

Technical Report

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8th Annual Georgia Glycoscience Symposium entitled “Integrating Models of Plant Cell Wall Structure, Biosynthesis and Assembly” held April 7, 2014 at the CCRC

The 8th Annual Georgia Glycoscience Symposium entitled “**Integrating Models of Plant Cell Wall Structure, Biosynthesis and Assembly**” was held on April 7, 2014 at the CCRC. The local organizing committee consisted of Drs. Alan Davill, Paratoo Azadi, Debra Mohnen and William York of Complex Carbohydrate Research Center. The focus of the symposium was the role of glycans in plant cell wall structure and synthesis. More specifically, the goal was to bring leaders in the area of plant cell wall synthesis and structure together with graduate students, postdoctoral fellows and research scientists to discuss the newest results in cell wall synthesis and structure and their significance in regards to plant cell wall models. The symposium program closely followed the DOE’s mission to highlight chemical and biochemical structures and processes important for the formation and modification of renewable plant cell walls, which serve as the basis for biomaterial and biofuels.

The formal one-day program consisted of four sessions entitled “Cellulose and Hemicellulose Synthesis, Assembly and Architecture”, “Pectin and Cell Wall Protein/Proteoglycan Structure and Biosynthesis”, “Secondary Walls and Lignin Structure and Biosynthesis” and “Diversity in Wall Structure”. These sessions were chaired by four leaders in the field, Ken Keegstra (Michigan State University), Markus Pauly (University of California-Berkeley), Nick Carpita (Purdue University) and Maureen McCann (Purdue University), respectively. Each session consisted of three to six speakers with topics ranging from the newest results on cellulose and hemicellulose synthesis, to wall ultrastructural and mechanisms of biomechanics informed by studies of expansins and substrate-specific hydrolases, to advances in understanding the structure and synthesis of pectin and proteoglycans, the role of nucleotide-sugar transporters, and methods to study wall structure and architecture including solid-state NMR, glycome profiling and wall imaging using glycan-reactive antibodies, multi-scale imaging and modeling and approaches to understand Golgi-proteomics and how they inform wall formation models. The symposium was attended by both senior investigators in the field as well as students including a total attendance of 103, which included 80 faculty/research scientists, 11 graduate students and 12 Postdoctoral students. The mix of senior investigators and more junior scientists was deliberate to enable young scientists and experts in the field of plant cell wall structure and function to interact and share their data in an informal setting with ample time set aside for discussions. A program of the symposium is attached.

The Symposium was immediately followed by, and informed, the DOE’s Office of Basic Energy Sciences (BES)-funded workshop entitled, “Developing Models of Plant Cell Wall Structure, Biosynthesis and Assembly and Methods to Critically Test and Advance Them” that was held on April 8-9, 2014. As such the CCRC 8th Annual Georgia Glycoscience Symposium established a foundation for the Workshop discussions and enabled discussions on the strengths and

weaknesses of the current understanding of plant cell wall structure and synthesis. Both the workshop and the symposium were held at the Complex Carbohydrate Research Center at the University of Georgia in Athens, GA (www.ccrc.uga.edu).

Symposium Expenses

A total budget of \$10,000 was requested from DOE-BES that covered the partial cost of holding the above 8th Annual Georgia Glycoscience Symposium. Since the aim of the program was to propose and review the current best models of cell wall structure and/or synthesis, many experts in the field were invited by the organizing committee and individual session chairs for this purpose. To facilitate the symposium, we waived registration fees, set at \$45, for 19 of the invited symposium speakers/chairs/organizers as well as for 11 graduate students, 12 postdoctoral fellows and 18 early staff scientists (i.e. non-tenured faculty and research scientists). The total funds for waiving these registration fees were \$2700. The funds were used to waive registration for only non- federal government employees.

Since the program started at 8:00 am on the morning of April 7th, we used part of the requested budget for overnight hotel lodgings for 14 of our invited speakers for the evening of Sunday 6th. At a hotel rate of \$90 per night, a total of \$1,260 will be allocated for the lodging costs.

Other funds were for costs associated with transportation that was put toward the shuttle at \$64.00 per round trip, for 18 of the participants to travel to and from Atlanta airport to Athens Hotels. The 18 participants whose shuttle service was covered are from a list of our invited symposium speakers and attendees who were not federal government employees. A total of \$1,152 was used for the shuttle service. A bus service was also used for \$490 to transport participants from their hotels to CCRC building where the symposium was held.

The symposium also involved printing costs that consisted of printing the program, flyers with the meeting announcement, abstracts and posters. The total printing cost was \$1,721.12 for the symposium.

We used the remainder of the requested funds (\$248) towards the renting of audio equipment for the auditorium where the conference was be held.

In summary, the requested \$10,000 from this proposal was put towards waving registration fees (\$2700), lodging for 14 invited speakers (\$1,260), Airfare (\$2692) and shuttle service for 18 invited speakers (\$1,152), bus service (\$490), printing costs (\$1,721.12) and audio equipment (\$248).

Additional Symposium Costs and Sources of Funding

The symposium also had additional costs including airfare travel for remainder of the invited symposium speakers and their hotel loggings for the evening of the 7th. Since the invited symposium speakers also attended the DOE-council sponsored workshop, the DOE-Council paid the air travel of the invited symposium speakers who were also workshop attendees including their hotel lodgings for the evening of April 7th. Therefore, the DOE- council directly paid the invited speakers for their travel and hotel for April 7th.

There were additional costs associated with meals for the participants (breakfast, lunch, refreshment and dinner for April 7th including charges for the dinner venue. The meals and any

additional costs for the symposium were covered by a combination of the resources. The Office of Vice President for Research (OVPR) at University of Georgia, Complex Carbohydrate Research Center and our Industrial Sponsorship together contributed towards to costs of meals and any additional costs that were associated with the symposium.