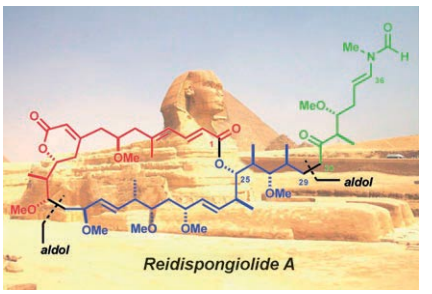
SPOTLIGHTS …

Natural Products Synthesis

I. Paterson,* K. Ashton, R. Britton, G. Cecere, G. Chouraqui, G. J. Florence, H. Knust, J. Stafford

Total Synthesis of (−)-Reidispongiolide A, an Actin-Targeting Macrolide Isolated from the Marine Sponge *Reidispongia coerulea*

Chem. Asian J.
DOI: **10.1002/asia.200700357**



An answer fit for the Sphinx: The stereocontrolled total synthesis of (−)-reidispongiolide A uses an aldol-based strategy to construct the macrolactone and coupling of a derived aldehyde with an *N*-vinylformamide-containing ketone to install the full side chain. There are two possible routes to introduce the 2*E*,4*E* dienoate, and a fragment coupling by using a Mukaiyama aldol reaction installs the C13 stereocenter.

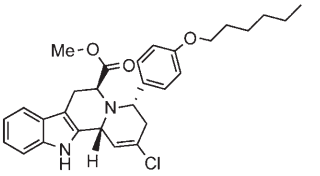
Antitumor Agents

F. Wehner,* A. Nören-Müller, O. Müller, I. Reis-Corrêa, Jr., A. Giannis, H. Waldmann

Indoloquinolizidine Derivatives as Novel and Potent Apoptosis Inducers and Cell-Cycle Blockers

ChemBioChem
DOI: **10.1002/cbic.200700558**

A view to a kill: 11000 natural-product-derived and -inspired compounds were screened for potential apoptosis inducers in three human tumour cell lines. Seven indoloquinolizidine derivatives, one of which is shown in the figure, were identified. These compounds had IC_{50} values as low as 2 μmol L^{-1} for inhibiting cell proliferation. Further analysis indicated that these effects were related to an arrest of cells in the G_2M phase of the cell cycle.



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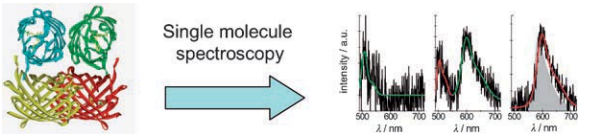
Fluorescent Proteins

C. Blum,* A. J. Meixner, V. Subramaniam*

Spectral Versatility of Single Reef Coral Fluorescent Proteins Detected by Spectrally-Resolved Single Molecule Spectroscopy

ChemPhysChem
DOI: **10.1002/cphc.200700784**



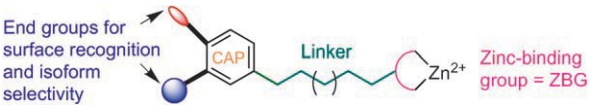
Exciting chromophores: Spectrally resolved single-molecule spectroscopy of members of the DsRed family of fluorescent proteins enables identification and characterization of different spectral forms for all variants (see picture). The transitions between different spectral forms are also followed, drawing conclusions on the underlying molecular origins of the various spectral species.

Drug Design

A. P. Kozikowski,* Y. Chen, A. M. Gaysin, D. N. Savoy, D. D. Billadeau, K. H. Kim

Chemistry, Biology, and QSAR Studies of Substituted Biaryl Hydroxamates and Mercaptoacetamides as HDAC Inhibitors—Nanomolar-Potency Inhibitors of Pancreatic Cancer Cell Growth

ChemMedChem
DOI: **10.1002/cmdc.200700314**



Isoform selectivity: structurally unique HDAC inhibitors are equipped with an amino acid residue that serves as a potential isoform-differentiating, surface-recognition element. The surface-recognition group is connected through the usual carbon linker to either a hydroxamate or a mercaptoacetamide group that chelates the catalytic site zinc ion.

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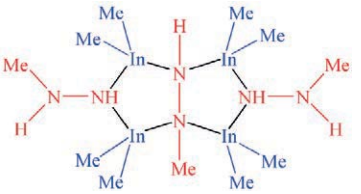


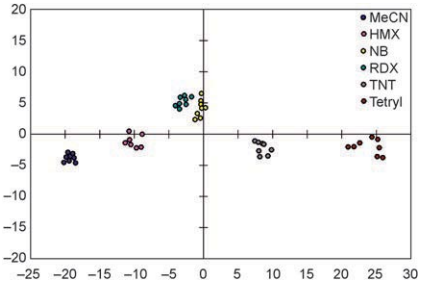
Three different structural motifs were obtained by the reactions of methylhydrazine with the trimethyl compounds of aluminum, gallium, and indium: a simple adduct $Me_3Ga{\leftarrow}N(H)(Me)–NH_2$, a sesqui compound $(Me_2Al)_3[\mu\text{-}NH–N(H)Me]_6Al$ together with its dissociated dinuclear form, and bicyclic compounds of the general composition $(EMe_2)_4(HN–NMe)[N(H)–N(H)–Me)]_2$ (E = Ga, In).

Third Main Group Hydrazides

W. Uhl,* T. Abel, A. Hepp, S. Grimme, M. Steinmetz

Different Reactivity Patterns in the Reactions of the Homologous Trimethylelement Compounds EMe_3 (E = Al, Ga, In) with Methylhydrazine

Eur. J. Inorg. Chem.
DOI: **10.1002/ejic.200700954**



Sensing with suds: Using pattern recognition, commercially available fluorophores and surfactants are able to sense nitrated explosives with a detection limit of 19 μM (see figure).

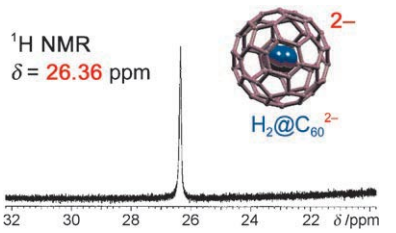
Explosive Detection

A. D. Hughes, I. C. Glenn, A. D. Patrick, A. Ellington, E. V. Anslyn*

A Pattern Recognition Based Fluorescence Quenching Assay for the Detection and Identification of Nitrated Explosive Analytes

Chem. Eur. J.
DOI: **10.1002/chem.200701546**

Inside information: The NMR signal of the molecular hydrogen in $H_2@C_{60}^{2-}$ appears at extraordinarily low field (δ = 26.36 ppm) relative to that of neutral $H_2@C_{60}$. This can be explained by the decrease in aromaticity of the C_{60} cage upon 2e reduction. Spherical delocalization of the added two electrons over the π system of the fullerene cage is thought to be responsible for the drastic change in fullerene aromaticity.



Aromaticity

M. Murata, Y. Ochi, F. Tanabe, K. Komatsu,* Y. Murata*

Internal Magnetic Fields of Dianions of Fullerene C_{60} and Its Cage-Opened Derivatives Studied with Encapsulated H_2 as an NMR Probe

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200705285**

From biomass to tomorrow's biofuels: Pyrolysis oils, obtained by fast pyrolysis of solid biomass, comprise a wide range of oxygenated compounds. It is proposed that after adequate upgrading, these oils may be fed into large-scale refinery units to obtain fuels. Thus, the co-feeding of a model hydrocarbon (C_8) and model oxygenated molecules was studied in a fixed-bed catalytic reactor using an industrial fluid catalytic cracking catalyst.

Sustainable Fuels

M. E. Domine, A. C. van Veen, Y. Schuurman,* C. Mirodatos

Coprocessing of Oxygenated Biomass Compounds and Hydrocarbons for the Production of Sustainable Fuel

ChemSusChem
DOI: **10.1002/cssc.200700049**

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