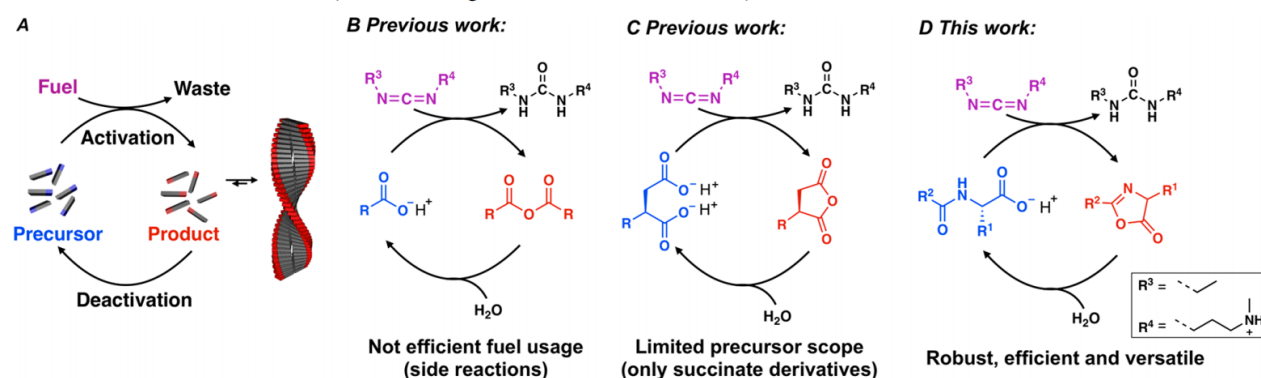


A Carbodiimide-Fueled Reaction Cycle That Forms Transient 5(4H)-Oxazolones

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Scheme 1. Chemical Reaction Cycle That Regulates Molecular Assembly^a



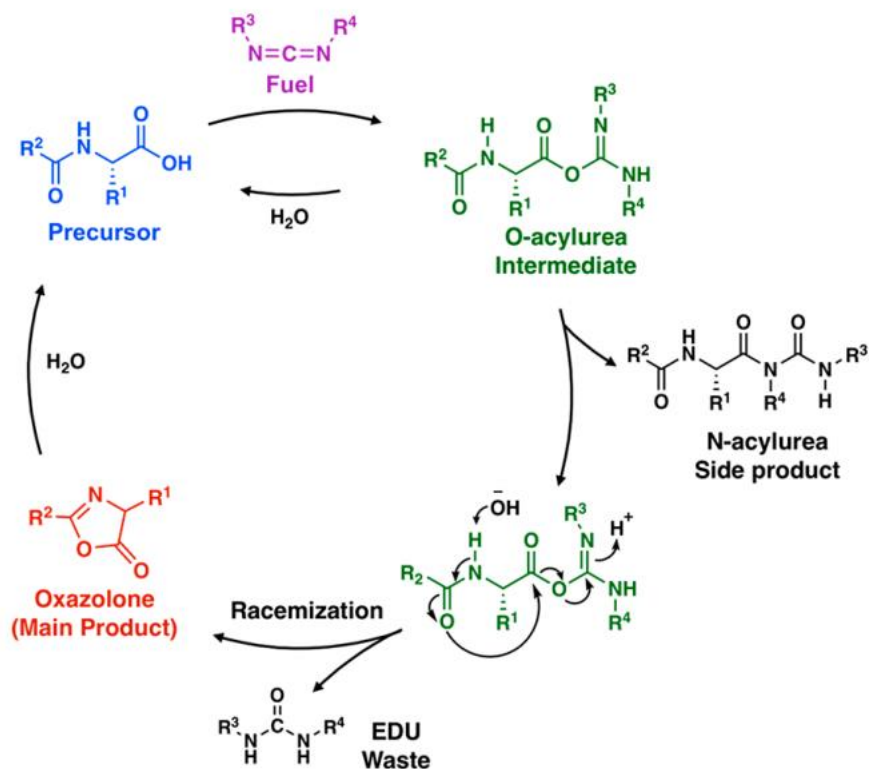
Who are the corresponding authors and what are their research areas?

Job Boekhoven:

He and his group mainly focus on the chemical-fueled reaction cycle that could achieve self-assembly or phase separation. His group is one of the most important group that contributed to the development of the carbodiimide-fueled reaction cycle. They want to build material that has properties similar to biological system.

What is the main claim of the article?

The authors reported a carbodiimide-fueled reaction cycle that forms transient 5(4H)-oxazolones. They introduced a nearby nucleophile and thus the side reaction (the hydrolysis of the *O*-acylurea intermediate) decreases, improving the efficiency of the reaction.



How is it demonstrated?

Mainly by HPLC, NMR, mass spectrometry and FT-IR-spectroscopy.

They also used Confocal microscopy to confirm the presence of a fibrillar network and cryo-TEM to show the nanometer details of this fiber network.

What are the typical experimental conditions?

100 mM precursor with 60 mM EDC in MES buffer (200 mM, pH 6.0) at 21 °C

Which are the key related papers?

Regulating DNA-Hybridization Using a Chemically Fueled Reaction Cycle. *J. Am. Chem. Soc.* 2022, 144, 48: 21939–21947.

Suppressing catalyst poisoning in the carbodiimide-fueled reaction cycle. *Chem. Sci.*, 2023, Accepted Manuscript.