Electrochemiluminescent Materials

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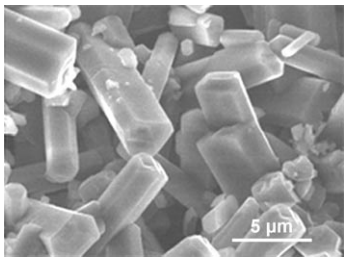
Formation of $[Ru(bpy)_3]^{2+}$-Containing Microstructures Induced by Electrostatic Assembly and Their Application in Solid-State Detection of Electrochemiluminescence

Chem. Asian J.
DOI: **10.1002/asia.200700002**

An electrifying attraction: $[Ru(bpy)_3]^{2+}$-containing microstructures can be formed through electrostatic assembly of $[Ru(bpy)_3]^{2+}$ and $[Fe(CN)_6]^{3-}$ by direct mixing of aqueous $[Ru(bpy)_3]Cl_2$ and $K_3[Fe(CN)_6]$. Both the molar ratio and concentration of the reactants strongly influence the formation of these microstructures, which exhibit excellent electrochemiluminescent behavior.



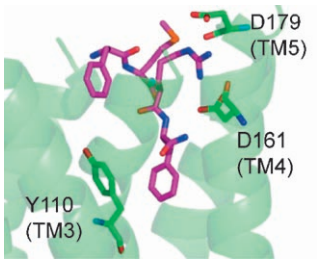
Molecular Modeling

J. Heo, S.-K. Han, N. Vaidehi,
J. Wendel, P. Kekenes-Huskey,
W. A. Goddard, III*

Prediction of the 3D Structure of FMRF-amide Neuropeptides Bound to the Mouse MrgC11 GPCR and Experimental Validation

ChemBioChem
DOI: **10.1002/cbic.200700188**

Reliable forecast. The 3D structure of the mouse MrgC11 G protein-coupled receptor and the binding site of FMRFamide peptides were predicted. Three residues, Tyr110, Asp161, and Asp179 in transmembrane (TM) regions 3, 4, and 5, respectively (see figure), were predicted to be important to ligand binding; this was verified by subsequent mutation experiments.

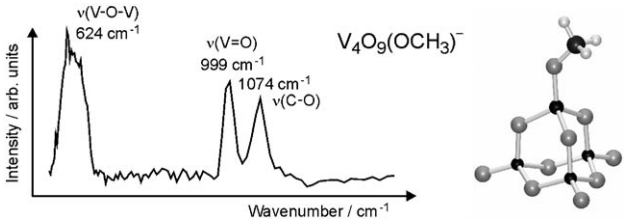


Gas-Phase Chemistry

S. Feyel, H. Schwarz, D. Schröder,*
C. Daniel, H. Hartl, J. Döbler, J. Sauer,
G. Santambrogio, L. Wöste, K. R. Asmis

Gas-Phase Infrared Photodissociation Spectroscopy of Tetravanadiumoxo and Oxo–Methoxo Cluster Anions

ChemPhysChem
DOI: **10.1002/cphc.200700255**



Vanadium clusters: The gas-phase IR spectra of the ions $V_4O_9^-$ and $V_4O_{10}^-$ and of the related methoxo clusters $V_4O_9(OCH_3)^-$ and $V_4O_8(OCH_3)_2^-$ are investigated. The methoxy groups replace terminal oxo ligands (see structure), and the resulting clusters show absorptions due to bridging oxo ligands, ν(V–O–V), terminal oxo groups, ν(V=O), and C–O stretching, ν(C–O) (see spectrum).

Structure-Activity Relationships

C. R. Overk, K.-W. Peng,
R. T. Asghodom, I. Kastrati,
D. D. Lantvit, Z. Qin, J. Frasor,
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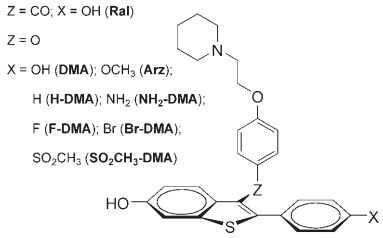
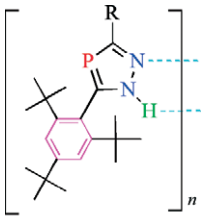
Structure–Activity Relationships for a Family of Benzothiophene Selective Estrogen Receptor Modulators Including Raloxifene and Arzoxifene

ChemMedChem
DOI: **10.1002/cmdc.200700104**

The ideal estrogen receptor modulator. Development of the "ideal" selective estrogen receptor modulator (SERM) is of importance in postmenopausal women's health. SERMs are generally oxidatively labile phenolic aromatics. Modification of the 4′-position of benzothiophene SERMs can modulate lability, but can the appropriate antiestrogenic profile be retained?





$n = 2$ (R = $SiMe_3$)
3 (R = H)

[2+3] Cycloaddition of phosphaalkynes with trimethylsilyldiazomethane derivatives proceeds in spite of the presence of a bulky Mes* (= 2,4,6-tBu$_3$C$_6$H$_2$) group which exceedingly stabilizes the C≡P moiety. The corresponding [2+3] adducts, 1,2,4-diazaphospholes, show dimer or trimer structure connected by hydrogen bonds. The first observed trimer structure of 1,2,4-diazaphosphole includes effects of the bulky aryl group enhancing the molecular aggregation by the CH–π interaction.

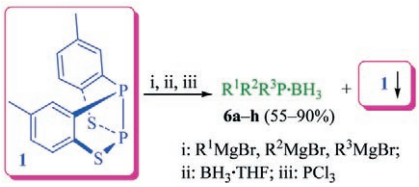
Phosphorus Heterocycles

S. Ito,* H. Miyake, M. Yoshifuji*

1,3-Dipolarophile Character of an Extremely Bulky Phosphaalkyne Mes*C≡P (Mes* = 2,4,6-tBu$_3$C$_6$H$_2$) Leading to the Formation of 1,2,4-Diazaphospholes with Unique Hydrogen Bonding Properties

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700180**

Tertiary phosphane–borane complexes containing different alkyl groups can be easily obtained by addition of different Grignard reagents to benzothiadiphosphole **1** followed by direct complexation with BH_3·THF. Treatment of the resulting mixture with PCl_3 led to the reformation of the starting reagent **1**, which was quantitatively recovered from the reaction mixture by simple crystallization.

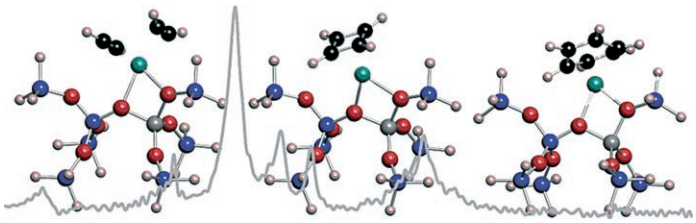


Phosphane–Borane Complexes

G. Baccolini,* C. Boga, M. Mazzacurati

General and Efficient One-Pot Synthesis of Tertiary Phosphane–Borane Complexes Containing Different Alkyl Groups and In Situ Facile Recycling of the Phosphorus Donor Reagent

Eur. J. Org. Chem.
DOI: **10.1002/ejoc.200700285**



Molecular catalysis on a surface: a site-isolated rhodium complex bonded to a zeolite catalyzes acetylene cyclotrimerization, with precursors and reaction intermediates observed by EXAFS and ^{13}C NMR spectroscopy and confirmed by density functional theory (DFT); the catalytic cycle was also characterized by DFT (see figure).

Heterogeneous Catalysis

P. W. Kletnieks, A. J. Liang, R. Craciun, J. O. Ehresmann, D. M. Marcus, V. A. Bhirud, M. M. Klaric, M. J. Hayman, D. R. Guenther, O. P. Bagatchenko, D. A. Dixon,* B. C. Gates,* J. F. Haw*

Molecular Heterogeneous Catalysis: A Single-Site Zeolite-Supported Rhodium Complex for Acetylene Cyclotrimerization

Chem. Eur. J.
DOI: **10.1002/chem.200700721**

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