

SPOTLIGHTS ...

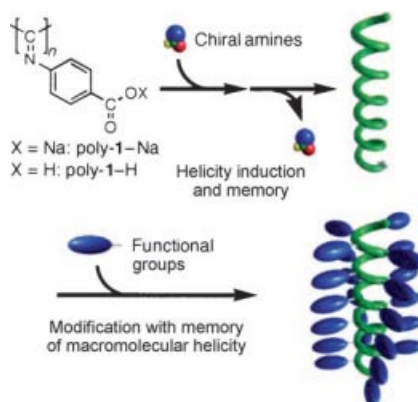
Helical Polymers

Y. Hase, Y. Mitsutsuji, M. Ishikawa,
K. Maeda, K. Okoshi, E. Yashima*

Unexpected Thermally Stable, Cholesteric Liquid-Crystalline Helical Polyisocyanides with Memory of Macromolecular Helicity

Chem. Asian J.

DOI: 10.1002/asia.200700051



Remember it well! The achiral sodium salt of poly(4-carboxyphenyl isocyanide) (poly-1-Na) folds into a one-handed helix induced by optically active amines in water, which remains when the amines are completely removed. Further modification of the side groups is possible without loss of memory of macromolecular helicity.

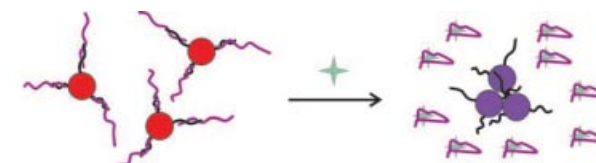
Aptamers

W. Zhao, W. Chiuman, M. A. Brook,*
Y. Li*

Simple and Rapid Colorimetric Biosensors Based on DNA Aptamer and Noncrosslinking Gold Nanoparticle Aggregation

ChemBioChem

DOI: 10.1002/cbic.200700014



The color purple. Upon binding of the target +, negatively charged DNA aptamers (shown in purple) dissociate from a gold nanoparticle surface; this

results in nanoparticle aggregation and a color change at a chosen salt concentration.

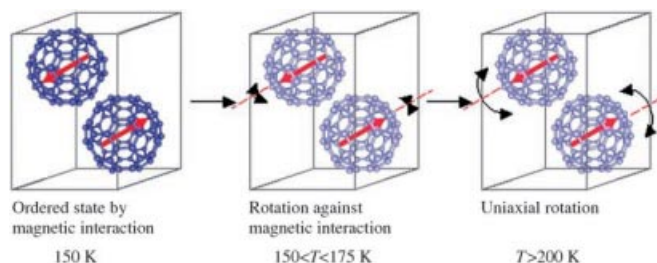
Metallofullerenes

Y. Ito, W. Fujita, T. Okazaki,
T. Sugai, K. Awaga, E. Nishibori,
M. Takata, M. Sakata, H. Shinohara*

Magnetic Properties and Crystal Structure of Solvent-Free Sc@C₈₂ Metallofullerene Microcrystals

ChemPhysChem

DOI: 10.1002/cphc.200700097



Abnormal behavior of the magnetic susceptibility of solvent-free Sc@C₈₂ microcrystals is observed between 120 K and 200 K (see figure). The

presence of the antiferromagnetic-like interaction exerted among Sc@C₈₂ molecules restricts the molecular rotation to uniaxial.

Nanosensors

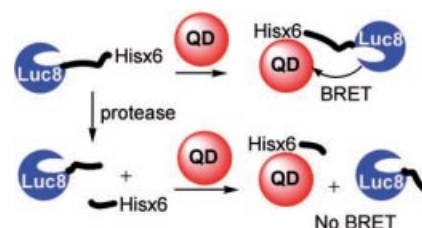
H. Yao, Y. Zhang, F. Xiao, Z. Xia,
J. Rao*

Quantum Dot/Bioluminescence Resonance Energy Transfer Based Highly Sensitive Detection of Proteases

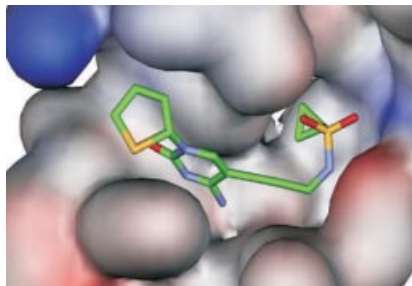
Angew. Chem. Int. Ed.

DOI: 10.1002/anie.200700280

Sensing by BRET: Quantum dot (QD) nanosensors can detect the activity of matrix metalloproteinases by measuring the bioluminescence resonance energy transfer (BRET) efficiency between the QDs and a bioluminescent fusion protein (see scheme; Luc8 = *Renilla* luciferase; His × 6 = six-histidine tag).



... ON OUR SISTER JOURNALS



IspE kinase inhibitors. The first inhibitors for the kinase IspE, an enzyme of the non-mevalonate pathway, are presented. The nonphosphate based inhibitors avoid binding to the ATP site but instead occupy the substrate site and a small, newly detected hydrophobic subpocket at the active site of IspE. With appropriate filling of this pocket, competitive inhibition constants K_{ic} in the upper nanomolar range are measured.

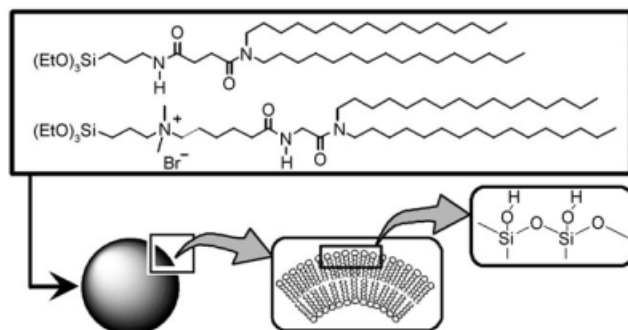
Kinase Inhibitors

A. K. H. Hirsch, S. Lauw,
P. Gersbach, W. B. Schweizer,
F. Rohdich, W. Eisenreich,*
A. Bacher, F. Diederich*

Nonphosphate Inhibitors of IspE Protein, a Kinase in the Non-Mevalonate Pathway for Isoprenoid Biosynthesis and a Potential Target for Antimalarial Therapy

ChemMedChem

DOI: 10.1002/cmdc.200700014



An organic–inorganic hybrid, a so-called “cerasome”, which has a liposomal bilayer structure and a polysiloxane surface, has been prepared by sol-gel reaction and self-assembly of lipidic organoalkoxysilanes. The formation

process and properties of cerasomes are described in detail. It was revealed that cerasomes have high morphological stability compared with conventional liposomes.

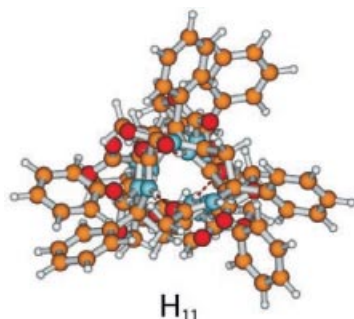
Sol-Gel Reactions

K. Katagiri,* M. Hashizume,
K. Ariga, T. Terashima, J.-i. Kikuchi*

Preparation and Characterization of a Novel Organic–Inorganic Nanohybrid “Cerasome” Formed with a Liposomal Membrane and Silicate Surface

Chem. Eur. J.

DOI: 10.1002/chem.200700175



A novel class of foldamers containing (*S*)- β^3 -homophenylglycine and D-4-carboxyoxazolidin-2-one residues in alternate order is reported. The experimental conformational analysis proved that these oligomers fold into ordered structures and theoretical calculations suggest a helix with 11-membered hydrogen-bonded rings as the preferred secondary structure type.

Foldamers

G. Angelici, G. Luppi, B. Kaptein,
Q. B. Broxterman, H.-J. Hofmann,
C. Tomasini*

Synthesis and Secondary Structure of Alternate α,β -Hybrid Peptides Containing Oxazolidin-2-one Moieties

Eur. J. Org. Chem.

DOI: 10.1002/ejoc.200700134



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