William S. York
Associate Professor of Biochemistry and Molecular Biology
Complex Carbohydrate Research Center
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Education and Training

University of Colorado, Boulder	Molecular, Cellular, & Developmental Biology	B.A., 1978
University of Georgia	Biochemistry & Molecular Biology	Ph.D., 1996

Professional Experience

2007-Present:	Faculty Participant, DOE BioEnergy Science Center
2007-Present:	Adjunct Associate Professor, Department of Plant Biology, University of Georgia, Athens
2006-Present:	Adjunct Associate Professor, Department of Computer Science, University of Georgia, Athens
2004-Present:	Associate Professor, Department of Biochemistry & Molecular Biology, and Complex Carbohydrate Research Center, University of Georgia, Athens
1997-2004:	Assistant Professor, Department of Biochemistry & Molecular Biology and Complex Carbohydrate Research Center, University of Georgia, Athens
1985-1997:	Senior Research Chemist, Complex Carbohydrate Research Center, University of Georgia, Athens
1978-1985:	Professional Research Assistant, Department of Chemistry, University of Colorado, Boulder

***Representative Publications (from a total of 80 publications*)**

York, W.S. and M.A. O'Neill. 2007. Biochemical control of xylan biosynthesis - which end is up? *Current Opinion in Plant Biology*. In press.

Peña, M.J., R. Zhong, G.-K. Zhou, E.A. Richardson, M.A. O'Neill, A.G. Darvill, **W.S. York**, and Z.-H. Ye. 2007. *Arabidopsis irregular xylem 8* and *9*: Implications for complexity of glucuronoxylan biosynthesis. *Plant Cell* **19:** 549-563. [PMID: 17322407]

Ye, Z.-H., **W.S. York**, and A.G. Darvill. 2006. Important new players in secondary wall synthesis. *Trends Plant Sci.* **11:** 162-164. [PMID: 16537114]

Deng, C., M.A. O'Neill, and **W.S. York**. 2006. Selective chemical depolymerization of rhamnogalacturonans. *Carbohydr. Res.* **341:** 474-484. [PMID: 16414034]

Zhong, R., M.J. Peña, G.-K. Zhou, C.J. Nairn, A. Wood-Jones, E.A. Richardson, W.H. Morrison III, A.G. Darvill, **W.S. York**, and Z.-H. Ye. 2005. *Arabidopsis Fragile Fiber8*, which encodes a putative glucuronyltransferase, is essential for normal secondary wall synthesis. *Plant Cell* **17:** 3390-3408. [PMID: 16272433]

Naqvi, S.M.S., A. Harper, C. Carter, G. Ren, A. Guirgis, **W.S. York**, and R.W. Thornburg. 2005. Nectarin IV, a potent endoglucanase inhibitor secreted into the nectar of ornamental tobacco plants: Isolation, cloning, and characterization. *Plant Physiol.* **139:** 1389-1400. [PMID: 16244157]

Jia, Z., M. Cash, A.G. Darvill, and W.S. York. **2005**. NMR characterization of endogenously *O*-acetylated oligosaccharides isolated from tomato (*Lycopersicon esculentum*) xyloglucan. *Carbohydr. Res.* **340:** 1818-1825. [PMID: 15927168]

Hoffman, M., Z. Jia, M.J. Peña, M. Cash, A.D. Harper, A.J. Blackburn, A.G. Darvill, and **W.S. York**. 2005. Structural analysis of xyloglucans in the primary cell walls of plants in the subclass *Asteridae*. *Carbohydr. Res.* **340:** 1826-1840. [PMID: 15975566]

York, W.S., Q. Qin, and J.K. Rose. 2004. Proteinaceous inhibitors of *endo*-β-glucanases. *Biochim. Biophys. Acta*. **1696:** 223-233. [PMID: 14871663]

O'Neill, M.A. and **W.S. York**. 2003. The composition and structure of primary cell walls. In: *The Plant Cell Wall, Annual Plant Reviews, Vol. 8* (J.K.C. Rose, ed.), pp. 1-54. CRC Press, Boca Raton, FL.

Glushka, J.N., M. Terrell, **W.S. York**, M.A. O'Neill, A. Gucwa, A.G. Darvill, P. Albersheim, and J.H. Prestegard. 2003. Primary structure of the 2-*O*-methyl-α-L-fucose-containing side chain of the pectic polysaccharide rhamnogalacturonan II. *Carbohydr. Res.* **338:** 341-352. [PMID: 12559732]

Jia, Z., Q. Qin, A.G. Darvill, and **W.S. York**. 2003. Structure of the xyloglucan produced by suspension-cultured tomato cells. *Carbohydr. Res.* **338:** 1197-1208. [PMID: 12747862]

Qin, Q., C.W. Bergmann, J.K.C. Rose, M. Saladie, V.S. Kumar Kolli, P. Albersheim, A.G. Darvill and **W.S. York**. 2003. Characterization of a tomato protein that inhibits a xyloglucan-specific endoglucanase. *The Plant J.* **34:** 327-338. [PMID: 12713539]

Perrin, R.M. Z. Jia, T.A. Wagner, M.A. O'Neill, R. Sarria, **W.S. York**, N.V. Raikhel, and K. Keegstra. 2003. Analysis of xyloglucan fucosylation in *Arabidopsis*. *Plant Physiol.* **132:** 768-778. [PMID: 12805606]

Other Professional Activities

- As principle investigator of the Bioinformatics Program of the NCRR-funded Integrated Technology Resource for Biomedical Glycomics, developed ontologies and data exchange standards for distributed storage, retrieval, and processing of carbohydrate structural data. These include the GLYDE-CT, an XML standard for exchange of glycan structural data, which was recently accepted by the leading global glycoinformatics initiatives, including EuroCarbDB and KEGG (Japan). GlycO and ProPreO, our recently described ontologies (The World Wide Web Conference 2006, Edinburgh, Scotland, May 22-26, 2006) for glycan structure/function and experimental glycoproteomics are available at the Open Biomedical Ontology website.
- Member of the Advisory Committee for the National Center for Glycomics and Glycoproteomics (Indiana Unversity).
- Member of the Society for Glycobiology, Consortium for Functional Genomics.
- Developed a database of structurally diagnostic resonances in the ^{1}H-NMR spectra of xyloglucan-derived oligosaccharides (http://www.ccrc.uga.edu/xgdb.html). This database provides an intuitive interface that allows the structural features of xyloglucan oligosaccharides to be rapidly determined by their correlation to diagnostic resonances in their NMR spectra. The structural and spectral assignments in the database were made by spectroscopic analysis of over 50 oligosaccharides that were rigorously characterized in the York laboratory. Many of the spectroscopic methods used in this research were also developed in the York laboratory.
- Developed several collaborative research projects as a faculty member of the Complex Carbohydrate Research Center, including ongoing research that is providing key information regarding the molecular mechanisms of glucuroxylan biosynthesis.
- Directed a USDA-funded research project aimed at developing new chemical methods for determining the structure of the pectic polysaccharides.
- Developed methods, involving the use of actual and simulated spectral data, to improve the training of artificial neural networks to recognize NMR spectra of complex glycans.
- Teaches an undergraduate-level physical biochemistry course. Developed course materials for the physical biochemistry course, much of which are not available in standard textbooks and have received positive student reviews.
- Supervised and mentored over 13 undergraduate students, 8 graduate-level students, and 10 postdoctoral research associates in the laboratory.