

# Terephthalic Acid Synthesis from Ethanol via p-Methyl Benzaldehyde



## Goal:

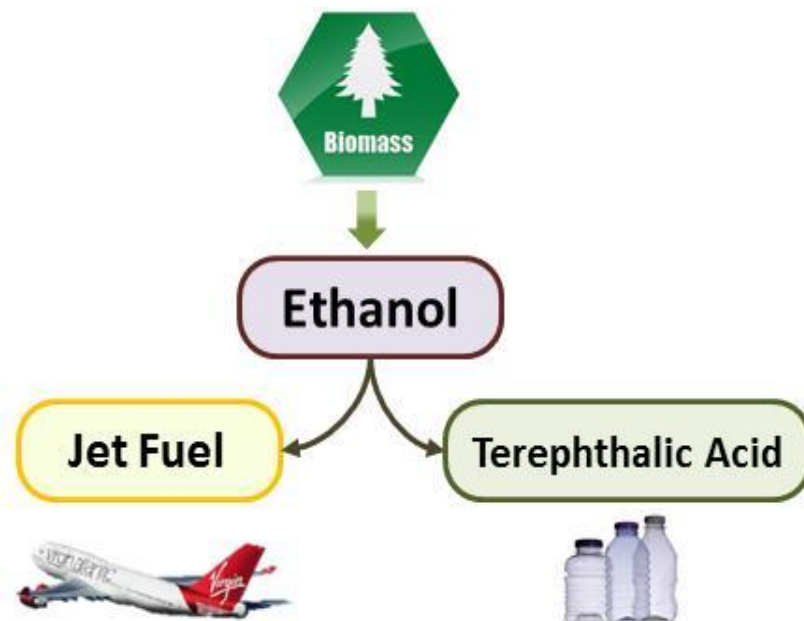
- Develop a marketable and economical catalytic process from bio-derived ethanol to renewable terephthalic acid (TA) to help supply growing markets and provide access to completely sustainable polyethylene terephthalate (PET).

## Approach:

- From ethanol, TA is produced in three chemical steps: ethanol  $\rightarrow$  acetaldehyde  $\rightarrow$  p-methyl benzaldehyde  $\rightarrow$  TA. The focus of this work will be on the most technically challenging step acetaldehyde  $\rightarrow$  p-methyl benzaldehyde.
- This will be evaluated on bench-scale continuous systems

## Impact on the Bioenergy Industry:

- This technology will lead to a new co-product from ethanol that is in high demand, enhancing the economics of jet fuel production.



## ChemCatBio Capabilities Leveraged:

- Catalytic material synthesis
- Advanced catalyst characterization
- Evaluation of catalyst performance and mechanistic studies.

