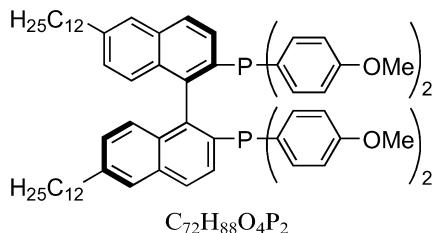


Stereochemistry abstracts

Mohamad Jahjah, Mohamad Alame, Stéphane Pellet-Rostaing* and Marc Lemaire*

Tetrahedron: Asymmetry 18 (2007) 2305



(*R*)-6,6'-Didodecyl-2,2'-bis[bis(4-methoxyphenyl)phosphino]1,1'-binaphthyl

Ee = 99%

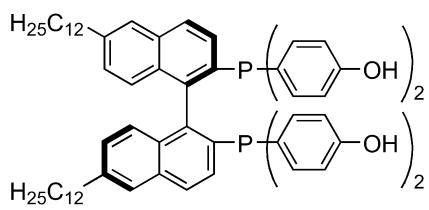
$[\alpha]_D^{25} = -25.65$ (*c* 0.64, CHCl)

Source of chirality: asymmetric synthesis

Absolute configuration: (*R*)

Mohamad Jahjah, Mohamad Alame, Stéphane Pellet-Rostaing* and Marc Lemaire*

Tetrahedron: Asymmetry 18 (2007) 2305



(*R*)-6,6'-Didodecyl-2,2'-bis[bis(4-hydroxyphenyl)phosphino]1,1'-binaphthyl

Ee = 99%

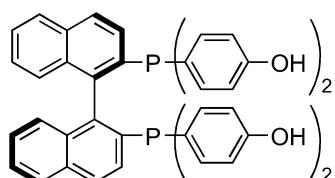
$[\alpha]_D^{25} = +42.0$ (*c* 0.83, CH₂Cl₂)

Source of chirality: asymmetric synthesis

Absolute configuration: (*R*)

Mohamad Jahjah, Mohamad Alame, Stéphane Pellet-Rostaing* and Marc Lemaire*

Tetrahedron: Asymmetry 18 (2007) 2305



(*R*)-2,2'-Bis[bis(4-hydroxyphenyl)phosphino]1,1'-binaphthyl

Ee = 99%

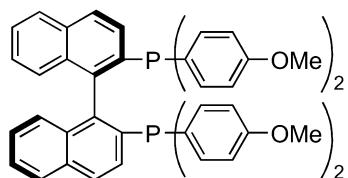
$[\alpha]_D^{25} = +29$ (*c* 0.9, MeOH)

Source of chirality: asymmetric synthesis

Absolute configuration: (*R*)

Mohamad Jahjah, Mohamad Alame, Stéphane Pellet-Rostaing* and Marc Lemaire*

Tetrahedron: Asymmetry 18 (2007) 2305



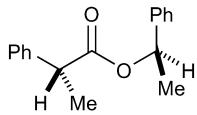
(*R*)-2,2'-Bis[bis(4-methoxyphenyl)phosphino]1,1'-binaphthyl

Ee = 99%

$[\alpha]_D^{25} = +107.6$ (*c* 0.04, CHCl₃)

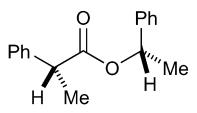
Source of chirality: asymmetric synthesis

Absolute configuration: (*R*)



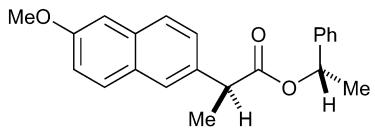
$C_{17}H_{18}O_2$
1-Phenylethyl-2-phenylpropionate

Ee >98%; De >98%
 $[\alpha]_D^{20} = +10.5$ (*c* 3.0, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (R,R)



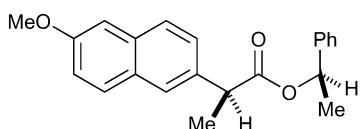
$C_{17}H_{18}O_2$
1-Phenylethyl-2-phenylpropionate

Ee >98%; De >98%
 $[\alpha]_D^{20} = -60.4$ (*c* 1.9, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (R,S)



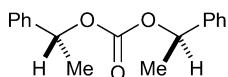
$C_{22}H_{22}O_3$
1-Phenylethyl-2-(6-methoxy-naphthalene-2-yl)propionate

Ee >98%; De >98%
 $[\alpha]_D^{20} = +26.6$ (*c* 3.2, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (S,S)



$C_{22}H_{22}O_3$
1-Phenylethyl-2-(6-methoxy-naphthalene-2-yl)propionate

Ee >98%; De >98%
 $[\alpha]_D^{20} = +8.75$ (*c* 1.64, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (S,R)



Ee >98%; De >98%

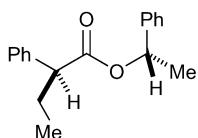
 $[\alpha]_D^{20} = +116.6$ (*c* 0.8, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (R,R)



Di-(1-phenylethyl)-carbonate



Ee >98%; De >98%

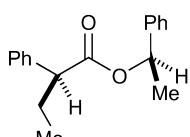
 $[\alpha]_D^{20} = -12.9$ (*c* 6.2, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (S,S)



1-Phenylethyl-2-phenylbutyrate



Ee >98%; De >98%

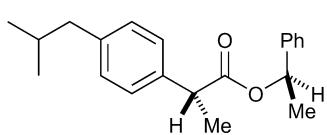
 $[\alpha]_D^{20} = +56.4$ (*c* 1.95, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (S,R)



1-Phenylethyl-2-phenylbutyrate



Ee >98%; De >98%

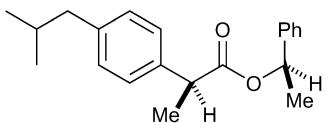
 $[\alpha]_D^{20} = -14.2$ (*c* 9.8, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (R,R)

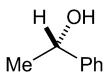


1-Phenylethyl 2-(4-isopropylphenyl)propionate



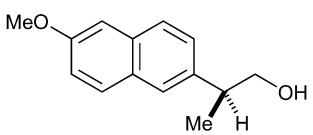
$C_{21}H_{26}O_2$
1-Phenylethyl 2-(4-isopropylphenyl)propionate

Ee >98%; De >98%
 $[\alpha]_D^{20} = +29.4$ (*c* 0.65, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (S,R)



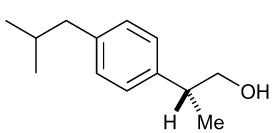
$C_8H_{10}O$
1-Phenylethanol

Ee >95%
 $[\alpha]_D^{20} = -43.0$ (*c* 11.4, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (S)



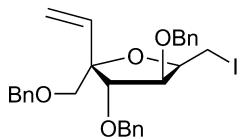
$C_{14}H_{16}O_2$
2-(6-Methoxy-2-naphthyl)propanol

Ee >95%
 $[\alpha]_D^{20} = -17.7$ (*c* 22.0, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (S)



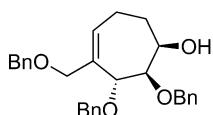
$C_{13}H_{20}O$
2-(4-Isobutylphenyl)propanol

Ee >95%
 $[\alpha]_D^{20} = +18.5$ (*c* 1.6, CHCl₃)
 Source of chirality: asymmetric synthesis
 Absolute configuration: (R)



C₂₉H₃₁IO₄
2,5-Anhydro-3,4,6-tri-O-benzyl-1-iodo-5-vinyl-L-manno-hexitol

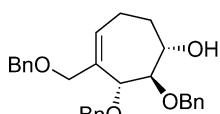
[α]_D²⁰ = +18.1 (c 0.09, CH₂Cl₂)



C₂₉H₃₂O₄
(1R,2R,3R)-4-Benzyl-2,3-dibenzyl-4-oxocyclohepta-1-ene-1-ol

[α]_D²⁰ = -63.1 (c 0.08, MeOH)

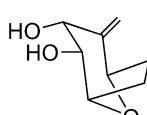
Absolute configuration: (1R,2R,3R)



C₂₉H₃₂O₄
(1S,2R,3R)-4-Benzyl-2,3-dibenzyl-4-oxocyclohepta-1-ene-1-ol

[α]_D²⁰ = -28.4 (c 0.12, MeOH)

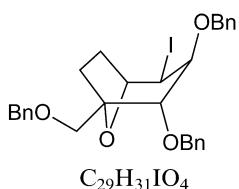
Absolute configuration: (1S,2R,3R)



C₈H₁₂O₃
(1S,2S,3R,5R)-4-Methylene-8-oxa-bicyclo[3.2.1]octane-2,3-diol

[α]_D²⁰ = -16.7 (c 0.10, MeOH)

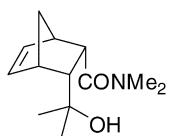
Absolute configuration: (1S,2S,3R,5R)



(1S,2S,3S,4R,5S)-2,3-Dibenzylbenzyl-1-benzyloxymethyl-4-iodo-8-oxa-bicyclo[3.2.1]octane

$[\alpha]_D^{20} = -38.8$ (*c* 0.37, CH_2Cl_2)

Absolute configuration: (1*S*,2*S*,3*S*,4*R*,5*S*)



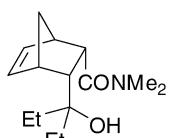
(2*S*,3*R*)-3-(2-Hydroxypropan-2-yl)-*N,N*-dimethylbicyclo[2.2.1]hept-5-ene-2-carboxamide

Ee = 98%

$[\alpha]_D^{20} = +84.6$ (*c* 1.84, $CHCl_3$)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*S*,3*R*)



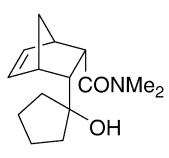
(2*S*,3*R*)-3-(3-Hydroxypentan-3-yl)-*N,N*-dimethylbicyclo[2.2.1]hept-5-ene-2-carboxamide

Ee = 98%

$[\alpha]_D^{20} = +80.8$ (*c* 2.11, $CHCl_3$)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*S*,3*R*)



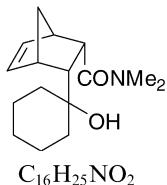
(2*S*,3*R*)-3-(1-Hydroxycyclopentyl)-*N,N*-dimethylbicyclo[2.2.1]hept-5-ene-2-carboxamide

Ee = 98%

$[\alpha]_D^{20} = +46.2$ (*c* 2.01, $CHCl_3$)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*S*,3*R*)



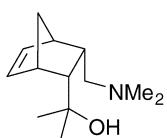
(*2S,3R*)-3-(1-Hydroxycyclohexyl)-*N,N*-dimethylbicyclo[2.2.1]hept-5-ene-2-carboxamide

Ee = 98%

$[\alpha]_D^{20} = +52.4$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (*2S,3R*)



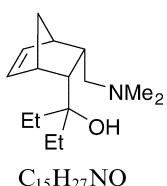
2-((*2R,3S*)-3-((Dimethylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)propan-2-ol

Ee = 98%

$[\alpha]_D^{20} = +17.4$ (*c* 1.37, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (*2R,3S*)



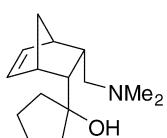
3-((*2R,3S*)-3-((Dimethylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)pentan-3-ol

Ee = 98%

$[\alpha]_D^{20} = +17.35$ (*c* 1.30, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (*2R,3S*)



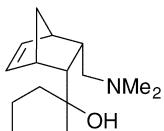
1-((*2R,3S*)-3-((Dimethylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)cyclopentanol

Ee = 98%

$[\alpha]_D^{20} = +11.1$ (*c* 2.56, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (*2R,3S*)



$C_{16}H_{27}NO$

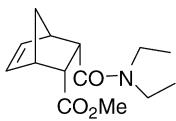
1-((2*R*,3*S*)-3-((Dimethylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)cyclohexanol

Ee = 98%

$[\alpha]_D^{20} = +3.7$ (*c* 2.16, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



$C_{14}H_{21}NO_3$

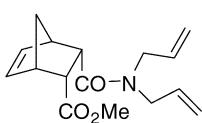
(2*R*,3*S*)-Methyl 3-(diethylcarbamoyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

$[\alpha]_D^{20} = -32.4$ (*c* 3.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



$C_{16}H_{21}NO_3$

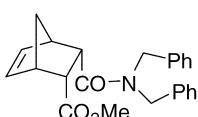
(2*R*,3*S*)-Methyl 3-(diallylcaramoyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

$[\alpha]_D^{20} = -43.9$ (*c* 2.03, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



$C_{24}H_{25}NO_3$

(2*R*,3*S*)-Methyl 3-(dibenzylcarbamoyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

$[\alpha]_D^{20} = -34.9$ (*c* 2.03, CHCl₃)

Source of chirality: asymmetric synthesis

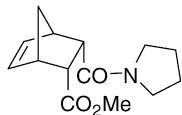
Absolute configuration: (2*R*,3*S*)

Ee = 98%

$[\alpha]_D^{20} = -24.65$ (*c* 0.10, MeOH)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



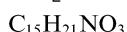
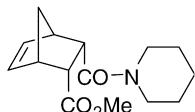
(2*R*,3*S*)-Methyl 3-(pyrrolidine-1-carbonyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

$[\alpha]_D^{20} = -21.95$ (*c* 2.00, MeOH)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



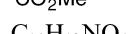
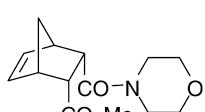
(2*R*,3*S*)-Methyl 3-(piperidine-1-carbonyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

$[\alpha]_D^{20} = -32.2$ (*c* 0.20, MeOH)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



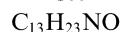
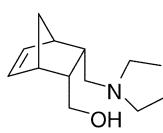
(2*R*,3*S*)-Methyl 3-(morpholine-4-carbonyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

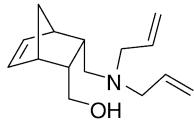
$[\alpha]_D^{20} = -6.4$ (*c* 1.80, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



((2*R*,3*S*)-3-((Dimethylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)methanol



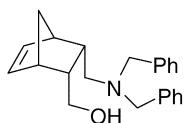
$C_{15}H_{23}NO$
((2*R*,3*S*)-3-((Diallylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)methanol

Ee = 98%

$[\alpha]_D^{20} = +15.7$ (*c* 1.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



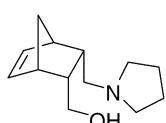
$C_{23}H_{27}NO$
((2*R*,3*S*)-3-((Dibenzylamino)methyl)bicyclo[2.2.1]hept-5-en-2-yl)methanol

Ee = 98%

$[\alpha]_D^{20} = -33.0$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



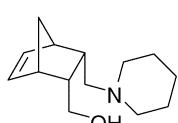
$C_{13}H_{21}NO$
((2*R*,3*S*)-3-(Pyrrolidin-1-ylmethyl)bicyclo[2.2.1]hept-5-en-2-yl)methanol

Ee = 98%

$[\alpha]_D^{20} = +1.6$ (*c* 2.00, MeOH)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



$C_{14}H_{23}NO$
((2*R*,3*S*)-3-(Piperidin-1-ylmethyl)bicyclo[2.2.1]hept-5-en-2-yl)methanol

Ee = 98%

$[\alpha]_D^{20} = -3.6$ (*c* 2.00, MeOH)

Source of chirality: asymmetric synthesis

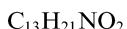
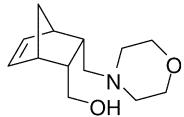
Absolute configuration: (2*R*,3*S*)

Ee = 98%

$[\alpha]_D^{20} = -4.3$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



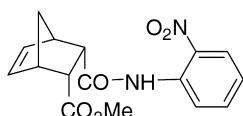
((2*R*,3*S*)-3-(Morpholinomethyl)bicyclo[2.2.1]hept-5-en-2-yl)methanol

Ee = 98%

$[\alpha]_D^{20} = +7.9$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



(2*R*,3*S*)-Methyl 3-(2-nitrophenylcarbamoyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

$[\alpha]_D^{20} = +58.9$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



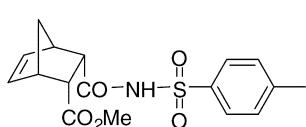
(2*R*,3*S*)-Methyl 3-(2-chlorophenylcarbamoyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate

Ee = 98%

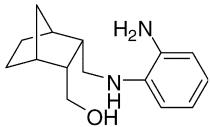
$[\alpha]_D^{20} = +16.7$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)



(2*R*,3*S*)-Methyl 3-(tosylcarbamoyl)bicyclo[2.2.1]hept-5-ene-2-carboxylate



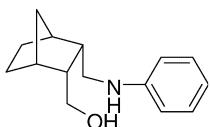
Ee = 98%

$[\alpha]_D^{20} = -116.0$ (*c* 0.10, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)

C₁₅H₂₂N₂O
((2*R*,3*S*)-3-((2-Aminophenylamino)methyl)bicyclo[2.2.1]heptan-2-yl)methanol



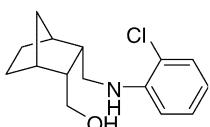
Ee = 98%

$[\alpha]_D^{20} = +5.1$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)

C₁₅H₂₁NO
((2*R*,3*S*)-3-((Phenylamino)methyl)bicyclo[2.2.1]heptan-2-yl)methanol



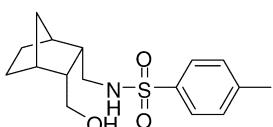
Ee = 98%

$[\alpha]_D^{20} = +10.8$ (*c* 2.00, CHCl₃)

Source of chirality: asymmetric synthesis

Absolute configuration: (2*R*,3*S*)

C₁₅H₂₀ClNO
((2*R*,3*S*)-3-((2-Chlorophenylamino)methyl)bicyclo[2.2.1]heptan-2-yl)methanol



Ee = 98%

$[\alpha]_D^{20} = -13.2$ (*c* 1.00, CHCl₃)

Source of chirality: asymmetric synthesis

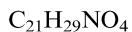
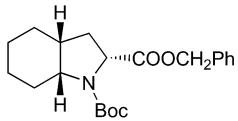
Absolute configuration: (2*S*,3*R*)

C₁₆H₂₃NO₃S
N-((2*S*,3*R*)-3-(Hydroxymethyl)bicyclo[2.2.1]heptan-2-yl)methyl)-4-methylbenzenesulfonamide

Ee >99%

 $[\alpha]_D = +38.1$ (*c* 0.96, CHCl₃)

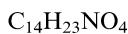
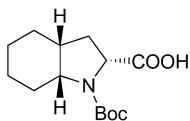
Source of chirality: resolution by chiral HPLC

Absolute configuration: (2*R*,3*aR*,7*aR*)(Benzyl (2*R*,3*aR*,7*aR*)-*N*-(*tert*-butoxycarbonyl)octahydroindole-2-carboxylate

Ee >99%

 $[\alpha]_D = +22.6$ (*c* 0.50, MeOH)

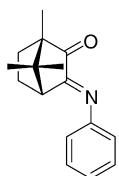
Source of chirality: resolution by chiral HPLC

Absolute configuration: (2*R*,3*aR*,7*aR*)(2*R*,3*aR*,7*aR*)-*N*-(*tert*-Butoxycarbonyl)octahydroindole-2-carboxylic acid

De = 100%

 $[\alpha]_D^{23} = -652.1$ (*c* 0.14, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,3*E*,4*R*)

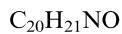
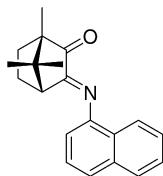
E:Z = 96:4

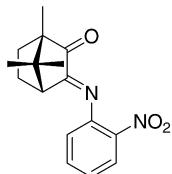
(1*S*,3*E*,4*R*)-1,7,7-trimethyl-3-(phenylimino)bicyclo[2.2.1]heptan-2-one

De = 100%

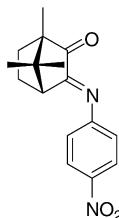
 $[\alpha]_D^{23} = -620.8$ (*c* 0.11, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,3*E*,4*R*)

E:Z = 97:3

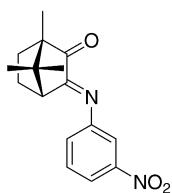
(1*S*,3*E*,4*R*)-1,7,7-trimethyl-3-[(1-naphthyl)imino]bicyclo[2.2.1]heptan-2-one



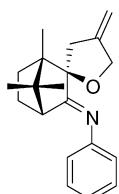
$C_{16}H_{18}N_2O_3$
($1S,3E,4R$)-1,7,7-Trimethyl-3-[(2-nitrophenyl)imino]bicyclo[2.2.1]heptan-2-one

 $D_e = 100\%$ $[\alpha]_D^{23} = -94.6$ (c 0.11, $CHCl_3$)Source of chirality: ($1S$)-(+)-camphorquinoneAbsolute configuration: ($1S,3E,4R$) $E:Z = 75:25$ 

$C_{16}H_{18}N_2O_3$
($1S,3E,4R$)-1,7,7-Trimethyl-3-[(4-nitrophenyl)imino]bicyclo[2.2.1]heptan-2-one

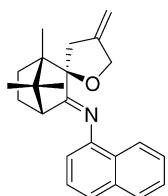
 $D_e = 100\%$ $[\alpha]_D^{23} = -358.2$ (c 0.17, $CHCl_3$)Source of chirality: ($1S$)-(+)-camphorquinoneAbsolute configuration: ($1S,3E,4R$) $E:Z = 90:10$ 

$C_{16}H_{18}N_2O_3$
($1S,3E,4R$)-1,7,7-Trimethyl-3-[(3-nitrophenyl)imino]bicyclo[2.2.1]heptan-2-one

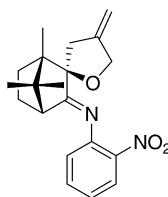
 $D_e = 100\%$ $[\alpha]_D^{23} = -377.3$ (c 0.11, $CHCl_3$)Source of chirality: ($1S$)-(+)-camphorquinoneAbsolute configuration: ($1S,3E,4R$) $E:Z = 89:11$ 

$C_{20}H_{25}NO$
($3E$)- N -{($1S,2R,4R$)-1,7,7-Trimethyl-4'-methylene-3'H- spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-ylidene}aniline

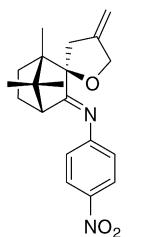
 $D_e = 100\%$ $[\alpha]_D^{26} = -18.0$ (c 0.16, $CHCl_3$)Source of chirality: ($1S$)-(+)-camphorquinoneAbsolute configuration: ($1S,2R,4R$)

 $C_{24}H_{27}NO$ (3E)-*N*-{(1*S*,2*R*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-ylidene}naphthalen-1-amine

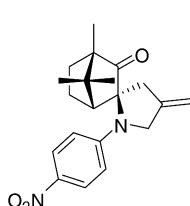
De = 100%

 $[\alpha]_D^{26} = -36.8$ (*c* 0.19, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,4*R*) $C_{20}H_{24}N_2O_3$ (3E)-2-Nitro-*N*-{(1*S*,2*R*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-ylidene}aniline

De = 100%

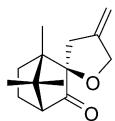
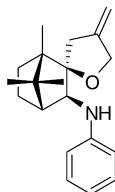
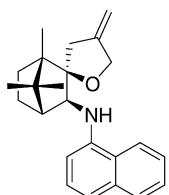
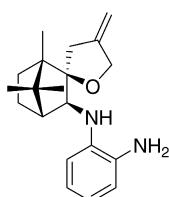
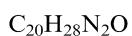
 $[\alpha]_D^{23} = +133.9$ (*c* 0.24, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,4*R*) $C_{20}H_{24}N_2O_3$ (3E)-4-Nitro-*N*-{(1*S*,2*R*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-ylidene}aniline

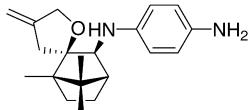
De = 100%

 $[\alpha]_D^{23} = +32.8$ (*c* 0.19, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,4*R*) $C_{20}H_{24}N_2O_3$ (1*S*,3*S*,4*R*)-1,7,7-trimethyl-4'-methylene-1'-(4-nitrophenyl)spiro[bicyclo[2.2.1]heptane-2,2'-pyrrolidin]-2-one

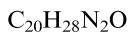
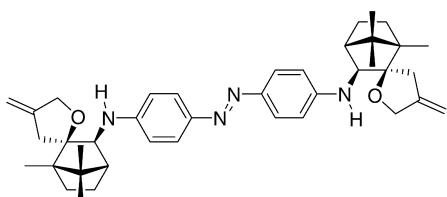
De = 100%

 $[\alpha]_D^{23} = -237.5$ (*c* 0.12, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,3*S*,4*R*)

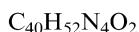
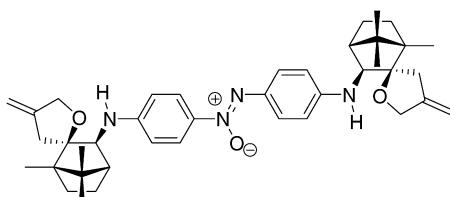
 $D_e = 100\%$ $[\alpha]_D^{27} = +122.8 (c \ 0.23, \text{CHCl}_3)$ Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,4*R*)(1*S*,2*R*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-one $D_e = 100\%$ $[\alpha]_{589}^{27} = +141.5 (c \ 0.27, \text{CHCl}_3)$ Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,3*S*,4*R*)(1*S*,2*R*,3*S*,4*R*)-1,7,7-trimethyl-4'-methylene-*N*-phenyldihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-amine $D_e = 100\%$ $[\alpha]_{589}^{25} = +211.6 (c \ 0.07, \text{CHCl}_3)$ Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,3*S*,4*R*)(1*S*,2*R*,3*S*,4*R*)-1,7,7-trimethyl-4'-methylene-*N*-(naphthalen-1-yl)dihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-amine $D_e = 100\%$ $[\alpha]_{589}^{25} = +150.0 (c \ 0.09, \text{CHCl}_3)$ Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,3*S*,4*R*) $N^1\text{-}\{(1S,2R,3S,4R)\text{-}1,7,7\text{-trimethyl-4'\text{-}methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'\text{-}furan]-3-yl}\}\text{benzene-1,2-diamine}$



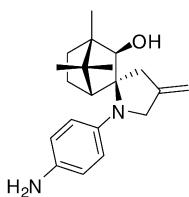
De = 100%

 $[\alpha]_{589}^{25} = +417.2$ (*c* 0.06, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,3*S*,4*R*)*N*¹-{(1*S*,2*R*,3*S*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-yl}benzene-1,4-diamine

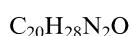
De = 100%

 $[\alpha]_{589}^{25} = +100.0$ (*c* 0.04, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,3*S*,4*R*)(E)-1,2-Bis(4-((1*S*,2*R*,3*S*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-ylamino)phenyl)diazene

De = 100%

 $[\alpha]_{589}^{25} = +85.3$ (*c* 0.03, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*S*,2*R*,3*S*,4*R*)(E)-1,2-Bis(4-((1*S*,2*R*,3*S*,4*R*)-1,7,7-trimethyl-4'-methylenedihydro-3'H-spiro[bicyclo[2.2.1]heptane-2,2'-furan]-3-ylamino)phenyl)diazene oxide

De = 76%

 $[\alpha]_{589}^{26} = -80.2$ (*c* 0.17, CHCl₃)Source of chirality: (1*S*)-(+)camphorquinoneAbsolute configuration: (1*R*,2*S*,3*R*,4*S*)(1*R*,2*S*,3*R*,4*S*)-1'-(4-aminophenyl)-4,7,7-trimethyl-4'-methylenespiro[bicyclo[2.2.1]heptane-2,2'-pyrrolidin]-3-ol