

Blake A. Simmons, Ph.D.

Sandia National Laboratories
Senior Manager
Biofuels and Biomaterials Science and Technology
Sandia Biofuels Program Lead

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- EDUCATION:**
- Tulane University**, New Orleans, LA 9/97 – 8/01
Ph.D., Chemical Engineering
- University of Washington**, Seattle, WA 1/94 – 6/97
Bachelor of Science, Chemical Engineering
- EXPERIENCE:**
- Sandia National Laboratories** 5/10 – Present
Senior Manager, Biofuels and Biomaterials Science and Technology
Biomass Program Lead
- Joint BioEnergy Institute**
Chief Science and Technology Officer 5/14 – Present
Vice-President, Deconstruction Division 9/07 – Present
- Coordinated, wrote, and co-led Sandia's participation on the DOE BER funded \$125M (\$259M total over ten years), five-year renewal of the DOE-BER Joint BioEnergy Institute (JBEI), and will serve as Vice-President of Deconstruction (~\$5M/yr for five years, \$56M total funding over ten years), FY2013-17
 - Sets and manages the science and technology directions, priorities, and milestones at JBEI
 - Supervises and mentors 22 directors (PIs) at JBEI
 - Primary liaison between JBEI and JGI, EMSL
 - Manages a group of 45 staff members, technologists, post-docs, and interns, including staff from SNL, LBNL, PNNL, UC-Berkeley, and LLNL at JBEI
 - Managing two SNL departments over three locations (Emeryville, CA; Livermore, CA; and Albuquerque, NM) with over \$13M in combined annual funding
 - Coordinated Bioscience Research Foundation Laboratory Directed Research & Development (LDRD) funding portfolio of ~\$4M in annual discretionary funding for internal Sandia projects related to biodefense and emerging infectious disease (BEID) and biofuels
 - Major departmental thrust areas as a Senior Manager: biomass conversion, synthetic biology, advanced biofuels, algal biofuels, bio-nano interface, nanotoxicology, enzyme engineering, microbiology, extremophiles, and bioinspired materials
 - Led teams and participated in R&D on biofuels, including advanced biomass pretreatments, engineered lignocellulolytic enzymes, discovery of new enzymes isolated via targeted adaptation of microbial communities,

and techno-economic modeling of biorefineries, with an average external funding portfolio between \$6-9M/FY

- Participated, coordinated, facilitated, and led multiple DOE (BER and EERE/OBP), USDA, and ARPA-E proposal teams for biomass (algae + lignocellulose) conversion into biofuels using biochemical and thermochemical pathways
- Led program development activities around biomass, lignocellulosic biofuels, algal biofuels, co-evolution of fuels and engines for SNL
- Coordinated and managed contracts/collaborations with federal, state, university, and industrial partners

Sandia National Laboratories

12/06 – 5/10

Manager, Biomass Science and Conversion Technologies Department

Manager, Energy Systems Department

Vice-President, Deconstruction Division, Joint BioEnergy Institute

- Managed a total group of 45 staff members, technologists, post-docs, and interns, including staff from SNL, LBNL, and LLNL at JBEI
- Coordinated, wrote, and co-led Sandia's participation on the DOE BER funded \$134M, five-year Joint BioEnergy Institute (JBEI), and will serve as Vice-President of Deconstruction (~\$5M/yr for five years), FY2008-2012.
- Major departmental thrust areas as a manager: biofuels, bio-nano interface, nanoporous materials, nanoelectronics, and hydrogen storage
- Worked with LBNL to secure funding and establish the Advanced Biofuels Process Demonstration Unit (ABPDU)
- Led and participated in research on biofuels, including advanced biomass pretreatments, engineered lignocellulolytic enzymes, discovery of new enzymes isolated via targeted adaptation of microbial communities, and techno-economic modeling of biorefineries
- Participated, coordinated, facilitated, and led multiple DOE (BER and EERE/OBP), USDA, and ARPA-E proposal teams for biomass conversion into biofuels
- Led program development activities around biomass, lignocellulosic biofuels, and nanoporous materials for SNL and JBEI
- Coordinated and managed contracts/collaborations with federal, state, university, and industrial partners
- Served as Sandia technical/programmatic lead for production of biofuels from lignocellulosic biomass
- Participated in the development of proposals and internal projects on algal biofuels

Sandia National Laboratories

10/05 – 12/06

Principal Member of the Technical Staff

- Served as technical and project lead for the bioinspired synthesis of hierarchical silica structures based on diatom biomineralization
- Served as technical and project lead for the enhanced production of biofuels through enzyme and metabolic engineering
- Served as technical lead for biofuels section of Sandia's Transportation Fuel Initiative
- Served as technical lead on the development of polymer-nanoparticle composites for next-generation radiation detectors
- Served as technical lead for nanoimprint lithography technologies that include electroplating, block copolymer self-assembly, and polymer replication

- Developed methods and protocols to utilize block copolymers in the realization of ordered nanopatterns for use in nanoimprint lithography and polymer replication to understand the bio-nano interface between living cells and surfaces
- Developed, designed, and fabricated polymeric microfluidic devices through injection molding and hot embossing for a variety of sensing and concentration applications including insulator-based dielectrophoresis
- Served as technical and project lead for the development of alternative desalination technologies that utilize clathrate hydrates and nanoporous membranes

Sandia National Laboratories

9/01 – 9/05

Senior Member of the Technical Staff

- Awarded research contract with Awwa Research Foundation to combine iDEP with Ultrafiltration (joint with CDC and Contra Costa Water District)
- Served as technical and project lead for the desalination of water using clathrate hydrates
- Served as SNL-CA project lead for the genetic engineering of oxidoreductase enzymes for power generation applications based on simple sugar oxidation
- Developed and utilized protocols for modifying polymeric substrates to interrogate whole cell-surface interactions as a function of surface treatment
- Coordinated the electroplating pipeline at SNL-CA for the development of nickel microfluidic replication tools
- Served as technical and project lead for the development of alternative desalination technologies that utilize clathrate hydrates
- Fabricated and functionalized polymeric surfaces for the selective adsorption of proteins for use in microarrays
- Synthesized, characterized, and developed immobilization techniques for a novel class of mixed metal oxide nanocrystalline photocatalysts
- Served as project and technical lead in the development, characterization, and utilization of a new class of cleavable surfactants for use in the synthesis of advanced materials
- Developed, designed, and fabricated polymeric microfluidic devices through injection molding and hot embossing for a variety of sensing and concentration applications
- Developed and synthesized various polymeric thin films and rigid mesophases for tamper indicating tags and seals

Tulane University

9/97 – 8/01

Graduate Student/Research Assistant

- Designed and conducted experiments for the synergistic synthesis of nanoscale and mesoscale advanced materials in a complex fluid environment
- Specialized in reverse micellar systems, organo- and organohydrogel synthesis and characterization, enzymatic free radical polymerization, templated synthesis of nanomaterials, ceramic-polymer composite materials, inorganic nanocrystals, quantum dot synthesis, and clathrate hydrate technology
- Trained to operate SEM, TEM, SANS, SAXS, AFM, EDS, FTIR, NMR, UV-VIS, GPC, HPLC, LS, XRD, TGA, PLM, ELISA, and SDS-PAGE

Dow Chemical Company, Summer Intern

6/96 – 9/96

- Developed and implemented pilot scale heat transfer apparatus, including the development and implementation of process control design parameters into software control program

United States Navy, E-5

3/88 - 8/93

- Nuclear Propulsion Operator (Electrician's Mate) – USS Carl Vinson
- Regularly supervised 10-20 people for maintenance, operation, and readiness teams at various duty stations
- Honorably discharged

ACTIVITIES/AWARDS/HONORS

- Elected to User Executive Committee, Environmental Molecular Sciences Laboratory, PNNL, 2014
- Silicon Valley Leadership Group, Low Carbon Fuel Standard, 2013-2014
- Scientific Advisory Committee, Great Lakes Bioenergy Research Center, 2013-2014
- Adjunct Professor, University of Queensland, QAAFI, Brisbane, Australia, 2012-present
- Elected to College of Fellows, American Institute of Medical and Biological Engineers, 2011
- Member, JGI Strategic Roadmap Panel, 2012
- CEO, i-GATE NEST Incubator, 2010-2012
- Invited contributor, DOE Quadrennial Technology Review, 2011
- USDA NIFA Bioenergy Center Review Panel, 2010-2011
- DOE ARPA-E Panelist, 2010-present
- DOE OBP Proposal Review, 2010-present
- Technical Advisory Board, National Advanced Biofuels Consortium, 2010-2013
- Lockheed Martin Equity Share Award, 2010
- Outstanding Young Alumnus in Science and Engineering, Tulane University, 2009
- Member of the State of California Low Carbon Fuel Standard Expert Working Group 2009-2010 – Lead sub-group on indirect effects of other fuels
- DOE Joint Genome Institute User Committee Member, 2008-2009
- Editorial board member, *Biofuels*, 2010-present
- Advisory Panel, MetaCyc, 2009-present
- SAB Member, Allopartis, 2008-2013 (company acquired by Novozymes)
- SAC Member, West Coast Biorefinery, Pacific Ethanol, 2008-2009
- Served on Nanomaterials Standing Safety Committee, Sandia, 2007-2009
- Panelist and author for DOE EERE/OBP Algal Biofuels Roadmap, December 2008 – July 2009
- Panelist and author for DOE BES Basic Research Needs Catalysis Workshop, August 2007, focused on Biomass and Biofuels
- Co-Chair of MRS Fall 2007 National Meeting Session (NN) on Peptide-Directed Materials
- Successfully nominated Prof. Brian Kirby of Cornell University for a \$250k Presidential Early Career Award in Science and Engineering, 2007-2012
- Served on DOE EERE SBIR/STTR Review Panels 2007-present
- Served on USDA SBIR/STTR Review Panels 2007-present
- Served on NSF CAREER Review Panel 2005 and 2006
- Served on DOE BES Proposal Review Panel 2006-2008
- Served on User Proposal Review Panel, NIST NCNR 2005-2014

- Journal reviewer: *Science*, *Nature*, *Nature Biotechnology*, *PNAS*, *Analytical Chemistry*, *JACS*, *Nature Physics*, *Energy & Environmental Science*, *Biotechnology and Bioengineering*, *NanoLetters*, *Bioresource Technology*, *Physical Chemistry and Chemical Physics*, *Journal of Physical Chemistry*, *Langmuir*, *Lab on a Chip*, *Electrophoresis*, *Analytica Chimica Acta*, *Biotechnology for Biofuels*, *ChemSusCom*, *Angewandte Chemie*, *Biofuels*
- Member, Institutional Biosafety Committee for Sandia National Laboratories, 2004-2006
- Successfully nominated Prof. William King of University of Illinois for a \$250k Presidential Early Career Award in Science and Engineering, 2005-2010
- Co-Chair of IMECE Conference Session on Nanofabrication, 2005
- Recipient, Sandia Team Employee Recognition Award 2005 and 2007
- Sandia National Laboratories Academic Recruiter 2004-present
- Invited instructor in educational outreach program (chemistry) at the Academy of Arts University, San Francisco, 2002
- Science bowl volunteer 2001-2002
- President, Tulane Graduate School Student Association, 2000-2001
- 1st Place 219th Annual ACS Colloids and Surfaces Poster Division, 2000
- Secretary, Tulane Graduate School Student Association, 1999-2000
- 1st Place 218th Annual ACS Colloids and Surfaces Poster Division, 1999
- Vice-President, Chemical Engineering Graduate Student Society, 1998
- Louisiana Board of Regents Fellowship, 1997-2001
- Dow Chemical Outstanding Junior in Chemical Engineering, 1996
- President, Tau Beta Pi Washington Alpha Chapter, 1996-1997

PROFESSIONAL SOCIETIES

- American Chemical Society, 1999-present
- AAAS, 2009-present
- Tau Beta Pi, 1996-present
- American Institute of Chemical Engineers, 1996-present
- Society of Industrial Microbiology, 2008-present
- Neutron Scattering Society of America, 1999-present

SELECTED PUBLICATIONS (out of >200, h-index = 36 according to Google scholar)

1. Lucas S. Parreiras, Rebecca J. Breuer, Ragothaman Avanasani Narasimhan, Alan J. Higbee, Alex La Reau, Mary Tremaine, Li Qin, Laura B. Willis, Benjamin D. Bice, Brandi L. Bonfert, Rebeca C. Pinhancos, Allisson J. Balloon, Nirmal Uppugundla, Tongjun Liu, Chenlin Li, Deepti Tanjore, Irene M. Ong, Haibo Li, Edward L. Pohlmann, Jose Serate, Sydnor T. Withers, Blake A. Simmons, David B. Hodge, Michael S. Westphall, Joshua J. Coon, Bruce E. Dale, Venkatesh Balan, David H. Keating, Yaoping Zhang, Robert Landick, Audrey P. Gasch, and Trey K. Sato. **Engineering and two-stage evolution of a lignocellulosic hydrolysate-tolerant *Saccharomyces cerevisiae* strain for anaerobic fermentation of xylose from AFEX™ pretreated corn stover**, *PLoS ONE*, accepted July 2014.
2. Simmons, Christopher; Reddy, Amitha; Simmons, Blake; Singer, Steven; VanderGheynst, Jean. **Effect of inoculum source on the enrichment of microbial communities on two lignocellulosic bioenergy crops under thermophilic and high-solids conditions**, *Journal of Applied Microbiology*, accepted July 2014.
3. Aaron M. Socha, Ramakrishnan Parthasarathi, Jian Shi, Sivakumar Pattathil, Dorian Whyte, Maxime Bergeron, Sivasankari Venkatachalam, Anthe George, Michael G. Hahn, Blake A.

- Simmons and Seema Singh, **Efficient biomass pretreatment using ionic liquids derived from lignin and hemicellulose**, *Proceedings of the National Academy of Sciences*, accepted July 2014.
4. Heins, Richard; Cheng, Xiaoliang; Nath, Sangeeta; Deng, Kai; Bowen, Benjamin; Chivian, Dylan; Datta, Supratim; Friedland, Gregory; D'Haeseleer, Patrik; Wu, Dongying; Tran-Gyamfi, Mary; Scullin, Chessa; Singh, Seema; Shi, Weibing; Hamilton, Matthew; Bendall, Matthew; Sczyrba, Alexander; Thompson, John; Feldman, Taya; Guenther, Joel; Gladden, John; Cheng, Jan-Fang; Adams, Paul; Rubin, Edward; Simmons, Blake A.; Sale, Kenneth; Northen, Trent; Deutsch, Sam, **Phylogenomic Guided Identification of Industrially Relevant GH1 β -Glucosidases Through DNA Synthesis and Nanostructure-Initiator Mass Spectrometry**, *ACS Chemical Biology*, accepted June 2014.
 5. Hannah Woo, Sagar Utturkar, Dawn Klingeman, Blake Simmons, Kristen DeAngelis, Steven Brown, and Terry Hazen, **Draft Genome Sequence of the Lignin-degrading *Burkholderia* sp. str. LIG30, Isolated from Wet Tropical Forest Soil**, *Genome Announcements*, accepted June 2014.
 6. Marijke Frederix, Kimmo Hutter, Jessica Leu, Tanveer S Batth, William J Turner, Thomas L Rüegg, Harvey Blanch, Blake A Simmons, Paul D Adams, Jay D Keasling, Michael P Thelen, Mary J Dunlop, Christopher J Petzold, Aindrila Mukhopadhyay, **Development of a native *Escherichia coli* induction system for ionic liquid tolerance**, *PLOS ONE*, accepted June 2014.
 7. Yu-Wei Wu, Yung-Hsu Tang, Susannah G. Tringe, Blake A. Simmons, Steven W Singer **MaxBin: An Automated Binning Method to Recover Individual Genomes from Metagenomes using an Expectation-Maximization Algorithm**, *Microbiome*, accepted June 2014
 8. Deng, Kai; Takasuka, Taichi; Heins, Richard; Cheng, Xiaoliang; Bergeman, Lai; Shi, Jian; Aschenbrener, Ryan; Deutsch, Samuel; Singh, Seema; Sale, Kenneth; Simmons, Blake A.; Adams, Paul; Singh, Anup; Fox, Brian; Northen, Trent. **Rapid Kinetic Characterization of Glycosyl hydrolases based on Oxime Derivatization and Nanostructure-Initiator Mass Spectrometry (NIMS)**, *ACS Chemical Biology*, published online May 2014, DOI: 10.1021/cb5000289.
 9. Jason S Lupoi, Seema Singh, Mark Davis, David J Lee, Merv Shepherd, Blake A Simmons and Robert J Henry, **High-throughput prediction of eucalypt lignin syringyl/guaiacyl content using multivariate analysis: a comparison between mid-infrared, near-infrared, and Raman spectroscopies for model development**, *Biotechnology for Biofuels*, accepted May 2014.
 10. Jian Shi et al., **Understanding the Role of Water during Ionic Liquid Pretreatment of Lignocellulose: Co-solvent or Anti-solvent?**, *Green Chemistry*, accepted May 2014.
 11. Mac Dowell, Niall; Llovel, Fèlix; Sun, Ning; Hallett, Jason; George, Anthe; Hunt, Patricia; Welton, Tom; Simmons, Blake A.; F Vega, Lourdes. **New Experimental Data and Soft-SAFT Models of Alkylimidazolium Chloride, Methylsulphate and Dimethylphosphate Based Ionic Liquids**, *The Journal of Physical Chemistry Part B: Biophysical Chemistry, Biomaterials, Liquids, and Soft Matter*, accepted May 2014.
 12. N.V.S.N. Murthy Konda, Jian Shi, Seema Singh, Harvey W Blanch, Blake A Simmons and Daniel Klein-Marcuschamer, **Understanding cost drivers and economic potential of two variants of ionic liquid pretreatment for cellulosic biofuel production**, *Biotechnology for Biofuels*, accepted May 2014.
 13. Piotr Oleskowicz-Popiel, Daniel Klein-Marcuschamer, Blake A. Simmons, and Harvey W. Blanch, **Lignocellulosic ethanol production without enzymes - technoeconomic analysis of ionic liquid pretreatment followed by acidolysis**, *Bioresource Technology*, accepted February 2014.
 14. Xiadi Gao, Rajeev Kumar, Seema Singh, Blake A Simmons, Venkatesh Balan, Bruce E. Dale, and Charles E. Wyman, **Comparison of Enzymatic Reactivity of Corn Stover Solids Prepared by**

- Dilute Acid, AFEX, and Ionic Liquid Pretreatments**, *Biotechnology for Biofuels*, accepted January 2014.
15. Thomas L. Rüegg, Eun-Mi Kim, Blake A. Simmons, Jay D. Keasling, Steven W. Singer, Taek Soon Lee and Michael P. Thelen, **An auto-inducible mechanism for ionic liquid resistance in microbial biofuel production**, *Nature Communications*, accepted January 2014.
 16. John M Gladden, Joshua I Park, Jessica Bergmann, Vimalier Reyes-Ortiz, Patrik D'haeseleer, Betania F Quirino, Kenneth L Sale, Blake A Simmons and Steven W Singer, **Discovery and Characterization of Ionic Liquid-Tolerant Thermophilic Cellulases from a Switchgrass-Adapted Microbial Community**, *Biotechnology for Biofuels*, accepted January 2014.
 17. Ning Sun, Ramakrishnan Parthasarathia, Aaron M. Socha, Jian Shi, Sonny Zhang, Vitalie Stavila, Kenneth L. Sale, Blake A. Simmons and Seema Singh, **Understanding Pretreatment Efficacy of Four Cholinium and Imidazolium Ionic Liquids by Chemistry and Computation**, *Green Chemistry*, accepted January 2014.
 18. Nirmal Uppugundla, Leonardo da Costa Sousa, Shishir PS Chundawat, Xiurong Yu, Blake Simmons, Seema Singh, Xiadi Gao, Charles E Wyman, Bruce E Dale and Venkatesh Balan, **A Comparative Study of Ethanol Production using Dilute Acid, Ionic Liquid and AFEX Pretreated Corn Stover**, *Biotechnology for Biofuels*, in press December 2013.
 19. Christopher W. Simmons, Amitha P. Reddy, Blake A. Simmons, Steven W. Singer, and Jean S. VanderGheynst, **Bacillus coagulans tolerance to 1-ethyl-3-methylimidazolium-based ionic liquids in aqueous and solid-state thermophilic culture**, *Biotechnology Progress*, in press November 2013.
 20. Noppadon Sathitsuksanoh, Kevin Holtman, Daniel J Yelle, Trevor J Morgan, Vitalie Stavila, Jeffrey Pelton, Harvey W. Blanch, Blake A. Simmons and Anthe George, **Lignin fate and characterization during ionic liquid biomass pretreatment for renewable chemicals and fuels production**, *Green Chemistry*, in press November 2013, DOI:10.1039/C3GC42295J.
 21. Xiaoliang Cheng, Jennifer Hiras, Kai Deng, Benjamin Bowen, Blake Simmons, Paul Adams, Steven Singer, Trent Northen, **High throughput nanostructure-initiator mass spectrometry screening of microbial growth conditions for maximal β -glucosidase production**, *Frontiers in Microbial Physiology and Metabolism*, in press November 2013.
 22. Hannah Woo, Terry C. Hazen, Blake A. Simmons, and Kristen M. DeAngelis, **Enzyme Activities of Aerobic Lignocellolytic Bacteria Isolated from Wet Tropical Forest Soils Systematic and Applied Microbiology**, *Systematic and Applied Microbiology*, in press October 2013.
 23. Zhiwei Chen, Jose H. Pereira, Hanbin Liu, Huu M. Tran, Nathan S.-Y. Hsu, Dean Dibble, Seema Singh, Paul D. Adams, Rajat Sapra, Blake A. Simmons, Masood Z. Hadi, Kenneth L. Sale, **Improved Activity of a Thermophilic Cellulase, Cel5A, from *Thermotoga maritima* on Ionic Liquid Pretreated Switchgrass**, *PLoS ONE*, in press October 2013.
 24. Chenlin Li, Deepti Tanjore, Wei He, Jessica Wong, James L. Gardner, Kenneth Sale, Blake A. Simmons, Seema Singh, **Scale-up and Evaluation of High Solid Ionic Liquid Pretreatment and Enzymatic Hydrolysis of Switchgrass**, *Biotechnology for Biofuels*, in press October 2013.
 25. Kristen M DeAngelis, Deepak Sharma, Rebecca Varney, Blake A Simmons, Nancy G Isern, Lye Meng Markillie, Carrie D Nicora, Angela D Norbeck, Ronald C Taylor, Joshua T Aldrich, Errol W Robinson, **Evidence supporting dissimilatory and assimilatory lignin degradation in *Enterobacter lignolyticus* SCF1**, *Frontiers in Microbial Physiology and Metabolism*, in press August 2013
 26. Simmons C.W.; Claypool J.T.; Marshall M.N.; Jabusch L.K.; Reddy A.P.; Simmons B.A.; Singer S.W.; Stapleton J.J.; VanderGheynst J.S. **Characterization of bacterial communities in solarized soil amended with lignocellulosic organic matter**. *Applied Soil Ecology*, 2014, 73:97-104.

27. Jian Shi, John M. Gladden, Noppadon Sathitsuksanoh, Pavan Kambam, Lucas Sandoval, Debjani Mitra, Sonny Zhang, Anthe George, Steven W. Singer, Blake A. Simmons and Seema Singh, **One-pot Ionic Liquid Pretreatment and Saccharification of Switchgrass**, *Green Chemistry*, 2013,15, 2579-2589.
28. Varanasi, P.; Singh, P.; Auer, M.; Adams, P.D.; Simmons, B.A.; Singh, S. **Survey of Renewable Chemicals Produced from Lignocellulosic Biomass during Ionic Liquid Pretreatment**, xi, 2013, 6(14).
29. Jason S. Lupoi, Seema Singh, Blake A. Simmons, and Robert J. Henry **Assessment of Lignocellulosic Biomass using Analytical Spectroscopy: An Evolution to High Throughput Techniques**, *BioEnergy Research*, in press, June 2013, DOI 10.1007/s12155-013-9352-1.
30. Stephanie A. Eichorst, Pantanjali Varasani, Vatalie Stavila, Marcin Zemla, Manfred Auer, Seema Singh, Blake A. Simmons, Steven W. Singer **Community Dynamics of Cellulose-Adapted Thermophilic Consortia**, *Environmental Microbiology*, in press, May 2013, doi: 10.1111/1462-2920.12159.
31. Vimalier Reyes-Ortiz, Richard A Heins, Gang Cheng, Edward Y Kim, Briana C Vernon, Ryan B Elandt, Paul D Adams, Kenneth L Sale, Masood Z Hadi, Blake A Simmons, Michael S Kent and Danielle Tullman-Ercek. **Addition of a carbohydrate-binding module enhances cellulase penetration into cellulose substrate**, *Biotechnology for Biofuels*, 2013, 6:93.
32. Patrik D’haeseleer, John M. Gladden, Martin Allgaier, Patrik S.G. Chain, Susannah G. Tringe, Stephanie A. Malfatti, Joshua T. Aldrich, Carrie D. Nicora, Errol W. Robinson, Ljiljana Paša-Tolić , Philip Hugenholtz, Blake A. Simmons, Steven W. Singer. **Proteogenomic Analysis of a Thermophilic Bacterial Consortium Adapted to Deconstruct Switchgrass**, *PLoS One*, 2013, 8(7), e68465.
33. Kristin M. DeAngelis et al., **Changes in microbial dynamics during long-term decomposition in tropical forests**, *Soil Biology & Biochemistry*, 2013, 66, 60-68.
34. Aaron M Socha, Samuel Plummer, Vitalie Stavila, Blake A Simmons and Seema Singh. **Comparison of sugar content for ionic liquid pretreated Douglas-fir woodchips and forestry residues**. *Biotechnology for Biofuels*, published online May 1, 2013, doi 10.1186/1754-6834-6-61.
35. Ryan McAndrew et al., **From soil to structure: a novel dimeric B-glucosidase belonging to glycoside hydrolase family 3 isolated from compost using metagenomic analysis**, *Journal of Biological Chemistry*, available online April 11, 2013, doi: 10.1074/jbc.M113.458356.
36. Ning Sun, Hanbin Liu, Noppadon Sathitsuksanoh, Vitalie Stavila, Manali Sawant, Anaise Bonito, Kim Tran, Anthe George, Kenneth L Sale, Seema Singh, Blake A Simmons and Bradley M Holmes. **Production and Extraction of Sugars from Switchgrass Hydrolyzed in Ionic Liquids**, *Biotechnology for Biofuels*, 2013, 6:39.
37. Dawn Chiniqy, Patanjali Varanasi, Taeyun Oh, Jesper Harholt, Jacob Katnelson, Seema Singh, Manfred Auer, Blake Simmons, Paul D. Adams, Henrik V. Scheller, Pamela C. Ronald. **Three novel rice genes closely related to the Arabidopsis IRX9, IRX9L, and IRX14 genes and their roles in xylan biosynthesis**, *Frontiers in Plant Biotechnology*, 2013, 4(83), 1-13.
38. Alejandro G. Cruz, Chessa Scullin, Chen Mu, Gang Cheng, Vitalie Stavila, Patanjali Varanasi, Jeff Mentel, DongYan Xu, Yi-De A. Chung, Blake Simmons and Seema Singh. **Impact of High Biomass Loading on Ionic Liquid Pretreatment**, *Biotechnology for Biofuels*, 2013, 6:52.
39. Dan Groff, Anthe George, Ning Sun, Noppadon Sathitsuksanoh, Gregory Bokinsky, Blake A. Simmons, Bradley M. Holmes and Jay D. Keasling. **Acid enhanced ionic liquid pretreatment of biomass**, *Green Chemistry*, available online March 2013, DOI: 10.1039/c3gc37086k.
40. Kristen M. DeAngelis, Patrik D’Haeseleer, Dylan Chivian, Blake Simmons, Adam P. Arkin, Konstantinos Mavromatis, Stephanie Malfatti, Susannah Tringe, Terry C. Hazen **Metagenomes of tropical soil-derived anaerobic switchgrass-adapted consortia with and without iron**, *Standards in Genomic Sciences*, 2013, 7:3

41. Seema Singh; Patanjali Varanasi; Priyanka Singh; Paul Adams; Manfred Auer; Blake A. Simmons. **Understanding the Impact of Ionic Liquid Pretreatment on Cellulose and Lignin via Thermochemical Analysis**, *Biomass & Bioenergy*, July 2013, 54, 276–283.
42. Persil-Cetinkol O, Smith-Moritz AM, Cheng G, Lao J, George A, Hong K, Henry R, Simmons B, Heazlewood JL, Holmes BM, **Structural and chemical characterization of hardwood from tree species with applications as bioenergy feedstocks**. *PLOS ONE*, December 2012, 7(12), e52820, 11 pages.
43. Li, Chenlin; Sun, Lan; Simmons, Blake; Singh, Seema. **Comparing the Recalcitrance of Eucalyptus, Pine, and Switchgrass using Ionic Liquid and Dilute Acid Pretreatments**, *BioEnergy Research*, March 2013, 6(1), 14-23.
44. Patanjali Varanasi, Priyanka Singh, Rohit Arora, Paul D. Adams, Manfred Auer, Blake A. Simmons, and Seema Singh. **Understanding changes in lignin of *Panicum virgatum* and *Eucalyptus globulus* as a function of ionic liquid pretreatment**, *Bioresource Technology*, Aug 31;126C:156-161 (epub ahead of print).
45. Reddy, Amitha; Simmons, Christopher; Claypool, Joshua; Jabusch, Lauren; Burd, Helcio; Hadi, Masood; Simmons, Blake; Singer, Steven; VanderGheynst, Jean. **Thermophilic Enrichment of Microbial Communities in the Presence of the Ionic Liquid 1-ethyl-3-methylimidazolium acetate**, *Journal of Applied Microbiology*, 2012 Dec, 113(6), 1362-7.
46. Jose A. Perez-Pimienta, Monica G. Lopez-Ortega, Patanjali Varanasi, Vitalie Stavila, Gang Cheng, Seema Singh, Blake A. Simmons. **Comparing the Impact of Ionic Liquid Pretreatment on Agave Bagasse and Switchgrass**, *Bioresource Technology*, 2013, 127, 18–24.
47. Scott M. Paap, Todd H. West, Dawn K. Manley, Eric J. Steen, Harry R. Beller, Jay D. Keasling, Dean C. Dibble, Shiyang Chang, Blake A. Simmons. **Biochemical Production of Ethanol and Fatty Acid Ethyl Ester from Switchgrass: a Comparative Analysis of Environmental and Economic Performance**, *Biomass and Bioenergy*, 2013, 49, 49-62.
48. Jian Shi, Vicki S. Thompson, Neal A. Yancey, Vitalie Stavila, Blake A. Simmons, and Seema Singh. **Impact of Mixed Feedstocks and Feedstock Densification on Ionic Liquid Pretreatment Efficiency**, *Biofuels*, Jan 2013, 4(1), 63-72.
49. Lan Sun, Chenlin Li, Zhengjun Xue, Blake A. Simmons, and Seema Singh, **Unveiling High-Resolution, Tissue Specific Dynamic Changes in Corn Stover during Ionic Liquid Pretreatment**, *RSC Advances*, 2013, 3, 2017-2027.
50. Cheng, Gang; Varanasi, Patanjali; Arora, Rohit; Stavila, Vitalie; Simmons, Blake; Kent, Michael; Singh, Seema. **Impact of Ionic Liquid Pretreatment Conditions on Cellulose Crystalline Structure Using 1-Ethyl-3-Methylimidazolium Acetate**, *Journal of Physical Chemistry B*, 2012, 116, 10049-10054.
51. Shara D McClendon, Tanveer Baath, Christopher J Petzold, Paul D Adams, Blake A Simmons and Steven W Singer, ***Thermoascus aurantiacus* is a promising source of enzymes for biomass deconstruction under thermophilic conditions**, *Biotechnology for Biofuels*, 2012, 5, 54.
52. Patanjali Varanasi, Jacob Katsnelson, David Larson, Rita Sharma, Manoj Sharma, Miguel Vega-Sanchez, Marcin Zemla, Pamela Ronald, Blake Simmons, Seema Singh, Paul Adams, and Manfred Auer, **Mechanical Stress Analysis as a Method to Understand the Impact of Genetically Engineered Rice and Arabidopsis Plants**, *Industrial Biotechnology*, 2012, 8(4), 238-244.
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SELECTED PRESENTATIONS/CONFERENCES (> 300)

1. Blake A. Simmons (invited) **Building the Sugar Economy - Advanced Biofuels at the DOE Joint BioEnergy Institute** LBNL Learning in Retirement Meeting, October 14, 2013
2. Jennifer Hiras, Blake A Simmons, and Steven W Singer. **Characterization of thermophilic compost communities for cellulosic biofuel production.** Gordon Research Conference on Applied and Environmental Microbiology, Mt. Holyoke College, South Hadley, MA, July 7-12, 2013.

3. Jennifer Hiras, Blake A Simmons, and Steven W Singer. **Characterization of thermophilic compost communities for cellulosic biofuel production.** American Society for Microbiology General Meeting, Denver, CO, May 18-21, 2013.
4. Blake A. Simmons, **Introduction to JBEI**, Bay Area Council Board Meeting, January 25, 2013.
5. Blake A. Simmons, **The Intersection of Ionic Liquids and Biology**, QAAFI Lecture, University of Queensland, Brisbane, Australia, February 5, 2013.
6. Jian Shi, Sonny Zhang, Taylor Cu, Vicki S. Thompson, Neal A. Yancey, Vitalie Stavila, Blake A. Simmons, and Seema Singh. **Impact of Mixed Feedstocks and Feedstock Densification on Ionic Liquid Pretreatment Efficiency**, DOE-GSP 2013 Annual Meeting, Washington, DC, February 25-27, 2013.
7. Steven W. Singer, Shara D. McClendon, Tanveer Baath, Christopher J. Petzold, Kerrie W. Berry, Igor V. Grigoriev, Paul D. Adams, and Blake A. Simmons. ***Thermoascus aurantiacus* is a promising thermophilic fungal platform for enzymatic biomass deconstruction**, DOE-GSP 2013 Annual Meeting, Washington, DC, February 25-27, 2013.
8. Thomas Rüegg, Eun-Mi Kim, Jay Keasling, Steve Singer, Blake Simmons, Taek Soon Lee and Michael Thelen. **Engineering Bacterial Tolerance to an Ionic Liquid Used in Biofuel Production**, DOE-GSP 2013 Annual Meeting, Washington, DC, February 25-27, 2013.
9. Kai Deng, Xiaoliang Cheng, Richard Heins, Jian Shi, Taichi Takasuka, Lai F. Bergeman, Ken L. Sale, Samuel Deutsch, Eddy Rubin, Matthew Greving, Brian G. Fox, Anup K. Singh, Blake A. Simmons, Paul D. Adams, and Trent R. Northen. **Large-Scale Characterization of Glycoside Hydrolase Enzymes for Biofuel Development**, DOE-GSP 2013 Annual Meeting, Washington, DC, February 25-27, 2013.
10. Richard Heins, Xiaoliang Cheng, Sangeeta Nath, Kai Deng, Ben Bowen, Paul Adams, Eddy Rubin, Dylan Chivian, Patrik D'Haeseleer, Trent Northen, Samuel Deutsch, Blake Simmons, and Ken Sale. **Discovery of [C2mim][OAc] tolerant enzymes using a multiplexed high-throughput screening pipeline**, DOE-GSP 2013 Annual Meeting, Washington, DC, February 25-27, 2013.
11. Kai Deng, Taichi Takasuka, Samuel Deutsch, Xiaoliang Cheng, Richard Heins, Jian Shi, Lai F. Bergeman, Seema Singh, Ken L. Sale, Eddy Rubin, Blake A. Simmons, Paul D. Adams, Anup K. Singh, Brian G. Fox, Trent R. Northen. **Studies of Biomass Enzymatic Hydrolysis by Tagged Glycans**, DOE-GSP 2013 Annual Meeting, Washington, DC, February 25-27, 2013.
12. Blake Simmons (invited) **Advanced Biofuels Research at JBEI**. UC-Berkeley International Master's Program Seminar, March 9, 2013.
13. Blake Simmons (invited) **Development of Advanced Biomass Conversion Pathways at JBEI**, 6th Annual Berkeley Bioeconomy Conference, Berkeley, CA, March 27–28, 2013.
14. Shi, Jian; Deng, Kai; Tran, Huu; Thompson, Vicki S.; Yancey, Neal A.; Stavila, Vitalie; Northen, Trent R.; Simmons, Blake A.; Singh, Seema. **Ionic liquid and dilute acid pretreatment of pelletized mixed feedstocks and enzyme optimization using a high throughput screening platform**. 245th ACS National Meeting & Exposition, New Orleans, LA, United States, April 7-11, 2013.
15. Cruz, Alejandro G.; Varanasi, Patanjali; Scullin, Chessa; Mu, Chen; Cheng, Gang; Stavila, Vitalie; Mentel, Jeff; Chuang, Yi-De; Simmons, Blake A.; Singh, Seema. **Impact of high biomass loading on ionic liquid pretreatment**. 245th ACS National Meeting & Exposition, New Orleans, LA, United States, April 7-11, 2013.

16. Wu, Dong; Singh, Seema; Sudar, Damir; Simmons, Blake. **Application of advanced integrated imaging methods in the field of biomass degradation for biofuel production.** 245th ACS National Meeting & Exposition, New Orleans, LA, United States, April 7-11, 2013.
17. Kent, Michael S.; Simmons, Blake A. **Advanced Biofuels at JBEI: Summary of Progress** NM Chapter of American Society of Microbiology, Albuquerque, NM, April 11, 2013.
18. N. Sun, N. Sathitsuksanoh, K. Tran, V. Stavila, A. George, K. L. Sale, S. Singh, B. A. Simmons, B. Holmes **Acid Catalyzed Hydrolysis of Biomass in Ionic Liquid and Separation of Sugars Using Liquid-Liquid Extraction.** 2013 MRS Spring, San Francisco, CA, April 1-5, 2013.
19. Blake Simmons (invited plenary) **Ionic liquid pretreatment: Are we there yet?** 5th Annual Congress on Ionic Liquids, Algarve, Portugal, April 21-25, 2013.
20. Vimalier Reyes-Ortiz, Richard A. Heins, Gang Cheng, Edward Y. Kim, Briana C. Vernon, Paul Adams, Ken L. Sale, Masood Z. Hadi, Blake Simmons, Michael S. Kent and Danielle Tullman-Ercek **Addition of a carbohydrate-binding module enhances cellulase penetration into cellulose substrates.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
21. Jian Shi, Kai Deng, Huu Tran, Vicki S. Thompson, Neal A. Yancey, Vitalie Stavila, Trent Northern, Blake A. Simmons and Seema Singh **Pretreatment of pelletized mixed feedstocks and enzyme optimization using a high throughput screening platform.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
22. Christopher W. Simmons, Amitha P. Reddy, Patrik D'haeseleer, Jane I. Khudyakov, Helcio Burd, Masood Z. Hadi, Blake A. Simmons, Steven W. Singer, Michael P. Thelen and Jean S. VanderGheynst **Targeted discovery of thermophilic microbial communities and enzymes that deconstruct lignocellulose in a high-solids environment via metagenomic analysis.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
23. Ning Sun, Aaron Socha, Noppadon Sathitsuksanoh, Jian Shi, Sonny Zhang, Anthe George, Blake Simmons and Seema Singh **Determining the Impact of Cations and Anions of Ionic Liquids on Biomass Pretreatment Efficiency.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
24. Jian Shi, John M. Gladden, Pavan Kambam, Lucas Sandavol, Sonny Zhang, Steve W. Singer, Blake A. Simmons and Seema Singh **Consolidated "One-pot" Ionic Liquid (IL) Pretreatment and Saccharification of Switchgrass using a Thermostable, IL tolerant Enzyme Cocktail.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
25. Jose A. Perez-Pimienta, Ma. Teresa Ponce-Noyola, Monica G. Lopez-Ortega, Patanjali Varanasi, Vitalie Stavila, Gang Cheng, Seema Singh and Blake A. Simmons **Comparison of the impact of ionic liquid pretreatment on recalcitrance of agave bagasse and switchgrass.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
26. Deepti Tanjore, Chenlin Li, Wei He, Jessica Wong, James Gardner, Ken Sale, Seema Singh and Blake Simmons **Resolving Process Scale-Up Issues of Ionic Liquid Pretreatment and Saccharification of Biomass to Monomeric Sugars.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
27. Jose A. Perez-Pimienta, Ma. Teresa Ponce-Noyola, Jose A. Chavez-Carvayar, Vitalie Stavila, Gang Cheng, Seema Singh and Blake Simmons **Effect of calcium oxalate in agave bagasse using ionic liquid and oxidative delignification pretreatment.** 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.

28. Michael Kent, Dong Wu, Heins Richard, Briana Vernon, Kenneth Sale, Seema Singh and Blake Simmons **Separating the effects of enzymes and mediators in lignin depolymerization**. 35th Symposium on Biotechnology for Fuels and Chemicals, Portland, OR, April 29-May 2, 2013.
29. Blake Simmons (invited) **Replacing the Whole Barrel of Oil with Plants and Microbes**, Science at the Theater, Berkeley, CA, May 13, 2013.
30. Blake Simmons (Invited) **Recent Developments in Advanced Biofuels at JBEI**, LLNL Retiree Forum, Livermore, CA, May 14, 2013.
31. Blake A. Simmons, invited, **Beyond Ethanol: Advanced Biofuels R&D at the Joint BioEnergy Institute**, EBI Science Seminar, November 20, 2012.
32. Michael S. Kent, Vimalier Reyes-Ortiz, Gang Cheng, Michael S. Jablin, Manish Dubey, Jaroslaw Majewski, Candice Halbert, James Browning, Brian J. Watson, Haito Zhang, Steven W. Hutcheson, Kenneth L. Sale, Danielle Tullman-Ercek, Blake A. Simmons. **Neutron reflectometry study of the interactions of cellulases with films of amorphous cellulose**, Annual Meeting of the American Institute of Chemical Engineers, Pittsburgh, PA. Oct 28-Nov 2, 2012.
33. He, Wei; Gardner, James L.; Wong, Jessica; Tanjore, Deepti; Li, Chenlin; Banka, Rakesh; Singh, Seema; Simmons, Blake. **Calorimetry study of the process energy flow in ionic liquid pretreatment of lignocellulosic biomass**. 244th ACS National Meeting & Exposition, Philadelphia, PA, United States, August 19-23, 2012.
34. Steven W. Singer, John M. Gladden, Stephanie A. Eichorst, Patrik D'haeseleer and Blake A. Simmons. **Bacterial community dynamics and glycoside hydrolase activities during thermophilic biomass deconstruction**. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
35. Richard A. Heins, Xiaoliang Cheng, Kai Deng, Suzan Yilmaz, Anup Singh, Paul Adams, Blake Simmons, Kenneth L. Sale and Trent Northen. **A multiplexed, high-throughput screening pipeline for lignocellulosic enzyme discovery and evolution**. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
36. Anthe George, Zhiwei Chen, Ning Sun, Vitalie Stavila, Kim Tran, Seema Singh, Kenneth Sale, Niall Mac Dowell, Blake Simmons, Tom Welton, Brad M. Holmes and Jason P. Hallett. **Novel ionic liquid and water mixtures for biomass dissolution**. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
37. Blake Simmons, Henrik Scheller, Paul Adams, Harvey Blanch, and Jay Keasling. **Beyond Ethanol: Advanced Biofuels Research at the Joint BioEnergy Institute**. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
38. Alejandro G. Cruz, Patanjali Varanasi, Chessa Scullin, Chen Mu, Jeff Mentel, Blake A. Simmons, and Seema Singh. **Impact of Biomass Loading on Rheological Properties during Pretreatment**. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
39. Patanjali Varanasi, Manfred Auer, Paul Adams, Blake A. Simmons and Seema Singh. **Estimation of biomass composition and saccharification kinetics using Fourier transform infrared spectroscopy**. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
40. Ning Sun, Kim Tran, Anthe George, Blake A. Simmons and Bradley M. Holmes. **Acid catalyzed hydrolysis of switchgrass in ionic liquid and separation of sugars using liquid-liquid**

extraction. 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.

41. Anthe George, Niall Mac Dowell, Nilay Shah, Blake A. Simmons, Tom Welton, Jason P. Hallett, Ning Sun and Brad M. Holmes. **Modelling of task-specific ionic liquids for biomass deconstruction with the soft-SAFT equation of state.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
42. Lan Sun, Chenlin Li, Zhengjun Xue, Blake A. Simmons and Seema Singh. **Unveiling tissue specific pretreatment dynamics of corn stover by ionic liquid at the cell level.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
43. Zhiwei Chen, Greg D. Friedland, Dylan Chivian, Swapnil R. Chhabra, Adam P. Akin, Blake A. Simmons and Kenneth L. Sale. **Tracing the determinants of substrate specificity in a diverse subfamily of glycoside hydrolase family 5.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
44. Shara D. McClendon, Blake A. Simmons and Steven W. Singer. **Development and characterization of thermophilic fungal enzyme cocktails for biomass saccharification.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
45. Chessa Scullin, Anita Skarstad, Børre Tore Børresen, Hans Kristian Kotlar, Blake Simmons and Seema Singh. **Optimization of sugar production from brown algae.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
46. Noppadon Sathitsuksanoh, Ning Sun, Y-H. Percival Zhang, Blake A. Simmons and Anthe George. **Cellulose solvent-based lignocellulose pretreatment enables efficient pretreatment of mixed feedstocks: Miscanthus and poplar.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
47. Christopher W. Simmons, Amitha P. Reddy, Lauren K. Jabusch, Joshua T. Claypool, Steven W. Singer, Blake A. Simmons and Jean S. VanderGheynst. **Thermophilic enrichment of microbial communities in the presence of 1-ethyl, 3-methylimidazolium acetate.** 34th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, LA, April 30 - May 3, 2012.
48. Blake Simmons (Invited) **Ionic Liquid Pretreatment**, EBI Pretreatment Workshop, Berkeley, CA, April 4, 2012.
49. Seema Singh, Kevin George, Rohit Arora, Chenlin Li, Ian Mathews, Jay Keasling, Taek Soon Lee and Blake A. Simmons **Feedstock Agnostic Pretreatment Technology**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
50. Daniel Klein-Marcuschamer, Piotr Oleskowicz-Popiel, Blake A. Simmons, and Harvey W. Blanch. **The Challenge of Enzyme Cost in the Production of Lignocellulosic Biofuels**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
51. Gang Cheng. **Understanding the Effect of Ionic Liquid Treatment on the Structures of Lignins in Solutions by Small Angle Neutron Scattering**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
52. Aymerick Eudes, Jin Sun Kim, Anthe George, Purba Mukerjee, Brigitte Pollet, Peter I. Benke, Fan Yang, Prajakta Mitra, Lan Sun, Ozgul Persil-Cetinkol, Salem Chabout, Grégory Mouille, Ludivine Soubigou-Taconnat, Sandrine Balzergue, Seema Singh, Bradley M. Holmes, Aindrila Mukhopadhyay, Jay D. Keasling, Blake A. Simmons, Catherine Lapierre, John Ralph, and Dominique Loque. **Biosynthesis and Incorporation of Side-Chain Truncated Lignin Monomers**

to Reduce Lignin Polymerization and Enhance Saccharification, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.

53. Seema Singh, Kevin George, Rohit Arora, Chenlin Li, Ian Mathews, Jay Keasling, Taek Soon Lee, and Blake Simmons. **Feedstock Agnostic Pretreatment Technology**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
54. Hanbin Liu, Gang Cheng, Mike Kent, Vitalie Stavila, Kenneth L. Sale, Blake A. Simmons, and Seema Singh. **Understanding the Interactions of Cellulose with Ionic Liquids and Ionic Liquid/Water Binary Mixture: A Molecular Dynamics Study**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
55. Lan Sun, Jacob Katsnelson, Patanjali Varanasi, Rita Sharma, Manoj Sharma, Miguel Vega-Sanchez, Marcin Zemla, David Larson, Pamela Ronald, Blake Simmons, Paul Adams, Seema Singh, and Manfred Auer. **A Systematic Pipeline for Biomass Characterization Using Aligned Mechanical Stress Analysis, Polarized Raman Microspectroscopy and Scanning Electron Microscopy**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
56. Gang Cheng, Supratim Datta, Chao Wang, Zelin Liu, Jaclyn K. Murton, Page Brown, Michael Jablin, Manish Dubey, Jaroslaw Majewski, Candice Halbert, James Browning, Alan Esker, Brian J. Watson, Haito Zhang, Steven W. Hutcheson, Dale Huber, Blake A. Simmons, and Michael S. Kent. **Interaction of Endoglucanases with Amorphous Cellulose Revealed by Quartz Crystal Microbalance and Neutron Reflectivity**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
57. Xiaoliang Cheng, Wolfgang Reindl, Kai Deng, Benjamin Bowen, Bergeman Lai, John M. Gladden, Steven W. Singer, April Wong, Terry C. Hazen, Brian Fox, Kenneth Sale, Blake A. Simmons, Anup K. Singh, Jay Keasling, Paul D. Adams, and Trent R. Northen. **Nanostructure-Initiator Mass Spectrometry (NIMS): High Throughput Enzyme Activity Assays for Biofuel Development**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
58. Richard Heins, Vimalier Reyes-Ortiz, Huu Tran, Edward Kim, Nathan Hillson, Rajat Sapra, Kenneth Sale, Blake Simmons, Danielle Tullman-Ercek, and Masood Hadi. **Tuning Cellulase Activity Using Carbohydrate Binding Modules**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
59. G.D. Friedland, Z. Chen, J. Pereira, S.A. Revoco, R. Chan, J.I. Park, M.P. Thelen, P.D. Adams, A.P. Arkin, J.D. Keasling, H.W. Blanch, B.A. Simmons, K.L. Sale, D. Chivian, and S. Chhabra. **Tracing the Determinants of Dual-Substrate Specificity in a Diverse Subfamily of Family 5 Glycoside Hydrolases**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
60. Patrik D'haeseleer, John Gladden, Joshua Park, Alyssa Redding, Chris Petzold, Martin Allgaier, Dylan Chivian, Steve Singer, Terry Hazen, and Blake Simmons. **Metagenomics, Metabolic Reconstruction, and High-Resolution Proteomics of Biomass Degradation in a Thermophilic Bacterial Community**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
61. Thomas Rüegg, Patrik D'haeseleer, Sharon Borglin, Kristen DeAngelis, Hannah Woo, Erika Lindquist, Jane Khudyakov, Blake Simmons, and Michael P. Thelen. **Transferring Ionic Liquid Tolerance from the Rain Forest to E. coli**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
62. Greg Bokinski, Pamela Peralta-Yahya, Anthe George, Bradley M. Holmes, Eric Steen, Jeffrey Dietrich, Taek Soon Lee, Danielle Tullman-Ercek, Christopher Voigt, Blake A. Simmons, and Jay

Keasling. **Engineering *E. coli* to Convert Plant Biomass Into Fuels**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.

63. Trey K. Sato, Jason Shao, Dana J. Wohlbach, Li Hinchman, James McCurdy, Enhai Xie, Adam Halstead, Wendy Schackwitz, Christa Pennacchio, Bruce E. Dale, Blake A. Simmons, David B. Hodge, Venkatesh Balan, Kyria Boundy-Mills, Yury Bukhman, and Audrey P. Gasch. **Phenotypic and Genomic Characterization of Natural Isolates of *Saccharomyces cerevisiae* for Growth Tolerance in Lignocellulosic Hydrolysates**, Genomic Science Awardee Meeting, Bethesda, MD, February 26-29, 2012.
64. Simmons, Blake. **Advanced Biofuels Research at JBEI**, Combustion Research Facility Research Highlight Symposium, February 2, 2012
65. Hanbin Liu, Supratim Datta, Blake A. Simmons and Kenneth Sale. **Molecular Dynamics Studies of the Structure and Dynamics of An Endoglucanase Cel9A In Ionic Liquid Solutions**. AIChE National Meeting, October 16-21, 2011, Minneapolis, MN.
66. Alejandro G. Cruz, Jeff Mentel, Seema Singh and Blake Simmons, Invited. **Rheological Properties of Biomass Deconstruction Process Using Ionic Liquid**. AIChE National Meeting, October 16-21, 2011, Minneapolis, MN.
67. Gang Cheng, Vimalier Reyes-Ortiz, Supratim Datta, Zelin Liu, Chao Wang, Jaclyn K. Murton, Page Brown, Michael Jablin, Manish Dubey, Jaroslaw Majewski, Candice Halbert, James Browning, Alan Esker, Brian J. Watson, Haitao Zhang, Steven W. Hutcheson, Kenneth L. Sale, Blake A. Simmons, Danielle Tullman-Ercek, Michael S. Kent. **Interactions of Endoglucanases with Amorphous Cellulose Films Resolved by Neutron Reflectometry and Quartz Crystal Microbalance with Dissipation Monitoring**. American Vacuum Society 58th International Symposium and Exhibition, Nashville, TN, Oct 30 – Nov 4, 2011.
68. Torr, Kirk M.; Love, Karen T.; Nanayakkara, Bernadette; Donaldson, Lloyd A.; Holmes, Bradley M.; Simmons, Blake A.; MacRae, Elspeth A. **Improving cellulose saccharification in *Pinus radiata* compression wood by ionic liquid pretreatment**. 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011.
69. Kent, Michael S.; Cheng, Gang; Liu, Zelin; Datta, Supratim; Murton, Jaclyn; Jablin, Michael; Majewski, Jaroslaw; Halbert, Candice; Browning, James; Ankner, John; Akgun, Bulent; Esker, Alan; Reyes-Ortiz, Vimalier; Tullman-Ercek, Danielle; Simmons, Blake. **Neutron reflectometry and QCM-D study of the interaction of cellulase enzymes with films of amorphous cellulose**. 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011.
70. Chen, Zhiwei; Tran, Huu M.; Hadi, Masood Z.; Simmons, Blake A.; Sale, Kenneth L. **Directed evolution of a thermophilic cellulase for biomass hydrolysis**. 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011.
71. Simmons, B.A. et al (Invited) **Overcoming the Commercialization Challenges of Starches, Polysaccharides, and Oils from Biomass**. 2nd Annual Summit on Biobased Materials and Products, San Diego, February 15, 2011.
72. Simmons, B.A. et al (Invited) **From Concept to Reality - Ionic Liquid Pretreatment**. 2nd Annual Summit on Biobased Materials and Products, San Diego, February 17, 2011.
73. Simmons, B.A. et al (invited) **Advanced Biofuels and Combustion Science**. University of Michigan US-China Clean Energy Workshop, Ann Arbor, MI, December 8, 2010.
74. Singh, S.; Li, C.; Liu, H.; Varanasi, P.; Sun, L.; Cruz, A.; Cheng, G.; Kent, M.; Arora, R.; Ong, M.; Chen, J.; Dibble, D.; Auer, M.; Scheller, H.; Benke, P.; Adams, P.; Balan, V.; Vogel, K.; Dale, B.;

- Simmons, B. **Understanding and overcoming biomass recalcitrance**. Pacifichem 2010, International Chemical Congress of Pacific Basin Societies, Honolulu, HI, United States, December 15-20, 2010.
75. Klein-Marcuschamer, D, Simmons, BA, Blanch, HW. **Technoeconomic analysis at JBEI**. BRC Seminar, December 12, 2010.
 76. Daniel Klein-Marcuschamer, Blake Simmons, and Harvey W Blanch, **A Wiki-Based Platform for Technoeconomic Analysis of Lignocellulosic Ethanol Biorefineries**, AIChE 2010 Annual Meeting, Salt Lake City, Utah, November 7th-12th 2010.
 77. Simmons, B.A. et al (Invited) **Breaking the Pretreatment and Biofuels Barriers: R&D at JBEI**. UC-Davis Biotechnology Seminar Series, UC-Davis, Davis, CA, November 19, 2010.
 78. Gladden, J. M., A. M. Reddy, J. S. VanderGheynst, T. C. Hazen, B. A. Simmons, P. Hugenholtz, and S. W. Singer. Invited. **Targeted enzyme discovery in feedstock-adapted microbial communities**. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
 79. DeAngelis, K. M., M. Allgaier, W. L. Silver, Y. Chavarria, J. Fortney. P. Hugenholtz, B. Simmons, K. Sublette, and T. C. Hazen. Invited. **Trapping lignin degrading microbes in tropical forest soil**. February 2010, Washington, DC. Genomics:GTL Contractor-Grantee Workshop VIII, USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Workshop 2010.
 80. Liu, H., Sale, K., Pereira J.H., Adams, P.D. Simmons, B.A., and Sapra, R. **Probing the Function of N-Terminal Ig Domain in the Crystal Structure of Endoglucanase Cel9A from the Thermoacidophilic Alicyclobacillus acidocaldarius Using Computational Modeling**, The 2010 Berkeley Mini Statistical Mechanics Meeting, Berkeley, CA, January 8- 10, 2010.
 81. J.D. Keasling*, H.W. Blanch, P.D. Adams, P.C. Ronald, and B.A. Simmons, **The Joint BioEnergy Institute: Addressing the Challenges of Converting Biomass to Fuels**, GTL Contractors Meeting, February 2010
 82. D. Klein-Marcuschamer, P. Oleskoqicz-Popiel, B.A. Simmons, H.W. Blanch, **Techno-Economic Modeling of Cellulosic Biorefineries**, GTL Contractors Meeting, February 2010
 83. B. Knierim, L. Prak, M. Zemla, D. Jorgens, P. Varanasi, C. Li, O. Cetinkol, L. Sun, K. Tran, Y. Verhertbruggen, H.V. Scheller, D.C. Dibble, B.M. Holmes, B.A. Simmons, P.D. Adams, S. Singh and M. Auer, **High-Resolution Electron Microscopy Imaging of Plants and Pretreated Biomass**, GTL Contractors Meeting, February 2010
 84. A. George, P. Benke, A. Jen K. Tran, B. Simmons, B. Holmes, **Ionic liquid ion influence on the Polydispersity of Isolated Lignins in Biofuel Production**, GTL Contractors Meeting, February 2010
 85. L. Sun, B. Simmons, S. Singh, **Understanding IL Pretreatment of Lignocellulosic Biomass by Hyperspectral Raman Imaging**, GTL Contractors Meeting, February 2010
 86. J. Park, M. Kent, S. Datta, B. Holmes, D. Dibble, Z. Huang, B. Simmons, R. Sapra, **Characterization of a hyperthermophilic cellobiohydrolase from C. saccharolyticus: Enzymatic hydrolysis of cellulose mediated by substrate binding**, GTL Contractors Meeting, February 2010
 87. P. Varanasi, M. Auer, B. Simmons, S. Singh, **IL Pretreatment of Biomass: Dynamic studies with light scattering, GC-MS and FTIR**, GTL Contractors Meeting, February 2010

88. A. Chandrasekaran, R. Bharadwaj, J. Park, M. Hadi, R. Sapra, B. Simmons, P. Adams, and A. Singh, **A microscale platform for integrated cell-free expression and screening of cellulase activity**, GTL Contractors Meeting, February 2010
89. R. Bharadwaj, A. Chandrasekaran, A. Wong, B. Simmons, P. Adams, A. Singh, **Microfluidic Technology for Biofuels Applications**, GTL Contractors Meeting, February 2010.
90. M Vega-Sanchez, M. Chern, W. Sze-To, L. Bartley, A. Smith, B. Holmes, R. Bharadwaj, B. Simmons, P. Ronald, **Forward genetic screen to identify rice mutants with changes in cell wall composition and saccharification efficiency**, GTL Contractors Meeting, February 2010.
91. M. Le Gros, G. McDermott, M. Uchida, C. Knoechel, D. Parkinson, S. Singh, B. Simmons, C. Larabell, **New imaging tools for bioenergy research: correlated soft x-ray tomography and visible light cryo-microscopy**, GTL Contractors Meeting, February 2010.
92. B. Simmons (invited) **Biofuels and beyond: advancing renewable energy**, Cleantech to Market, February 20, 2010.
93. B. Simmons (invited) **Advanced biofuels: Research at the Joint BioEnergy Institute**, SCERC Forum, March 9, 2010.
94. B. Simmons (invited) **Ionic liquids: next-generation biomass pretreatment**, iBiOK 2010 Conference, Kobe, Japan, January 19, 2010.
95. B. Simmons (invited) **Beyond ethanol: Advanced biofuels research at JBEI**, US-NZ Joint Scientific Commission, Rotorua, New Zealand, January 21, 2010.
96. Dibble, D. C. George, A. Cheng, A. Li, C. Sun, L. Singh, S. Simmons, B. A. **Fractionation and Recovery of Lignin, Carbohydrates, and Aliphatic Components of Biomass in an Ionic Liquid Pretreatment Process**. ACS Spring Meeting, San Francisco March 25th 2010.
97. Li, Chenlin; Hu, Hongqiang; Liu, Hong; Vogel, Kenneth P.; Simmons, Blake; Singh, Seema. **Ionic liquid pretreatment of lignocellulosic materials for enhanced sustainable biogas and electricity generation**. Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
98. George, Anthe; Benke, Peter I.; Tran, Kim; Simmons, Blake A.; Holmes, Bradley M. **Influence of the ionic liquid cation on the dissolution of isolated lignins and biomass for biofuel production**. Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
99. Li, Chenlin; Sun, Lan; Cheng, Gang; Kent, Michael S.; Balan, Venkatesh; Dale, Bruce; Simmons, Blake; Singh, Seema. **Comparison of ammonia fiber expansion and ionic liquid pretreatment on corn stover: Cell-wall matrix, recalcitrance and digestibility**. Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
100. Persil Cetinkol, Ozgul; Dibble, Dean C.; Gang, Cheng; Kent, Michael S.; Knierim, Bernhard; Auer, Manfred; Wemmer, David E.; Pelton, Jeffrey G.; Melnichenko, Yuri B.; Ralph, John; Simmons, Blake A.; Holmes, Bradley M. **Harnessing the effect of ionic liquid pretreatment on Eucalyptus**. Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
101. Liu, Hanbin; Simmons, Blake; Singh, Seema. **Fundamental interactions between polysaccharides and binary room-temperature ionic liquid/water mixtures**. Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010

102. Varanasi, Patanjali; Auer, Manfred; Singh, Seema; Simmons, Blake. **Ionic liquid pretreatment of lignin: Dynamic studies with light scattering, GC/MS and FTIR.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
103. Sun, Lan; Li, Chenlin; Chuck, George; Dibble, Dean C.; Simmons, Blake A.; Singh, Seema. **Genetic enhancement of bioenergy feedstocks for efficient biofuel production.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
104. George, Anthe; Benke, Peter I.; Tran, Kim; Holmes, Bradley D.; Simmons, Blake A.. **Ionic liquid dissolution mechanisms of lignins for lignocellulosic biofuel production.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
105. Persil Cetinkol, Ozgul; George, Anthe; Brennan, Timothy C.; Tran, Kim; Wemmer, David E.; Pelton, Jeffrey G.; Ralph, John; Henry, Robert J.; Simmons, Blake A.; Holmes, Bradley M. **Structural characterization of Eucalyptus species.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
106. Park, Joshua I.; Datta, Supratim; Holmes, Bradley M.; Dibble, Dean C.; Simmons, Blake A.; Sapra, Rajat. **Cloning, expression, purification, and biochemical characterization of a hyper-thermophilic cellobiohydrolase from Caldicellulosiruptor saccharolyticus.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
107. Datta, Supratim; Tran, Kim; Holmes, Bradley M.; Sale, Kenneth L.; Sapra, Rajat; Blanch, Harvey W.; Simmons, Blake A.. **Towards the identification of ionic liquids that stabilize cellulases for saccharification of cellulosic biomass.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
108. Reddy, A. P.; Allgaier, M.; Gladden, J. M.; Singer, S.; Hugenholtz, P.; Simmons, B.; Hazen, T. C.; VanderGheynst, J. S. **Enrichment of highly efficient thermophilic microbial communities active on switchgrass and corn stover in a high-solids environment.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
109. Chen, Zhiwei; Tran, Huu; Chu, Hou Cheng; Hadi, Masood; Adams, Paul; Simmons, Blake; Sapra, Rajat; Sale, Kenneth. **Directed evolution of a thermophilic cellulase for biomass hydrolysis.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
110. Klein-Marcuschamer, Daniel; Simmons, Blake; Blanch, Harvey. **Techno-economic analysis of lignocellulosic ethanol production based on experimental data.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
111. Cruz Gonzalez, Alejandro G.; Singh, Seema; Simmons, Blake A.; Li, Chenlin; Chen, Joanna; Sun, Lan. **Biomass dynamic studies using synchrotron infrared light.** Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010
112. Simmons, B.A., et. al. Invited. **Overcoming Biomass Recalcitrance with Ionic Liquids.** DOE GTL Contractor's Meeting, Washington D.C., February 2009
113. Simmons, B.A., et. al. Invited. **Progress towards second-generation biofuels.** CleanTech Bay Area Council Summit, Shanghai, China, October 2008
114. Simmons, B.A. Invited. **Energy Innovation at the Joint BioEnergy Institute.** INPA, January 2009
115. Simmons, B.A. **Overcoming Biomass Recalcitrance,** BioScience Forum, January 2009

116. Simmons, B.A., et al., Invited. **History and future of biofuels.** ISPE Annual Meeting. San Francisco, CA. April 2009
117. Simmons, B.A., et al., Invited. **Next-generation Biofuels from Lignocellulosic Biomass.** World Biofuels Congress. Brussels, Belgium. March 2009
118. Simmons, B.A., et al., Invited. **Advancing Next-generation Biofuels: The Joint BioEnergy Institute.** INRA National Annual Meeting, Paris, France. March 2009
119. Simmons, B.A., et al., Invited. **Development of Advanced Imaging Techniques for the Analysis of Biomass during Pretreatment.** PittCon, Chicago, IL, March 2009
120. Simmons, B.A., et al., Invited. **Bioenergy: From Field to the Tank: A JBEI Perspective.** MIT Energy Conference, March 2009
121. Simmons, B.A., et al. Invited. **Overcoming Biomass Recalcitrance with Ionic Liquids.** DOE GTL Contractor's Meeting, Washington D.C., February 2009
122. Simmons, B.A. Invited. **Energy Innovation at the Joint BioEnergy Institute.** INPA, January 2009
123. Simmons, B.A. **Overcoming Biomass Recalcitrance,** BioScience Forum, January 2009
124. Singh, S. Understanding **Ionic Liquid Pretreatment of Lignocellulosic Biomasses** SIM 31st Symposium on Biotechnology for Fuels and Chemicals: Oral Session, Biomass Pretreatment and Fractionation, May 6 2009. San Francisco, CA.
125. Manisseri, C., R. Arora, C. Li, A.M. Smith, L. Sun, M. Ong, P. Benke, H.V. Scheller, K.P. Vogel, B.A. Simmons, and S. Singh. Contributed. **Compositional Analysis of Lignin in Bioenergy Crops and De-Polymerization via Pretreatment** SIM 31st Symposium on Biotechnology for Fuels and Chemicals: Poster Session, Biomass Pretreatment and Fractionation, May 4 2009. San Francisco, CA.
126. Singh, S., and B. Simmons. **In-Situ Examination of Biomass Dissolution and Cellulose Regeneration Enabling Cellular level Insight of Ionic Liquid Pretreatment Process** SIM 31st Symposium on Biotechnology for Fuels and Chemicals: Poster Session, Biomass Pretreatment and Fractionation, May 3 2009. San Francisco, CA.
127. Kent, M. S., Murton, J. K., Akgun, B., Halbert, C., Brlowning, J., Ankner, J., Simmons, B.A. Contributed. **Enzymatic Hydrolysis of Cellulose Films by Neutron Reflectivity.** International Conference on Neutron Scattering: Poster Session, May 6 2009. Knoxville, TN.
128. Kent, M. S., Murton, J. K., Cheng, G., Zendejas, F., Dibble, D., Hjelm, R., Banuelos, J. L., Urquidi, J., Simmons, B.A. Contributed. **Structural Studies of Enzymatic Hydrolysis of Cellulose by Neutron Scattering.** International Conference on Neutron Scattering: Poster Session, May 6 2009. Knoxville, TN.
129. Kent, M. S., Murton, J. K., Cheng, G., Zendejas, F., Dibble, D., Hjelm, R., Banuelos, J. L., Urquidi, J., Simmons, B.A. Contributed. **Structural Studies of Enzymatic Hydrolysis of Cellulose by Neutron Scattering.** SIM 31st Symposium on Biotechnology for Fuels and Chemicals: Poster Session, Biomass Pretreatment and Fractionation, May 3 2009. San Francisco, CA.
130. Chen, Z., Tran, H.M., Chu, H.C., Park, J.I., Datta, S., Liu, H., Tullman-Ercek, D., Bharadwaj, R., Achyuthan, K.E., Holmes, B., Chhabra, S., Singh, A., Hadi, M., Simmons B.A. and Sapra, R. Contributed. **Directed Evolution of Hyperthermophilic Endoglucanase, Cel5A, from**

- "*Thermotoga maritima*"** MSB8. SIM 31st Symposium on Biotechnology for Fuels and Chemicals: Poster Session, Enzyme Science and Technology, May 4 2009. San Francisco, CA.
131. Persil Cetinkol, O., Dibble, D. C., Pelton, J. G., Wemmer, D. E., Simmons, B. A., Holmes, B. M. and Ralph, J. **2-D NMR Investigation of Ionic Liquid Pretreatment on Eucalyptus**. SIM 31st Symposium on Biotechnology for Fuels and Chemicals: Poster Session, Biomass Pretreatment and Fractionation, May 4 2009. San Francisco, CA.
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