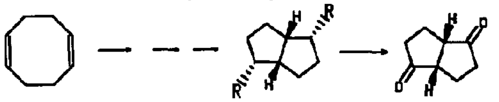
GRAPHICAL ABSTRACTS

Tetrahedron: Asymmetry 1994, *5*, 1

Synthesis of (R,R) and (S,S) Bicyclo[3.3.0]octane-2,6-dione
Interactions between Non-Conjugated Chromophores

Joëlle Pérard-Viret and André Rassat
URA CNRS 1679, Ecole Normale Supérieure, Département de chimie, Paris, France

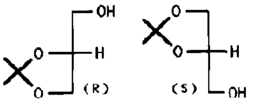


Synthesis of (R,R) and (S,S) Bicyclo[3.3.0]octane-2,6-dione by Resolution of the *diendo* Diol Intermediate with Menthyloxyacetic Acid. Study of the Dione by Circular Dichroism.

Tetrahedron: Asymmetry 1994, *5*, 5

SYNTHESIS OF (R)- AND (S)-ISOPROPYLIDENE GLYCEROL

M.Pallavicini[a],E.Valoti[a]*,L.Villa[a] and O.Piccolo[b]*
[a]Universita' di Milano,Istituto di Chimica Farmaceutica,viale Abruzzi 42-20131 Milano, Italia. [b]Studio di Consulenza Scientifica, via Borno' 5 - 22060 Sirtori (CO), Italia



Isopropylidene glycerol

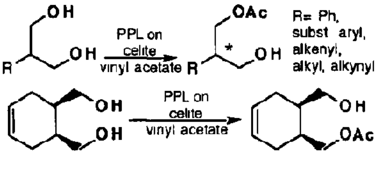
The preparation of (R)- and (S)-isopropylidene glycerol of high optical purity (>98%) was accomplished through salt formation between their hydrogen phthalates with (S)- and (R)-1-methylbenzylamine respectively, selective crystallization of these salts and subsequent regeneration of the optically active compounds by saponification.

Tetrahedron: Asymmetry 1994, *5*, 9

ENZYMATIC ASYMMETRIZATION OF SOME PROCHIRAL AND MESO DIOLS THROUGH MONOACETYLATION WITH PIG PANCREATIC LIPASE (PPL).

Giuseppe Guanti,* Luca Banfi, and Renata Riva, Istituto di Chimica Organica, corso Europa 26, 16132 Genova (Italy).

A series of 2-substituted 1,3-propanediols and a meso diol have been asymmetrized through monoacetylation with crude PPL supported on celite, using vinyl acetate as both solvent and acylating agent. Under these conditions reactions are fast and reproducible and the enzyme can be recycled.

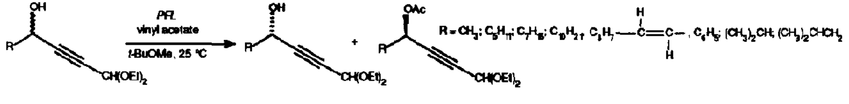


Tetrahedron: Asymmetry 1994, *5*, 13

ENZYMATIC RESOLUTION OF ETHYL ACETALS OF (*R*)- AND (*S*)-4-HYDROXYALK-2-YNALS

Pietro Allevi,* Mario Anastasia, Francesco Cajone, Pierangela Ciuffreda and Anna M. Sanvito
Dipartimento di Chimica e Biochimica Medica, via Saldini 50, 20133 Milano.

Several 4-hydroxyalk-2-ynals diethylacetals have been efficiently resolved by enatioselective acetylation mediated by *Pseudomonas fluorescens* lipase affording the acetylated (*R*)-enantiomers in preference.

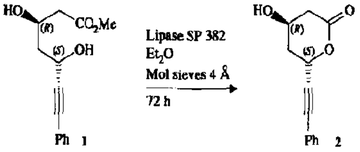


Tetrahedron: Asymmetry **1994**, *5*, 17

SYNTHESIS OF (3*R*,5*S*)-3-HYDROXY-7-PHENYL-6-HEPTYN-5-OLIDE BY AN ENANTIOSELECTIVE ENZYME-CATALYZED LACTONIZATION OF A RACEMIC 3,5-DIHYDROXY ESTER

Birgitta Henkel, Annamarie Kunath and Hans Schick*
Centre of Selective Organic Synthesis, Rudower Chaussee 5,
D-12489 Berlin-Adlershof, Germany

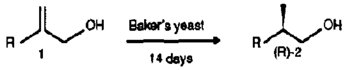
(3*R*,5*S*)-3-Hydroxy-7-phenyl-6-heptyn-5-olide (**2**) was obtained with a high enantiomeric excess by an enzyme-catalyzed enantioselective lactonization of the corresponding methyl (3*R**,5*S**)-dihydroxyalkynoate (*rac*-**1**) followed by spontaneous crystallization.



Tetrahedron: Asymmetry **1994**, *5*, 19

BAKER'S YEAST-MEDIATED HYDROGENATION OF 2-SUBSTITUTED ALLYL ALCOHOLS: A BIOCATALYTIC ROUTE TO A NEW HIGHLY ENANTIOSELECTIVE SYNTHESIS OF (R)-2-METHYL ALKANOLS

*P. Ferraboschi, S. Casati, E. Santaniello**
Dipartimento di Chimica e Biochimica Medica, Universita' di Milano.



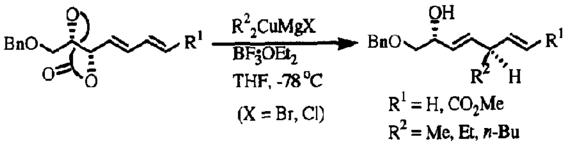
a. R = $(CH_3)_2C=CH-CH_2$ b. R = $CH_2=CH-(CH_2)_3$ c. R = $PhCH_2$

The biohydrogenation of 2-substituted allyl alcohols **1a-c** proceeds enantioselectively (95-98% ee) to afford (R)-2-methyl alkanols **2a-c**.

Tetrahedron: Asymmetry **1994**, *5*, 21

Regioselective Addition of Organocopper-Magnesium Reagents to Chiral Dienylic Cyclic Carbonates

Suk-Ku Kang,* Dong-Gyu Cho, Jea-Uk Chung, and Dae-Yeun Kim
Department of Chemistry, Sung Kyun Kwan University, Natural Science Campus, Suwon 440-746, Korea

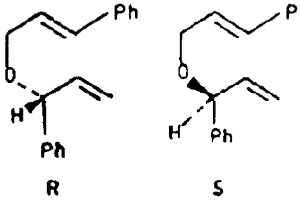


Tetrahedron: Asymmetry **1994**, *5*, 23

Enantioselective Synthesis of Cinnamyl-1-Phenyl-2-Propenyl Ether: A Metabolite of Marine Green Algal Species Caulerpa Racemosa

U.V. Mallavadhani and Y.R. Rao
Regional Research Laboratory
Bhubaneswar-751 013, India.

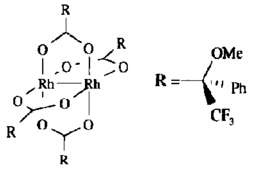
The enantioselective synthesis of title compound has been achieved using a new enzyme-acyl system (PPL/VL) and a mild PT catalysed etherification.



Tetrahedron: Asymmetry **1994**, *5*, 27

Chiral Recognition of Olefins by ¹H NMR Spectroscopy in the Presence of a Chiral Dirhodium Complex

Klaudia Wypchlo and Helmut Duddeck, Universität Hannover,
Institut für Organische Chemie, Schneiderberg 1B, D-30167 Hannover, Germany



New method for the determination of the enantiomeric purity of olefins
Examples: α-pinene, limonene, 4-vinyl-1-cyclohexene and carvone; camphene fails

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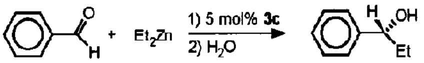
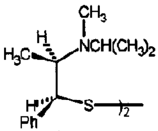
Tetrahedron Asymmetry **1994**, *5*, 31

Sulfur Derivatives of Ephedra Alkaloids; New and Highly Efficient Chiral Catalysts.

Robert P. Hof, Martin A. Poelert, Nathalie C.M.W. Peper, Richard M. Kellogg,
University of Groningen, Nijenborgh 4, 9747 AG Groningen, The Netherlands.



(R)-1-phenylpropanol (89% e.e.)



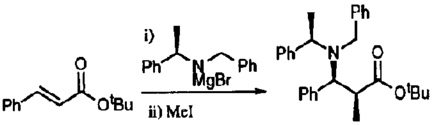
3c

Tetrahedron: Asymmetry **1994**, *5*, 35

Asymmetric Michael Additions of Homochiral Magnesium Amides

Mark E. Bunnage,[a] Stephen G. Davies,[a]* Christopher J. Goodwin,[b] and Iain A.S. Walters[a]
a The Dyson Perrins Laboratory, South Parks Road, Oxford, OX1 3QY, UK.
b Fisons plc, Pharmaceutical Division, Research and Development Laboratories, Bakewell Road, Loughborough, LE11 0RH, UK.

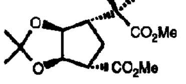
The first asymmetric Michael addition of a homochiral magnesium amide is presented. Methylation of the resultant β-amino magnesium enolate was found to occur with excellent stereoselectivity, providing a direct synthesis of homochiral *syn*-α-methyl-β-amino acids.



Tetrahedron Asymmetry **1994**, *5*, 37

STEREOSELECTIVE SYNTHESIS OF NEW HOMOCHIRAL POLYFUNCTIONAL SIDE-CHAIN CYCLOPENTANE DERIVATIVES

Miguel Díaz, Javier Ibarzo, and Rosa M. Ortuño*
Departament de Química, Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain.



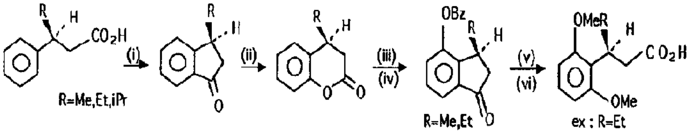
The new epoxycompound shown has been synthesized stereoselectively. This product is an useful intermediate in the synthesis of hydroxyesters, polyols or aminoalcohols.

Tetrahedron: Asymmetry 1994, 5, 41

PREPARATION OF CHIRAL INDANONES AND DIHYDROCOUMARINS ; APPLICATION TO SYNTHESIS OF (+) 3-(2,6-DIMETHOXYPHENYL)PENTANOIC ACID

Elie Stephan* , Richard Rocher , Jeanine Aubouet, Guy Pourcelot and Pierre Cresson
Synthese Organique , ENSCP , 11 rue Pierre et Marie Curie , 75231 Paris Cedex 05

chiral β-aryl carboxylic acids are prepared and transformed into following compounds :

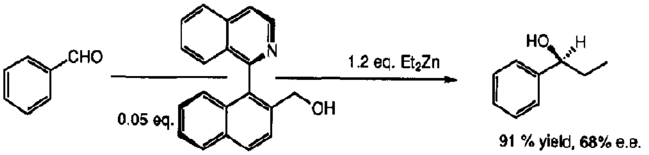


(i)intramolecular acylation (ii) CF_3CO_3H (iii) KOH,PhCOCl (iv)intramol.acylation (v)MCPBA (vi)NaOH,Me_2SO_4

Tetrahedron: Asymmetry 1994, 5, 45

Enantioselective Catalysis by 1-(1-Isoquinolinyl)-2-naphthalenemethanol: an Atropisomerically Chiral N-O Chelating Ligand

Robert W. Baker,* Simon O. Rea, Melvyn V. Sargent,* Elisabeth M. C. Schenkelaars, Brian W. Skelton and Allan H. White
Department of Chemistry, University of Western Australia, Nedlands, Western Australia, 6009.

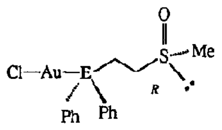


Tetrahedron: Asymmetry 1994, 5, 49

In Vitro Cytotoxicity of Gold(I) and Platinum(II) Compounds containing Asymmetric [2-(Methylsulfinyl)ethyl]diphenylarsine and its Phosphorus Analogue

Simon Y.M. Chooi, Pak-Hing Leung, K.Y. Sim, K.S. Tan and O.L. Kon
National University of Singapore, Singapore 0511

The synthesis of novel gold(I) compounds containing the optically active and racemic forms of $Ph_2ECH_2CH_2S(O)Me$ (E = As, P) is described. *In vitro* cytotoxicity evaluation in three human tumour models showed the gold-phosphine compounds to be remarkably potent.

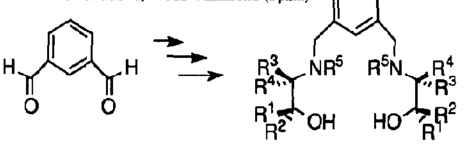


Tetrahedron: Asymmetry 1994, 5, 57

EASY PREPARATION OF ENANTIOPURE C_2-SYMMETRICAL AMINO ALCOHOLS DERIVED FROM m-XYLYLENE DIAMINE.

José M. Andrés, María A. Martínez, Rafael Pedrosa* and Alfonso Pérez-Encabo.
Departamento de Química Orgánica, Facultad de Ciencias, Universidad de Valladolid, 47011-Valladolid (Spain)

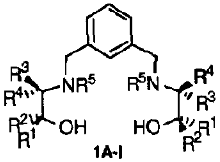
Condensation of isophthaldehyde with chiral amino alcohols or with α-amino acids followed by reduction and further transformations, leads to enantiopure C_2-symmetrical amino alcohols in good chemical yields.



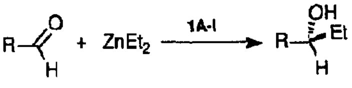
Tetrahedron: Asymmetry **1994**, *5*, 67

ENANTIOSELECTIVE ETHYLATION OF ALDEHYDES CATALYZED BY CHIRAL C_2-SYMMETRICAL α-HYDROXY-m-XYLYLENE DIAMINES

José M. Andrés, María A. Martínez, Rafael Pedrosa* and Alfonso Pérez-Encabo.
Departamento de Química Orgánica, Facultad de Ciencias, Universidad de Valladolid, 47011-Valladolid (Spain)



1A-I



2-5 **2'-5'**

Chiral C_2-symmetric aminoalcohols 1A-I are excellent catalysts for enantioselective addition of diethylzinc to aromatic and aliphatic aldehydes 2-5. The best experimental conditions and pattern substitution on the catalyst to achieve the highest chemical yield and e.e. have been studied

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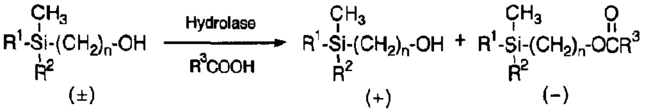
Tetrahedron: Asymmetry **1994**, *5*, 73

Enzymatic Preparation of Optically Active Silylmethanol Derivatives Having A Stereogenic Silicon Atom by Hydrolase-catalyzed Enantioselective Esterification

Toshiaki Fukui, Takuo Kawamoto, and Atsuo Tanaka, Department of Synthetic Chemistry and Biological Chemistry, Faculty of Engineering, Kyoto University, Kyoto 606-01, Japan



$$\underset{(\pm)}{R^1\text{-}\overset{CH_3}{\underset{R^2}{Si}}\text{-}(CH_2)_n\text{-}OH} \xrightarrow[R^3COOH]{\text{Hydrolase}} \underset{(+)}{R^1\text{-}\overset{CH_3}{\underset{R^2}{Si}}\text{-}(CH_2)_n\text{-}OH} + \underset{(-)}{R^1\text{-}\overset{CH_3}{\underset{R^2}{Si}}\text{-}(CH_2)_n\text{-}O\overset{O}{\overset{\|}{C}}R^3}$$

Enzymatic resolution of silylalkanols having a stereogenic silicon atom.

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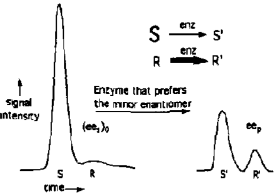
KINETIC RESOLUTIONS CONCENTRATE THE MINOR ENANTIOMER AND AID MEASUREMENT OF HIGH ENANTIOMERIC PURITY.

Gaétan Caron, George W.-M. Tseng, and Romas J. Kazlauskas,* Department of Chemistry, McGill University, 801 Sherbrooke St. W., Montréal, Québec H3A 2K6, Canada

A kinetic resolution aids measurement of small amounts of the minor enantiomer because it concentrates the minor enantiomer into the product. The original enantiomeric purity can be calculated from the extent of conversion and the enantioselectivity of the kinetic resolution. We validated this method with the lipase-catalyzed acetylation of menthol. As an example of its use, we measured 98.5% ee for a commercial sample of (+)-naproxen using simple optical rotation after concentrating the minor enantiomer.



Tetrahedron: Asymmetry **1994**, *5*, 93

IMPROVEMENT OF ENANTIOSELECTIVE ENZYMATIC ESTER HYDROLYSIS IN ORGANIC SOLVENTS

J.L.L. Rakels, A.J.J. Straathof and J.J. Heijnen

Department of Biochemical Engineering, Delft University of Technology
Julianalaan 67, 2628 BC Delft, The Netherlands

Abstract: Yield and enantiomeric excess significantly increased by ion-pair formation of a non-reactive amine with product carboxylic acid during kinetic resolution of a chiral ester.

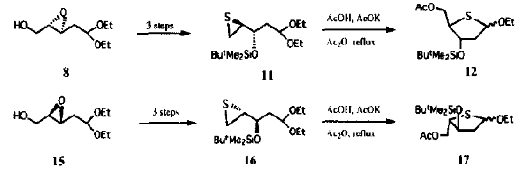
$R_1^*COOR_2 + H_2O \rightleftarrows R_1^*COOH + R_2OH$ and $R_1^*COOH + RNH_2 \rightarrow RNH_3^+R_1^*COO^-$

$R_1COOR_2^* + H_2O \rightleftarrows R_1COOH + R_2^*OH$ and $R_1COOH + RNH_2 \rightarrow RNH_3^+R_1COO^-$

Tetrahedron: Asymmetry 1994, 5, 101

Asymmetric Synthesis of D- and L-2-Deoxy-4-thioriboses

Jun'ichi Uenishi,* Mitsuhiro Motoyama and Keiji Takahashi
Department of Chemistry, Faculty of Science, Okayama University of Science
Ridaicho, Okayama, 700, Japan



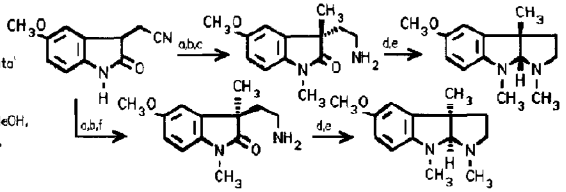
D- and L-2-deoxy-4-thioriboses, **12** and **17** were prepared in 4 steps from optically active epoxy alcohols **8** and **15** respectively.

Tetrahedron: Asymmetry 1994, 5, 111

Synthesis of (−)- and (+)-esermethole via chemical resolution of 1,3-dimethyl-3-(2-aminoethyl)-5-methoxyoxindole

M Pallavicini, E Valoti*, L.Villa and F.Lianza

Istituto di Chimica Farmaceutica e Tossicologica, Universita' di Milano, viale Abruzzi 42, I-20131 Milano, Italia

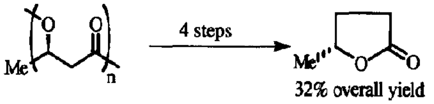


a) CH_3I, TBAB, CH_2Cl_2, aq 15% NaOH, b) H_2, PtO_2, HCl, MeOH, c) D-tartaric acid, KOH, H_2O, d) ClCOOMe, Et_3N, CH_2Cl_2, e) $LiAlH_4$, THF, f) L-tartaric acid, KOH, H_2O

Tetrahedron: Asymmetry 1994, 5, 117

A Simple Enantioselective Synthesis of γ-Valerolactone

John A. O'Neill[a], Stephen D. Lindell[b], Thomas J. Simpson[a] and Christine L. Willis[a,*]
[a] School of Chemistry, University of Bristol, Cantock's Close, Bristol BS8 1TS, UK
[b] Schering Agrochemicals Ltd., Chesterford Park, Saffron Walden, Essex CB10 1XL

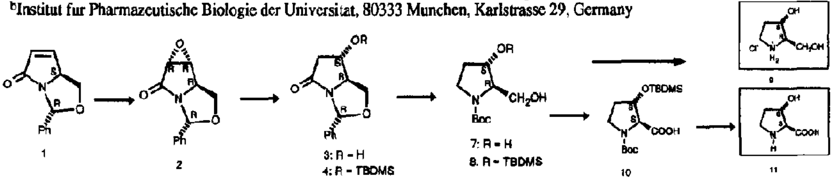


A simple enantioselective synthesis of γ-valerolactone is described which may be simply adapted for the efficient incorporation of a carbon-13 label.

Tetrahedron: Asymmetry 1994, 5, 119

Chiral Pool Synthesis of *trans*-(2*S*,3*S*)-3-Hydroxyproline and Castanodiol from *S*-Pyroglutamic Acid

Claus Herdeis,[a] Hans Peter Hubmann[a] and Herman Lotter[b]
[a]Institut fur Pharmacie und Lebensmittelchemie der Universitat, 97074 Wurzburg, Am Hubland, Germany
[b]Institut fur Pharmazeutische Biologie der Universitat, 80333 Munchen, Karlstrasse 29, Germany



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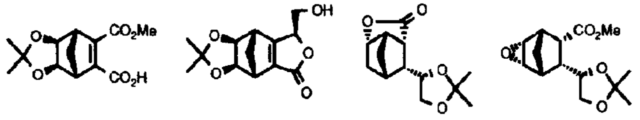
STEREOCONTROLLED SYNTHETIC ENTRIES TO HOMOCHIRAL HYDROXYLATED NORBORNENE DERIVATIVES. FORMAL SYNTHESIS OF SOME CARBOCYCLIC NUCLEOSIDES

Miguel Díaz, Javier Ibarzo, José M. Jiménez, and Rosa M. Ortuño*
Departament de Química, Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain.



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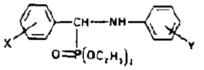
DIRECT CHIRAL HPLC SEPARATION OF ENANTIOMERS OF FLUORINATED N-ARYLAMINO-1-ARYLMETHYLPHOSPHONATE ESTERS. SUBSTITUENT EFFECTS ON THE ENANTIOSELECTIVITY.

Salvatore Caccamese[a]*, Grazia Principato[a], Ulrike Gruss[b], Gerahard Hagele[b], Salvatore Failla[c].
[a]Dipartimento di Scienze Chimiche, Università di Catania, viale A. Doria 6, 95125 Catania, Italy
[b]Institut fur Anorganische Chemie und Strukturchemie, Heinrich-Heine Universitat, Universitatsstr. 1, D 4000, Dusseldorf, Germany
[c]Istituto Chimico della Facoltà di Ingegneria, Università di Catania, viale A. Doria 6, 95125 Catania, Italy

The chiral separation on Chiralcel OD strongly depends on the substitution pattern in the N-aryl and/or in the C-aryl moieties and improves markedly with the polarity of the fluorinated substituent.

A chiral recognition model between (R)-α-Burke 1 and the enantiomers of an analyte afforded to propose the absolute configuration of the optical isomers and to relate it to the chiroptical behaviour.



Y=H, 2-CF_3, 2-OCF_3, 2-F, 3-F, 4-F, 3-CF_3 4-CF_3, 3,4-F_2
X=H, 3,4-F_2, 4-OCF_3