

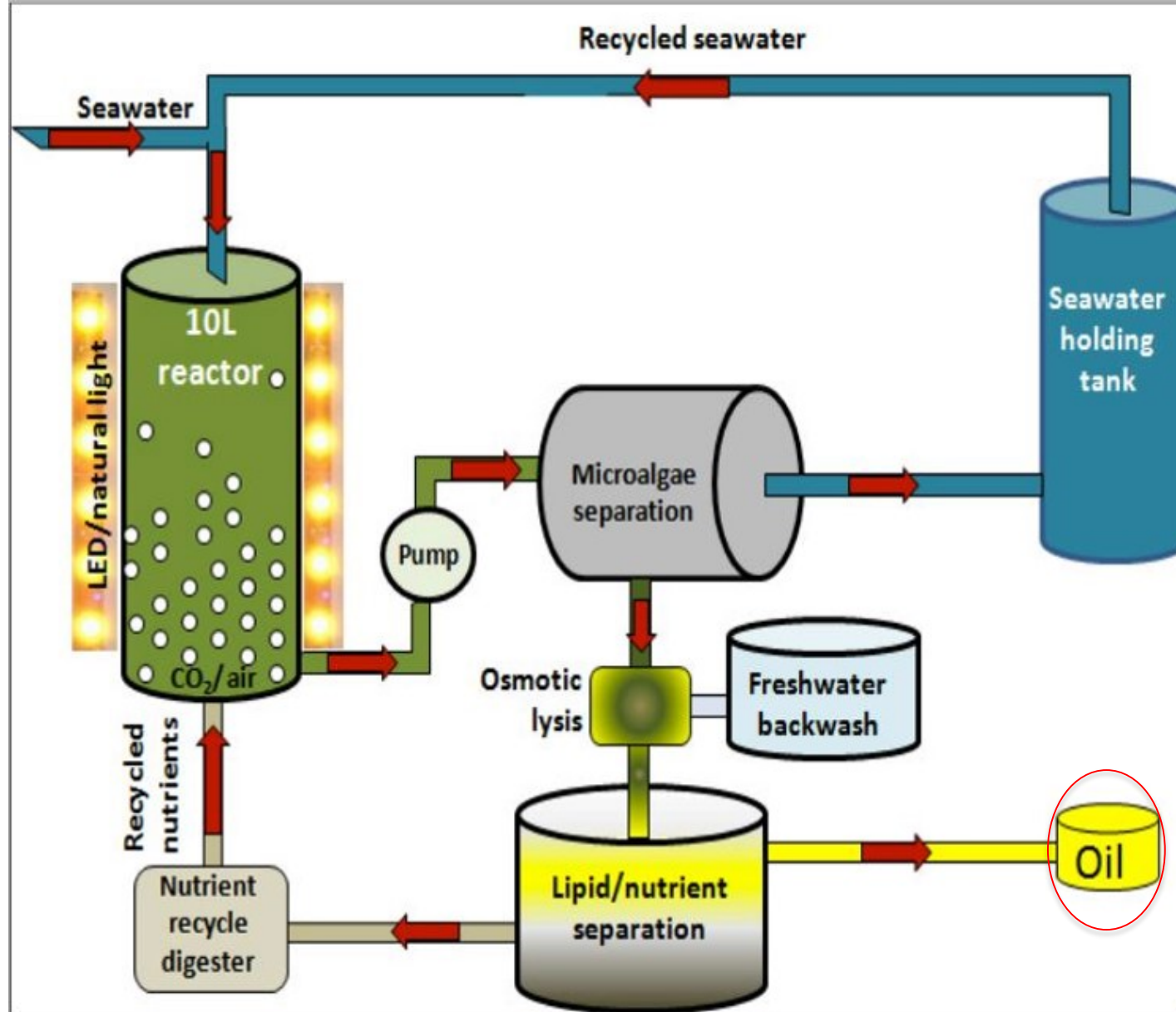
Development of a two-step enzymatic conversion of algal triacylglycerides to hydrocarbons

Hannah Wapshott* and Jennifer Greenstein*

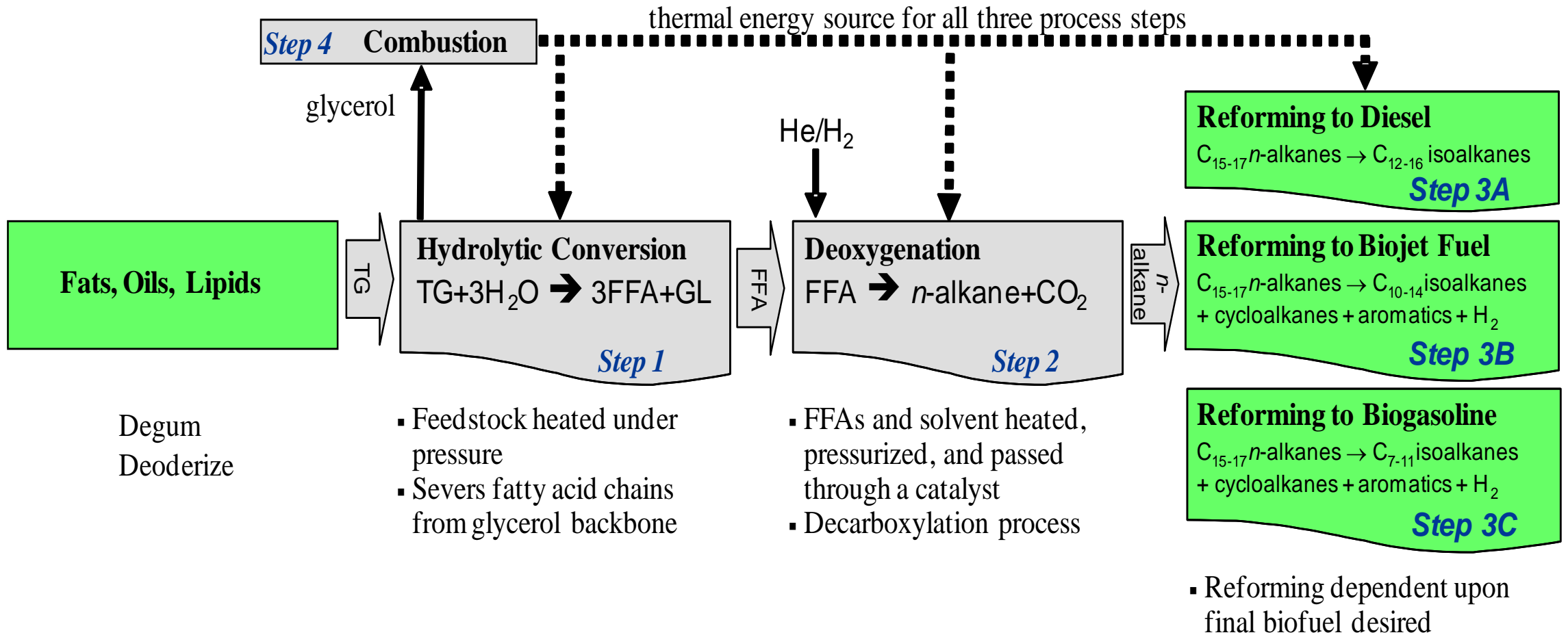
*Co presenters



The NCSU Photosynthetic Biorefinery

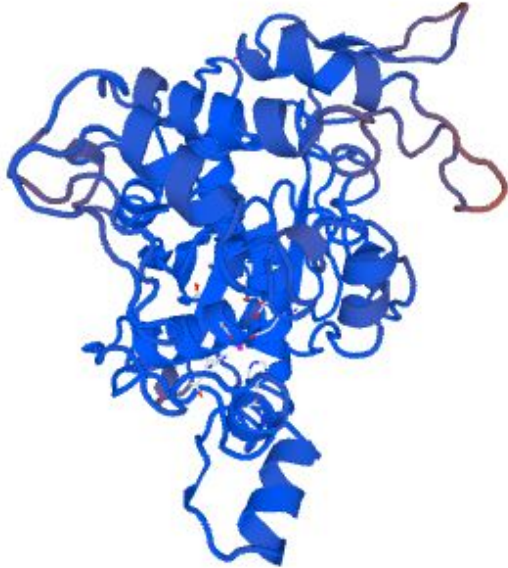


The algal lipid conversion process



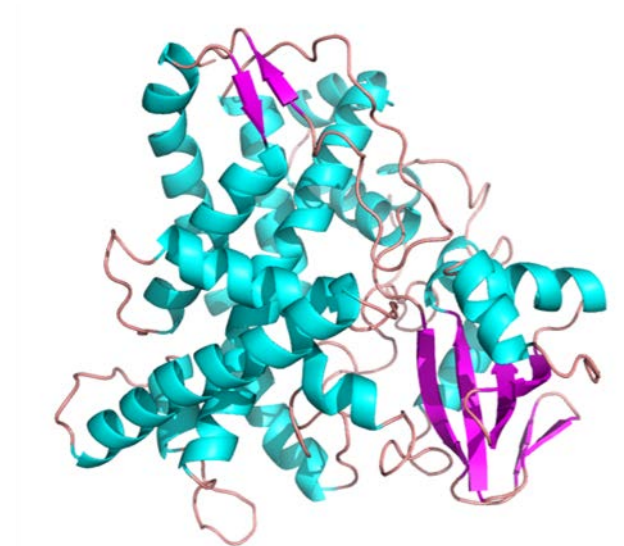
Industrial enzyme candidates

Lipase
(hydrolysis)



Geobacillus kaustophilus Lipase_{GBK}

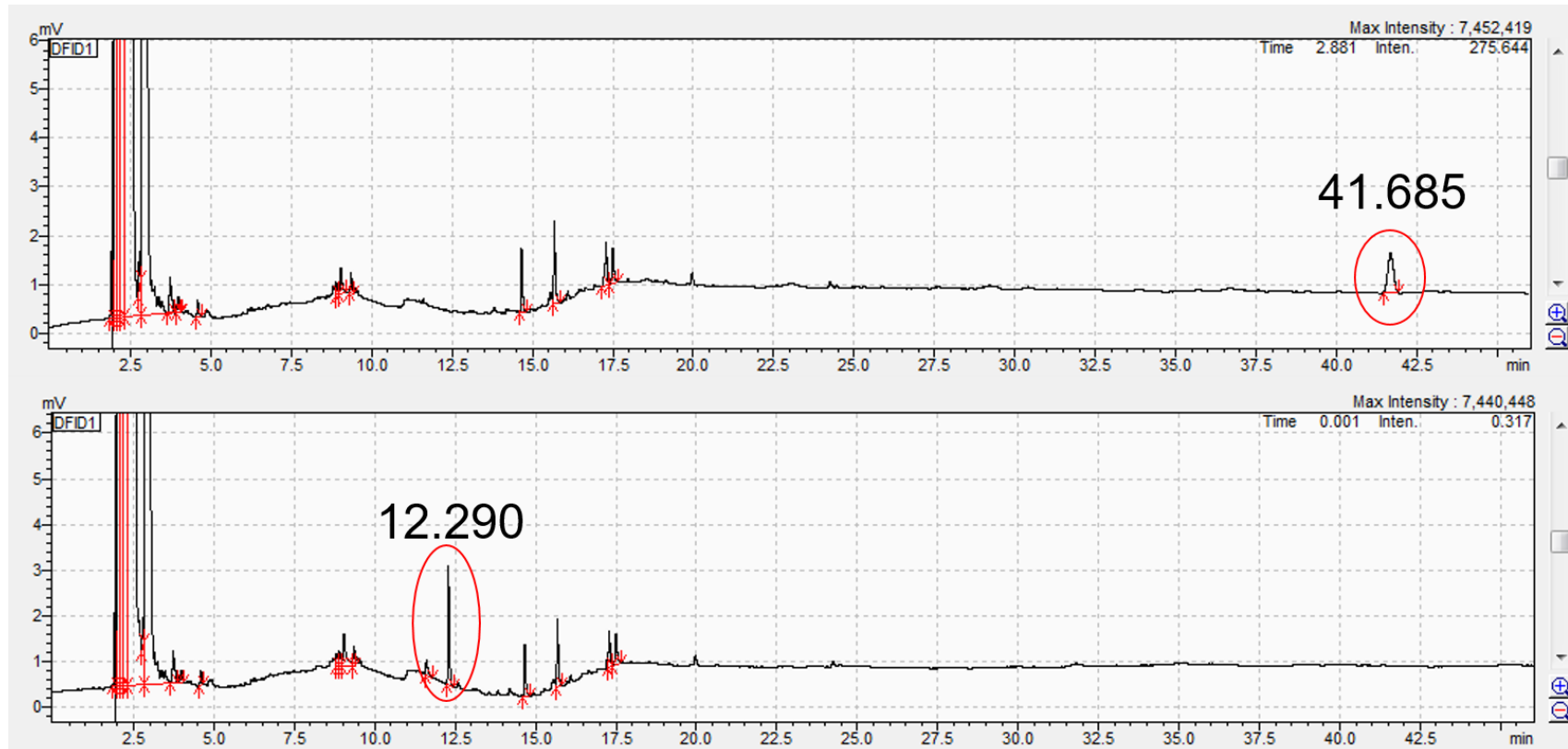
Fatty acid peroxygenase
(deoxygenation)



Bacillus methanolicus P450_{BME}

Desired traits: Thermostability, substrate flexibility, and high activity

Complete hydrolytic conversion of glycerol tri-dodecanoate to dodecanoic acid



Thank you

Special thanks to:

- Frontiers of Biorefining Conference
- NSF Grant Number NSF-1604019
- The NSF EFRI PSBR
- Dr. Amy Grunden and Dr. Paul Hamilton