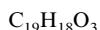
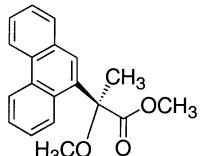


Akio Ichikawa,\* Hiroshi Ono and Nobuyuki Harada\*

Tetrahedron: Asymmetry 14 (2003) 1593



Methyl (S)-2-methoxy-2-(9-phenanthryl)propionate

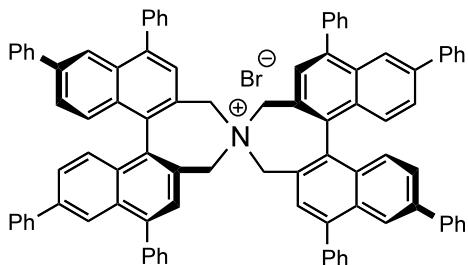
 $[\alpha]_D^{29} +86$  (*c* 0.97, ethanol)

Source of chirality: enantioresolution

Absolute configuration: *S*

Takuya Hashimoto, Youhei Tanaka and Keiji Maruoka\*

Tetrahedron: Asymmetry 14 (2003) 1599



(S,S)-4,4',6,6'-Tetraphenyl-NAS-Br

Ee &gt;99%

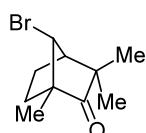
 $[\alpha]_D^{28} = -497.3$  (*c* 1.00,  $CHCl_3$ )

Source of chirality: (S)-1,1'-bi-2-naphthol

Absolute configuration: (S,S)

Antonio García Martínez,\* Enrique Teso Vilar, Amelia García Fraile,  
Santiago de la Moya Cerero\* and Beatriz Lora Maroto

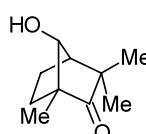
Tetrahedron: Asymmetry 14 (2003) 1607



7-Bromofenchone

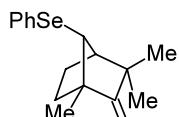
 $[\alpha]_D^{20} = +163.1$  (*c* 2.2,  $CHCl_3$ )Source of chirality: (−)-(1*R*)-fenchone and  
diastereoselective synthesisAbsolute configuration: (1*S*,7*R*)Antonio García Martínez,\* Enrique Teso Vilar, Amelia García Fraile,  
Santiago de la Moya Cerero\* and Beatriz Lora Maroto

Tetrahedron: Asymmetry 14 (2003) 1607



7-Hydroxyfenchone

 $[\alpha]_D^{20} = -14.7$  (*c* 1.5,  $CHCl_3$ )Source of chirality: (−)-(1*R*)-fenchone and  
diastereoselective synthesisAbsolute configuration: (1*R*,7*R*)

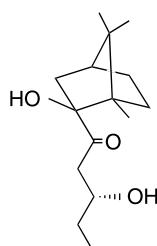


7-(Phenylselanyl)fenchone

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +86.3 (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: (−)-(1*R*)-fenchone and  
diastereoselective synthesis

Absolute configuration: (1*S*,7*R*)

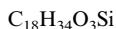
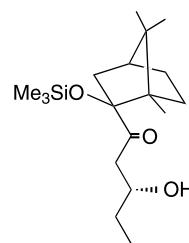


(1*S*)-2-*endo*-[(3*R*)-Hydroxypentanoyl]-1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol

D.e. 94%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = −14.0 (*c* 1, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: (S)-camphor

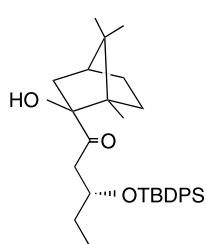


(1*S*)-2-*endo*-[(3*R*)-Hydroxypentanoyl]-2-trimethylsilyloxy-1,7,7-trimethylbicyclo[2.2.1]heptane

D.e. 94%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = −10.0 (*c* 1, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: (S)-camphor

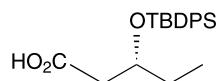


(1*S*)-2-*endo*-[(3*R*)-*tert*-Butyldiphenylsilyloxypentanoyl]-1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol

D.e. 94%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = −5.0 (*c* 1, CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: (S)-camphor



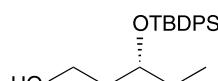
C<sub>21</sub>H<sub>28</sub>O<sub>3</sub>Si

(R)-3-*tert*-Butyldiphenylsilyloxypentanoic acid

E.e. 92%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +4.0 (c 1, CH<sub>2</sub>Cl<sub>2</sub>)

Absolute configuration: (R)



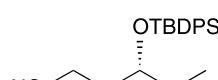
C<sub>21</sub>H<sub>30</sub>O<sub>2</sub>Si

(R)-3-*tert*-Butyldiphenylsilyloxy-1-pentanol

E.e. 92%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -7.0 (c 1, CH<sub>2</sub>Cl<sub>2</sub>)

Absolute configuration: (R)



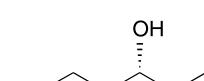
C<sub>22</sub>H<sub>29</sub>NOSi

(R)-4-*tert*-Butyldiphenylsilyloxyhexanenitrile

E.e. 92%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -4.0 (c 1, CH<sub>2</sub>Cl<sub>2</sub>)

Absolute configuration: (R)



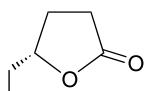
C<sub>6</sub>H<sub>11</sub>NO

(R)-4-Hydroxyhexanenitrile

E.e. 92%

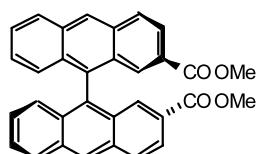
[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -45.0 (c 1, CH<sub>2</sub>Cl<sub>2</sub>)

Absolute configuration: (R)



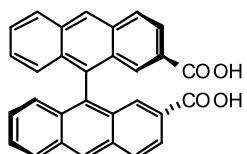
C<sub>6</sub>H<sub>10</sub>O<sub>2</sub>  
(R)-4-Hexanolide

E.e. 92%  
[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +50.0 (c 1, MeOH)  
Absolute configuration: (R)



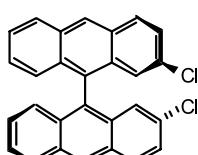
C<sub>32</sub>H<sub>22</sub>O<sub>4</sub>  
(M)-(-)-2,2'-Bis(methoxycarbonyl)-9,9'-bianthryl

Ee >99%  
[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -123 (c 0.20, acetone)  
Source of chirality: enantiomeric resolution  
Absolute stereochemistry: (M)



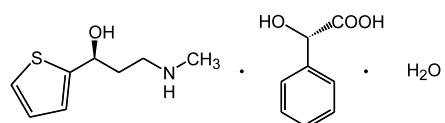
C<sub>30</sub>H<sub>18</sub>O<sub>4</sub>  
(M)-(-)-9,9'-Bianthryl-2,2'-dicarboxylic acid

Ee >99%  
[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -115 (c 0.25, acetone)  
Source of chirality: enantiomeric resolution  
Absolute stereochemistry: (M)



C<sub>28</sub>H<sub>16</sub>Cl<sub>2</sub>  
(M)-(-)-2,2'-Dichloro-9,9'-bianthryl

Ee >99%  
[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -32 (c 0.14, acetone)  
Source of chirality: enantiomeric resolution  
Absolute stereochemistry: (M)

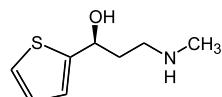


D.p. >95% (mandelic acid >99% e.e.)

$[\alpha]_D^{20} = +26.4$  (*c* 1.00, EtOH)

Source of chirality: resolution with chiral acid

Absolute configuration: *S*



C<sub>8</sub>H<sub>13</sub>NOS

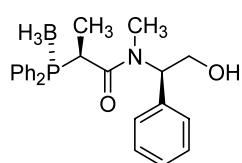
(S)-3-(Methylamino)-1-(2-thienyl)propan-1-ol

E.e. >99%

$[\alpha]_D^{20} = -16.5$  (*c* 1.01, EtOH)

Source of chirality: resolution with chiral acid

Absolute configuration: *S*



C<sub>24</sub>H<sub>29</sub>BNO<sub>2</sub>P

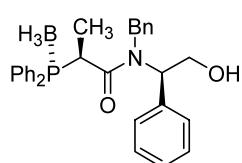
2-(S)-(Boranatodiphenylphosphino)-N-(2-hydroxy-1-(R)-phenylethyl)-N-methylpropionamide

Ee >98% (HPLC)

$[\alpha]_D^{20} = -63.8$  (*c* 1.34, CHCl<sub>3</sub>)

Source of chirality: diastereoselective synthesis

Absolute configuration: 2*S*,1'*R*



C<sub>30</sub>H<sub>33</sub>BNO<sub>2</sub>P

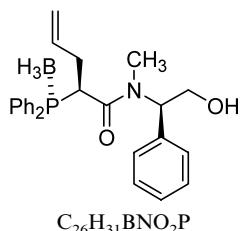
2-(S)-(Boranatodiphenylphosphino)-N-benzyl-N-(2-hydroxy-1-(R)-phenylethyl)propionamide

Ee >98% (HPLC)

$[\alpha]_D^{20} = -62.6$  (*c* 1.07, CHCl<sub>3</sub>)

Source of chirality: diastereoselective synthesis

Absolute configuration: 2*S*,1'*R*



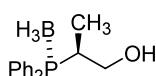
2-(*S*)-(Boranatodiphenylphosphino)-*N*-(2-hydroxy-1-(*R*)-phenylethyl)-*N*-methylpent-4-enamide

Ee >98% (HPLC)

$[\alpha]_D^{20} = -58.5$  (*c* 1.3, CHCl<sub>3</sub>)

Source of chirality: diastereoselective synthesis

Absolute configuration: 2*S*,1'*R*



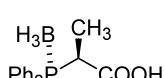
2-(*S*)-(Boranatodiphenylphosphino)propan-1-ol

Ee >98% (HPLC)

$[\alpha]_D^{20} = -30.6$  (*c* 0.75, CHCl<sub>3</sub>)

Source of chirality: diastereoselective synthesis

Absolute configuration: *S*



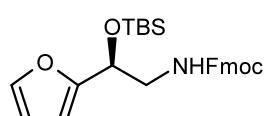
2-(*S*)-(Boranatodiphenylphosphino)propanoic acid

Ee >98% (HPLC)

$[\alpha]_D^{20} = +39.0$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: diastereoselective synthesis

Absolute configuration: *S*



(1*S*)-2-(9*H*-Fluorenylmethoxycarbonyl)-amino-1-(2'-furyl)-1-(*tert*-butyl-dimethylsilyloxy)-ethane

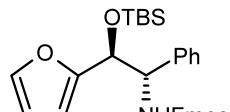
$[\alpha]_D = -21.6$  (*c* 1, CDCl<sub>3</sub>)

Source of chirality: enzymatic synthesis

Absolute configuration: (1*S*)

Reynier A. Tromp, Michael van der Hoeven, Alessia Amore, Johannes Brussee,\* Mark Overhand, Gijs A. van der Marel and Arne van der Gen

Tetrahedron: Asymmetry 14 (2003) 1645



(1*S*,*S*)-2-(9*H*-Fluorenylmethoxycarbonyl)-amino-1-(2'-furyl)-1-(*tert*-butyl-dimethylsilyloxy)-2-phenyl-ethane

D.r. 20:1

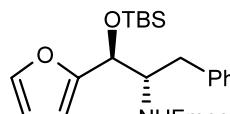
$[\alpha]_D = -26.1$  (*c* 1,  $CDCl_3$ )

Source of chirality: enzymatic, asymmetric synthesis

Absolute configuration: (1*S*,*S*)

Reynier A. Tromp, Michael van der Hoeven, Alessia Amore, Johannes Brussee,\* Mark Overhand, Gijs A. van der Marel and Arne van der Gen

Tetrahedron: Asymmetry 14 (2003) 1645



(1*S*,*S*)-2-(9*H*-Fluorenylmethoxycarbonyl)-amino-1-(2'-furyl)-1-(*tert*-butyl-dimethylsilyloxy)-3-phenyl-propane

D.r. 5:1

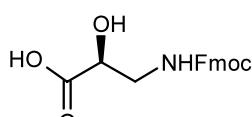
$[\alpha]_D = -17.6$  (*c* 1,  $CDCl_3$ )

Source of chirality: enzymatic synthesis

Absolute configuration: (1*S*,*S*)

Reynier A. Tromp, Michael van der Hoeven, Alessia Amore, Johannes Brussee,\* Mark Overhand, Gijs A. van der Marel and Arne van der Gen

Tetrahedron: Asymmetry 14 (2003) 1645



(2*S*)-2-(9*H*-Fluorenylmethoxycarbonyl)-amino-2-hydroxyl-propanoic acid

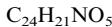
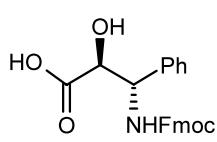
$[\alpha]_D = -17.8$  (*c* 0.1, MeOH)

Source of chirality: enzymatic synthesis

Absolute configuration: (1*S*)

Reynier A. Tromp, Michael van der Hoeven, Alessia Amore, Johannes Brussee,\* Mark Overhand, Gijs A. van der Marel and Arne van der Gen

Tetrahedron: Asymmetry 14 (2003) 1645



(2*S*,3*S*)-2-(9*H*-Fluorenylmethoxycarbonyl)-amino-2-hydroxyl-3-phenyl-propanoic acid

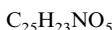
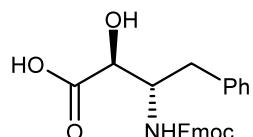
$[\alpha]_D = -6.0$  (*c* 0.1, MeOH)

Source of chirality: enzymatic, asymmetric synthesis

Absolute configuration: (1*S*,*S*)

Reynier A. Tromp, Michael van der Hoeven, Alessia Amore, Johannes Brussee,\* Mark Overhand, Gijs A. van der Marel and Arne van der Gen

*Tetrahedron: Asymmetry* 14 (2003) 1645



(2*S*,3*S*)-2-(9*H*-Fluorenylmethoxycarbonyl)-amino-2-hydroxy-4-phenylbutanoic acid

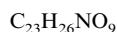
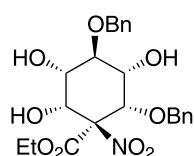
[ $\alpha$ ]<sub>D</sub> = -36.0 (*c* 0.1, MeOH)

Source of chirality: enzymatic, asymmetric synthesis

Absolute configuration: (1*S*,2*S*)

Raquel G. Soengas, Juan C. Estévez, Ramón J. Estévez\* and Miguel A. Maestro

*Tetrahedron: Asymmetry* 14 (2003) 1653



(1*S*,2*R*,3*R*,4*R*,5*S*,6*S*)-2,4-Di-*O*-benzyl-1-ethoxycarbonyl-3,5,6-trihydroxy-1-nitrocyclohexane

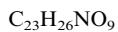
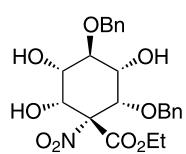
[ $\alpha$ ]<sub>D</sub><sup>17</sup> -6.45 (*c* 1.10 in CH<sub>2</sub>Cl<sub>2</sub>)

Source of chirality: D-glucose

Absolute configuration: (1*S*,2*R*,3*R*,4*R*,5*S*,6*S*)

Raquel G. Soengas, Juan C. Estévez, Ramón J. Estévez\* and Miguel A. Maestro

*Tetrahedron: Asymmetry* 14 (2003) 1653



(1*R*,2*R*,3*R*,4*R*,5*S*,6*S*)-4-*O*-benzyl-1-ethoxycarbonyl-2,3,5,6-tetrahydroxy-1-nitrocyclohexane

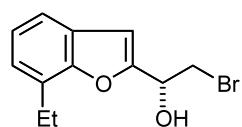
[ $\alpha$ ]<sub>D</sub><sup>17</sup> -11.0 (*c* 1.60 in CHCl<sub>3</sub>)

Source of chirality: D-glucose

Absolute configuration: (1*R*,2*R*,3*R*,4*R*,5*S*,6*S*)

Marek Zajdlewicz,\* Agnieszka Tafelska-Kaczmarek, Andrzej Prewysz-Kwinto and Aldona Chechłowska

*Tetrahedron: Asymmetry* 14 (2003) 1659



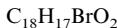
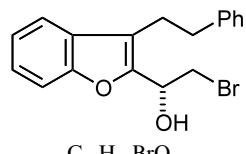
2-Bromo-1-(7-ethylbenzofuran-2-yl)ethanol

Ee = 87%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -31.7 (*c* 8.84, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: *R*



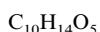
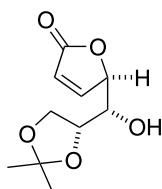
2-Bromo-1-(3-phenethylbenzofuran-2-yl)ethanol

E.e. = 73%

$[\alpha]_D^{20} = -12.4$  (*c* 8.03, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: *R*



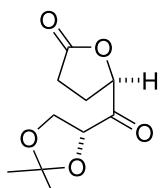
(1'S,4''R,5R)-5-[(2,2-Dimethyl-1,3-dioxolan-4-yl)hydroxymethyl]-5H-furan-2-one

E.e. >98%

$[\alpha]_D^{20} +69.6$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: 2,3-*O*-isopropylidene-D-glyceraldehyde

Absolute configuration: (1'S,4''R,5R)



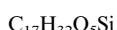
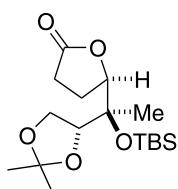
(4'R,5R)-5-(2,2-Dimethyl-1,3-dioxolan-4-carbonyl)dihydrofuran-2-one

E.e. >98%

$[\alpha]_D^{20} +2.6$  (*c* 1.9, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (4'R,5R)



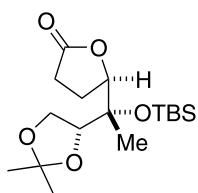
(1'R,4''R,5R)-5-[1-(tert-Butyldimethylsilanyl)-1-(2,2-dimethyl-1,3-dioxolan-4-yl)hydroxyethyl]dihydrofuran-2-one

E.e. >98%

$[\alpha]_D^{20} -5.0$  (*c* 2.2, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (1'R,4''R,5R)



C<sub>17</sub>H<sub>32</sub>O<sub>5</sub>Si

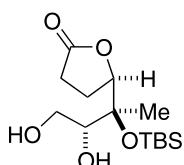
(1'S,4''R,5R)-5-[1-(tert-Butyldimethylsilyl)-1-(2,2-dimethyl-1,3-dioxolan-4-yl)hydroxyethyl]dihydrofuran-2-one

E.e. >98%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> +17.5 (*c* 0.8, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (1'S,4''R,5R)



C<sub>14</sub>H<sub>28</sub>O<sub>5</sub>Si

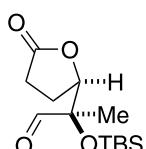
(2'R,3'R,5R)-5-[2-(tert-Butyldimethylsilyloxy)-3,4-dihydroxybutyl]dihydrofuran-2-one

E.e. >98%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> -12.5 (*c* 2.4, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (2'R,3'R,5R)



C<sub>13</sub>H<sub>24</sub>O<sub>4</sub>Si

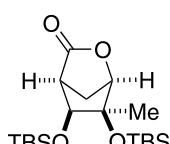
(2R,2'R)-2-(tert-Butyldimethylsilyloxy)-2-(5-oxotetrahydrofuran-2-yl)propionaldehyde

E.e. >98%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> -52.9 (*c* 2.1, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (2R,2'R)



C<sub>19</sub>H<sub>38</sub>O<sub>4</sub>Si<sub>2</sub>

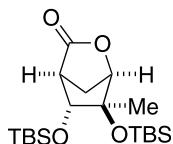
(1R,4S,5S,6R)-5,6-Bis-(tert-butyldimethylsilyloxy)-6-methyl-2-oxabicyclo[2.2.1]heptan-3-one

E.e. >98%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> +18.6 (*c* 2.8, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (1R,4S,5S,6R)



$C_{19}H_{38}O_4Si_2$

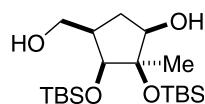
(1*R*,4*S*,5*R*,6*R*)-5,6-Bis-(*tert*-butyldimethylsilyloxy)-6-methyl-2-oxabicyclo[2.2.1]heptan-3-one

E.e. >98%

$[\alpha]_D^{20} -8.8$  (*c* 1.4, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

Absolute configuration: (1*R*,4*S*,5*R*,6*R*)



$C_{19}H_{42}O_4Si_2$

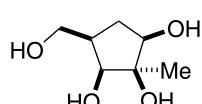
(1*R*,2*R*,3*S*,4*R*)-2,3-Di-*O*-(*tert*-butyldimethylsilyl)-4-hydroxymethyl-2-methylcyclopentane-1,2,3-triol

E.e. >98%

$[\alpha]_D^{20} -15.4$  (*c* 0.7, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

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



$C_7H_{14}O_4$

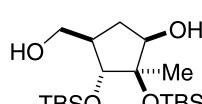
(1*R*,2*R*,3*S*,4*R*)-4-Hydroxymethyl-2-methylcyclopentane-1,2,3-triol [2-C-methyl-4a-carba-β-D-lyxofuranose]

E.e. >98%

$[\alpha]_D^{20} -3.1$  (*c* 0.3, H<sub>2</sub>O)

Source of chirality: asymmetric synthesis

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



$C_{19}H_{42}O_4Si_2$

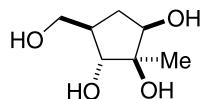
(1*R*,2*R*,3*R*,4*R*)-2,3-Di-*O*-(*tert*-butyldimethylsilyl)-4-hydroxymethyl-2-methylcyclopentane-1,2,3-triol

E.e. >98%

$[\alpha]_D^{20} -17.5$  (*c* 0.8, CHCl<sub>3</sub>)

Source of chirality: asymmetric synthesis

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



C<sub>7</sub>H<sub>14</sub>O<sub>4</sub>

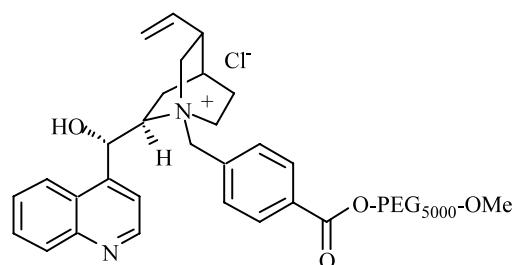
(1R,2R,3R,4R)-4-Hydroxymethyl-2-methylcyclopentane-1,2,3-triol [2-C-methyl-4a-carba-β-D-arabinofuranose]

E.e. >98%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> +10.0 (*c* 0.1, H<sub>2</sub>O)

Source of chirality: asymmetric synthesis

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

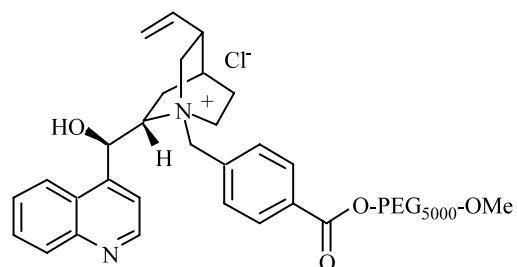


MeO-PEG<sub>5000</sub> *N*-bound cinchoninium chloride

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +13.3 (*c* 0.3, CHCl<sub>3</sub>)

Source of chirality: natural product

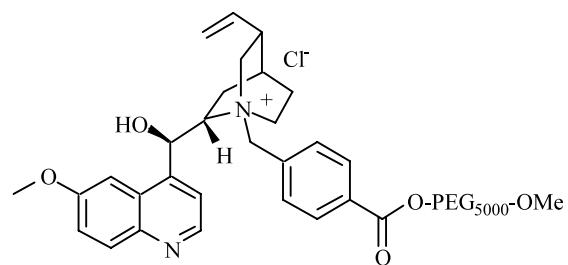


MeO-PEG<sub>5000</sub> *N*-bound cinchonidinium chloride

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -4.3 (*c* 0.3, CHCl<sub>3</sub>)

Source of chirality: natural product

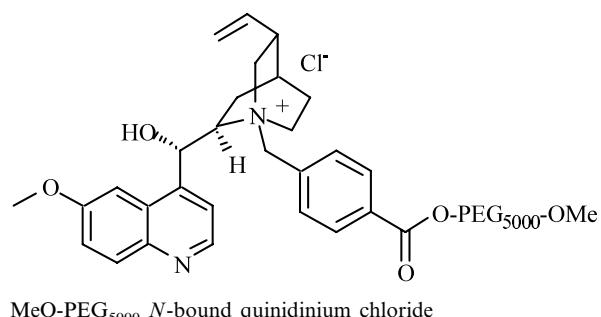


MeO-PEG<sub>5000</sub> *N*-bound quininium chloride

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -3.7 (*c* 0.3, CHCl<sub>3</sub>)

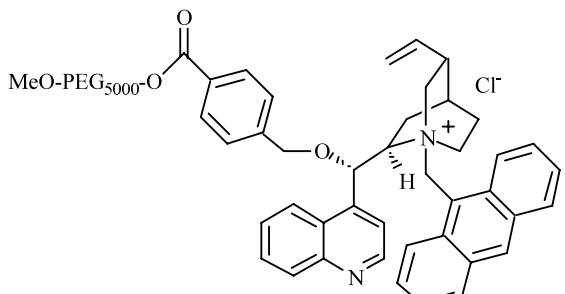
Source of chirality: natural product



Ee = 100%

 $[\alpha]_D^{20} = +15.7$  (*c* 0.3, CHCl<sub>3</sub>)

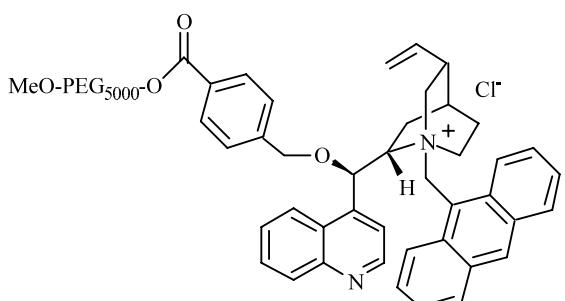
Source of chirality: natural product



Ee = 100%

 $[\alpha]_D^{20} = +4.0$  (*c* 0.3, CHCl<sub>3</sub>)

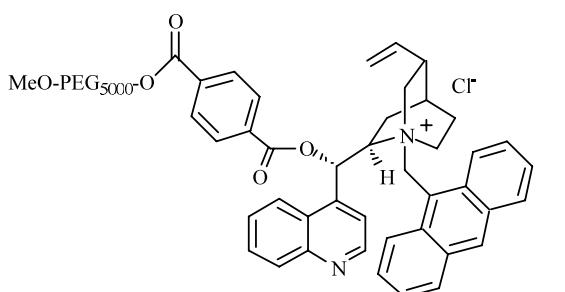
Source of chirality: natural product



Ee = 100%

 $[\alpha]_D^{20} = -4.0$  (*c* 0.3, CHCl<sub>3</sub>)

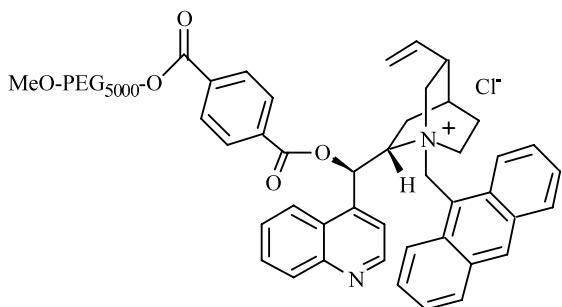
Source of chirality: natural product



Ee = 100%

 $[\alpha]_D^{20} = +3.7$  (*c* 0.3, CHCl<sub>3</sub>)

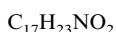
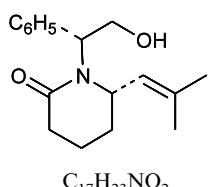
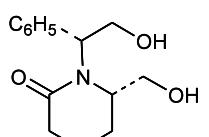
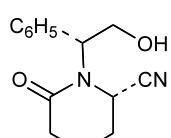
Source of chirality: natural product

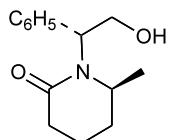
MeO-PEG<sub>5000</sub> *O*-bound *N*-anthracenyl cinchonidinium chloride

Ee = 100%

 $[\alpha]_D^{20} = -4.7$  (*c* 0.3, CHCl<sub>3</sub>)

Source of chirality: natural product

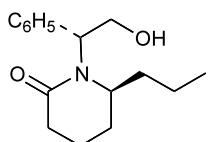
(6*S*)-6-(2-Methyl-1-propenyl)-1-[(1*R*)-1-phenyl-2-hydroxyethyl]-2-piperidone $[\alpha]_D^{22} +54$  (*c* 1.0, EtOH)Source of chirality: (*R*)-phenylglycinol(6*S*)-6-Hydroxymethyl-1-[(1*R*)-1-phenyl-2-hydroxyethyl]-2-piperidone $[\alpha]_D^{22} -4.6$  (*c* 1.5, EtOH)Source of chirality: (*R*)-phenylglycinol(6*S*)-6-Cyano-1-[(1*R*)-1-phenyl-2-hydroxyethyl]-2-piperidone $[\alpha]_D^{22} -121.6$  (*c* 0.5, EtOH)Source of chirality: (*R*)-phenylglycinol



$C_{14}H_{19}NO_2$   
(6S)-6-Methyl-1-[(1R)-1-phenyl-2-hydroxyethyl]-2-piperidone

$[\alpha]_D^{22} -24.5$  (*c* 1.0, EtOH)

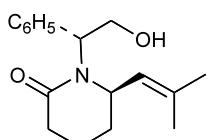
Source of chirality: (*R*)-phenylglycinol



$C_{16}H_{23}NO_2$   
(6S)-1-[(1R)-1-Phenyl-2-hydroxyethyl]-6-propyl-2-piperidone

$[\alpha]_D^{22} +28$  (*c* 1.0,  $CH_2Cl_2$ )

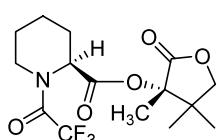
Source of chirality: (*R*)-phenylglycinol



$C_{17}H_{23}NO_2$   
(6R)-6-(2-Methyl-1-propenyl)-1-[(1R)-1-phenyl-2-hydroxyethyl]-2-piperidone

$[\alpha]_D^{22} -63$  (*c* 1.0, EtOH)

Source of chirality: (*R*)-phenylglycinol

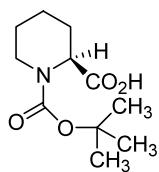


$C_{15}H_{20}F_3NO_5$   
(*S,S*)-(3,4,4-Trimethyl-2-oxo-tetrahydrofuran-3-yl)-1-trifluoroacetylpiriperidine-2-carboxylate

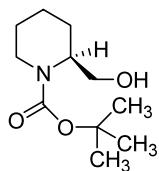
$[\alpha]_D^{20} -88.6$  (*c* 1.7,  $CH_2Cl_2$ )

Source of chirality:  $\alpha$ -(*S*)-methyl pantolactone

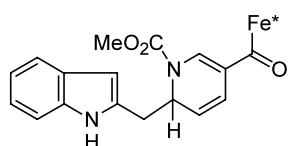
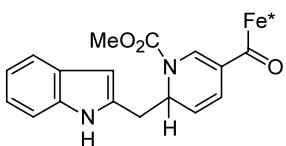
Absolute configuration: (*S,S*)

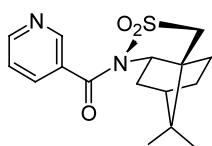
 $C_{11}H_{19}NO_4$ (S)-*N*-(*tert*-Butyloxycarbonyl)pipecolic acid

E.e. 80–84% (determined by chiral HPLC analysis)

Source of chirality:  $\alpha$ -(*S*)-methyl pantolactoneAbsolute configuration: (*S*) $C_{11}H_{21}NO_3$ (S)-*N*-(*tert*-Butyloxycarbonyl)-2-piperidinemethanol

E.e. 84% (determined by chiral HPLC analysis)

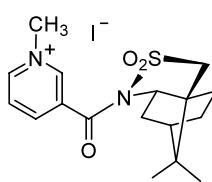
 $[\alpha]_D^{20} -31.2 (c\ 2, \text{CHCl}_3)$ Source of chirality:  $\alpha$ -(*S*)-methyl pantolactoneAbsolute configuration: (*S*) $\text{Fe}^* = (R)\text{-[Fe}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})\{\text{PPh}_2(O\text{--}methyl)\}\text{]}$  $C_{45}H_{48}FeN_2O_4P$  $\text{Fe}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})\{\text{PPh}_2(O\text{--}methyl)\}\{(2R^*)\text{-2-(2-indolylmethyl)-1-(methoxycarbonyl)-1,2-dihydronicotinoyl}\}$  $[\alpha]_D^{22} = +213 (c\ 0.2, \text{EtOH})$ Source of chirality: (*R*)-[Fe( $\eta^5$ -C<sub>5</sub>H<sub>5</sub>)(CO){PPh<sub>2</sub>(*O*-(-)-menthyl)}(nicotinoyl)] $\text{Fe}^* = (R)\text{-[Fe}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})\{\text{PPh}_2(O\text{--}methyl)\}\text{]}$  $C_{45}H_{48}FeN_2O_4P$  $\text{Fe}(\eta^5\text{-C}_5\text{H}_5)(\text{CO})\{\text{PPh}_2(O\text{--}methyl)\}\{(2R^*)\text{-2-(2-indolylmethyl)-1-(methoxycarbonyl)-1,2-dihydronicotinoyl}\}$  $[\alpha]_D^{22} = -16 (c\ 0.2, \text{EtOH})$ Source of chirality: (*R*)-[Fe( $\eta^5$ -C<sub>5</sub>H<sub>5</sub>)(CO){PPh<sub>2</sub>(*O*-(-)-menthyl)}(nicotinoyl)]



C<sub>16</sub>H<sub>20</sub>N<sub>2</sub>O<sub>3</sub>S  
(2R)-N-Nicotinoylbornane-10,2-sultam

[ $\alpha$ ]<sub>D</sub><sup>22</sup> = -212 (c 1, EtOH)

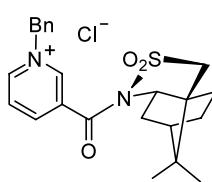
Source of chirality: (2R)-bornane-10,2-sultam



C<sub>17</sub>H<sub>23</sub>IN<sub>2</sub>O<sub>3</sub>S  
(2R)-N-(1-Methylnicotinoyl)bornane-10,2-sultam iodide

[ $\alpha$ ]<sub>D</sub><sup>22</sup> = -179 (c 1, EtOH)

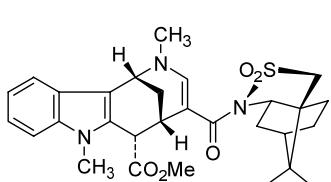
Source of chirality: (2R)-bornane-10,2-sultam



C<sub>23</sub>H<sub>27</sub>ClN<sub>2</sub>O<sub>3</sub>S  
(2R)-N-(1-Benzylnicotinoyl)bornane-10,2-sultam chloride

[ $\alpha$ ]<sub>D</sub><sup>22</sup> = -121 (c 1, EtOH)

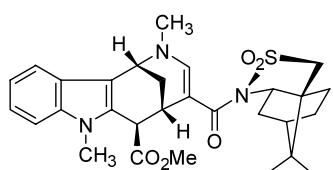
Source of chirality: (2R)-bornane-10,2-sultam



C<sub>29</sub>H<sub>35</sub>N<sub>3</sub>O<sub>5</sub>S  
(2R)-N-[{1R,5S,6S}-2,7-Dimethyl-6-(methoxycarbonyl)-1,2,5,6-tetrahydro-1,5-methanoazocino[4,3-b]indolyl-4-carbonyl]bornane-10,2-sultam

[ $\alpha$ ]<sub>D</sub><sup>22</sup> = -385 (c 0.4, CHCl<sub>3</sub>)

Source of chirality: (2R)-bornane-10,2-sultam

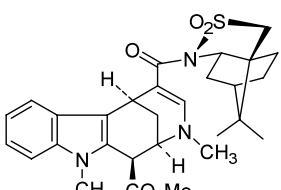


C<sub>29</sub>H<sub>35</sub>N<sub>3</sub>O<sub>5</sub>S

(2R)-N-[(1R,5S,6R)-2,7-Dimethyl-6-(methoxycarbonyl)-1,2,5,6-tetrahydro-1,5-methanoazocino[4,3-b]indolyl-4-carbonyl]bornane-10,2-sultam

$[\alpha]_D^{22} = -153$  (*c* 0.4, CHCl<sub>3</sub>)

Source of chirality: (2*R*)-bornane-10,2-sultam

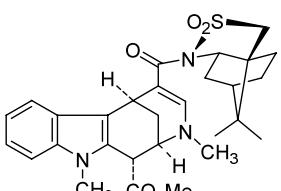


C<sub>29</sub>H<sub>35</sub>N<sub>3</sub>O<sub>5</sub>S

(2R)-N-[(1R\*,2R\*,6S\*)-3,11-Dimethyl-1-(methoxycarbonyl)-1,2,3,6-tetrahydro-2,6-methanoazocino[4,5-b]indolyl-5-carbonyl]bornane-10,2-sultam

$[\alpha]_D^{22} = +8$  (*c* 0.4, CHCl<sub>3</sub>)

Source of chirality: (2*R*)-bornane-10,2-sultam

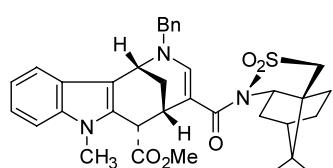


C<sub>29</sub>H<sub>35</sub>N<sub>3</sub>O<sub>5</sub>S

(2R)-N-[(1R\*,2S\*,6R\*)-3,11-Dimethyl-1-(methoxycarbonyl)-1,2,3,6-tetrahydro-2,6-methanoazocino[4,5-b]indolyl-5-carbonyl]bornane-10,2-sultam

$[\alpha]_D^{22} = +6$  (*c* 0.4, CHCl<sub>3</sub>)

Source of chirality: (2*R*)-bornane-10,2-sultam

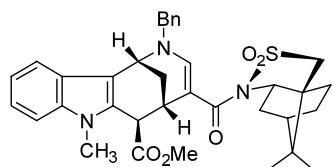


C<sub>35</sub>H<sub>39</sub>N<sub>3</sub>O<sub>5</sub>S

(2R)-N-[(1R,5S,6S)-2-Benzyl-6-(methoxycarbonyl)-7-methyl-1,2,5,6-tetrahydro-1,5-methanoazocino[4,3-b]indolyl-4-carbonyl]bornane-10,2-sultam

$[\alpha]_D^{22} = -387$  (*c* 0.4, CHCl<sub>3</sub>)

Source of chirality: (2*R*)-bornane-10,2-sultam

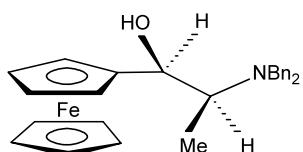


C<sub>35</sub>H<sub>39</sub>N<sub>3</sub>O<sub>5</sub>S

(2*R*)-*N*-[(1*R*,5*S*,6*R*)-2-Benzyl-6-(methoxycarbonyl)-7-methyl-1,2,5,6-tetrahydro-1,5-methanoazocino[4,3-*b*]indolyl-4-carbonyl]-bornane-10,2-sultam

[ $\alpha$ ]<sub>D</sub><sup>22</sup> = -267 (*c* 0.4, CHCl<sub>3</sub>)

Source of chirality: (2*R*)-bornane-10,2-sultam



C<sub>27</sub>H<sub>29</sub>FeNO

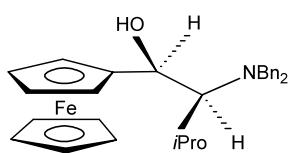
(1*S*,2*S*)-2-(*N,N*-Dibenzylamino)-1-ferrocenyl-1-propanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +14 (*c* 0.54, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*S*,2*S*



C<sub>29</sub>H<sub>33</sub>FeNO

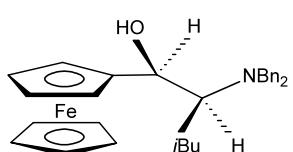
(1*S*,2*S*)-2-(*N,N*-Dibenzylamino)-1-ferrocenyl-3-methyl-1-butanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -11 (*c* 1.04, CHCl<sub>3</sub>)

Source of chirality: commercially available L-valinol

Absolute configuration: 1*S*,2*S*



C<sub>30</sub>H<sub>35</sub>FeNO

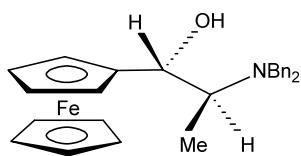
(1*S*,2*S*)-2-(*N,N*-Dibenzylamino)-1-ferrocenyl-4-methyl-1-pentanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -141 (*c* 1.74, CHCl<sub>3</sub>)

Source of chirality: commercially available L-leucinol

Absolute configuration: 1*S*,2*S*



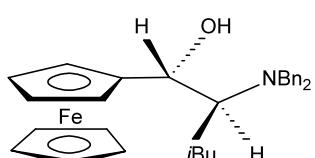
C<sub>27</sub>H<sub>29</sub>FeNO  
(1*R*,2*S*)-2-(*N,N*-Dibenzylamino)-1-ferrocenyl-1-propanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -20 (*c* 0.92, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*R*,2*S*



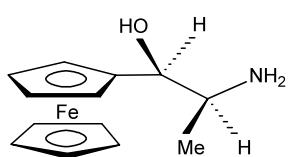
C<sub>30</sub>H<sub>35</sub>FeNO  
(1*R*,2*S*)-2-(*N,N*-Dibenzylamino)-1-ferrocenyl-4-methyl-1-pentanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = -120 (*c* 0.75, CHCl<sub>3</sub>)

Source of chirality: commercially available L-leucinol

Absolute configuration: 1*R*,2*S*



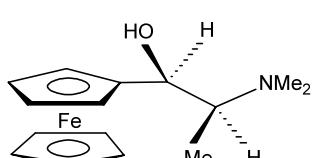
C<sub>13</sub>H<sub>17</sub>FeNO  
(1*S*,2*S*)-2-Amino-1-ferrocenyl-1-propanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +74 (*c* 1.04, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*S*,2*S*



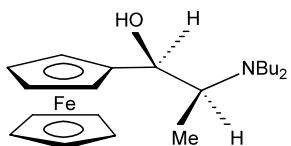
C<sub>15</sub>H<sub>21</sub>FeNO  
(1*S*,2*S*)-2-(*N,N*-Dimethylamino)-1-ferrocenyl-1-propanol

E.e. = 100%

[ $\alpha$ ]<sub>D</sub><sup>20</sup> = +7 (*c* 0.45, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*S*,2*S*



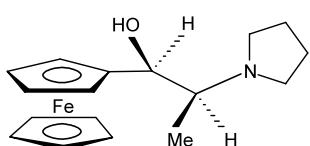
C<sub>21</sub>H<sub>33</sub>FeNO  
(1S,2S)-2-(*N,N*-Dibutylamino)-1-ferrocenyl-1-propanol

E.e. = 100%

$[\alpha]_D^{20} = +31$  (*c* 0.35, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*S*,2*S*



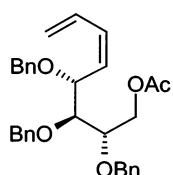
C<sub>17</sub>H<sub>23</sub>FeNO  
(1S,2S)-2-(Pyrrolidinyl)-1-ferrocenyl-1-propanol

E.e. = 100%

$[\alpha]_D^{20} = -31$  (*c* 0.16, CHCl<sub>3</sub>)

Source of chirality: commercially available L-alaninol

Absolute configuration: 1*S*,2*S*

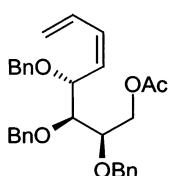


C<sub>31</sub>H<sub>34</sub>O<sub>5</sub>  
(2*S*,3*S*,4*R*,*Z*)-1-Acetoxytribenzyloxyocta-5,7-diene

$[\alpha]_D^{20} = -9.4$  (*c* 1.3, CHCl<sub>3</sub>)

Source of chirality: chiral pool

Absolute configuration: 2*S*,3*S*,4*R*,*Z*

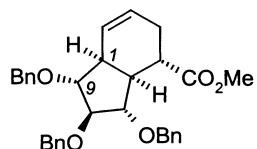


C<sub>32</sub>H<sub>34</sub>O<sub>5</sub>  
(2*R*,3*S*,4*R*,*Z*)-1-Acetoxytribenzyloxyocta-5,7-diene

$[\alpha]_D^{20} = -2.4$  (*c* 0.85, CHCl<sub>3</sub>)

Source of chirality: chiral pool

Absolute configuration: 2*R*,3*S*,4*R*,*Z*

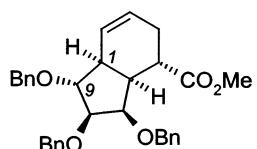
 $C_{32}H_{34}O_5$ 

(1S,5S,6S,7S,8S,9R)-7,8,9-Tribenzyloxy-5-methoxycarbonylbicyclo[4.3.0]non-2-ene

 $[\alpha]_D^{20} = +63.1$  (*c* 0.6, CHCl<sub>3</sub>)

Source of chirality: chiral pool

Absolute configuration: 1S,5S,6S,7S,8S,9R

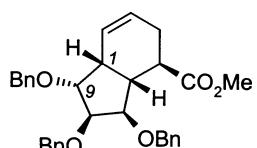
 $C_{32}H_{34}O_5$ 

(1S,5S,6S,7R,8S,9R)-7,8,9-Tribenzyloxy-5-methoxycarbonylbicyclo[4.3.0]non-2-ene

 $[\alpha]_D^{20} = +106.4$  (*c* 1.1, CHCl<sub>3</sub>)

Source of chirality: chiral pool

Absolute configuration: 1S,5S,6S,7R,8S,9R

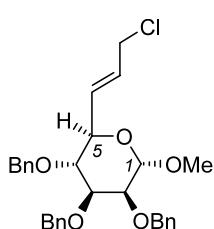
 $C_{32}H_{34}O_5$ 

(1R,5R,6R,7R,8S,9R)-7,8,9-Tribenzyloxy-5-methoxycarbonylbicyclo[4.3.0]non-2-ene

 $[\alpha]_D^{20} = -48.4$  (*c* 0.7, CHCl<sub>3</sub>)

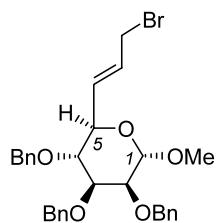
Source of chirality: chiral pool

Absolute configuration: 1R,5R,6R,7R,8S,9R

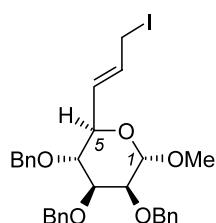
 $C_{30}H_{33}O_5Cl$ Methyl 2,3,4-tri-*O*-benzyl-6,7,8-trideoxy-8-chloro-oct-6-(E)-eno- $\alpha$ -D-manno-1,5-pyranoside $[\alpha]_D^{20} = +41.3$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: chiral pool

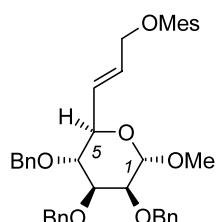
Absolute configuration: 1S,2S,3S,4R,5R,E

 $C_{30}H_{33}O_5Br$ Methyl 2,3,4-tri-O-benzyl-6,7,8-trideoxy-8-bromo-oct-6-(E)-eno- $\alpha$ -D-manno-1,5-pyranoside $[\alpha]_D^{20} +27.4$  (*c* 1.0, CHCl<sub>3</sub>)

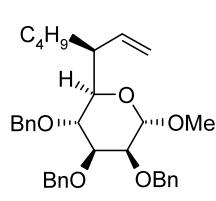
Source of chirality: chiral pool

Absolute configuration: 1*S*,2*S*,3*S*,4*R*,5*R*,*E* $C_{30}H_{33}O_5I$ Methyl 2,3,4-tri-O-benzyl-6,7,8-trideoxy-8-iodo-oct-6-(E)-eno- $\alpha$ -D-manno-1,5-pyranoside $[\alpha]_D^{20} +3.2$  (*c* 0.6, CHCl<sub>3</sub>)

Source of chirality: chiral pool

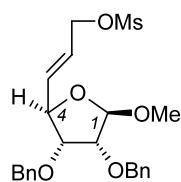
Absolute configuration: 1*S*,2*S*,3*S*,4*R*,5*R*,*E* $C_{31}H_{36}O_8S$ Methyl 2,3,4-tri-O-benzyl-6,7,8-trideoxy-8-O-mesyl-oct-6-(E)-eno- $\alpha$ -D-manno-1,5-pyranoside $[\alpha]_D^{20} +45.1$  (*c* 1.2, CHCl<sub>3</sub>)

Source of chirality: chiral pool

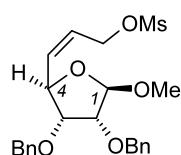
Absolute configuration: 1*S*,2*S*,3*S*,4*R*,5*R*,*E* $C_{34}H_{42}O_5$ Methyl 2,3,4-tri-O-benzyl-6,7,8-trideoxy-6(*S*)-butyl-oct-7-eno- $\alpha$ -D-manno-1,5-pyranoside $[\alpha]_D^{20} -10.0$  (*c* 0.7, CHCl<sub>3</sub>)

Source of chirality: chiral pool

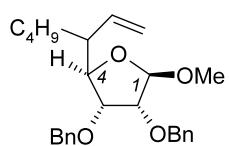
Absolute configuration: 1*S*,2*S*,3*S*,4*R*,5*R*,*S*

 $C_{23}H_{28}O_7S$ Methyl 2,3-di-*O*-benzyl-5,6-dideoxy-7-*O*-mesyl-hept-5-(*E*)-eno- $\beta$ -D-ribo-furanoside $[\alpha]_D^{20} +22.0$  (*c* 1.2, CHCl<sub>3</sub>)

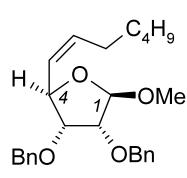
Source of chirality: chiral pool

Absolute configuration: 1*R*,2*R*,3*R*,4*R*,*E* $C_{23}H_{28}O_7S$ Methyl 2,3-di-*O*-benzyl-5,6-dideoxy-7-*O*-mesyl-hept-5-(*Z*)-eno- $\beta$ -D-ribo-furanoside $[\alpha]_D^{20} -17.4$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: chiral pool

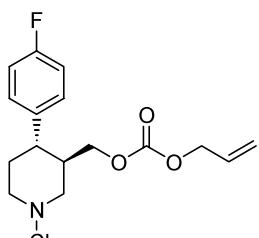
Absolute configuration: 1*R*,2*R*,3*R*,4*R*,*E* $C_{26}H_{34}O_4$ Methyl 2,3-di-*O*-benzyl-5,6,7-trideoxy-5-C-(butyl)-hept-6-eno- $\beta$ -D-ribo-furanoside $[\alpha]_D^{20} +19.7$  (*c* 0.6, CHCl<sub>3</sub>)

Source of chirality: chiral pool

Absolute configuration: 1*R*,2*R*,3*R*,4*R* $C_{26}H_{34}O_4$ Methyl 2,3-di-*O*-benzyl-5,6,7-trideoxy-7-C-(butyl)-hept-5-(*Z*)-eno- $\beta$ -D-ribo-furanoside $[\alpha]_D^{20} -2.1$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: chiral pool

Absolute configuration: 1*R*,2*R*,3*R*,4*R*,*Z*



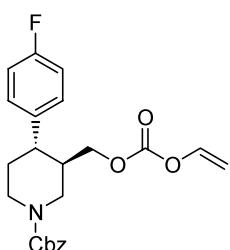
C<sub>24</sub>H<sub>26</sub>FNO<sub>5</sub>

(3R,4S)-trans-3-Allyloxycarbonyloxymethyl-N-benzyloxycarbonyl-4-(4'-fluorophenyl)piperidine

[ $\alpha$ ]<sub>D</sub><sup>18</sup> = +3.94 (*c* 0.61, MeOH)

Source of chirality: enzymatic resolution

Absolute configuration: 3*R*,4*S*



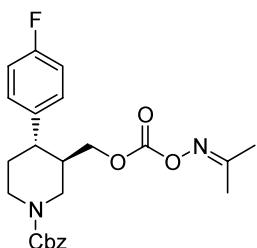
C<sub>23</sub>H<sub>24</sub>FNO<sub>5</sub>

(3R,4S)-trans-N-Benzoyloxycarbonyl-4-(4'-fluorophenyl)-3-vinyloxycarbonyloxymethylpiperidine

[ $\alpha$ ]<sub>D</sub><sup>18</sup> = +2.66 (*c* 0.64, MeOH)

Source of chirality: enzymatic resolution

Absolute configuration: 3*R*,4*S*



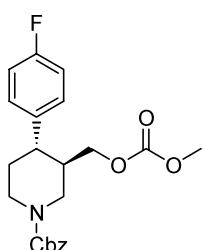
C<sub>24</sub>H<sub>27</sub>FN<sub>2</sub>O<sub>5</sub>

(3R,4S)-trans-N-Benzoyloxycarbonyl-4-(4'-fluorophenyl)-3-isopropylidenaminoxy carbonyloxymethylpiperidine

[ $\alpha$ ]<sub>D</sub><sup>18</sup> = +3.91 (*c* 0.98, MeOH)

Source of chirality: enzymatic resolution

Absolute configuration: 3*R*,4*S*



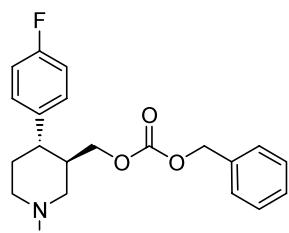
C<sub>22</sub>H<sub>24</sub>FNO<sub>5</sub>

(3R,4S)-trans-N-Benzoyloxycarbonyl-4-(4'-fluorophenyl)-3-methoxycarbonyloxymethylpiperidine

[ $\alpha$ ]<sub>D</sub><sup>18</sup> = +3.43 (*c* 0.57, MeOH)

Source of chirality: enzymatic resolution

Absolute configuration: 3*R*,4*S*



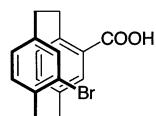
C<sub>28</sub>H<sub>28</sub>FNO<sub>5</sub>

(3*R*,4*S*)-*trans*-N-benzyloxycarbonyl-3-benzyloxycarbonyloxymethyl-4-(4'-fluorophenyl)piperidine

[ $\alpha$ ]<sub>D</sub><sup>18</sup> = +2.94 (*c* 0.74, MeOH)

Source of chirality: enzymatic resolution

Absolute configuration: 3*R*,4*S*



C<sub>17</sub>H<sub>15</sub>BrO<sub>2</sub>

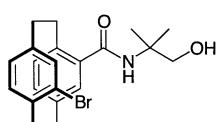
(S<sub>p</sub>)-4-Bromo-12-carboxy[2.2]paracyclophane

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +141 (*c* 1.1, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>)



C<sub>21</sub>H<sub>24</sub>BrNO<sub>2</sub>

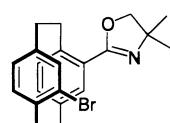
(S<sub>p</sub>)-4-Bromo-N-(1-hydroxy-2-methyl-2-propyl)[2.2]paracyclophane-12-carboxamide

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +63 (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>)



C<sub>21</sub>H<sub>22</sub>BrNO

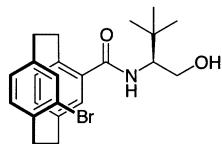
(S<sub>p</sub>)-4-Bromo-12-(4,4-dimethyl-4,5-dihydrooxazolyl)[2.2]paracyclophane

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +81 (*c* 1.2, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>)

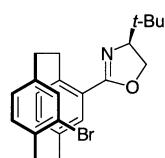


C<sub>23</sub>H<sub>28</sub>BrNO<sub>2</sub>  
(S,S<sub>p</sub>)-4-Bromo-*N*-(1-hydroxy-3-dimethyl-2-butyl)[2.2]paracyclophane-12-carboxamide

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +70 (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

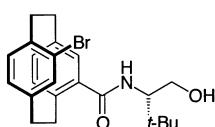
Absolute configuration: (S,S<sub>p</sub>)

C<sub>23</sub>H<sub>26</sub>BrNO  
(S,S<sub>p</sub>)-4-Bromo-12-(4-*tert*-butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = +7 (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

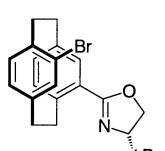
Absolute configuration: (S,S<sub>p</sub>)

C<sub>23</sub>H<sub>28</sub>BrNO<sub>2</sub>  
(S,R<sub>p</sub>)-4-Bromo-*N*-(1-hydroxy-3-dimethyl-2-butyl)[2.2]paracyclophane-12-carboxamide

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -53 (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>p</sub>)

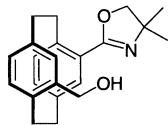
C<sub>23</sub>H<sub>26</sub>BrNO  
(S,R<sub>p</sub>)-4-Bromo-12-(4-*tert*-butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane

Ee = 100%

[ $\alpha$ ]<sub>D</sub><sup>25</sup> = -110 (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>p</sub>)

 $C_{22}H_{25}NO_2$ (S<sub>P</sub>)-4-(4,4-Dimethyl-4,5-dihydrooxazolyl)-12-hydroxymethyl[2.2]paracyclophane

Ee = 100%

 $[\alpha]_D^{25} = +107$  (*c* 1.0, CHCl<sub>3</sub>)

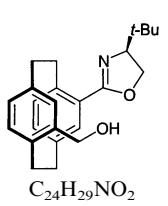
Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>) $C_{22}H_{24}BrNO$ (S<sub>P</sub>)-4-Bromomethyl-12-(4,4-dimethyl-4,5-dihydrooxazolyl)[2.2]paracyclophane

Ee = 100%

 $[\alpha]_D^{25} = +14$  (*c* 1.1, CHCl<sub>3</sub>)

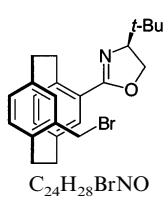
Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>) $C_{24}H_{29}NO_2$ (S,S<sub>P</sub>)-4-(4-tert-Butyl-4,5-dihydrooxazolyl)-12-hydroxymethyl[2.2]paracyclophane

Ee = 100%

 $[\alpha]_D^{25} = +74$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

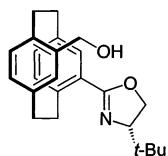
Absolute configuration: (S,S<sub>p</sub>) $C_{24}H_{28}BrNO$ (S,S<sub>P</sub>)-4-Bromomethyl-12-(4-tert-butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane

Ee = 100%

 $[\alpha]_D^{25} = -26$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

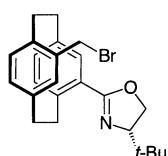
Absolute configuration: (S,S<sub>p</sub>)

 $C_{24}H_{29}NO_2$ (S,R<sub>p</sub>)-4-(4-tert-Butyl-4,5-dihydrooxazolyl)-12-hydroxymethyl[2.2]paracyclophane

Ee = 100%

 $[\alpha]_D^{25} = -79$  (*c* 1.1, CHCl<sub>3</sub>)

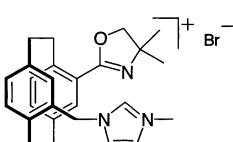
Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>p</sub>) $C_{24}H_{28}BrNO$ (S,R<sub>p</sub>)-4-Bromomethyl-12-(4-tert-butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane

Ee = 100%

 $[\alpha]_D^{25} = -52$  (*c* 1.0, CHCl<sub>3</sub>)

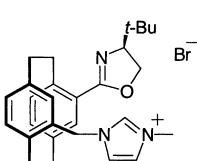
Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>p</sub>) $C_{26}H_{30}BrN_3O$ (S<sub>p</sub>)-1-{4-(4,4-Dimethyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl}-3-methyl imidazolium bromide

Ee = 100%

 $[\alpha]_D^{25} = +67$  (*c* 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

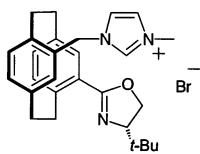
Absolute configuration: (S<sub>p</sub>) $C_{28}H_{34}BrN_3O$ (S,S<sub>p</sub>)-1-{4-(4-tert-Butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl}-3-methyl imidazolium bromide

Ee = 100%

 $[\alpha]_D^{25} = +43$  (*c* 0.6, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

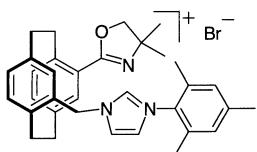
Absolute configuration: (S,S<sub>p</sub>)

 $C_{28}H_{34}BrN_3O$  $(S,R_p)$ -1-{4-(4-tert-Butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl}-3-methyl imidazolium bromide

Ee = 100%

 $[\alpha]_D^{25} = -91$  (*c* 1.0, CHCl<sub>3</sub>)

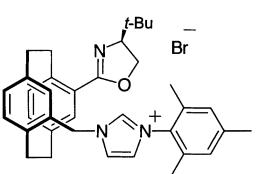
Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>p</sub>) $C_{34}H_{38}BrN_3O$  $(S_P)$ -1-{4-(4,4-Dimethyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl}-3-(2,4,6-trimethylphenyl) imidazolium bromide

Ee = 100%

 $[\alpha]_D^{25} = +63$  (*c* 1.1, CHCl<sub>3</sub>)

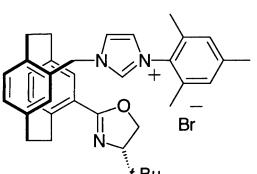
Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>P</sub>) $C_{36}H_{42}BrN_3O$  $(S,S_P)$ -3-{4-(4-tert-Butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl}-1-(2,4,6-trimethylphenyl) imidazolium bromide

Ee = 100%

 $[\alpha]_D^{25} = -87$  (*c* 0.7, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

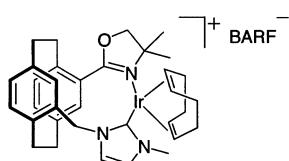
Absolute configuration: (S,S<sub>P</sub>) $C_{36}H_{42}BrN_3O$  $(S,R_P)$ -3-{4-(4-tert-Butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl}-1-(2,4,6-trimethylphenyl) imidazolium bromide

Ee = 100%

 $[\alpha]_D^{25} = -87$  (*c* 0.7, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>P</sub>)



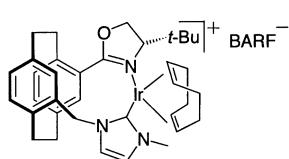
(S<sub>P</sub>)-(η<sup>4</sup>-1,5-Cyclooctadiene){1-[4-(4,4-dimethyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl]-3-methylimidazolin-2-ylidene}iridium(I) tetrakis[3,5-bis(trifluoromethyl)phenyl]borate

Ee = 100%

[α]<sub>D</sub><sup>25</sup> = -15 (c 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>)



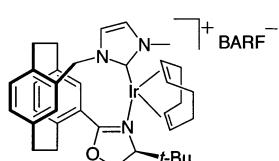
(S,S<sub>P</sub>)-(η<sup>4</sup>-1,5-Cyclooctadiene){1-[4-(4-tert-butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl]-3-methylimidazolin-2-ylidene}-iridium(I) tetrakis[3,5-bis(trifluoromethyl)phenyl]borate

Ee = 100%

[α]<sub>D</sub><sup>25</sup> = +78 (c 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,S<sub>p</sub>)



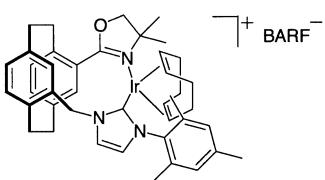
(S,R<sub>P</sub>)-(η<sup>4</sup>-1,5-Cyclooctadiene){1-[4-(4-tert-butyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl]-3-methylimidazolin-2-ylidene}-iridium(I) tetrakis[3,5-bis(trifluoromethyl)phenyl]borate

Ee = 100%

[α]<sub>D</sub><sup>25</sup> = +26 (c 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S,R<sub>p</sub>)



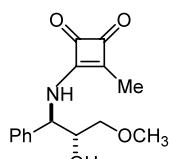
(S<sub>P</sub>)-(η<sup>4</sup>-1,5-Cyclooctadiene){1-[4-(4,4-dimethyl-4,5-dihydrooxazolyl)[2.2]paracyclophane-12-yl-methyl]-3-(2,4,6-trimethylphenyl)-imidazolin-2-ylidene}iridium(I) tetrakis[3,5-bis(trifluoromethyl)phenyl]borate

Ee = 100%

[α]<sub>D</sub><sup>25</sup> = +89 (c 1.0, CHCl<sub>3</sub>)

Source of chirality: enantiomer separation by HPLC of precursor

Absolute configuration: (S<sub>p</sub>)



C<sub>15</sub>H<sub>17</sub>NO<sub>4</sub>

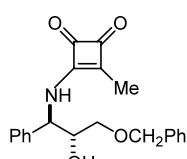
3-((1*R*,2*R*)-2-Hydroxy-3-methoxy-1-phenylpropylamino)-4-methylcyclobut-3-ene-1,2-dione

Mp: 112–114°C

[ $\alpha$ ]<sub>D</sub> = -45.1 (*c* 1.99, CHCl<sub>3</sub>)

Source of chirality: (2*S*,3*S*)-2,3-epoxy-3-phenylpropanol

Absolute configuration: 1*R*,2*R*



C<sub>21</sub>H<sub>21</sub>NO<sub>4</sub>

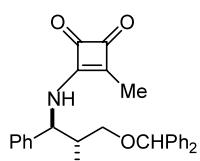
3-((1*R*,2*R*)-3-Phenylmethoxy-2-hydroxy-1-phenylpropylamino)-4-methylcyclobut-3-ene-1,2-dione-3-ene-1,2-dione

Oil

[ $\alpha$ ]<sub>D</sub> = -8.7 (*c* 1.1, CHCl<sub>3</sub>)

Source of chirality: (2*S*,3*S*)-2,3-epoxy-3-phenylpropanol

Absolute configuration: 1*R*,2*R*



C<sub>27</sub>H<sub>25</sub>NO<sub>4</sub>

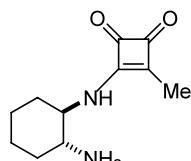
3-((1*R*,2*R*)-3-Diphenylmethoxy-2-hydroxy-1-phenylpropylamino)-4-methylcyclobut-3-ene-1,2-dione

Mp: 73–76°C

[ $\alpha$ ]<sub>D</sub> = -21.8 (*c* 1.2, CHCl<sub>3</sub>)

Source of chirality: (2*S*,3*S*)-2,3-epoxy-3-phenylpropanol

Absolute configuration: 1*R*,2*R*



C<sub>11</sub>H<sub>16</sub>N<sub>2</sub>O<sub>2</sub>

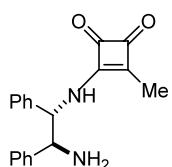
3-((1*R*,2*R*)-2-Aminocyclohexylamino)-4-methylcyclobut-3-ene-1,2-dione

Mp: 60–62°C

[ $\alpha$ ]<sub>D</sub> = +73.8 (*c* 1.13, CHCl<sub>3</sub>)

Source of chirality: (1*R*,2*R*)-1,2-diaminocyclohexane

Absolute configuration: 1*R*,2*R*



C<sub>19</sub>H<sub>18</sub>N<sub>2</sub>O<sub>2</sub>

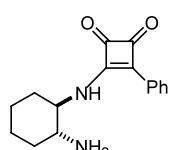
3-((1*S*,2*S*)-2-Amino-1,2-diphenylamino)-4-methylcyclobut-3-ene-1,2-dione

Mp: 75–79°C

[ $\alpha$ ]<sub>D</sub> = +19.5 (*c* 1.1, CHCl<sub>3</sub>)

Source of chirality: (1*S*,2*S*)-1,2-diphenylethylenediamine

Absolute configuration: 1*S*,2*S*



C<sub>16</sub>H<sub>18</sub>N<sub>2</sub>O<sub>2</sub>

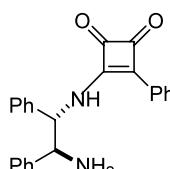
3-((1*R*,2*R*)-2-Aminocyclohexylamino)-4-phenylcyclobut-3-ene-1,2-dione

Mp: 65–67°C

[ $\alpha$ ]<sub>D</sub> = -48.5 (*c* 1.2, CHCl<sub>3</sub>)

Source of chirality: (1*R*,2*R*)-1,2-diaminocyclohexane

Absolute configuration: 1*R*,2*R*



C<sub>24</sub>H<sub>20</sub>N<sub>2</sub>O<sub>2</sub>

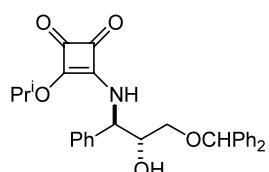
3-((1*S*,2*S*)-2-Amino-1,2-diphenylamino)-4-phenylcyclobut-3-ene-1,2-dione

Mp: 83–86°C

[ $\alpha$ ]<sub>D</sub> = +45.5 (*c* 1.32, CHCl<sub>3</sub>)

Source of chirality: (1*S*,2*S*)-1,2-diphenylethylenediamine

Absolute configuration: 1*S*,2*S*



C<sub>29</sub>H<sub>29</sub>NO<sub>5</sub>

3-((1*R*,2*R*)-3-Diphenylmethoxy-2-hydroxy-1-phenylpropylamino)-4-isopropoxycyclobut-3-ene-1,2-dione

Mp: 70–72°C

[ $\alpha$ ]<sub>D</sub> = -15.2 (*c* 5.2, CHCl<sub>3</sub>)

Source of chirality: (2*S*,3*S*)-2,3-epoxy-3-phenylpropanol

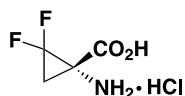
Absolute configuration: 1*R*,2*R*

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Hiroko Kakuda, Takahiro Wakikawa, Yoshio Takeuchi and Kenneth L. Kirk

$[\alpha]_D^{27} = -5.74$  (*c* 0.77, H<sub>2</sub>O)

Source of chirality: biocatalytic hydrolysis

Absolute configuration: *S*



(*S*)-(-)-1-Amino-2,2-difluorocyclopropanecarboxylic acid hydrochloride