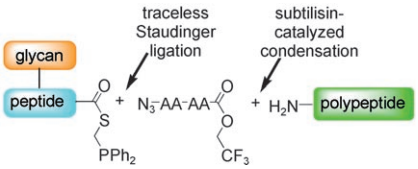
Glycopeptide Synthesis

*L. Liu, Z.-Y. Hong, C.-H. Wong**

Convergent Glycopeptide Synthesis by Traceless Staudinger Ligation and Enzymatic Coupling

ChemBioChem
DOI: **10.1002/cbic.200500437**



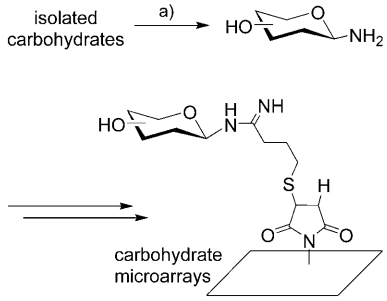
Without a trace. An approach combining traceless Staudinger ligation and protease-catalyzed N-terminal azidonation has been shown to be efficient for the convergent synthesis of glycopeptides without the cysteine limitation of native chemical ligation.

Carbohydrate Arrays

*M. A. Brun, M. D. Disney, P. H. Seeberger**

Miniaturization of Microwave-Assisted Carbohydrate Functionalization to Create Oligosaccharide Microarrays

ChemBioChem
DOI: **10.1002/cbic.200500361**



A microwave-assisted Kochetkov reaction (a) has been used on different reducing carbohydrates to obtain glycosylamines and then *N*-iminoglycosylamidines without purification. These glycoconjugates were then used to construct microarrays to test known carbohydrate–protein interactions. This method streamlines efforts required to functionalize carbohydrates for construction of arrays.

Cell Targeting

*M. J. Hinner, G. Hübener, P. Fromherz**

Genetic Targeting of Individual Cells with a Voltage-Sensitive Dye through Enzymatic Activation of Membrane Binding

ChemBioChem
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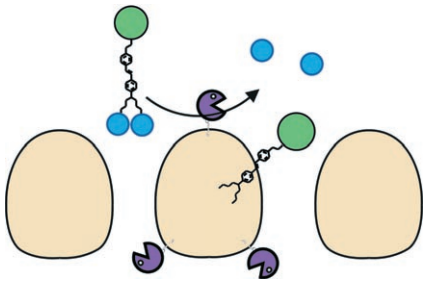


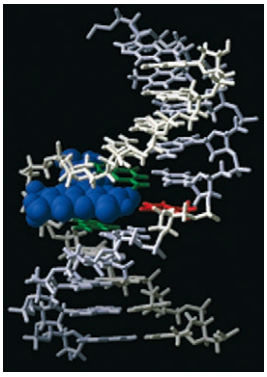
Cells are stained by enzymatic transformation of the hydrophilic–hydrophobic balance in an amphiphilic dye. Phosphate groups attached to lipophilic tails of a precursor dye are cleaved off by an extracellular alkaline phosphatase, and membrane binding is enhanced by three orders of magnitude. This method forms the basis for cell-selective optical recording of neuronal activity with fluorescent voltage-sensitive dyes.

DNA-Aptamers

*N. B. Sankaran, S. Nishizawa, T. Seino, K. Yoshimoto, N. Teramae**

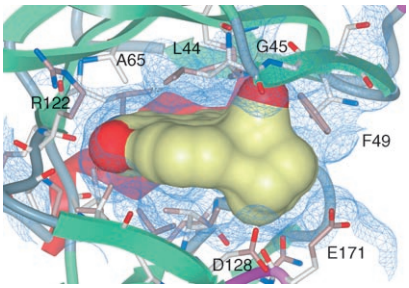
Abasic-Site-Containing Oligodeoxynucleotides as Aptamers for Riboflavin

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200502979**



Finding flavins: A new class of DNA-duplex aptamers that bind to riboflavin by utilizing an abasic (AP) site has been developed (see model). An optimized duplex shows high selectivity for riboflavin over flavin mononucleotide and flavin adenine dinucleotide. Such riboflavin–duplex interactions are discussed as a basis for the further development of AP-site-based DNA aptamers.

Bioorganometallic Chemistry



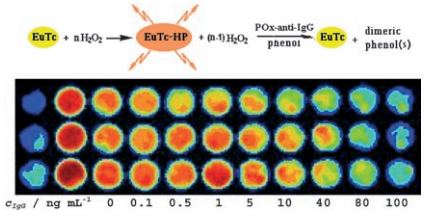
Keeping in shape with half a sandwich: The structure of a picomolar organoruthenium inhibitor bound to the ATP-binding site of the protein kinase Pim-1 (see picture) demonstrates that the ruthenium center has solely a structural role in organizing the organic ligands in the three-dimensional receptor space, thus yielding a structure that is complementary in shape and functional group presentation to the active site of Pim-1.

J. É. Debreczeni, A. N. Bullock, G. E. Atilla, D. S. Williams, H. Bregman, S. Knapp, E. Meggers**

Ruthenium Half-Sandwich Complexes Bound to Protein Kinase Pim-1

Angew. Chem. Int. Ed.
DOI: **10.1002/anie.200503468**

Enzyme Activity



Enzymatic consumption of H_2O_2, for example by peroxidases, can be monitored by means of a fluorescent europium tetracycline complex (see scheme). The optical properties of the complex make the system well-suited for time-resolved fluorescence assays and imaging. Applications include determinations of peroxidase activity, screening of its inhibitors or activators, and fluorescent detection of antibodies in micro-well plate ELISAs.

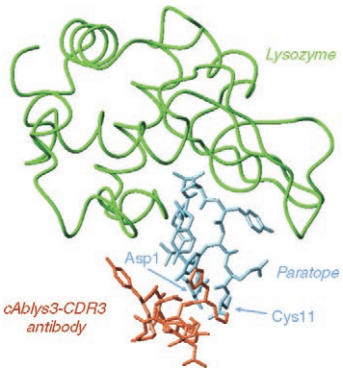
*Z. Lin, M. Wu, O. S. Wolfbeis, M. Schäferling**

A Novel Method for Time-Resolved Fluorimetric Determination and Imaging of the Activity of Peroxidase, and Its Application to an Enzyme-Linked Immunosorbent Assay

Chemistry: A European Journal
DOI: **10.1002/chem.200500884**

Antibodies

Single-chain peptibody design: A fully functional anti-lysozyme peptide antibody, *peptibody*, was designed and synthesised from a native single-chain camel antibody, and a flexible loop structure was identified as an essential prerequisite for affinity. High-resolution affinity mass spectrometry and proteolytic paratope excision provided direct characterisation of the lysozyme–peptibody complex, and identification of the minimal paratope recognition sequence (see figure).



*A. Marquardt, S. Muyldermans, M. Przybylski**

A Synthetic Camel Anti-Lysozyme Peptide Antibody (Peptibody) with Flexible Loop Structure Identified by High-Resolution Affinity Mass Spectrometry

Chemistry: A European Journal
DOI: **10.1002/chem.200500785**

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