



**Biomass Deconstruction and Conversion**  
 Lead: Lee Lynd  
 Deputy FA Lead: Adam Guss

**Activity 1**  
 2.1 Enzymatic deconstruction fundamentals  
 Lead: Mike Himmel



- TASK 1. CAZy structure function - **Bomble**
- TASK 2. Caldi CAZy - **Kelly**
- TASK 3. CAZy protein engineering - **Himmel**
- TASK 4. Modeling the EMS interface - **Crowley**
- TASK 5. Metabolic enzymes - **Bomble**

**Activity 2**  
 2.2 Microbial deconstruction fundamentals  
 Lead: Jim Elkins



- TASK 1. Comparative solubilization and cotreatment – **Holwerda**
- TASK 2. Inhibition characterization and remediation – **Elkins / Shao**
- TASK 3. High solids fermentation – **Holwerda**
- TASK 4. Caldi solubilization fundamentals - **Kelly**

**Activity 3**  
 2.3 Genetic tool development  
 Lead: Adam Guss



- TASK 1. Methylation and genetic components – **Guss / Westpheling**
- TASK 2. Improved and extended transformation – **Guss / Westpheling**

**Activity 4**  
 2.4 *C. thermocellum* ethanol CBP  
 Lead: Daniel Olson



- TASK 1. Yield - **Olson**
- TASK 2. Titer - **Olson**
- TASK 3. Lignocellulose utilization - **Shao**

**Activity 5**  
 2.5 Caldi ethanol CBP  
 Lead: Robert Kelly



- TASK 1. Yield and titer - **Kelly**
- TASK 2. Lignocellulose utilization – **Kelly / Adams**

**Activity 7**  
 2.7 Butanol CBP  
 Lead: Jim Liao  
 Deputy Activity Lead: Paul Lin



- TASK 1. Identify and improve pathway genes - **Liao**
- TASK 2. Optimization of gene expression - **Liao**
- TASK 3. Strain improvement and host optimization - **Liao**

**PRINCIPAL INVESTIGATORS**

