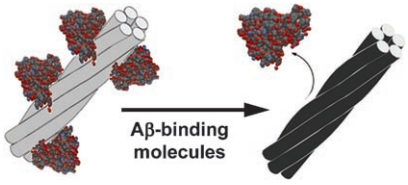
Protein Interactions

*P. Inbar, C. Q. Li, S. A. Takayama, M. R. Bautista, J. Yang**

Oligo(ethylene glycol) Derivatives of Thioflavin T as Inhibitors of Protein–Amyloid Interactions

ChemBioChem
DOI: **10.1002/cbic.200600119**



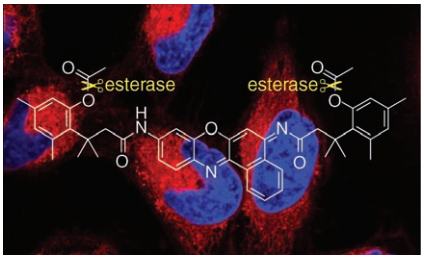
Molecular coatings on biological surfaces. Small molecules that bind to and coat Alzheimer's related β-amyloid fibrils can function as inhibitors of the interaction of amyloid-binding proteins with these fibrils. Derivatives of thioflavin T are shown to inhibit the binding of a monoclonal anti-Aβ IgG, human catalase, and recombinant human ABAD to in vitro-grown amyloid fibrils.

Fluorescence

*L. D. Lavis, T.-Y. Chao, R. T. Raines**

Latent Blue and Red Fluorophores Based on the Trimethyl Lock

ChemBioChem
DOI: **10.1002/cbic.200500559**



Unlocking fluorescence. The "trimethyl lock" is an effective way to mask structurally diverse fluorescent molecules for the preparation of fluorogenic enzyme substrates. These novel probes exhibit remarkable stability in water, and this makes them useful for a variety of biochemical and biological applications.

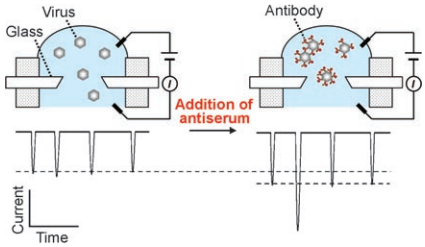
Assay Technology

*J. D. Uram, K. Ke, A. J. Hunt, M. Mayer**

Submicrometer Pore-Based Characterization and Quantification of Antibody–Virus Interactions

Small
DOI: **10.1002/smll.200600006**

A resistive-pulse sensor employs a submicrometer pore for the detection, characterization, and quantification of the binding of polyclonal antibodies to intact *Paramecium bursaria* chlorella virus (PBCV-1) particles. The assay is rapid, label-free, requires no immobilization or modification of the antibody or virus, detects the formation of viral aggregates, and can be performed using antibodies in complex media such as serum. The maximum number of antibodies able to bind to the virus was estimated to be 4200 ± 450.

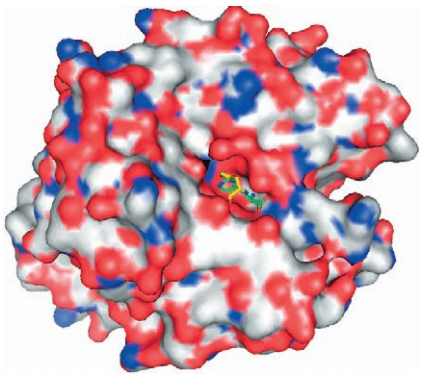


Enzyme Catalysis

*C. Temperini, A. Scozzafava, D. Vullo, C. T. Supuran**

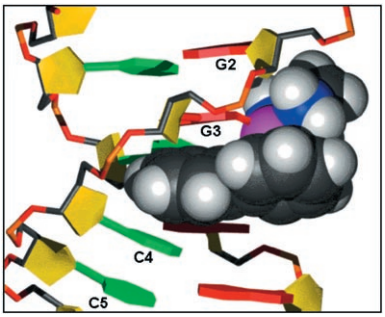
Carbonic Anhydrase Activators. Activation of Isozymes I, II, IV, VA, VII, and XIV with L- and D-Histidine and Crystallographic Analysis of Their Adducts with Isoform II: Engineering Proton-Transfer Processes within the Active Site of an Enzyme

Chem. Eur. J.
DOI: **10.1002/chem.200600159**



Anchored at the entrance of the active site, L- and D-histidine residues activate carbonic anhydrases (isoforms hCA I, II, IV, VA, VII, and XIV) to different extents. X-ray crystallography showed that these activators participated in extended networks of hydrogen bonds with amino acid residues/water molecules present in the cavity, which explains their different efficacy and interaction patterns with various isozymes (see picture).

Bioinorganic Chemistry



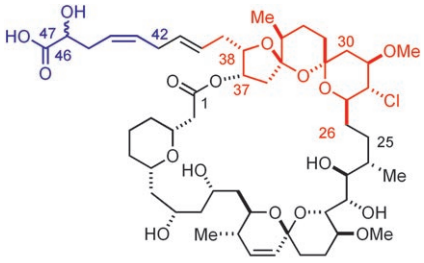
Ruthenation of DNA by ruthenium arene anticancer complexes is base- and sequence-selective, and the arene ligand plays a major role in the distortion of DNA duplexes. NMR provides evidence for intercalation of the non-coordinated phenyl ring of biphenyl (see figure).

*H.-K. Liu, F. Wang, J. A. Parkinson, J. Bella, P. J. Sadler**

Ruthenation of Duplex and Single-Stranded d(CGGCCG) by Organometallic Anticancer Complexes

Chem. Eur. J.
DOI: **10.1002/chem.200600110**

Natural Products



one of the possible stereostructures of spirastrelloide A

North and South: The unique biological activity of the natural product spirastrellolide A renders it an attractive lead for anticancer agents. The southern hemisphere (C1–C25) and the northern hemisphere (including the chlorinated [5,6,6]-bis-spiroacetal entity and the lateral C42–C47 chain) are prepared by concise and efficient routes. Consequently, the entire carbon framework of this potent phosphatase inhibitor, which contains 21 chiral centers, is prepared in an optically active form, and an important step toward structure determination by total synthesis is achieved.

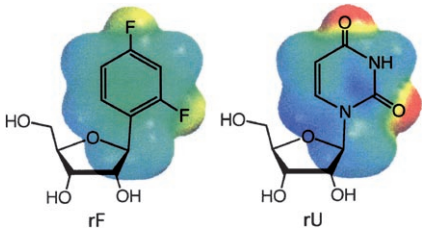
A. Fürstner, M. D. B. Fenster, B. Fasching, C. Godbout, K. Radkowski*

Toward the Total Synthesis of Spirastrellolide A. Part 1: Strategic Considerations and Preparation of the Southern Domain

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200601654**

RNA Structures

Better than normal: RNA-interference studies with mismatched target RNA have demonstrated sequence selectivity (at the single-nucleotide level) at many different positions of the RNA strand. The use of rF in place of rU at position 7 appears to enhance sequence selectivity beyond that of the natural base.



*A. Somoza, J. Chelliserrykattil, E. T. Kool**

The Roles of Hydrogen Bonding and Sterics in RNA Interference

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200601311**

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