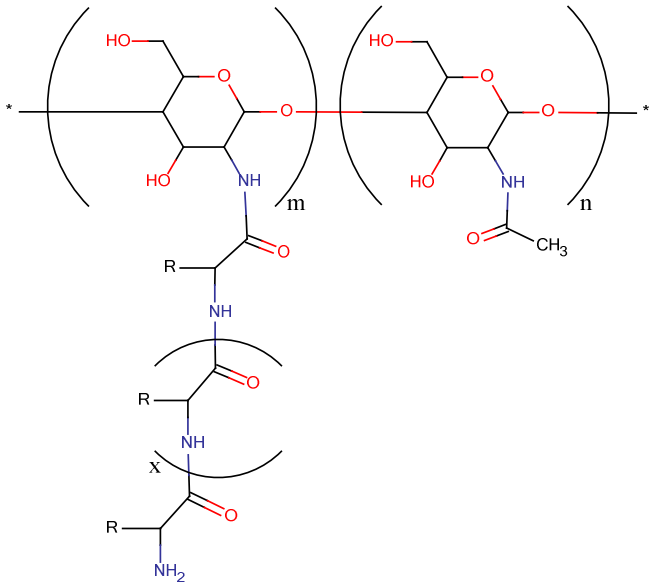
WHAT IS CLAIMED IS:

1. A compound of Formula I:



(I),

or a pharmaceutically acceptable salt thereof, wherein:

each R is independently selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylalkyl, substituted or unsubstituted heteroaryl, substituted or unsubstituted heteroarylalkyl, $(CH_2)_jOR^1$, $(CH_2)_jC(O)R^1$, $(CH_2)_jC(O)OR^1$, $(CH_2)_jOC(O)R^1$, $(CH_2)_jNR^2R^3$, $(CH_2)_jC(O)NR^2R^3$, $(CH_2)_jOC(O)NR^2R^3$, $(CH_2)_jC(NR^4)NR^2R^3$, $(CH_2)_jNR^4C(O)R^1$, $(CH_2)_jNR^4C(O)OR^1$, $(CH_2)_jNR^4C(O)NR^2R^3$, $(CH_2)_jNR^4C(O)NR^2R^3$, $(CH_2)_jNR^4C(NH)NR^2R^3$, $(CH_2)_jSH$, $(CH_2)_jS(O)_kCH_3$, $(CH_2)_jNR^4S(O)_kCH_3$, $(CH_2)_jS(O)_kNR^2R^3$ and $(CH_2)_jNR^4S(O)_kNR^2R^3$, wherein j is an integer independently selected from 0 to 6, k is an integer independently selected from 0 to 2, and wherein each R group is optionally independently substituted with 1-3 substituent groups, each substituent group is independently selected from alkyl, alkenyl, alkynyl, cycloalkyl, perfluoroalkyl, amino, cyano, halogen, hydroxyl, nitro, aryl, arylalkyl, heterocycle, heteroaryl, and heteroarylalkyl;

R^1, R^2, R^3 and R^4 are each independently selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylalkyl, substituted or unsubstituted heteroaryl, substituted or unsubstituted heteroarylalkyl, wherein each R^1, R^2, R^3 and R^4 group is optionally independently substituted with 1-3 substituent groups, each substituent group is independently selected from alkyl, alkenyl, alkynyl, cycloalkyl, perfluoroalkyl, amino, cyano, halogen, hydroxyl, nitro, aryl, arylalkyl, heterocycle, heteroaryl, and heteroarylalkyl;

m is an integer independently selected from 1 to 100,000;

n is an integer independently selected from 1 to 100,000; and

x is an integer independently selected from 1 to 5,000.

2. The compound of claim 1, wherein:

R is independently selected from substituted or unsubstituted $(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkenyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkynyl, substituted or unsubstituted $(C_3\text{-}C_8)$cycloalkyl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl, substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl$(C_1\text{-}C_6)$alkyl, $(CH_2)OR^1$, $(CH_2)C(O)R^1$, $(CH_2)C(O)OR^1$, $(CH_2)OC(O)R^1$, $(CH_2)NR^2R^3$, $(CH_2)C(O)NR^2R^3$, $(CH_2)OC(O)NR^2R^3$, $(CH_2)C(NR^4)NR^2R^3$, $(CH_2)NR^4C(O)R^1$, $(CH_2)NR^4C(O)OR^1$, $(CH_2)NR^4C(O)NR^2R^3$, $(CH_2)NR^4C(O)NR^2R^3$, $(CH_2)NR^4C(NH)NR^2R^3$, $(CH_2)SH$, $(CH_2)S(O)_kCH_3$, $(CH_2)NR^4S(O)_kCH_3$, $(CH_2)S(O)_kNR^2R^3$ and $(CH_2)NR^4S(O)_kNR^2R^3$; and

R^1, R^2, R^3 and R^4 are each independently selected from hydrogen, substituted or unsubstituted $(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkenyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkynyl, substituted or unsubstituted $(C_3\text{-}C_8)$cycloalkyl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl, and substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl$(C_1\text{-}C_6)$alkyl.

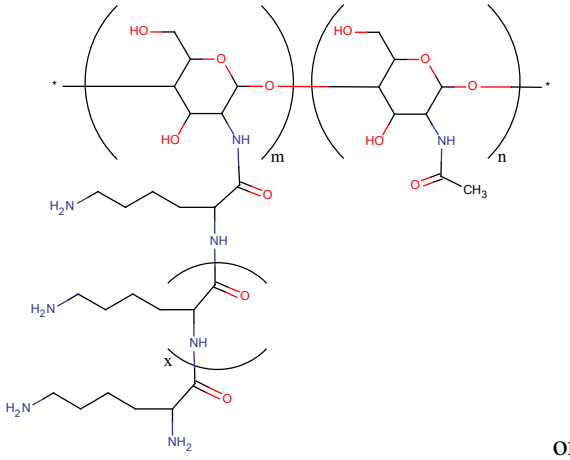
3. The compound of claim 1 or 2, wherein:

R is independently selected from $(C_1\text{-}C_6)$alkyl, $(C_2\text{-}C_6)$alkenyl, $(C_2\text{-}C_6)$alkynyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_6\text{-}C_{10})$aryl, $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, hetero$(C_3\text{-}C_{10})$aryl, hetero$(C_3\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, OR^1, $C(O)R^1$, $C(O)OR^1$, $OC(O)R^1$, NR^2R^3, $C(O)NR^2R^3$, $OC(O)NR^2R^3$, $C(NR^4)NR^2R^3$, $NR^4C(O)R^1$, $NR^4C(O)OR^1$, $NR^4C(O)NR^2R^3$, $NR^4C(O)NR^2R^3$, $NR^4C(NH)NR^2R^3$, SH, $S(O)_kCH_3$, $NR^4S(O)_kCH_3$, $S(O)_kNR^2R^3$ and $NR^4S(O)_kNR^2R^3$; and

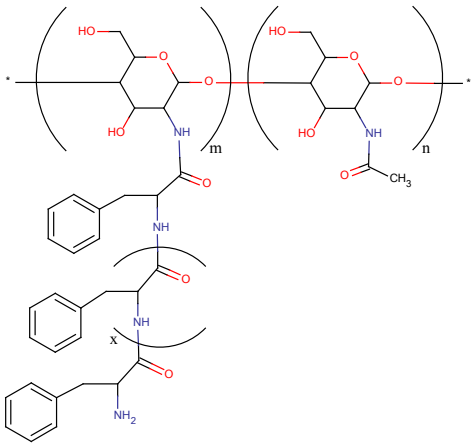
R^1, R^2, R^3 and R^4 are each independently selected from hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_2\text{-}C_6)$alkenyl, $(C_2\text{-}C_6)$alkynyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_6\text{-}C_{10})$aryl, $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, $(C_3\text{-}C_{10})$heteroaryl, and $(C_3\text{-}C_{10})$heteroaryl$(C_1\text{-}C_6)$alkyl.

4. The compound of any of claims 1 to 3, wherein R is independently selected from CH_3, CH_2CH_3, $CH_2CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH_2CH_2CH_3$, $CH(CH_3)CH_2CH_3$, $CH_2CH(CH_3)_2$, C_6H_5, $CH_2C_6H_5$, $CH_2C_6H_4$(para-OH), $CH_2C_6H_5$, CH_2OH, $CH_2CH(OH)CH_3$, $CH_2C(O)NH_2$, $(CH_2)_2C(O)NH_2$, $(CH_2)_4NH_2$, $(CH_2)_3NHC(NH)NH_2$, $CH_2(C_3H_2N_2)$, $CH_2(C_8H_6N)$, CH_2SH and CH_2SCH_3.

5. The compound of any of claims 1 to 4, wherein the compound of Formula I is selected from:



or



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6. A pharmaceutical composition comprising a compound of Formula I of any of claims 1 to 5, and a pharmaceutically acceptable carrier.

7. A therapeutic composition for controlling infection by a microorganism, the composition comprising the compound of Formula I of any of claims 1 to 5 in a therapeutically effective amount and a pharmaceutically acceptable carrier.

8. The composition of claim 7, wherein the microorganism is selected from a bacterium, a fungus, a virus, and a protozoan.

~~9. A method of controlling a microorganism, the method comprising the step of administering a therapeutically effective amount of a composition, wherein the composition comprises the compound of Formula I of any of claims 1 to 5 and an acceptable carrier.~~

~~10. The method of claim 9, wherein the microorganism is selected from a gram-negative bacterium and a gram-positive bacterium.~~

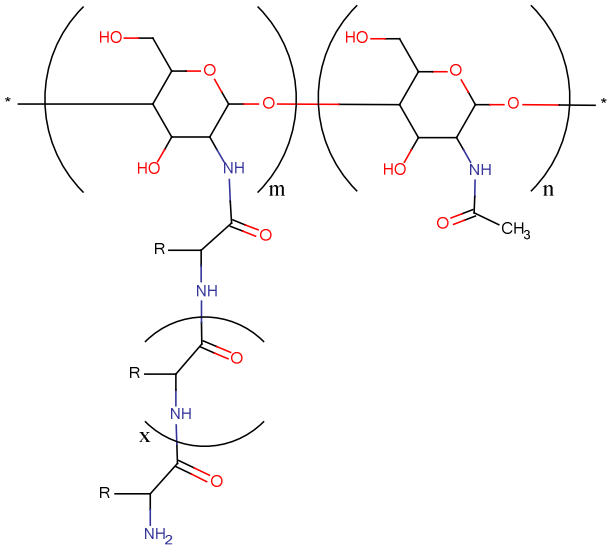
~~11. A method of treating a subject in need of or preventing an infection in a subject caused by a microorganism, wherein the method comprises the step of administering a therapeutically effective amount of the pharmaceutical composition of claim 6 to a subject with the infection.~~

~~12. The method of claim 11, wherein the microorganism is selected from gram-positive bacteria and gram-negative bacteria.~~

~~13~~9. A method of disinfecting a surface of an article, the method comprising the step of applying to the surface an effective amount of a composition, wherein the composition comprises the compound of Formula I of any of claims 1 to 5.

~~14~~10. A disinfecting solution comprising the compound of Formula I of any of claims 1 to 5, and optionally an acceptable carrier.

~~15~~11. A method of preparing a compound of Formula I:

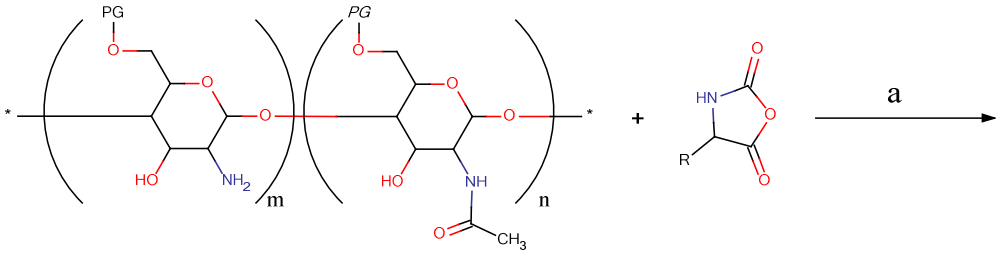


(I),

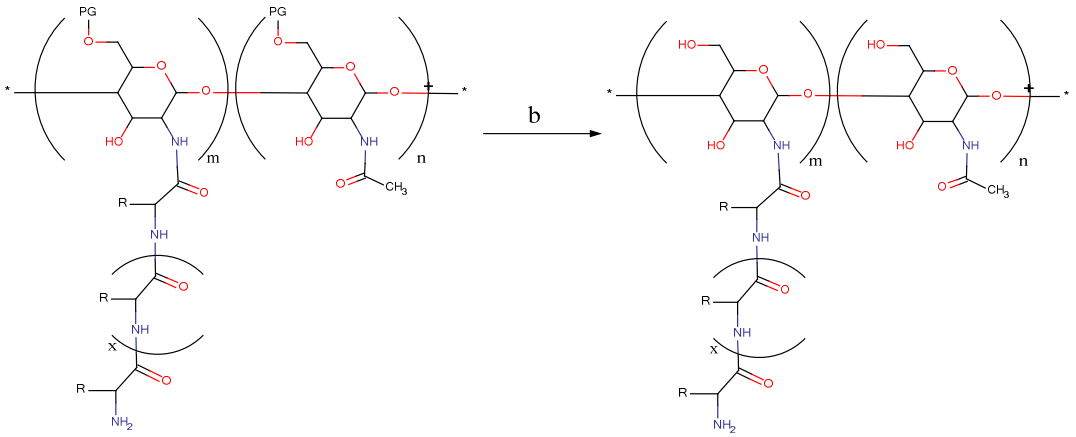
or a pharmaceutically acceptable salt thereof, the method comprising the steps of:

a) reacting a compound of Formula II with a compound of Formula III to provide a compound of Formula IV; and

b) deprotecting the compound of Formula IV to provide the compound of Formula I:



II III



(IV) (I)

wherein:

each PG is a protecting group;

each R is independently selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylalkyl, substituted or unsubstituted heteroaryl, substituted or unsubstituted heteroarylalkyl, $(CH_2)_jOR^1$, $(CH_2)_jC(O)R^1$, $(CH_2)_jC(O)OR^1$, $(CH_2)_jOC(O)R^1$, $(CH_2)_jNR^2R^3$, $(CH_2)_jC(O)NR^2R^3$, $(CH_2)_jOC(O)NR^2R^3$, $(CH_2)_jC(NR^4)NR^2R^3$, $(CH_2)_jNR^4C(O)R^1$, $(CH_2)_jNR^4C(O)OR^1$, $(CH_2)_jNR^4C(O)NR^2R^3$, $(CH_2)_jNR^4C(O)NR^2R^3$, $(CH_2)_jNR^4C(NH)NR^2R^3$, $(CH_2)_jSH$, $(CH_2)_jS(O)_kCH_3$, $(CH_2)_jNR^4S(O)_kCH_3$, $(CH_2)_jS(O)_kNR^2R^3$ and $(CH_2)_jNR^4S(O)_kNR^2R^3$, wherein j is an integer independently selected from 0 to 6, k is an integer independently selected from 0 to 2, and wherein each R group is optionally independently substituted with 1-3 substituent groups, each substituent group is independently selected from alkyl, alkenyl, alkynyl, cycloalkyl, perfluoroalkyl, amino, cyano, halogen, hydroxyl, nitro, aryl, arylalkyl, heterocycle, heteroaryl, and heteroarylalkyl;

R^1, R^2, R^3 and R^4 are each independently selected from hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted alkynyl, substituted or unsubstituted cycloalkyl, substituted or unsubstituted aryl, substituted or unsubstituted arylalkyl, substituted or unsubstituted heteroaryl, substituted or unsubstituted heteroarylalkyl, wherein each R^1, R^2, R^3 and R^4 group is

optionally independently substituted with 1-3 substituent groups, each substituent group is independently selected from alkyl, alkenyl, alkynyl, cycloalkyl, perfluoroalkyl, amino, cyano, halogen, hydroxyl, nitro, aryl, arylalkyl, heterocycle, heteroaryl, and heteroarylalkyl;

m is an integer independently selected from 1 to 100,000;

n is an integer independently selected from 1 to 100,000; and

x is an integer independently selected from 1 to 5,000.

~~16~~12. The method of claim ~~15~~11, wherein:

PG is a triphenylmethyl protecting group;

R is independently selected from substituted or unsubstituted $(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkenyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkynyl, substituted or unsubstituted $(C_3\text{-}C_8)$cycloalkyl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl, substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl$(C_1\text{-}C_6)$alkyl, $(CH_2)OR^1$, $(CH_2)C(O)R^1$, $(CH_2)C(O)OR^1$, $(CH_2)OC(O)R^1$, $(CH_2)NR^2R^3$, $(CH_2)C(O)NR^2R^3$, $(CH_2)OC(O)NR^2R^3$, $(CH_2)C(NR^4)NR^2R^3$, $(CH_2)NR^4C(O)R^1$, $(CH_2)NR^4C(O)OR^1$, $(CH_2)NR^4C(O)NR^2R^3$, $(CH_2)NR^4C(O)NR^2R^3$, $(CH_2)NR^4C(NH)NR^2R^3$, $(CH_2)SH$, $(CH_2)S(O)_kCH_3$, $(CH_2)NR^4S(O)_kCH_3$, $(CH_2)S(O)_kNR^2R^3$ and $(CH_2)NR^4S(O)_kNR^2R^3$; and

R^1, R^2, R^3 and R^4 are each independently selected from hydrogen, substituted or unsubstituted $(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkenyl, substituted or unsubstituted $(C_2\text{-}C_6)$alkynyl, substituted or unsubstituted $(C_3\text{-}C_8)$cycloalkyl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl, substituted or unsubstituted $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl, and substituted or unsubstituted $(C_3\text{-}C_{10})$heteroaryl$(C_1\text{-}C_6)$alkyl.

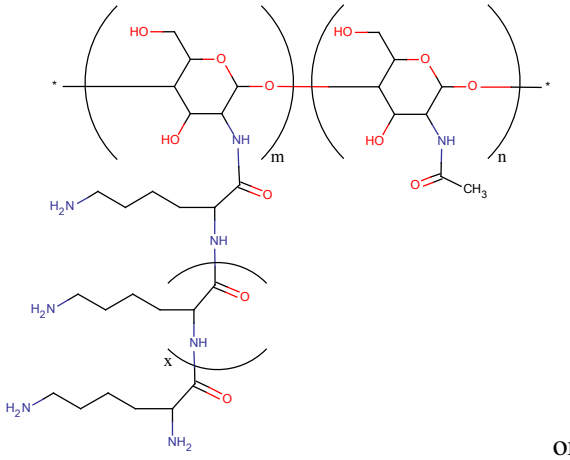
~~17~~13. The method of claim ~~15~~ 11 or ~~16~~12, wherein:

R is independently selected from $(C_1\text{-}C_6)$alkyl, $(C_2\text{-}C_6)$alkenyl, $(C_2\text{-}C_6)$alkynyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_6\text{-}C_{10})$aryl, $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, hetero$(C_3\text{-}C_{10})$aryl, hetero$(C_3\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, OR^1, $C(O)R^1$, $C(O)OR^1$, $OC(O)R^1$, NR^2R^3, $C(O)NR^2R^3$, $OC(O)NR^2R^3$, $C(NR^4)NR^2R^3$, $NR^4C(O)R^1$, $NR^4C(O)OR^1$, $NR^4C(O)NR^2R^3$, $NR^4C(O)NR^2R^3$, $NR^4C(NH)NR^2R^3$, SH, $S(O)_kCH_3$, $NR^4S(O)_kCH_3$, $S(O)_kNR^2R^3$ and $NR^4S(O)_kNR^2R^3$; and

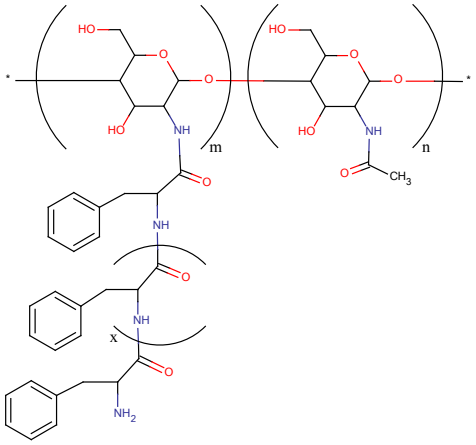
R^1, R^2, R^3 and R^4 are each independently selected from hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_2\text{-}C_6)$alkenyl, $(C_2\text{-}C_6)$alkynyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_6\text{-}C_{10})$aryl, $(C_6\text{-}C_{10})$aryl$(C_1\text{-}C_6)$alkyl, $(C_3\text{-}C_{10})$heteroaryl, and $(C_3\text{-}C_{10})$heteroaryl$(C_1\text{-}C_6)$alkyl.

~~18~~14. The method of any of claims ~~15~~ 11 to ~~17~~13, wherein R is independently selected from CH_3, CH_2CH_3, $CH_2CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH_2CH_2CH_3$, $CH(CH_3)CH_2CH_3$, $CH_2CH(CH_3)_2$, C_6H_5, $CH_2C_6H_5$, $CH_2C_6H_4$(para-OH), $CH_2C_6H_5$, CH_2OH, $CH_2CH(OH)CH_3$, $CH_2C(O)NH_2$, $(CH_2)_2C(O)NH_2$, $(CH_2)_4NH_2$, $(CH_2)_3NHC(NH)NH_2$, $CH_2(C_3H_2N_2)$, $CH_2(C_8H_6N)$, CH_2SH and CH_2SCH_3.

~~19~~15. The method of claim ~~15~~11, wherein the compound of Formula I is selected from:



or



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~~20~~16. A compound of Formula I, prepared by the method of any of claims ~~15~~ 11 to ~~19~~15.