American Chemical Society
Division of Organic Chemistry
243rd ACS National Meeting, San Diego, CA, March 25-29, 2012

A. Abdel-Magid, Program Chair; R. Gawley, Program Chair

SUNDAY MORNING

Ralph F. Hirschmann Award in Peptide Chemistry: Symposium in Honor of Jeffery W. Kelly
D. Huryn, Organizer; D. Huryn, Presiding Papers 1-4

Biologically-Related Molecules and Processes
A. Abdel-Magid, Organizer; T. Altel, Presiding Papers 5-16

New Reactions and Methodology
A. Abdel-Magid, Organizer; N. Bhat, Presiding Papers 17-28

Asymmetric Reactions and Syntheses
A. Abdel-Magid, Organizer; D. Leahy, Presiding Papers 29-39

Material, Devices, and Switches
A. Abdel-Magid, Organizer; S. Thomas, Presiding Papers 40-49

SUNDAY AFTERNOON

James Flack Norris Award in Physical Organic Chemistry: Symposium to Honor Hans J. Reich
G. Weisman, Organizer; G. Weisman, Presiding Papers 50-53

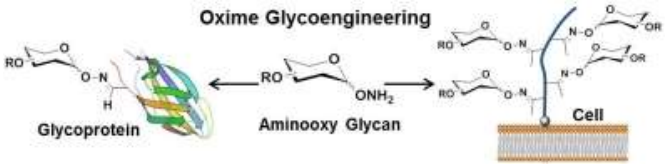
Understanding Additions to Alkenes
D. Nelson, Organizer; D. Nelson, Presiding Papers 54-61

Biologically-Related Molecules and Processes
A. Abdel-Magid, Organizer; B. C. Das, Presiding Papers 62-73

New Reactions and Methodology
A. Abdel-Magid, Organizer; T. Minehan, Presiding Papers 74-85

Asymmetric Reactions and Syntheses
A. Abdel-Magid, Organizer; A. Mattson, Presiding Papers 86-97

Material, Devices, and Switches



ORGN 274

Multimodal protein cages for molecular imaging

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As contrast agents for Magnetic Resonance Imaging (MRI), viral protein cages have attracted a great deal of attention since the highest relaxivity measured until today is attributed to Gd^{3+} labeled virus nanoparticles.[1] Nevertheless, Gd^{3+} release of such systems remains an issue and several (synthetically demanding) strategies have been followed in order to incorporate Gd^{3+} chelates into protein cages, including internal and external functionalization of the cage.[2] In this work we encapsulate paramagnetic micelles consisting of Gd^{3+} complexes of 1,4,7,10-tetraazacyclododecane-1,4,7-tris(acetic acid) (DO3A)-based ligands in a protein cage of the cowpea chlorotic mottle virus (CCMV), forming in that way contrast agents by a process of hierarchical self-assembly. This concept is, furthermore, extended to multimodal agents by inserting therapeutic dyes in the “encapsulated” micelles [figure 1]. The results show the successful incorporation of the “encapsulated” dye in the CCMV as well as the paramagnetic micelles.

1. Allen, M.; Bulte, J. W. M.; Liepold, L.; Basu, G.; Zywicke, H. A.; Frank, J. A.; Young, M.; Douglas, T., Paramagnetic viral nanoparticles as potential high-relaxivity magnetic resonance contrast agents. *Magnetic Resonance in Medicine* **2005,** *54* (4), 807-812.

2. Hooker, J. M.; Datta, A.; Botta, M.; Raymond, K. N.; Francis, M. B., Magnetic Resonance Contrast Agents from Viral Capsid Shells: A Comparison of Exterior and Interior Cargo Strategies. *Nano Letters* **2007,** *7* (8), 2207-2210.

ORGN 275

Synthesis and evolution of genetically encoded cross-replicating ribozymes

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