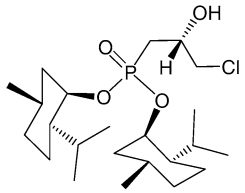
Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*



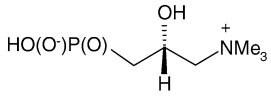
$C_{23}H_{44}ClO_4P$

(2*S*)-[Bis(1*R*,2*S*,5*R*)-menthyl]-3-chloro-2-hydroxypropylphosphonate

De ~100% (NMR)
$[\alpha]_D = -97.2$ (*c* 3, $CHCl_3$)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*R*,*R*)-tartaric acid
Absolute configuration: *S*

Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*



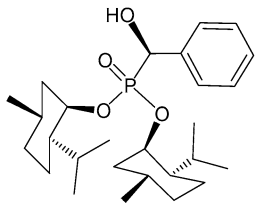
$C_6H_{16}NO_4P$

(*R*)-3-(Trimethylamonium)-2-hydroxypropylphosphonic acid

Ee ~99% (NMR)
$[\alpha]_D = +25$ (*c* 1, H_2O)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*R*,*R*)-tartaric acid
Absolute configuration: *R*

Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*



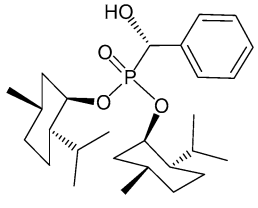
$C_{27}H_{45}O_4P$

(1*S*)-Bis[(1*R*,2*R*,5*S*)-menthyl] hydroxy(phenyl)methylphosphonate

De 99% (NMR)
$[\alpha]_D = -70.0$ (*c* 1, $CHCl_3$)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*S*,*S*)-tartaric acid
Absolute configuration: *S*

Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*



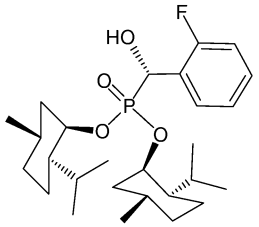
$C_{27}H_{45}O_4P$

(1*R*)-Bis[(1*R*,2*R*,5*S*)-menthyl] hydroxy(phenyl)methylphosphonate

De 99% (NMR)
$[\alpha]_D = -87.6$ (*c* 2, $CHCl_3$)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*R*,*R*)-tartaric acid
Absolute configuration: *R*

Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*



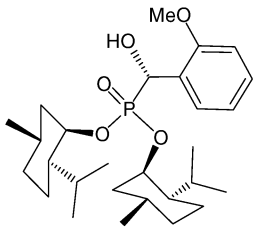
$C_{27}H_{44}FO_4P$

(1*S*)-Bis[(1*R*,2*R*,5*S*)-menthyl] (2-fluorophenyl)(hydroxyl)methylphosphonate

Ee >98% (NMR)
$[\alpha]_D = -83.7$ (*c* 2, $CHCl_3$)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*R*,*R*)-tartaric acid
Absolute configuration: *S*

Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*

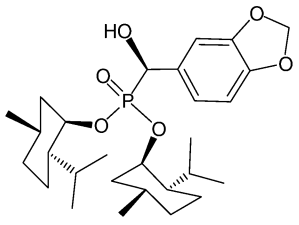


(1*S*)-Bis[(1*R*,2*R*,5*S*)-menthyl] hydroxy(2-methoxyphenyl)methylphosphonate

Ee >98% (NMR)
$[\alpha]_D = -75.2$ (*c* 1, $CHCl_3$)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*R*,*R*)-tartaric acid
Absolute configuration: *S*

Vitaly V. Nesterov and Oleg I. Kolodiazhnyi*

Tetrahedron: Asymmetry *17 (2006) 1023*

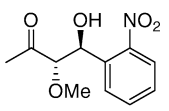


(1*R*)-Bis[(1*R*,2*R*,5*S*)-menthyl] (benzo[*d*][1,3]dioxol-5-yl)(hydroxy)methylphosphonate

Ee >98% (NMR)
$[\alpha]_D = -74$ (*c* 1, $CHCl_3$)
Source of chirality: double asymmetric synthesis with (−)-(1*R*,2*S*,5*R*)-menthol and (*R*,*R*)-tartaric acid
Absolute configuration: *R*

Gabriela Guillena, María del Carmen Hita and Carmen Nájera*

Tetrahedron: Asymmetry *17 (2006)1027*



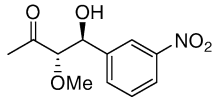
$C_{11}H_{13}NO_5$

(3*S*,4*S*)-4-Hydroxy-3-methoxy-4-(2-nitrophenyl)butan-2-one

$[\alpha]_D^{20} = +78$ (*c* 0.83, $CHCl_3$)
Ee 98%
Source of chirality: asymmetric synthesis

Gabriela Guillena, María del Carmen Hita and Carmen Nájera*

Tetrahedron: Asymmetry *17 (2006)1027*

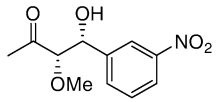


$[\alpha]_D^{20} = -22$ (c 0.4, $CHCl_3$)
Ee 91%
Source of chirality: asymmetric synthesis

$C_{11}H_{13}NO_5$
(3*S*,4*S*)-4-Hydroxy-3-methoxy-4-(3-nitrophenyl)butan-2-one

Gabriela Guillena, María del Carmen Hita and Carmen Nájera*

Tetrahedron: Asymmetry *17 (2006)1027*

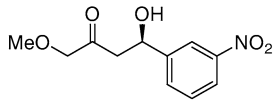


$[\alpha]_D^{20} = -18$ (c 0.52, $CHCl_3$)
Ee 27%
Source of chirality: asymmetric synthesis

$C_{11}H_{13}NO_5$
(3*S*,4*R*)-4-Hydroxy-3-methoxy-4-(3-nitrophenyl)butan-2-one

Gabriela Guillena, María del Carmen Hita and Carmen Nájera*

Tetrahedron: Asymmetry *17 (2006)1027*

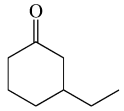


$[\alpha]_D^{20} = +18$ (c 0.23, $CHCl_3$)
Ee 39%
Source of chirality: asymmetric synthesis

$C_{11}H_{13}NO_5$
(*R*)-4-Hydroxy-1-methoxy-4-(3-nitrophenyl)butan-2-one

Sanjay V. Malhotra* and Yun Wang

Tetrahedron: Asymmetry *17 (2006) 1032*

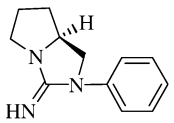


Ee = 76%
$[\alpha]_D = +119.7$ (c 1, $CHCL_3$)

$C_8H_{14}O$
3-Ethlcyclohexanone

Deevi Basavaiah,* Kalapala Venkateswara Rao and Bhavanam Sekhara Reddy

Tetrahedron: Asymmetry *17 (2006) 1036*



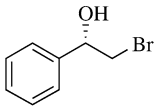
$C_{12}H_{15}N_3$

(5*S*)-1,3-Diaza-2-imino-3-phenylbicyclo(3.3.0)octane

$[\alpha]_D^{25} = -48.7$ (*c* 1.1, $CHCl_3$)
Source of chirality: L-glutamic acid
Absolute configuration: *S*

Deevi Basavaiah,* Kalapala Venkateswara Rao and Bhavanam Sekhara Reddy

Tetrahedron: Asymmetry *17 (2006) 1041*



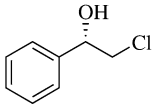
C_8H_9OBr

(*S*)-2-Bromo-1-phenylethanol

Ee = 91%
$[\alpha]_D^{25} = +39.8$ (*c* 1.2, $CHCl_3$)
Source of chirality: asymmetric reduction
Absolute configuration: *S*

Deevi Basavaiah,* Kalapala Venkateswara Rao and Bhavanam Sekhara Reddy

Tetrahedron: Asymmetry *17 (2006) 1041*



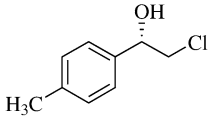
C_8H_9OCl

(*S*)-2-Chloro-1-phenylethanol

Ee = 87%
$[\alpha]_D^{25} = +43.8$ (*c* 1.0, cyclohexane)
Source of chirality: asymmetric reduction
Absolute configuration: *S*

Deevi Basavaiah,* Kalapala Venkateswara Rao and Bhavanam Sekhara Reddy

Tetrahedron: Asymmetry *17 (2006) 1041*



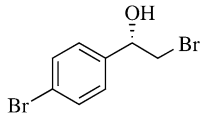
$C_9H_{11}OCl$

(*S*)-2-Chloro-1-(4-methylphenyl)ethanol

Ee = 84%
$[\alpha]_D^{25} = +43.1$ (*c* 0.8, $CHCl_3$)
Source of chirality: asymmetric reduction
Absolute configuration: *S*

Deevi Basavaiah,* Kalapala Venkateswara Rao and Bhavanam Sekhara Reddy

Tetrahedron: Asymmetry *17 (2006) 1041*



$C_8H_8OBr_2$

(*S*)-2-Bromo-1-(4-bromophenyl)ethanol

Ee = 90%

$[\alpha]_D^{25} = +30.5$ (*c* 1.0, $CHCl_3$)

Source of chirality: asymmetric reduction

Absolute configuration: *S*