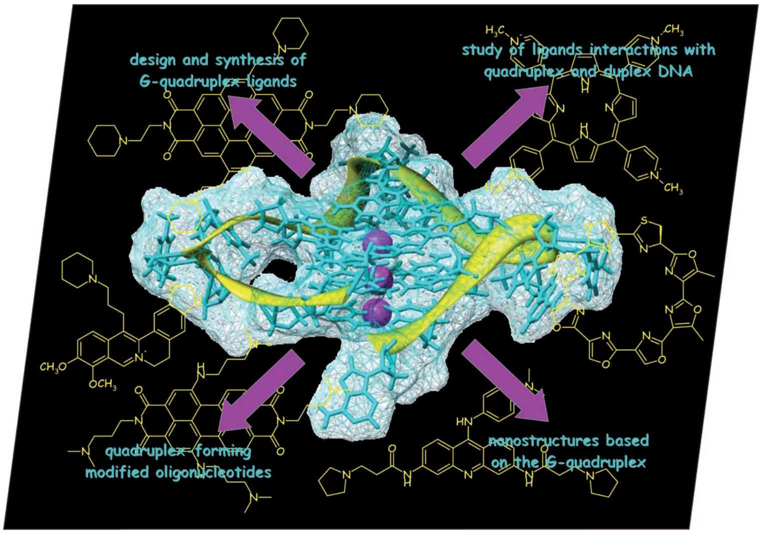
HUNGARY
ITALY
GERMANY
GREECE
BELGIUM
FRANCE
ChemPubSoc Europe
SWEDEN
CZECH REPUBLIC
AUSTRIA
PORTUGAL
SPAIN
NETHERLANDS

A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further members of ChemPubSoc Europe (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows the monomeric G-quadruplex structure of the 22-mer human telomeric DNA sequence AGGG(TTAGGG)$_3$ derived by X-ray crystallography in Neidle's group (G. N. Parkinson, M. P. Lee, S. Neidle, *Nature* **2002**, *417*, 876) in a potassium ion solution (PDB code 1KF1). The molecular graphic was produced by using the UCSF Chimera package from the Resource for Biocomputing, Visualization, and Informatics at the University of California, San Francisco (supported by NIH P41 RR-01081). The DNA backbone is in cyan, covered by a semitransparent meshed surface; K$^+$ ions are represented by violet spheres, and a yellow ribbon follows the strand topology. The four arrows indicate the related main areas of interest for organic chemists: design and synthesis of G-quadruplex ligands, study of ligand interactions with quadruplex and duplex DNA, quadruplex-forming modified oligonucleotides and nanostructures based on the G-quadruplex. In the background, the structures of some well-known G-quadruplex ligands, based on perylene, coronene, berberine, porphyrin and acridine moieties, are shown in yellow, as well as the natural compound telomestatin. Details are presented in the Microreview by M. Franceschin on p. 2225ff.



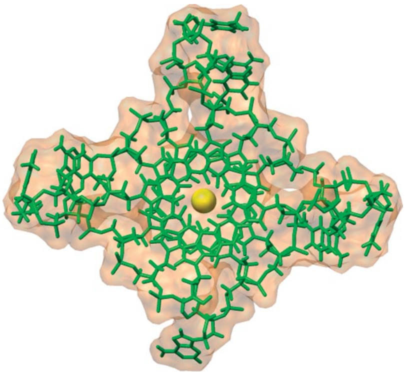
MICROREVIEW

G-Quadruplexes

M. Franceschin* 2225–2238

G-Quadruplex DNA Structures and Organic Chemistry: More Than One Connection

Keywords: DNA structures / G-Quadruplex ligands / G-Quadruplexes / Telomerase inhibitors



G-Quadruplexes are a group of unusual DNA secondary structures of potential interest for organic chemists from a number of different perspectives: from the rational design and the synthesis of specific G-quadruplex ligands as potential anticancer drugs to quadruplex-forming modified oligonucleotides and G-quadruplex-based nanostructures.

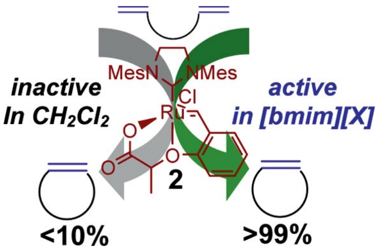
SHORT COMMUNICATION

Metathesis in Ionic Liquid

J. H. Kim, B. Y. Park, S.-W. Chen, S.-g. Lee* 2239–2242

In Situ Activation of a Latent Ruthenium–Carbene Complex in Ionic Liquid and Its Application in Ring-Closing Metathesis

Keywords: Ruthenium / Carbenoids / Ionic liquids / Metathesis



Ionic liquid as an activator for latent Ru complex: Latent Ru–carboxylate complex **2** can be activated in situ in the presence of an equivalent amount of [bmim][Br] in the ionic liquid [bmim][SbF$_6$] and used to catalyze the ring-closing metathesis of various dienes with conversions of up to >99%.

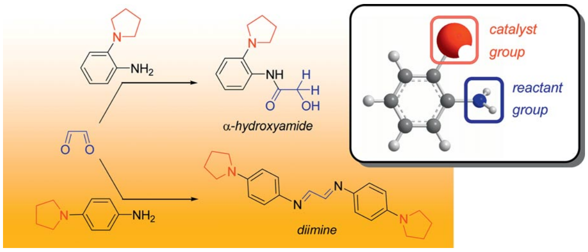
FULL PAPERS

Intramolecular Cannizzaro Reactions

Y. Irie, Y. Koga, T. Matsumoto, K. Matsubara* 2243–2250

o-Amine-Assisted Cannizzaro Reaction of Glyoxal with New 2,6-Diaminoanilines

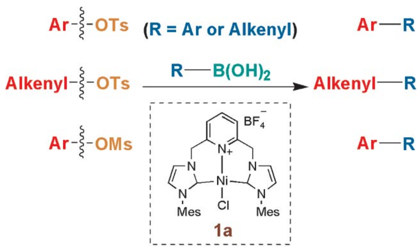
Keywords: Cannizzaro reaction / Amination / Neighbouring group assistance / Nucleophilic substitution



A series of new anilines which have cyclic amine or aniline at the 2- and 6-positions, were easily synthesized. The aniline has a special reactivity toward glyoxal to form α-hydroxy amide, α-amino amide, and imidazole derivatives. The reactions are the first intramolecular Cannizzaro reactions, probably due to the significant assistance of *o*-substituted amine as a base.

Nickel–Pincer Catalysts

N-Heterocyclic carbene derived nickel–pincer complexes exhibit high catalytic activities for the Suzuki–Miyaura coupling reactions of a range of aryl/alkenyl tosylates and mesylates.

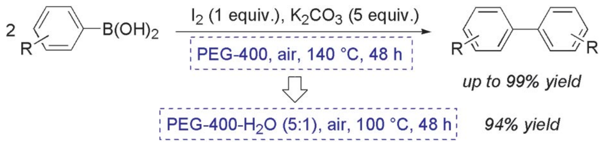


J.-i. Kuroda, K. Inamoto,* K. Hiroya, T. Doi* 2251–2261

N-Heterocyclic Carbene Derived Nickel–Pincer Complexes: Efficient and Applicable Catalysts for Suzuki–Miyaura Coupling Reactions of Aryl/Alkenyl Tosylates and Mesylates

Keywords: Carbene ligands / Pincer complexes / Cross-coupling / Nickel

Iodine-Promoted Homocoupling



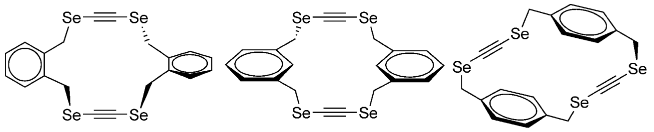
Iodine promotes the homocoupling of arylboronic acids in PEG-400 with moderate to good yields under aerobic conditions. The high activity of this system is preserved under mild conditions by the addition of water. This readily available and low-cost transition-metal-free catalytic system is practical and useful.

J. Mao,* Q. Hua, G. Xie, Z. Yao, D. Shi* 2262–2266

Iodine-Promoted Efficient Homocoupling of Arylboronic Acids in PEG-400 under Aerobic Conditions

Keywords: C–C coupling / Arylboronic acids / Aerobic conditions / Iodine / Biaryls

Supramolecular Chemistry



The isomeric [6.6]cyclophanes were synthesized in a stepwise procedure. All three species revealed in the solid state short intermolecular Se···Se interactions giving rise to sheets that are stacked on top of each other.

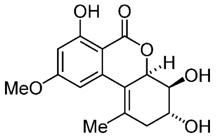
A. Lari, R. Gleiter,* F. Rominger 2267–2274

Supramolecular Organization Based on van der Waals Forces: Syntheses and Solid State Structures of Isomeric [6.6]Cyclophanes with 2,5-Diselenahex-3-yne Bridges

Keywords: Supramolecular chemistry / Cyclophanes / Alkynes / Selenium / Diselenaalkynes / van der Waals contacts

Mycotoxins

The total synthesis of *Alternaria* metabolite neoaltenuene has been achieved for the first time in 14 steps in a yield of 10% starting from quinic acid and phloroglucinic acid. The key reactions are a palladium-catalyzed Suzuki-type coupling and a palladium(II)-catalyzed [3,3]-sigmatropic rearrangement.



M. Altemöller, J. Podlech* 2275–2282

Total Synthesis of Neoaltenuene

Keywords: Cross-coupling / Palladium / Total synthesis / Toxins

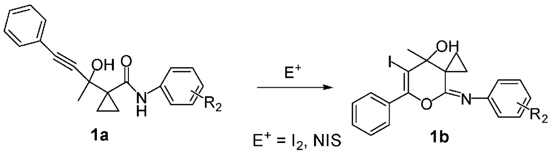
CONTENTS

Functionalized Pyrans

Y.-X. Xie, Z.-Y. Yan, D.-Z. Wang, L.-Y. Wu, B. Qian, X.-Y. Liu, Y.-M. Liang* **2283–2288**

Synthesis of Polysubstituted 3-Iodopyrans by Electrophilic Cyclization

Keywords: Iodine / Cyclization / Oxygen heterocycles / Alkynes



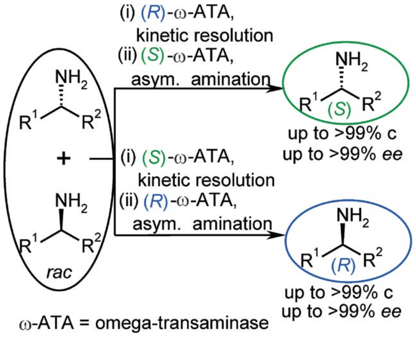
A variety of polysubstituted 3-iodopyrans were readily prepared in good to excellent yield under mild reaction conditions by the reaction of alkynyl carboxamides with ICl, I_2, and NIS. The products obtained from this process are versatile materials that can be used to construct other complex functionalized pyran structures of importance.

Deracemisation of *rac*-Amines

D. Koszelewski, D. Clay, D. Rozzell, W. Kroutil* **2289–2292**

Deracemisation of α-Chiral Primary Amines by a One-Pot, Two-Step Cascade Reaction Catalysed by ω-Transaminases

Keywords: Amines / Deracemisation / Asymmetric catalysis / Biotransformations / Enzymes



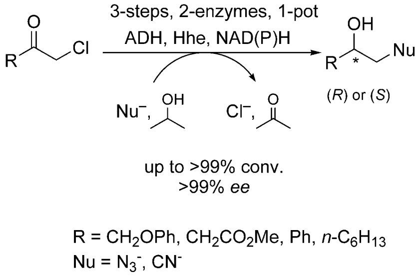
Deracemisation of racemic α-chiral primary amines was achieved by a one-pot, two-step procedure. In the first step, one amine enantiomer was transformed under kinetic resolution to the corresponding ketone, which was subsequently stereoselectively aminated in the second step with opposite stereopreference. By switching the order of the ω-transaminases used, both enantiomers were accessible.

Biotransformations

J. H. Schrittwieser, I. Lavandera, B. Seisser, B. Mautner, W. Kroutil* **2293–2298**

Biocatalytic Cascade for the Synthesis of Enantiopure β-Azidoalcohols and β-Hydroxynitriles

Keywords: Domino reactions / Azides / Cyanides / Biotransformations / Asymmetric catalysis



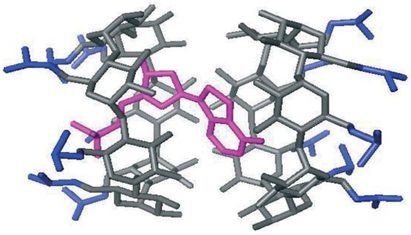
Prochiral α-chloroketones were converted into enantiopure β-azidoalcohols and β-hydroxynitriles (>99% *ee*) by a biocatalytic cascade reaction employing alcohol dehydrogenases and nonselective halohydrin dehalogenases.

Nucleotide Encapsulation

C. Aggelidou, I. M. Mavridis, K. Yannakopoulou* **2299–2305**

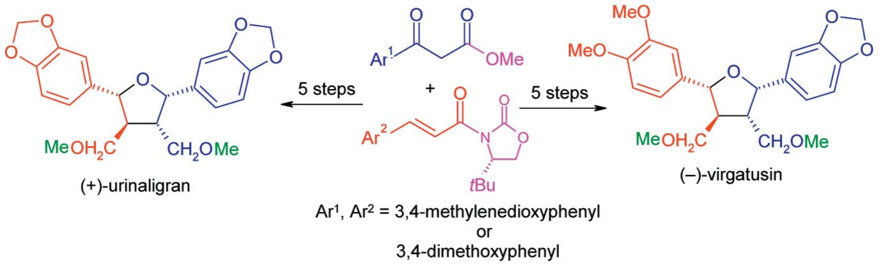
Binding of Nucleotides and Nucleosides to Per(6-guanidino-6-deoxy)cyclodextrins in Solution

Keywords: Cyclodextrins / NMR spectroscopy / Nucleotides / Electrostatic interactions / Host–guest systems / Ribose pucker / Multivalency



Accumulative electrostatic forces are responsible for encapsulation of nucleotides (but not nucleosides) in guanidino cyclodextrins, and the cavity-imposed size restriction is responsible for the separate observation of the 3′-*endo* and 2′-*endo* conformers of the ribose rings.

Asymmetric Radical Synthesis



A short synthetic sequence allowed the preparation of natural (−)-virgatusin and (+)-urinaligran, as well as nonnatural tetrasubstituted THF lignans. The sequence involved, as the key step, a diastereoselective Mn^{III}-induced radical addition of benzoylacetates to *N*-cinnamoyloxazolidinones.

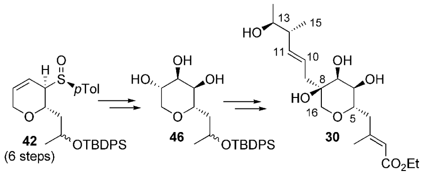
S. Martinet, A. Méou,*
P. Brun **2306–2311**

Access to Enantiopure 2,5-Diaryltetrahydrofurans – Application to the Synthesis of (−)-Virgatusin and (+)-Urinaligran

Keywords: Manganese / Asymmetric synthesis / Radical reactions / Total synthesis / Chiral auxiliaries

Dihydroxylation of Dihydropyranols

Selective dihydroxylation of a dihydropyranol and a cross-metathesis reaction are the key steps in the synthesis of an enantiopure ethyl deoxymonate B from a sulfinyl dienol.

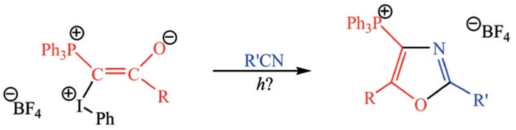


R. Fernández de la Pradilla,* N. Lwoff,
A. Viso **2312–2322**

Stereoselective Functionalization of Dihydropyran-3-ols: Application to the Synthesis of Enantiopure Ethyl Deoxymonate B

Keywords: Oxygen heterocycles / Epoxidation / Dihydroxylation / Rearrangement / Metathesistitel

Oxazoles from Ylides and Nitriles



Novel photochemical reactions between mixed phosphonium-iodonium ylides and nitriles to yield polyfunctional 2,4,5-substituted oxazoles have been found.

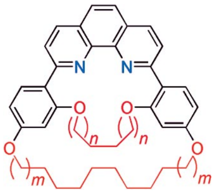
E. D. Matveeva,* T. A. Podrugina,
A. S. Pavlova, A. V. Mironov, R. Gleiter,
N. S. Zefirov **2323–2327**

Novel Photochemical Reactions of Phosphonium-Iodonium Ylides: Synthesis of Phosphonium-Substituted Oxazoles

Keywords: Mixed ylides / Photochemistry / Oxazoles / Heterocycles / Ylides

Concave Reagents

Mono- and bimacrocyclic 1,10-phenanthrolines containing aryl bridgeheads have been synthesised by Suzuki coupling of 2,9-diiodo-1,10-phenanthroline with appropriately substituted boronic acids, followed by ring-closing metathesis and hydrogenation. The resulting (bi)macrocyclic 1,10-phenanthrolines were tested as ligands in a copper(I)-catalysed stereoselective cyclopropanation.



F. Eggers, U. Lüning* **2328–2341**

Concave 1,10-Phenanthrolines as Ligands for Cyclopropanations – Towards a Deeper Understanding of the Stereoselectivity

Keywords: Cyclopropanation / Heterocycles / Macrocycles / 1,10-Phenanthroline / Supramolecular chemistry

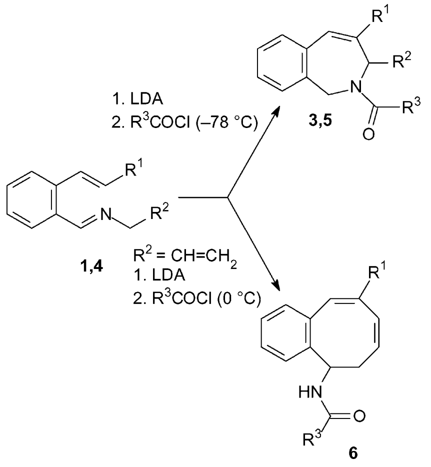
CONTENTS

Anionic 1,7-Electrocyclization

M. Sajitz, R. Fröhlich,
E.-U. Würthwein* 2342–2353

1,7-Electrocyclization Reactions of 2-Aza-4,5-benzoheptatrienyl- and 4-Aza-6,7-benzononatetraenyllithium Compounds: Synthesis of Novel 2-Benzazepines and (Benzocyclooctenyl)amines

Keywords: Electrocyclization reactions / Rearrangement / Heterocycles / Carbocycles / Benzazepines



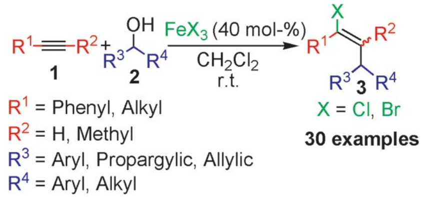
After deprotonation and addition of acyl or carbamoyl chlorides, imines **1** and **4** undergo 1,7-electrocyclizations to give novel benzazepines **5** and (benzocyclooctenyl)amines **6**. Imidoyl chlorides and aldehydes gave bi- and tricyclic 2-benzazepines. It was possible to direct the reaction of allylamines **4**, by use of different temperatures, to afford either **3** and **5** or **6**.

Alkenyl Halide Synthesis

S. Biswas, S. Maiti, U. Jana*... 2354–2359

💻 New and Efficient Iron Halide Mediated Synthesis of Alkenyl Halides through Coupling of Alkynes and Alcohols

Keywords: Alkenyl halides / Alkynes / Alcohols / Iron / Sustainable chemistry



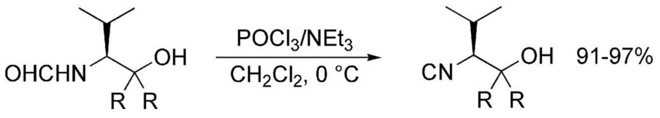
A new, efficient, one-pot synthesis of substituted alkenyl halides from alkynes and alcohols in the presence of iron salts was described. The reaction is high yielding, highly regio- and stereoselective, and works under mild conditions. The reaction tolerates a wide range of functional groups. The present reaction is very simple, energy saving, and environmentally friendly.

Isocyanides

M. Bauer, U. Kazmaier* 2360–2366

Straightforward Synthesis of Chiral Hydroxy Isocyanides

Keywords: Amino alcohols / Isocyanides / Ligands / Multicomponent reactions / Heterocycles



Various types of hydroxy isocyanides have been prepared from the corresponding amino alcohols. These hydroxy isocyanides are interesting building blocks for multicomponent reactions and the synthesis of (hydroxyalkyl)oxazoline ligands. The isocyanides are sensitive compounds, readily undergoing cyclization to oxazolines.

---

* Author to whom correspondence should be addressed.

💻 Supporting information on the WWW (see article for access details).