



Biomass Formation and Modification

Lead: Debra Mohnen

Deputy FA Lead: Jerry Tuskan

1.1 TOP *Populus* and Switchgrass and System Analysis

Lead: Tuskan / Dixon / Nelson Deputy Lead: Tang

1.1.1: Selection of the TOP *Populus* and Switchgrass Lines (Mohnen)

TASK 1. Generation of transgenic lines – Rottmann, Wang
TASK 2. Natural variants – Muchero, Saha

1.1.2: TOP Line Analysis Platform and Protocols (Nelson)

TASK 1. Integrated assessment of the TOP lines – Weston / Tang / Nelson
TASK 2. Establish of TOP systems analysis teams – Chen / Nelson
TASK 3. Line propagation – Gunter / Wang
TASK 4. Transcriptomics – Weston / Tang
TASK 5. Metabolomics – Tschaplinski (FA3)
TASK 6. Glycome profiling – Hahn (FA3)
TASK 7. Selective proteomics – Hettich (FA3)
TASK 8. Detailed wall chemistry – York / Tan
TASK 9. Microbial conversion assay – (FA3)
TASK 10. Generation of advanced lines – DiFazio / Saha

1.1.3: Systems (Network) Analysis (Tuskan)

TASK 1. Transcriptional network analysis – Weston / Tang
TASK 2. Network metabolomics – Tschaplinski (FA3)
TASK 3. Protein interactions and complexes – J. Chen / Dixon
TASK 4. Immunolocalization – Hahn (FA3)
TASK 5. Bench-scale bioconversion assessments – FA2, FA3
TASK 6. Research-plot-scale field evaluation – DiFazio / Stewart

1.1.4: Sustainability and Agronomic Performance of Wild Type and *Populus* and Switchgrass Lines (Udvardi)

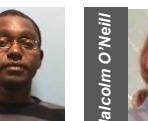
TASK 1. Agronomic performance of TOP Line – Gunter / Udvardi
TASK 2. Agronomics and sustainability of switchgrass and *Populus* biomass – Craven

1.2 Cell Wall Synthesis and Mechanisms of Recalcitrance Activity

Lead: Al Darvill

1.2.1: Cell Wall Synthesis and Mechanisms of Recalcitrance Activity (Darvill)

TASK 1. Nucleotide-sugar/polysaccharide domain – Bar-Peled
TASK 2. Cellulose domain – Kalluri
TASK 3. Xylan and other hemicelloses domain – York
TASK 4. Pectin domain – Mohnen
TASK 5. APAP1 domain – Tan
TASK 6. Lignin domain – Dixon
TASK 7. Transcription factor domain – Dixon
TASK 8. Cellular/subcellular localization domain – Hahn



BESC
BioEnergy Science Center

January 2016