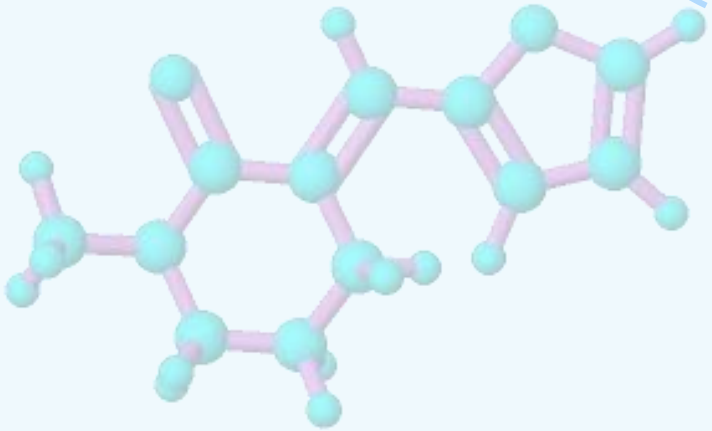
Designing Catalysts for HDO

From Renewable Molecules to Jet Fuel



Andrea Fdez-Mayoralas Romero

The challenge: Decarbonising Aviation

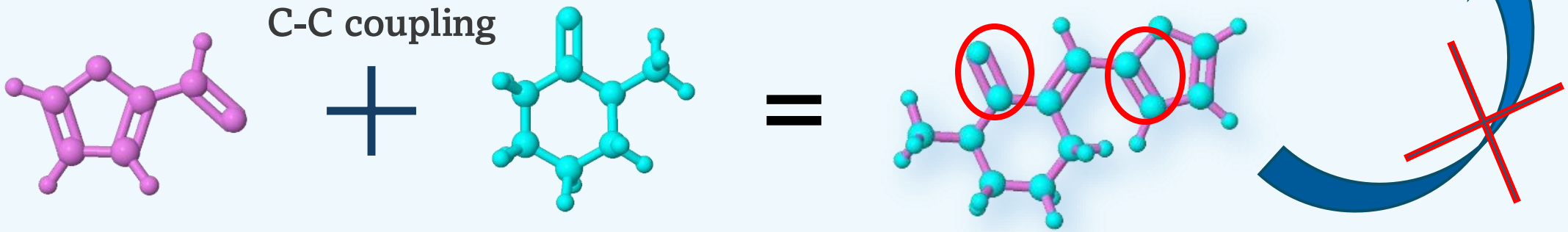




Can we fly Without Relying on oil?

Using Renewable Molecules as SAFs Precursors

Renewable Molecules → Lignocellulosic waste



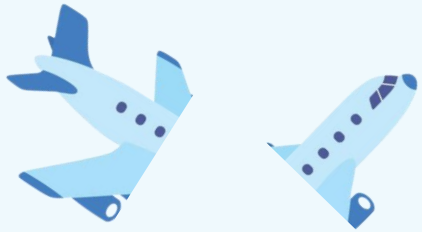
Furfural
C5

2-methylcyclohexane
C7

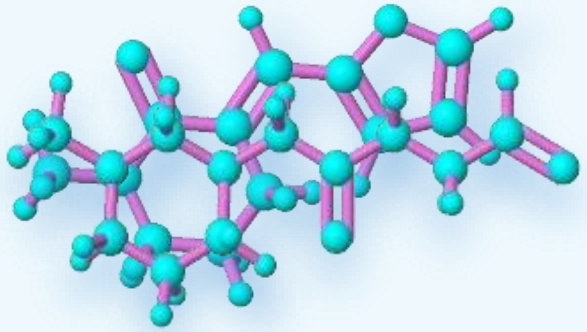
FUMYCHY
C12



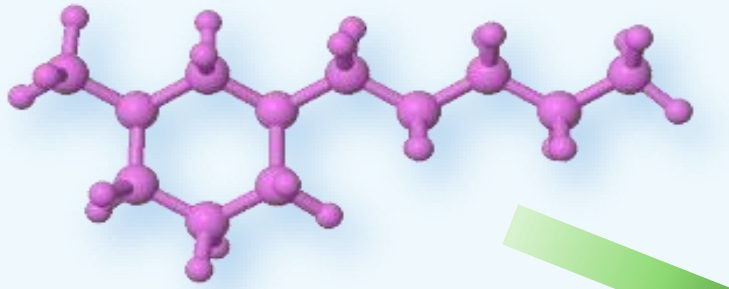
Remove oxygen and double bonds



The CRITICAL step: **Hydrodeoxygenation (HDO)**

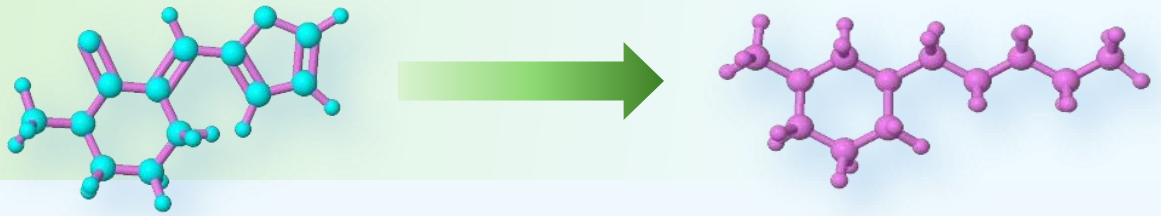


FUMYCHY
C12



High quality
C12

The CRITICAL step: HDO



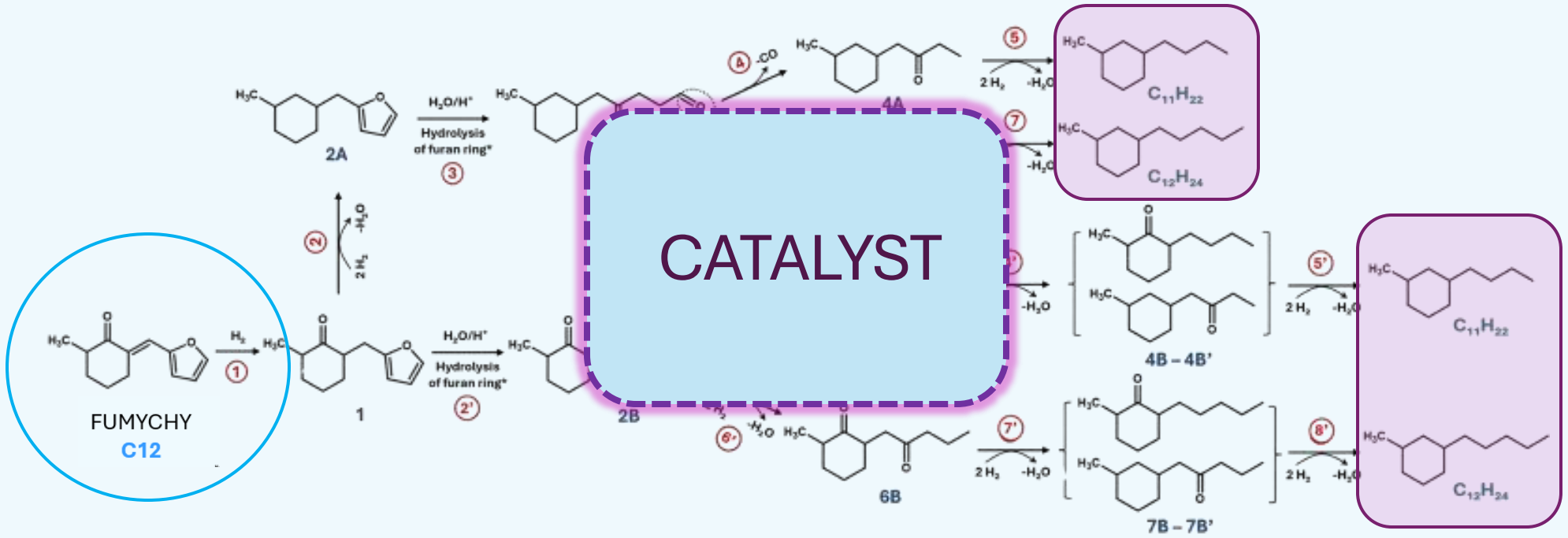
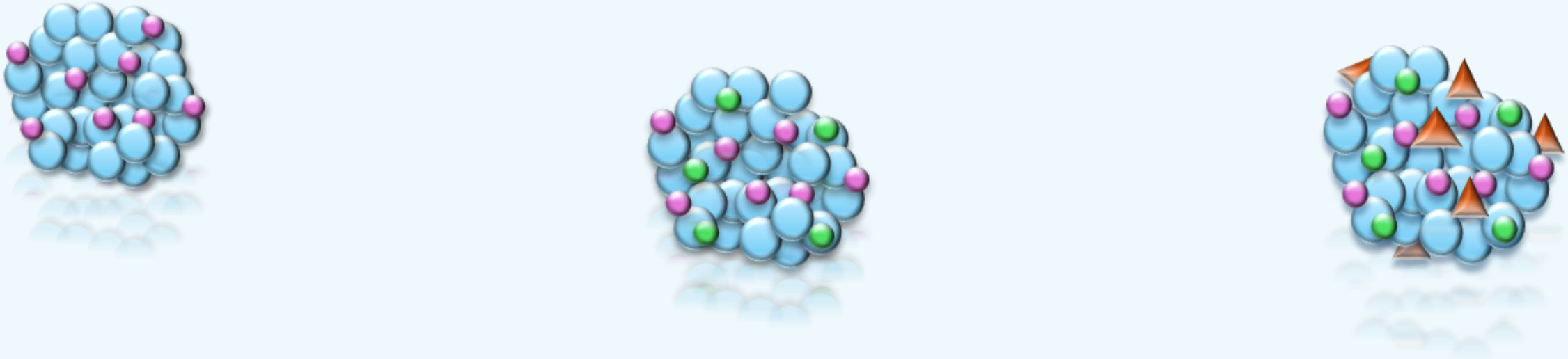


Figure 4.4.5. Comprehensive reaction network for 2-MCYH_P2 HDO: pathways to obtain C_{11}-C_{12} cyclic alkanes

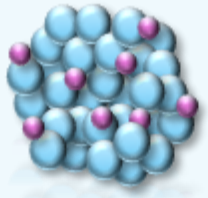
The role of the **catalyst**



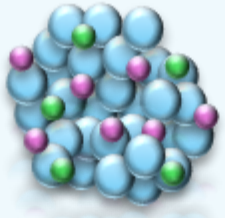


Simple → **Complex**

Main objetive:



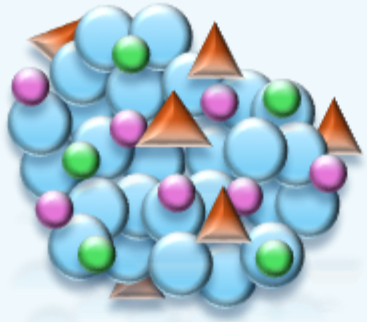
1G



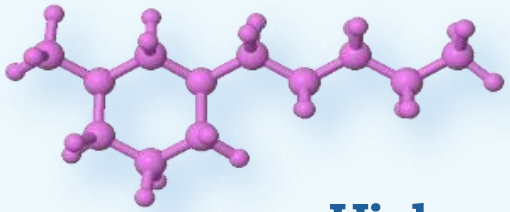
2G & 3G



4G



- ✓ Multifunctionallity
- ✓ Selectivity
- ✓ HC maximizing

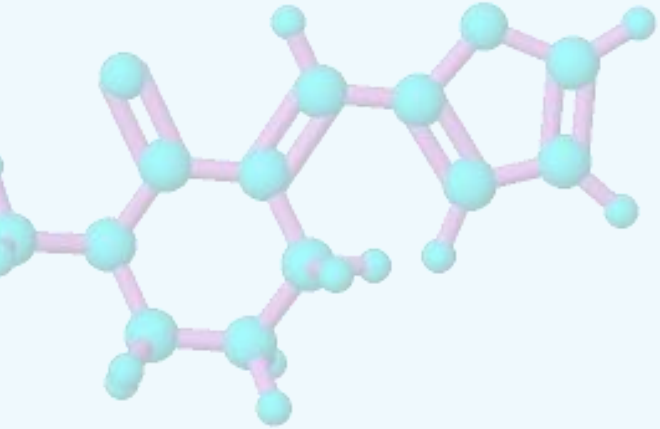


High quality
C12



URJC ITPS

¡¡Thanks for your attention!!



BIOCATFLY
SUSTAINABLE AVIATION FUELS

