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Organic & Biomolecular Chemistry

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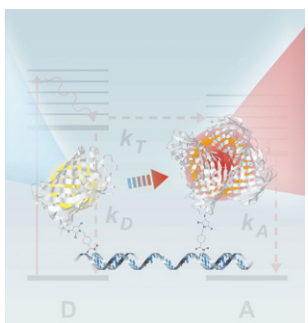
Incorporating Acta Chemica Scandinavica



Cover
See Florian Kukolka and Christof M. Niemeyer, pp. 2203–2206.
The cover art depicts the potential application of fluorescent proteins covalently conjugated with single-stranded DNA in the assembly of artificial supramolecular photosystem units. The enhanced yellow fluorescent protein (EYFP) –DNA conjugate can act as a donor in fluorescence-resonance-energy-transfer to a red fluorescent protein (RFP) –DNA conjugate acceptor, bound in close proximity on a template DNA strand.

Image reproduced by permission of Ron Wacker, chimera biotec, Dortmund.

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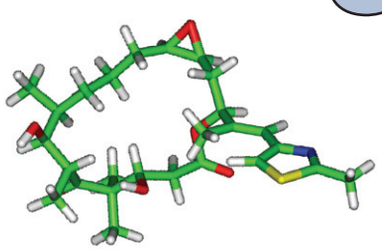
PERSPECTIVES



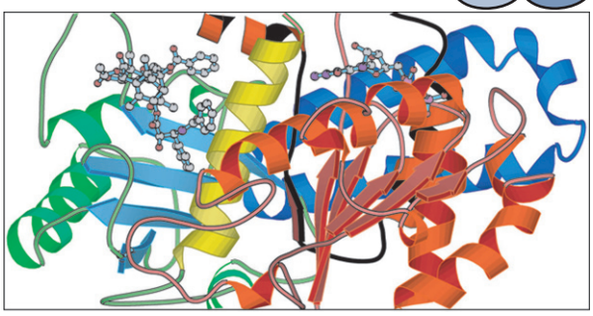
Structure of tubulin-bound epothilone A

The merger of natural product synthesis and medicinal chemistry: on the chemistry and chemical biology of epothilones

Karl-Heinz Altmann

Based on epothilones as powerful natural product leads several promising new anticancer agents have emerged through concerted efforts in chemistry and biology.

PERSPECTIVES

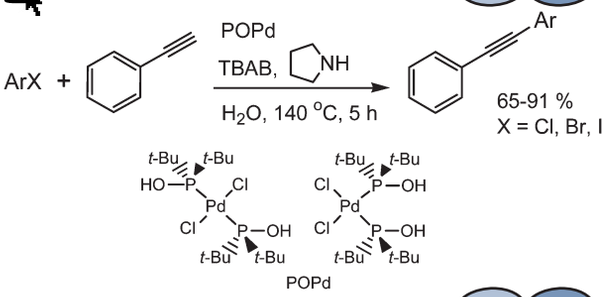


Microtubule structure and its stabilisation

Linda A. Amos

Anticancer drugs that work on microtubules depend on the unique properties of tubulin and the lattice into which it assembles.

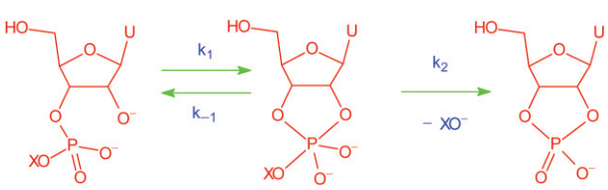
COMMUNICATIONS



Palladium–phosphinous acid-catalyzed Sonogashira cross-coupling reactions in water

Christian Wolf and Rachel Lerebours

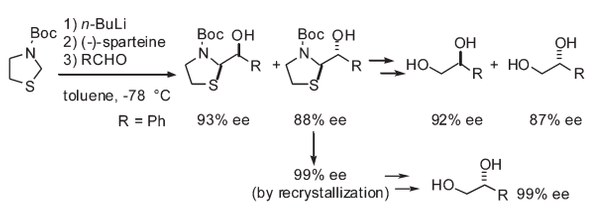
Palladium–phosphinous acid catalyzed Sonogashira cross-coupling reactions of aryl chlorides and bromides in water afford alkynes in good to high yields.



Compelling evidence for a stepwise mechanism of the alkaline cyclisation of uridine 3′-phosphate esters

Harri Lönnberg, Roger Strömberg and Andrew Williams

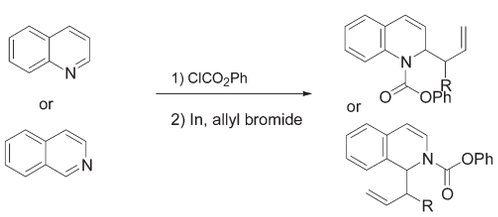
Compelling evidence is advanced for a pentacoordinate intermediate in the alkaline cyclisation of ribonucleoside-3′-phosphate esters.



Highly enantioselective reaction of lithiated *N*-Boc-thiazolidine: a new chiral formyl anion equivalent

Libo Wang, Shuichi Nakamura and Takeshi Toru

Lithiated *N*-Boc-thiazolidine was proved to be an efficient chiral formyl anion equivalent, giving optically active 1,2-ethanediols.

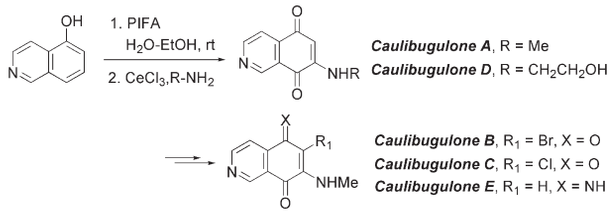


Indium mediated allylation of quinoline and isoquinoline activated by phenyl chloroformate

Seung Hwan Lee, Young Sang Park, Mi Hae Nam and Cheol Min Yoon

Quinoline and isoquinoline activated by phenyl chloroformate were allylated using indium and allyl bromides in THF at room temperature to give the corresponding allyldihydroquinoline and allyldihydroisoquinoline in good to high yields.

COMMUNICATIONS

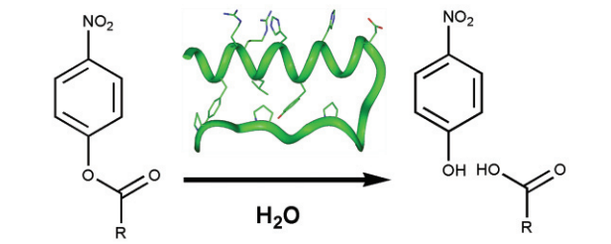


Synthesis and biological evaluation of caulibugulones A–E

Peter Wipf, Beomjun Joo, Theresa Nguyen and John S. Lazo

A convergent synthetic approach toward the caulibugulones was developed. The natural products were found to be potent and selective dual-specificity phosphatase inhibitors.

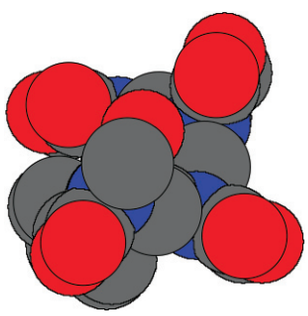
ARTICLES



Nucleophilic and general acid catalysis at physiological pH by a designed miniature esterase

Andrew J. Nicoll and Rudolf K. Allemann

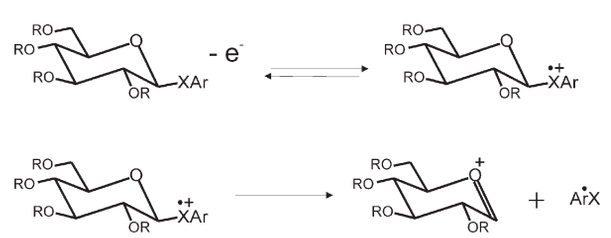
Art-Est acts as a miniature esterase through nucleophilic and general acid catalysis by a His–His+ pair.



β-Pseudopeptide foldamers. The homo-oligomers of (4*R*)-(2-oxo-1,3-oxazolidin-4-yl)-acetic acid (D–Oxac)

Gianluigi Luppi, Roberta Galeazzi, Marco Garavelli, Fernando Formaggio and Claudia Tomasini

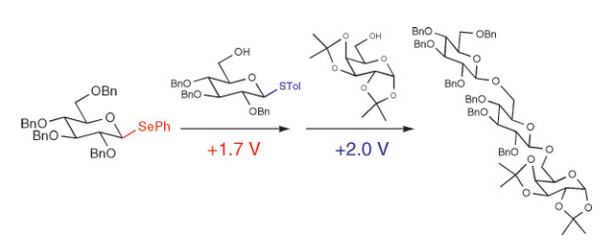
A total synthesis in solution and a conformational analysis of the homo-oligomers of (4*R*)-(2-oxo-1,3-oxazolidin-4-yl)-acetic acid (D–Oxac) to the tetramer level are described.



Selective activation of glycosyl donors utilising electrochemical techniques: a study of the thermodynamic oxidation potentials of a range of chalcoglycosides

Robert R. France, Neil V. Rees, Jay D. Wadhawan, Antony J. Fairbanks and Richard G. Compton

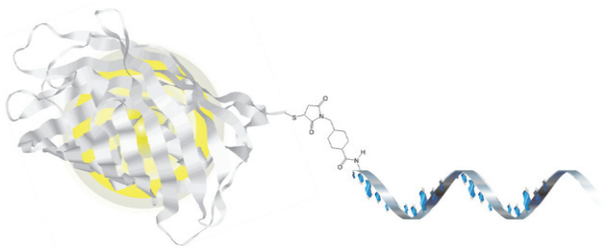
Several chalcoglycosides are investigated electrochemically to determine their formal redox potentials. The oxidations are shown to follow an overall EC-type mechanism.



Selective electrochemical glycosylation by reactivity tuning

Robert R. France, Richard G. Compton, Benjamin G. Davis, Antony J. Fairbanks, Neil V. Rees and Jay D. Wadhawan

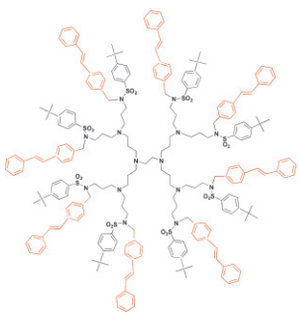
The selective electrochemical activation of glycosyl donors by reactivity tuning allows the electrochemically mediated synthesis of trisaccharides.



Synthesis of fluorescent oligonucleotide–EYFP conjugate: Towards supramolecular construction of semisynthetic biomolecular antennae

Florian Kukolka and Christof M. Niemeyer

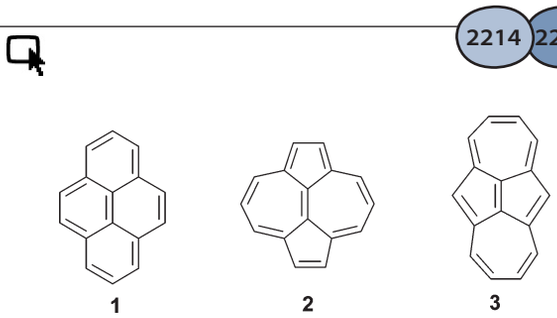
We synthesized a DNA–EYFP conjugate which could lead to artificial light-harvesting complexes and antenna systems.



Photochemical and photophysical properties of a poly(propylene amine) dendrimer functionalised with *E*-stilbene units

Veronica Vicinelli, Paola Ceroni, Mauro Maestri, Mariachiara Lazzari, Vincenzo Balzani, Sang-Kyu Lee, Jeroen van Heyst and Fritz Vögtle

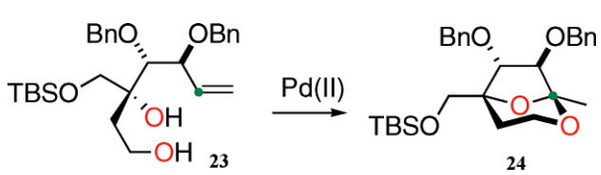
The stilbene units of a second generation poly(propylene amine) dendrimer exhibit photophysical and photochemical properties different from those of an isolated stilbene.



Electrophilic and oxidative chemistry of pyrene and its non-alternant isomers: theoretical (DFT, GIAO-NMR, NICS) study of protonation carbocations and oxidation dications from pyrene, azupyrene (dicyclopenta[*ef*,*kl*]heptalene) and dicyclohepta[*ed*,*gh*]pentalene

Takao Okazaki and Kenneth K. Laali

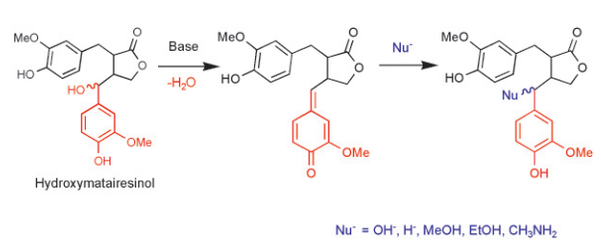
Mono- and diprotonated carbocations and the two-electron oxidation dications derived from parent pyrene **1** and its nonalternant isomers "azupyrene" (dicyclopenta[*ef*,*kl*]heptalene; DCPH) **2** and dicyclohepta[*ed*,*gh*]pentalene (DCHP) **3** were studied by DFT at the B3LYP/6-31G(d) level.



Enantioselective synthesis of the dioxabicyclo[3.2.1]octane core of the zaragozic acids *via* intramolecular Wacker-type cyclisation reactions

Patrick Perlmutter, Walailak Selajerern and Filisaty Vounatsos

The synthesis of bicyclo[3.2.1]octanes *via* Wacker-type ring closure of alkenediols has been extended to a highly functionalised carbohydrate-derived system.



Reactions of the natural lignan hydroxymatairesinol in basic and acidic nucleophilic media: formation and reactivity of a quinone methide intermediate

Patrik C. Eklund, Fredrik J. Sundell, Annika I. Smeds and Rainer E. Sjöholm

The natural lignan hydroxymatairesinol forms a quinone methide intermediate, which subsequently undergoes nucleophilic addition by nucleophiles in basic media.