG; 2) overaccumulate lipids; or 3) accumulate significantly higher levels of both lipids and starch, while the cells are dividing. The methods lead to attenuated rates of photosynthesis and acetate uptake. The overall effect is a dramatic carbon production accumulation.

### Main Advantages of this Invention

- Ability to increase starch production in specific algae strain by tenfold
- Significant increases in other carbon phenotypes
- Manipulations are simple to perform

### Potential Areas of Application

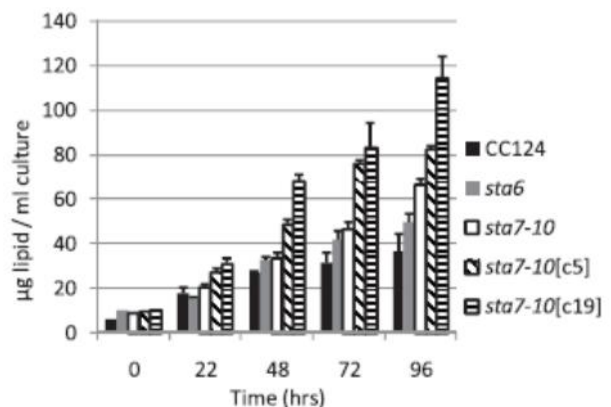
- Biofuels production
- Use of algae as food stocks

**ID number:** 11020

**Intellectual Property Status:** US utility patent pending (application #13/430,383)

**Publications:** V.H. Work et al., *Eukaryotic Cell*, 2010, 9, 1251-1261. (Available upon request.)

**Opportunity:** We are seeking an exclusive or non-exclusive licensee for implementation of this technology.



Lipid quantified per milliliter of culture for a control algae (CC124) and modified algae

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