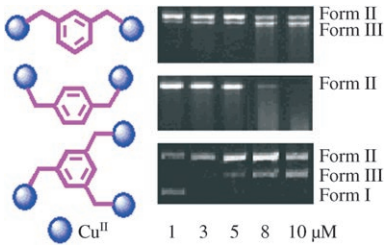
DNA Cleavage

Y. Zhao, J. Zhu, W. He, Z. Yang, Y. Zhu, Y. Li, J. Zhang, Z. Guo**

Oxidative DNA Cleavage Promoted by Multinuclear Copper Complexes: Activity Dependence on the Complex Structure

Chem. Eur. J.
DOI: **10.1002/chem.200600044**

Artificial metallonuclease: The DNA nuclease activity of a class of polynuclear copper complexes is dependent on the geometry and the number of metal centers. The synergy between copper centers in *meta*-dicopper or *para*-dicopper motifs leads to higher activity to generate nicked DNA from supercoiled pUC19 DNA (see graphic). The *meta*-dicopper motif favors the generation of linear DNA through double-stranded cleavage.



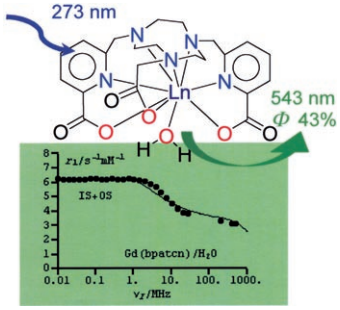
Lanthanide Chemistry

*A. Nonat, C. Gateau, P. H. Fries, M. Mazzanti**

Lanthanide Complexes of a Picolinate Ligand Derived from 1,4,7-Triazacyclononane with Potential Application in Magnetic Resonance Imaging and Time-Resolved Luminescence Imaging

Chem. Eur. J.
DOI: **10.1002/chem.200501390**

One ligand, two imaging probes: The inclusion of two picolinate groups on a triazacyclononane framework affords a new ligand leading to a mono-aquo gadolinium complex with favourable electronic relaxation properties for magnetic resonance imaging applications and to a terbium complex with high luminescence quantum yield (see scheme).

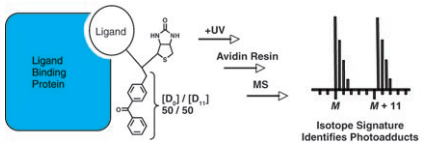


Chemical Genetics

*S. M. Lamos, C. J. Krusemark, C. J. McGee, M. Scalf, L. M. Smith, P. J. Belshaw**

Mixed Isotope Photoaffinity Reagents for Identification of Small-Molecule Targets by Mass Spectrometry

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200600743**



Twin peaks: A facile and economic route has been developed for the incorporation of deuterated benzophenones (a widely used photoaffinity tag) into probes. Attachment of these mixed-isotope labels to the immunosuppressive drug CsA facilitated the mass spectrometric identification of a target of CsA (see picture) from a mixture of proteins.

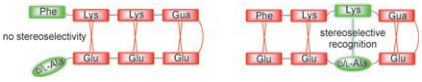
Peptide Receptors

C. Schmuck, P. Wich*

Sequence-Dependent Stereoselectivity in the Binding of Tetrapeptides in Water by a Flexible Artificial Receptor

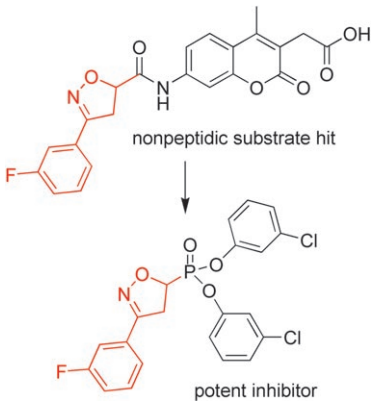
Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200601046**

All in a row: The screening of a combinatorial library with 320 substrates shows that an artificial tris-cationic receptor efficiently binds anionic tetrapeptides in water with association constants up to $K_a = 27\,000\ M^{-1}$. Moreover, the receptor shows a remarkable sequence-dependent stereoselectivity between D-Ala and L-Ala in certain positions of the tetrapeptide.



Substrate Screening

Substrate activity screening was used to rapidly identify a novel and potent ($k_{inact}/K_i = 59\,000\ M^{-1}\,s^{-1}$) nonpeptidic chymotrypsin inhibitor with $M_W < 500$. The inhibitor is more potent than the best reported tetrapeptidyl phosphonate chymotrypsin inhibitor and demonstrated selectivity over a panel of other serine proteases, including the closely related enzyme cathepsin G.

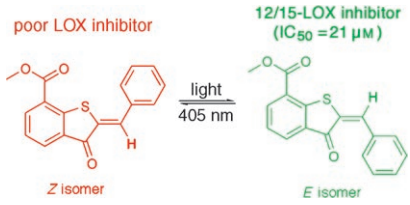


*C. M. Salisbury, J. A. Ellman**

Rapid Identification of Potent Nonpeptidic Serine Protease Inhibitors

ChemBioChem
DOI: **10.1002/cbic.200600081**

Photoisomerization



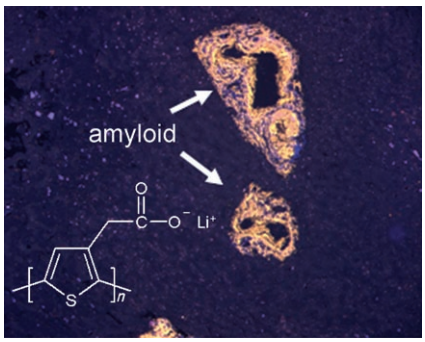
Switched-on inhibition. (2*Z*)-2-(3-Benzylidene)-3-oxo-2,3-dihydrobenzo[b]-thiophene-7-carboxylic acid methyl ester (see left-hand structure) is only a poor inhibitor of 12/15-lipoxygenases ($IC_{50} = 0.7$ mM). However, photoactivation that induces a *Z*-to-*E* isomerization strongly augmented the inhibitory potency ($IC_{50} = 0.021$ mM). Since light-induced isomerization may proceed in the skin, such photoreactive compounds might be developed as potential drugs for inflammatory skin diseases.

*S. Herre, T. Schadendorf, I. Ivanov, C. Herrberger, W. Steinle, K. Rück-Braun, R. Preissner, H. Kuhn**

Photoactivation of an Inhibitor of the 12/15-Lipoxygenase Pathway

ChemBioChem
DOI: **10.1002/cbic.200600082**

Biological Imaging



Fibril discrimination. Under suitable conditions, conjugated polyelectrolytes bind specifically to amyloid deposits, and this is then seen as an orange-red emission from the polyelectrolyte. Furthermore, the probes emit light of different colors when bound to different amyloid deposits or other intracellular structures. Such conformation-sensitive probes provide a direct link between spectral signal and protein conformation.

K. P. R. Nilsson, P. Hammarström, F. Ahlgren, A. Herland, E. A. Schnell, M. Lindgren, G. T. Westermark, O. Inganäs*

Conjugated Polyelectrolytes—Conformation-Sensitive Optical Probes for Staining and Characterization of Amyloid Deposits

ChemBioChem
DOI: **10.1002/cbic.200500550**

On these pages, we feature the excellent work in chemistry that has been recently reported in our sister journals *ChemBioChem*, *Angewandte Chemie*, or *Chemistry—A European Journal*.

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