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Incorporating Acta Chemica Scandinavica

Cover
See Janis Jaunzems, Benjamin Oelze and Andreas Kirschning, pp. 3448–3456.
Model of a macrocyclic ^{15}N-labelled oligoaminodeoxysaccharide waiting to bind to RNA: en route to NMR studies of RNA aminoglycosides complexes (cover art prepared by Benjamin Oelze).

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Chemical biology articles published in this journal also appear in the *Chemical Biology Virtual Journal*: **www.rsc.org/chembiol**

contents

C89 C96

Chemical Science

December 2004/Volume 1/Issue 12
www.rsc.org/chemicalscience

Drawing together the research highlights and news from all RSC publications, *Chemical Science* provides a ‘snapshot’ of the latest developments across the chemical sciences showcasing newsworthy articles, as well as the most significant scientific advances.

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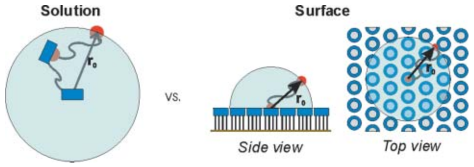


PERSPECTIVE

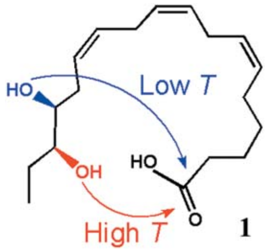
Multivalency in supramolecular chemistry and nanofabrication

Alart Mulder, Jurriaan Huskens and David N. Reinhoudt

Multivalency is governed by the concept of effective concentration, both in solution and at interfaces, and will play a major role in supramolecular chemistry and nanofabrication.

COMMUNICATIONS

3425 3426



Temperature regiocontrol of intramolecular cyclization of di-hydroxysecoacids

Tonino Caruso, Guglielmo Monaco, Andrea Peluso and Aldo Spinella

The macrocyclization of **1** to 16- and 17-membered macrolactones is a reversible process, sensitive to the reaction temperature. The predominance of the larger cycle at higher temperature can be ascribed to both conformational and vibrational contributions to the equilibrium constant.

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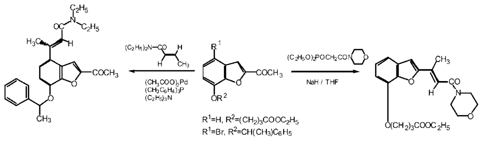

Preparation of 2- and 4-(2-alkylcarbamoyl-1-methylvinyl)-7-alkyloxybenzo[*b*]furans having potent antagonistic activity against human leukotriene B_4 BLT_1 and/or BLT_2 receptors

Kumiko Ando, Eriko Tsuji, Yuko Ando, Jun-ichi Kunitomo, Masayuki Yamashita, Shunsaku Ohta, Takeshi Nabe, Shigekatsu Kohno, Takehiko Yokomizo, Takao Shimizu and Yoshitaka Ohishi

2- and 4-(2-Alkylcarbamolyl-1-methylvinyl)-7-alkyloxybenzo[*b*] furans having potent human BLT1 and/or BLT2 receptors antagonistic activity were prepared.

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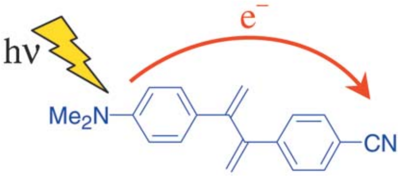

Photoinduced charge separation in a donor–acceptor functionalized 2,3-diphenylbutadiene: charge transport over a doubly bifurcated π-spacer

Bas C. van der Wiel, René M. Williams and Cornelis A. van Walree

Photoinduced charge separation occurs in a donor–acceptor substituted 2,3-diphenylbutadiene. The donor–acceptor interaction across the two branching points in the π-system is still substantial, which is important for the development of materials with multiple conduction channels.

ARTICLES

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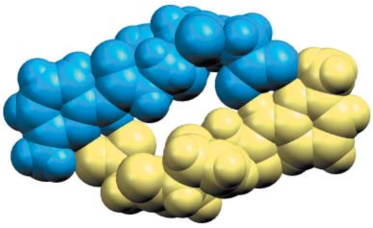

Self-replication *vs.* reactive binary complexes—manipulating recognition-mediated cycloadditions by simple structural modifications

Russell J. Pearson, Eleftherios Kassianidis, Alexandra M. Z. Slawin and Douglas Philp

Small structural changes can lead to large differences in the kinetic behaviour of recognition-mediated Diels–Alder cycloaddtions.

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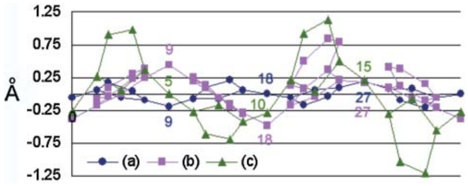

Controlling conformations and physical properties of *meso*-tetrakis(phenylethynyl)porphyrins by ring fusion: synthesis, properties and structural characterizations

Zhen Shen, Hidemitsu Uno, Yusuke Shimizu and Noboru Ono

Three *meso*-tetra(phenylethynyl)-substituted porphyrins [tetrakis(bicyclo[2.2.2]octadieno) (a), tetrabenzo (b), and octaethyl (c)] were determined to have different conformations by X-ray analysis, and their redox and spectroscopic properties have been investigated.

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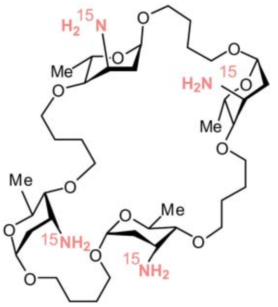

Preparation of macrocyclic ^{15}N-labelled oligoaminodeoxysaccharides as probes for RNA-binding

Janis Jaunzems, Benjamin Oelze and Andreas Kirschning

The first preparation is disclosed of ^{15}N-labelled macrocyclic neoaminoglycosides which are suited for NMR studies on RNA–aminoglycoside interactions.

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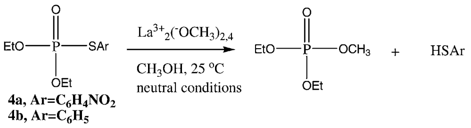

La^{3+}-catalyzed methanolysis of *O*,*O*-diethyl *S*-(*p*-nitrophenyl) phosphorothioate and *O*,*O*-diethyl *S*-phenyl phosphorothioate. Millions-fold acceleration of the destruction of V-agent simulants

Josephine S. W. Tsang, Alexei A. Neverov and R. S. Brown

Active forms of lanthanum ion dimers containing two and four associated methoxides catalyze the methanolysis of the title phosphorothioates by 10^7-fold relative to the background reaction under neutral conditions.

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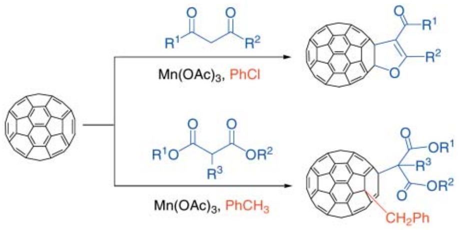

Manganese(III) acetate-mediated free radical reactions of [60]fullerene with β-dicarbonyl compounds

Changzhi Li, Danwei Zhang, Xiaotong Zhang, Shihui Wu and Xiang Gao

Manganese(III)-mediated reactions of [60]fullerene with β-dicarbonyl compounds in chlorobenzene or toluene have been studied; different tendencies to generate dihydrofuran-fused [60]fullerene derivatives or 1,4-bisadducts were observed.

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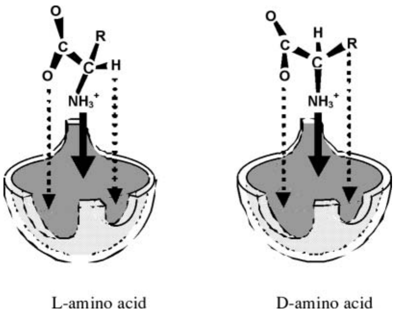

Structural scaffold of 18-crown-6 tetracarboxylic acid for optical resolution of chiral amino acid: X-ray crystal analyses and energy calculations of complexes of D- and L-isomers of tyrosine, isoleucine, methionine and phenylglycine

Hiroomi Nagata, Hiroyuki Nishi, Miyoko Kamigauchi and Toshimasa Ishida

The differences in interaction pattern and binding energy between the structural scaffold (+)-18C6H$_4$ and the L- and D-isomers of tyrosine, isoleucine, methionine and phenylglycine in relation to the chiral recognition are discussed.

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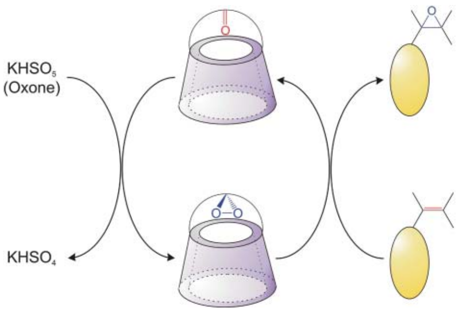

Cyclodextrins containing an acetone bridge. Synthesis and study as epoxidation catalysts

Cyril Rousseau, Brian Christensen, Torben Ellebæk Petersen and Mikael Bols

Three cyclodextrin derivatives were synthesised and investigated as epoxidation catalysts. In the presence of oxone all three compounds catalysed the epoxidation of a series of alkenes.

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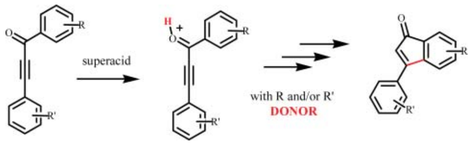
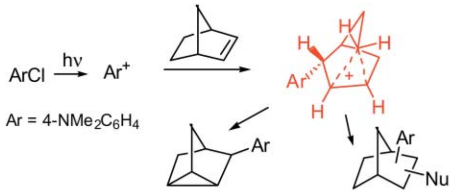


Chemistry of 1,3-diarylpropynones in superacids

A. V. Vasilyev, S. Walspurger, M. Haouas, J. Sommer, P. Pale and A. P. Rudenko

An exhaustive NMR study of the behaviour of 1,3-diarylpropynone in superacids: a new efficient way to indenone synthesis.

3490 3495

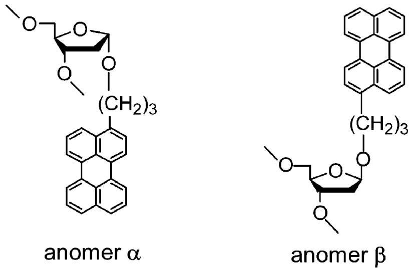


On the addition of 4-(*N*,*N*-dimethylamino)phenyl cation to norbornene

Mariella Mella, Maurizio Fagnoni and Angelo Albini

A ‘non classical’ 2-arylnorbornyl cation is obtained under mild, non acidic conditions by addition of the photogenerated dimethylaminophenyl cation to norbornene.

3496 3503



Synthesis and hybridization properties of oligonucleotide–perylene conjugates: influence of the conjugation parameters on triplex and duplex stabilities

Yves Aubert and Ulysse Asseline

The incorporation of one sugar perylene unit, with the β-anomeric configuration and a propyl linker to connect the sugar and the perylene, at both ends of the oligonucleotide stabilizes strongly the triplex structure.

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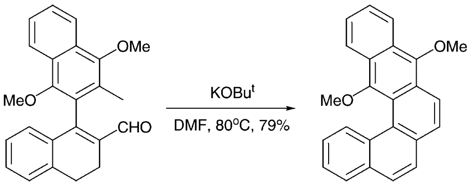
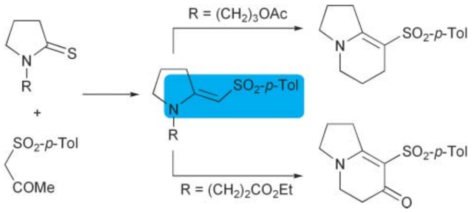


The synthesis of angularly fused polyaromatic compounds by using a light-assisted, base-mediated cyclization reaction

Rakhi Pathak, Kantharuby Vandayar, Willem A. L. van Otterlo, Joseph P. Michael, Manuel A. Fernandes and Charles B. de Koning

The synthesis of substituted polyaromatic compounds that contain at least four benzene rings fused together in an angular fashion is described.

3510 3517



Preparation and reductive transformations of vinylogous sulfonamides (β-sulfonyl enamines), and application to the synthesis of indolizidines

Joseph P. Michael, Charles B. de Koning, Tshepo J. Malefetse and Ibrahim Yillah

Vinylogous sulfonamides containing pyrrolidine and indolizidine motifs have been prepared and converted into a range of products by reductive transformations.

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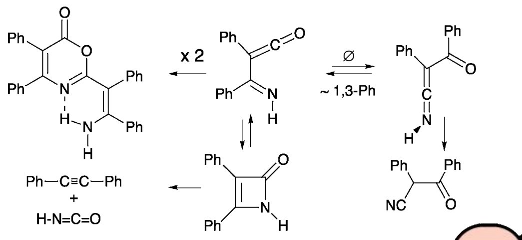
3518 3523

Imidoylketene dimerization and rearrangement

Lisa George, Paul V. Bernhardt, Klaus-Peter Netsch and Curt Wentrup



Diphenylimidoylketene undergoes dimerization, rearrangement to oxoketenimine, cyclization to azetinone and cleavage to diphenylacetylene and isocyanic acid.

3524 3529

Synthesis and reactions of polymer-bound $Ph_3P=C=C=O$: a quick route to tenuazonic acid and other optically pure 5-substituted tetramates

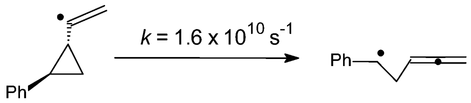
Rainer Schobert, Carsten Jagusch, Claire Melanophy and Gillian Mullen

Polystyrene-bound ylide Ph_3PCCO was prepared in two steps and used to convert α-amino esters and their salts into optically pure tetramates.

3530 3534

Determination of the rate constant for ring opening of an α-cyclopropylvinyl radical

Kaarina K. Milnes, Stephen E. Gottschling and Kim M. Baines



The rate constant for ring opening of the 1-(*trans*-2-phenylcyclopropyl)ethen-1-yl radical, generated by photolysis of the corresponding vinyl iodide, is reported.

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