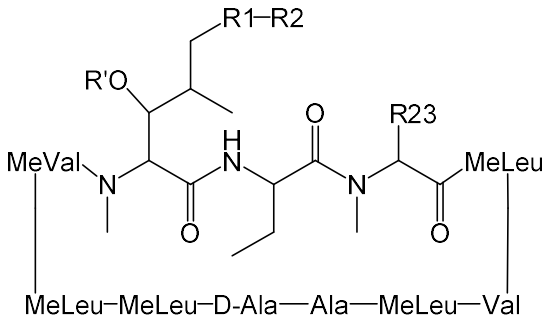
CLAIMS

1. A compound of Formula L:



Formula L

wherein:

a) R' is H or acetyl;

b) R1 is a saturated or unsaturated straight or branched aliphatic carbon chain from 2 to 15 carbon atoms in length;

c) R2 is selected from the group consisting of:

i) an unsubstituted, N-substituted, or N,N-disubstituted amide;

ii) a carboxylic acid;

iii) a nitrile;

iv) an ester;

v) a ketone;

vi) a hydroxy, dihydroxy, trihydroxy, or polyhydroxy alkyl;

vii) a substituted or unsubstituted aryl;

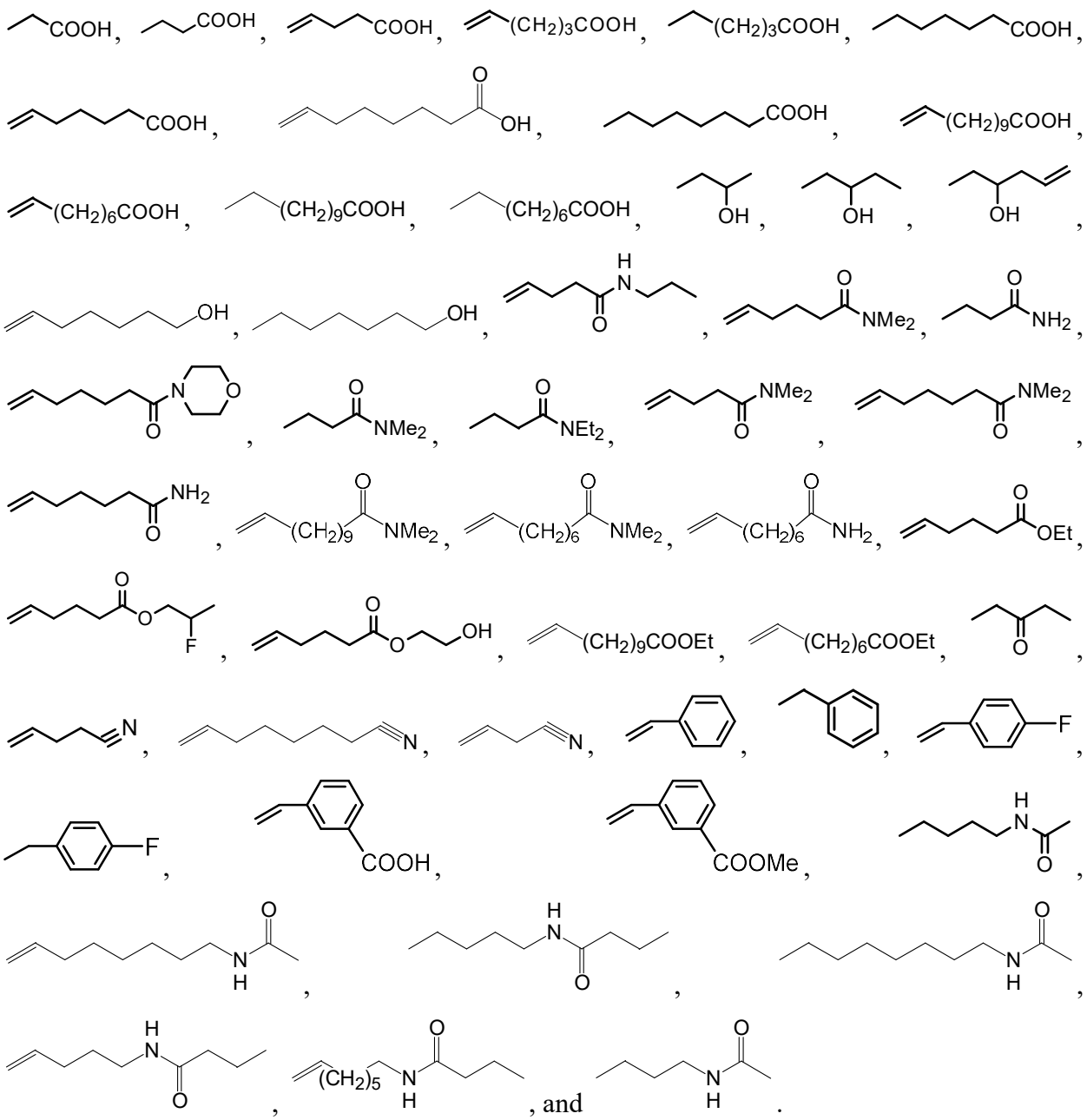
viii) a saturated or unsaturated straight or branched aliphatic carbon chain substituted with a substituent selected from the group consisting of a ketone, a hydroxy, a nitrile, a carboxylic acid, an ester, a 1,3-dioxolane, and an oxo;

ix) an aromatic group substituted with a substituent selected from the group consisting of a halogen, an ester, and a nitro; and

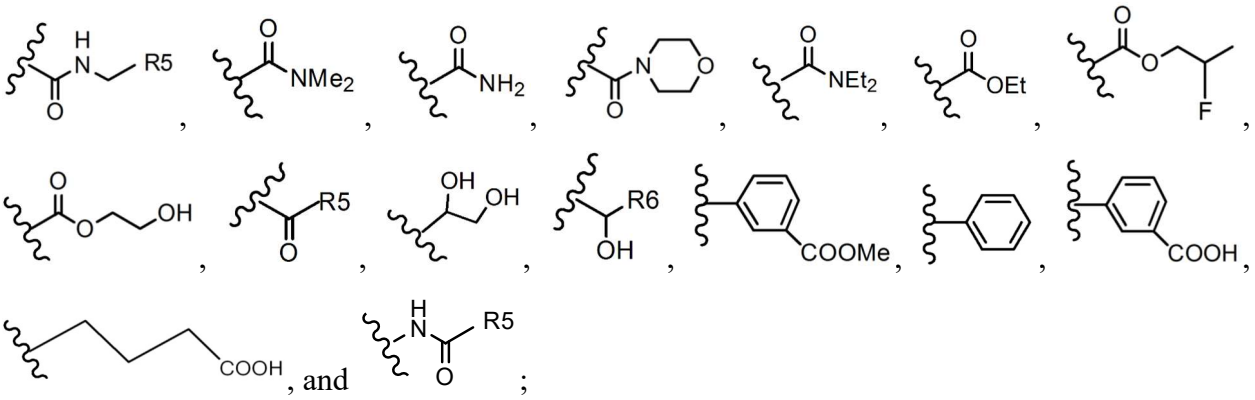
x) a combination of the saturated or unsaturated straight or branched aliphatic carbon chain of viii) and the aromatic group of ix); and

d) R23 is unsubstituted C_1-C_3 alkyl.

2. The compound of claim 1, wherein R1-R2 is selected from the group consisting of:



3. The compound of claim 1, wherein R2 is selected from the group consisting of:



, and ;

wherein:

R5 is a saturated or unsaturated straight or branched aliphatic carbon chain between 1 and 10 carbons in length; and

R6 is a monohydroxylated, dihydroxylated, trihydroxylated, or polyhydroxylated saturated or unsaturated straight or branched aliphatic carbon chain between 1 and 10 carbons in length.

4. The compound of claim 1, wherein R' is H.

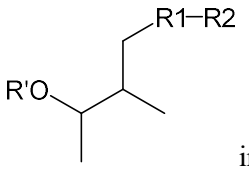
5. The compound of claim 1, wherein R1-R2 is substituted with a substituent selected from the group consisting of a ketone, a hydroxy, a nitrile, an oxo, a carboxylic acid, an ester, and a 1,3-dioxolane.

6. The compound of claim 1, wherein R23 is selected from the group consisting of:

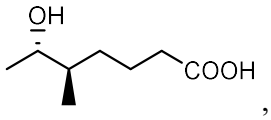
$-CH_3$ and $-CH_2CH_3$.

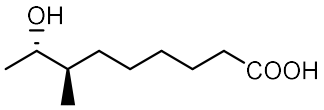
7. The compound of claim 1, wherein the compound comprises the D-epimer of amino acid 3 which is the amino acid to which R23 is attached.

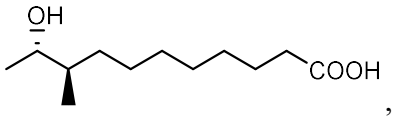
8. The compound of claim 1, wherein R23 is methyl.

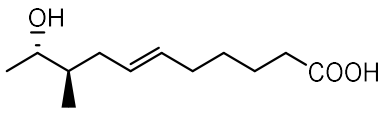
9. The compound of claim 1, wherein 

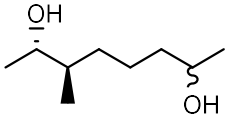
in Formula L is selected from the group consisting of:

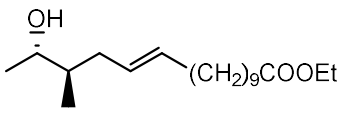


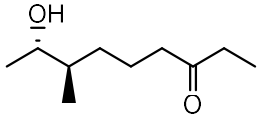
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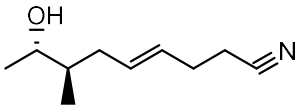
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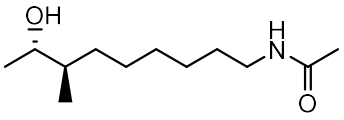
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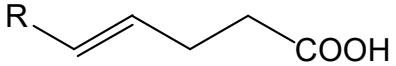
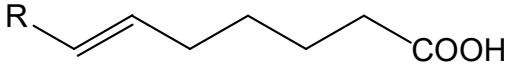
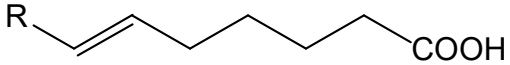
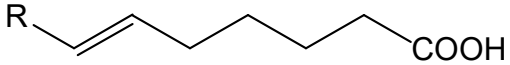
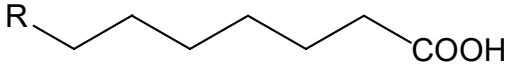
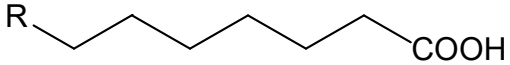
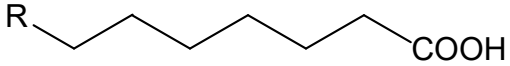
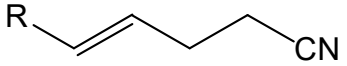
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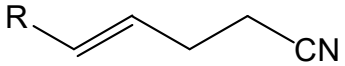
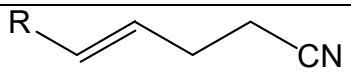
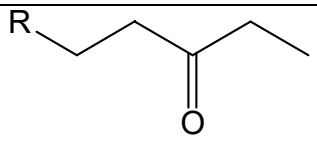
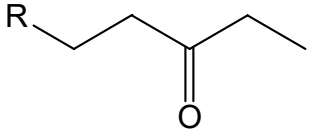
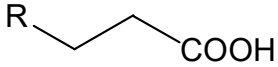
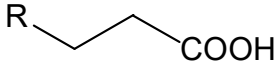
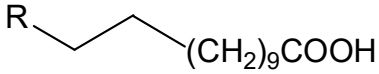
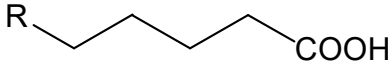
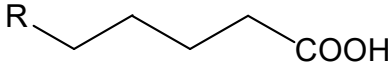
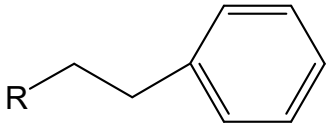
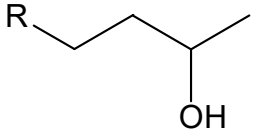
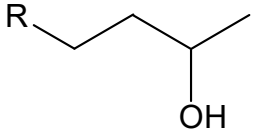
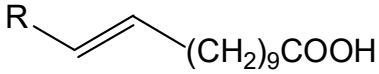
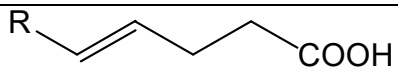
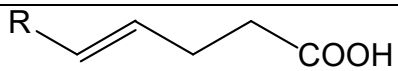
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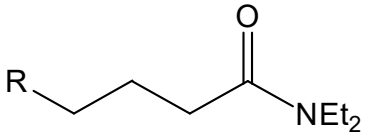
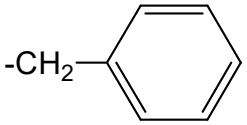
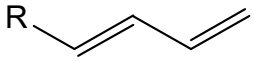
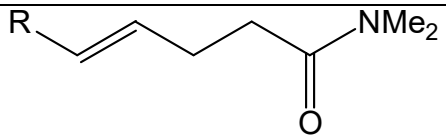
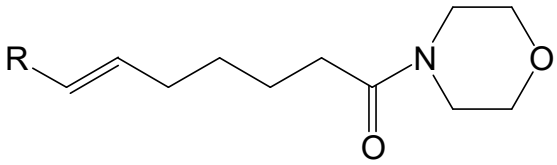
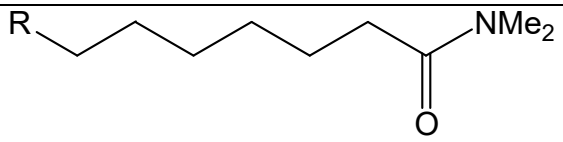
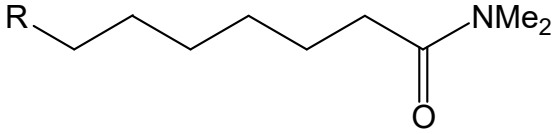
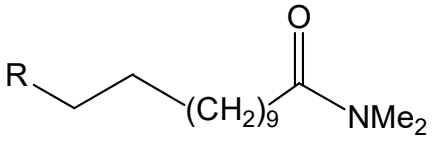
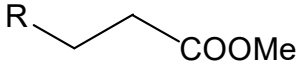
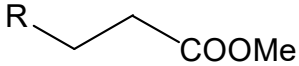
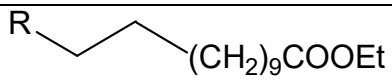
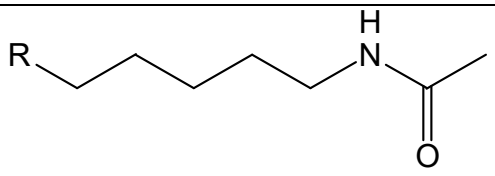
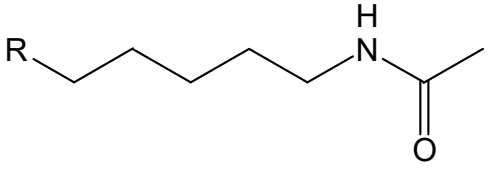
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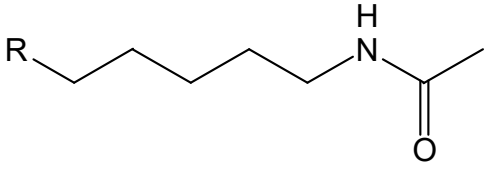
10. The compound of claim 1, wherein R1-R2 comprises a saturated or unsaturated, straight or branched aliphatic chain of between 2 and 5 carbons.

11. A compound selected from the group consisting of:

		R23	Isomer
a)		-CH_3	L
b)		-CH_3	D
c)		-CH_3	L
d)		-CH_2CH_3	D
e)		-CH_3	D
f)		-CH_3	L
g)		-CH_2CH_3	D
h)		-CH_3	D

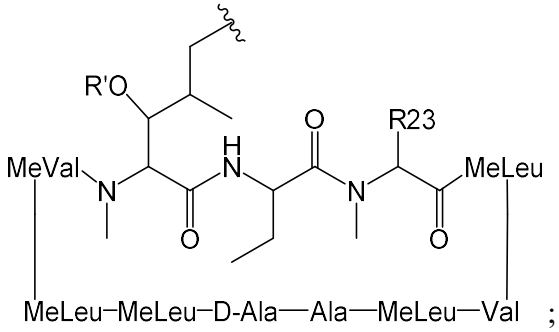
i)		$-CH_2CH_3$	L
j)		$-CH_2CH_3$	D
k)		$-CH_3$	L
l)		$-CH_3$	D
m)		$-CH_3$	D
n)		$-CH_2CH_3$	D
o)		$-CH_3$	D
r)		$-CH_3$	D
s)		$-CH_3$	L
t)		$-CH_3$	D
u)		$-CH_3$	D
v)		$-CH_3$	L
w)		$-CH_2CH_3$	L
x)		$-SCH_3$	D/L
z)		$-(CH_2)_3N^+(CH_3)_3$	D/L

aa)			D
bb)		-CH_3	D
cc)		-CH_3	L
dd)		-CH_3	L
ee)		-CH_3	D
ff)		-CH_2CH_3	D
gg)		-CH_3	D
hh)		-CH_3	D
ii)		-CH_2CH_3	D
jj)		-CH_3	D
~~jj~~kk)		-CH_3	D
~~kk~~ll)		-CH_2CH_3	L

~~l~~mm)		-CH_2CH_3	D

wherein:

R is

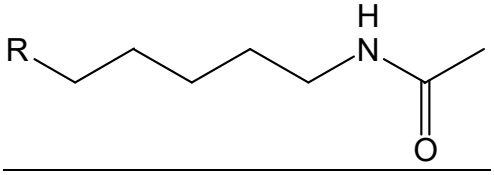


;

R' is H or acetyl,

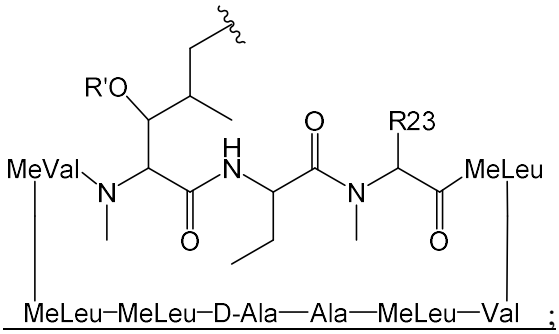
and wherein the isomer is the isomeric form of amino acid 3 which is the amino acid to which R23 is attached.

12. The compound of claim 11, consisting of:

		R23	Isomer
		-CH_3	D

wherein:

R is



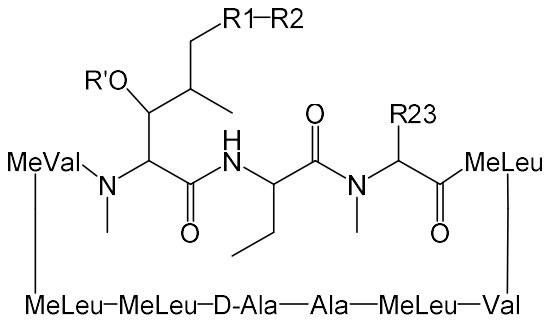
;

R' is H,

and wherein the isomer is the isomeric form of amino acid 3 which is the amino acid to which R23 is attached.

123. A pharmaceutical composition comprising the compound of claim 1 and one or more pharmaceutical excipients.

134. A process for the preparation of a compound of Formula L:



Formula L

wherein:

a) R' is H or acetyl;

b) R1 is a saturated or unsaturated straight or branched aliphatic carbon chain from 2 to 15 carbon atoms in length;

c) R2 is selected from the group consisting of:

i) an unsubstituted, N-substituted, or N,N-disubstituted amide;

ii) a carboxylic acid;

iii) a nitrile;

iv) an ester;

v) a ketone;

vi) a hydroxy, dihydroxy, trihydroxy, or polyhydroxy alkyl;

vii) a substituted or unsubstituted aryl;

viii) a saturated or unsaturated straight or branched aliphatic carbon chain substituted with a substituent selected from the group consisting of a ketone, a hydroxy, a nitrile, a carboxylic acid, an ester, a 1,3-dioxolane, and an oxo;

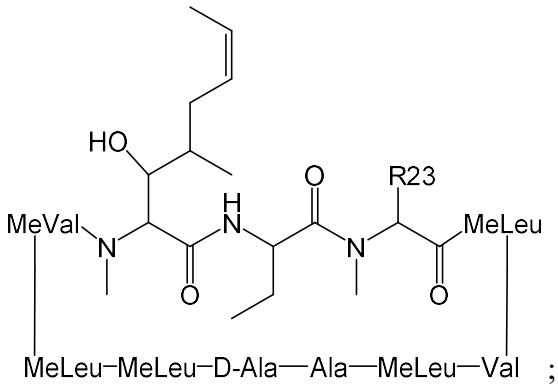
ix) an aromatic group substituted with a substituent selected from the group consisting of a halogen, an ester, and a nitro; and

x) a combination of the saturated or unsaturated straight or branched aliphatic carbon chain of viii) and the aromatic group of ix); and

d) R23 is a saturated or unsaturated straight or branched optionally substituted aliphatic carbon chain,

comprising the steps of:

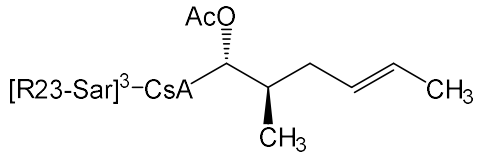
1) reacting cyclosporin-A (CsA) with a basic lithium alkylamide, in the presence of a suitable solvent optionally with LiCl, followed by reaction with a suitable electrophile to generate a compound of Formula 1:



;

Formula 1

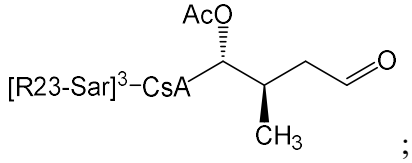
2) reacting the compound of Formula 1 with Ac_2O in the presence of a suitable solvent to form a compound of Formula 2A:



;

Formula 2A

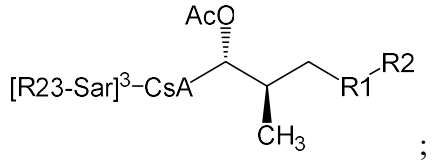
3) reacting the compound of Formula 2A with an oxidant to form a compound of Formula 3A:



;

Formula 3A

4) reacting the compound of Formula 3A with an electrophile to form a compound of Formula 4A:



;

Formula 4A

and

5) optionally deacylating the compound of Formula 4A.

145. The process of claim 134, wherein the preparation of the compound of Formula L comprises the addition of an excess of LiCl in the suitable solvent in step 1) to form predominantly the L-epimer of the compound of Formula L, or the preparation of the compound of Formula L is carried out in the absence of LiCl in the suitable solvent in step 1) to form predominantly the D-epimer of the compound of Formula L, wherein the chiral center of the L-epimer or the D-epimer of the compound of Formula L is the carbon atom to which R23 is attached.

156. The process of claim 134, wherein the basic lithium alkylamide is lithium diisopropylamide.

167. The process of claim 134, wherein the electrophile is selected from the group defined in the following table, to generate the corresponding R23 in the table:

Electrophile	R23
methyl iodide	$-CH_3$
ethyl iodide	$-CH_2CH_3$
allyl bromide	$-CH_2CHCH_2$
1,3-diiodopropane	$-CH_2CH_2CH_2I$
1,4-diiodobutane	$-(CH_2)_3CH_2I$
trimethylammonium-3-iodopropane hexafluorophosphate	$-(CH_2)_3N^+(CH_3)_3$

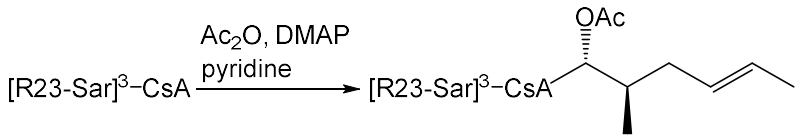
propargyl bromide	—CH_2CCH
tert-butyl bromoacetate	—CH_2CO_2(t-Bu)
benzyl bromide	—CH_2Ph
Formaldehyde	—CH_2OH
Acetaldehyde	—$CH(OH)CH_3$
Pivalaldehyde	—CH(OH)(t-Bu)
Benzaldehyde	—CH(OH)Ph
carbon dioxide	—COOH
dimethyl disulfide	—SCH_3
p-tolyl disulfide	—S(p-Tol)

.

17~~8~~. The process of claim 1~~3~~4, wherein R2 is a carboxylic acid and R23 is -CH_3.

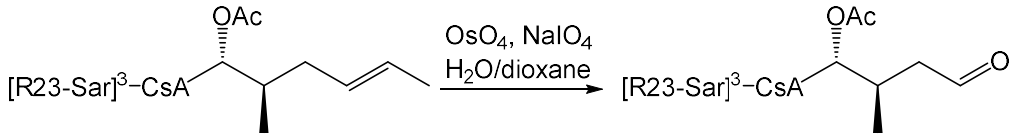
18~~9~~. A process for the preparation of the compound of Formula L of claim 1, comprising the steps of:

reacting a compound of Formula 1A with dimethylaminopyridine in the presence of a suitable solvent, to form a compound of Formula 2:



1A 2 ,

optionally followed by formation of an aldehyde of Formula 3:

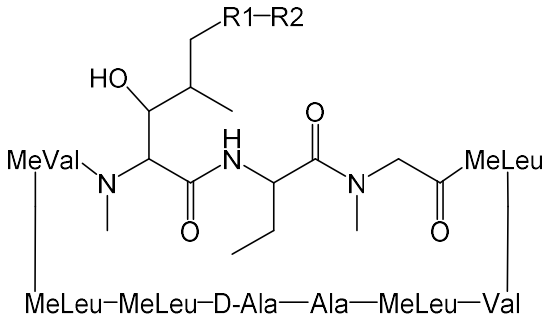


2 3 ,

optionally followed by a Wittig reaction to generate the compound of Formula L, wherein R23 is selected from the group consisting of: —CH_3 and —CH_2CH_3.

~~19~~20. A process for the preparation of the compound of Formula L of claim 1, comprising the steps of:

reacting a compound of Formula 5



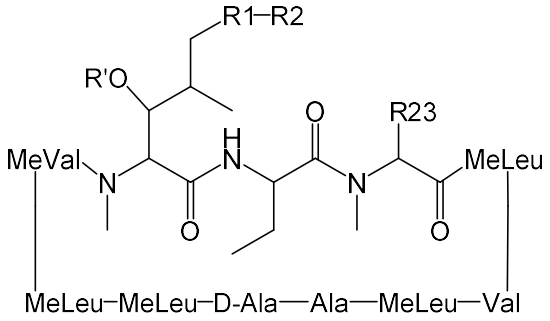
Formula 5,

wherein R1 and R2 are as defined in claim 1, with a basic lithium alkylamide, in the presence of a suitable electrophile in an appropriate solvent to form the compound of Formula L, wherein R23 is unsubstituted C_1-C_3 alkyl.

2~~0~~1. The process of claim ~~19~~20, wherein the basic lithium alkylamide is lithium diisopropylamide.

2~~1~~2. The process of claim ~~19~~20, wherein R2 is a carboxylic acid and R23 is -CH_3.

2~~2~~3. A compound of Formula L:



Formula L

wherein:

a) R’ is H or acetyl;

b) R1 is a saturated or unsaturated straight or branched aliphatic carbon chain from 2 to 15 carbon atoms in length;

c) R2 is selected from the group consisting of:

i) an unsubstituted, N-substituted, or N,N-disubstituted amide;

ii) a carboxylic acid;

iii) a nitrile;

iv) an ester;

v) a ketone;

vi) a hydroxy, dihydroxy, trihydroxy, or polyhydroxy alkyl;

vii) a substituted or unsubstituted aryl;

viii) a saturated or unsaturated straight or branched aliphatic carbon chain substituted with a substituent selected from the group consisting of a ketone, a hydroxy, a nitrile, a carboxylic acid, an ester, a 1,3-dioxolane, and an oxo;

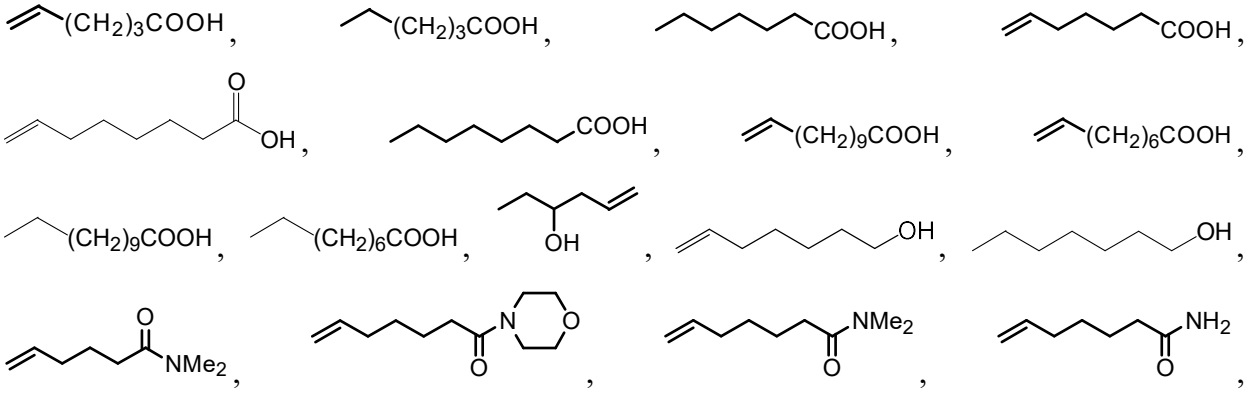
ix) an aromatic group substituted with a substituent selected from the group consisting of a halogen, an ester, and a nitro; and

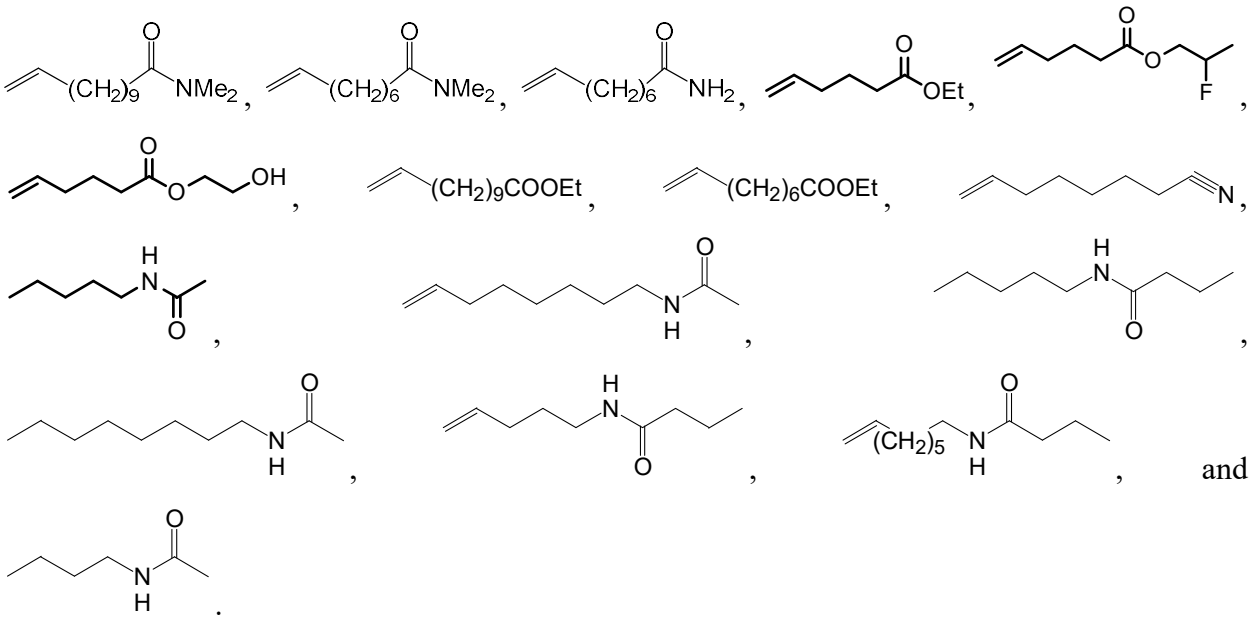
x) a combination of the saturated or unsaturated straight or branched aliphatic carbon chain of viii) and the aromatic group of ix); and

d) R23 is a saturated or unsaturated straight or branched optionally substituted aliphatic carbon chain,

wherein R1-R2 does not comprise a saturated or unsaturated, straight or branched aliphatic chain of between 2 and 5 carbons.

2~~3~~4. The compound of claim 2~~2~~3, wherein R1-R2 is selected from the group consisting of:





245. The compound of claim 223, wherein R' is H.

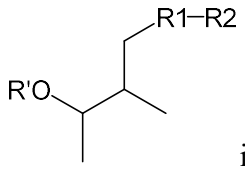
256. The compound of claim 223, wherein R23 is selected from the group consisting of: $-CH_3$, $-CH_2CH_3$, $-CH_2CHCH_2$, $-CH_2CH_2CH_2I$, $-(CH_2)_3CH_2I$, $-(CH_2)_3N^+(CH_3)_3$, $-CH_2CCH$, $-CH_2CO_2(t\text{-}Bu)$, $-CH_2Ph$, $-CH_2OH$, $-CH(OH)CH_3$, $-CH(OH)(t\text{-}Bu)$, $-CH(OH)Ph$, $-COOH$, $-SCH_3$, and $-S(p\text{-}Tol)$.

267. The compound of claim 223, wherein R23 comprises an optionally substituted C_1-C_3 alkyl.

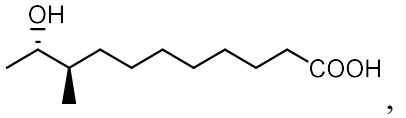
278. The compound of claim 223, wherein R23 is substituted with amino.

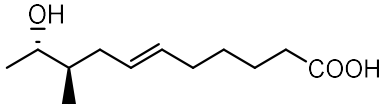
289. The compound of claim 223, wherein R23 is C_1-C_3 alkyl and the compound comprises the D-epimer of amino acid 3 which is the amino acid to which R23 is attached.

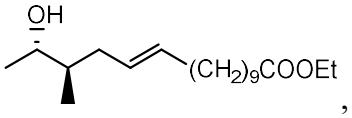
2930. The compound of claim 223, wherein R23 is methyl.

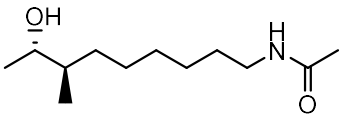


30~~1~~. The compound of claim 2~~2~~3, wherein in Formula L is selected from the group consisting of:



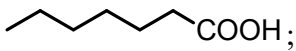
,


, and


,
and


.

31~~1~~2. The compound of claim 2~~2~~3, wherein R23 is a straight or branched aliphatic carbon chain of 1 to 6 carbons in length.

32~~2~~3. The compound of claim 1, wherein R1-R2 is 

; and R23 is methyl, and wherein the compound is a D-epimer, wherein the chiral center of the D-epimer is the carbon to which R23 is attached.

33~~4~~. The compound of claim 1, wherein R1-R2 does not comprise a saturated or unsaturated, straight or branched aliphatic chain of between 2 and 5 carbons.