

# Glycobiology World Congress

August 10-12, 2015 Philadelphia, USA

## EDesign, synthesis and characterization of glycolipids and glycoclusters

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Glycolipids and glycoclusters that are able to form self-assembled supramolecular structures are interesting compounds with potential applications as new materials for biomedical research. Our group has a long interest in the design, synthesis and study of various monosaccharide derivatives and we have discovered several new classes of glycolipids based low molecular weight gelators (LMWGs). These compounds form unique soft materials such as organogels or hydrogels that may be useful in biomedical research. They can be used as advanced functional materials for controlled release drug delivery and enzyme immobilization. Using naproxen as a model, we have shown that acid sensitive glucosamine derivatives are effective compounds for controlled release of naproxen from the gel matrix. By incorporating photosensitive functional groups, we have also synthesized and characterized polymerizable diacetylene containing organogels. The resulting polydiacetylenes gels are useful as stimuli-responsive soft materials. Besides these systems, several branched molecules with sugar moieties at the periphery have also been designed and synthesized. These compounds have accurate molecular weight and can form interesting molecular assemblies. The dendritic glycolipids have shown enhanced self-assembling tendencies which mimic the multi-valency effect. In this presentation, our recent studies on glycolipids that can form supramolecular gels and self-assembling glycoconjugates will be discussed.

### Biography

Guijun Wang has completed her PhD in 1999 from Michigan State University and Postdoctoral research at Yale University in 2002. She started her independent career as an Assistant Professor at the University of New Orleans in 2002. In 2012, she relocated to Old Dominion University (ODU). Currently she is a Professor of Chemistry and Biochemistry at ODU. Her research interests include synthetic methodology development; asymmetric synthesis and the synthesis and study of carbohydrate based self-assembling systems. She has co-authored 50 peer reviewed papers and is the Co-Inventor on 20 international and US patents.

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