What is claimed is:

1. A method for using a molecule in oxidative conditions, which comprises:

a) obtaining a molecule having an aryl boronic acid residue having one or more electron withdrawing groups on the aromatic moiety which contains the boronic acid residue, such that the molecule has enhanced oxidation resistance as compared to a corresponding molecule without the one or more electron withdrawing groups; and

b) subjecting the molecule having the one or more electron withdrawing groups to oxidative conditions.

2. The method of claim 1, wherein the electron withdrawing group comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

3. The method of claim 1, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety further comprises a detectable group.

4. The method of claim 3, wherein the detectable group comprises an anthracene residue.

5. The method of claim 1, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety is associated with a device that is implanted in a mammal.

6. The method of claim 5, wherein the device determines the presence or concentration of glucose *in vivo*.

7. The method of claim 1, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety comprises:

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-

amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxyethyl)amino]methyl]anthracene (**4c**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);

or a residue or salt thereof.

8. A method for detecting the presence or concentration of an analyte in a sample in an oxidative environment, said method comprising:

a) exposing the sample to an indicator molecule having a detectable quality that changes when the indicator molecule is exposed to the analyte, said molecule comprising an aryl boronic acid residue having one or more electron withdrawing groups on the aromatic moiety which contains the boronic acid residue, such that the indicator molecule has enhanced oxidation resistance as compared to the corresponding molecule without the one or more electron withdrawing groups; and

b) measuring any change in said detectable quality to thereby determine the presence or concentration of said analyte in said sample.

9. The method of claim 8, wherein the electron withdrawing group comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic

acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

10. The method of claim 8, wherein the change in the detectable quality is an optical change.

11. The method of claim 8, wherein the analyte is glucose.

12. The method of claim 8, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety comprises:

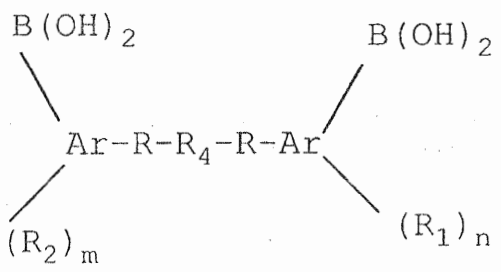
9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxy-ethyl)amino]methyl]anthracene (**4c**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);

or a residue or salt thereof.

13. A compound having the following structure:



wherein:

-each Ar is an aryl group;

-each R_1 and R_2 are the same or different and are an electron withdrawing group;

-m and n are each independently integers from 1 to 10;

-R_4 is a detectable moiety; and

-each R is independently a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, with at least one R further containing a polymerizable monomeric unit;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without the one or more electron withdrawing groups.

14. The compound of claim 13, wherein R_1 and R_2 each comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

15. The compound of claim 13, wherein R_4 comprises an anthracene residue.

16. The compound of claim 13, wherein the compound comprises:

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-

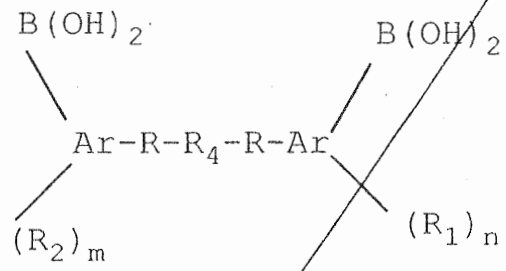
amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxyethyl)amino]methyl]anthracene (**4c**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);

or a residue or salt thereof.

17. A compound having the following structure:



wherein:

-each Ar is an aryl group other than phenyl;

-each R_1 and R_2 are the same or different and are an electron withdrawing group;

-m and n are each independently integers from 1 to 10;

-R_4 is a detectable moiety; and

-each R is independently a linking group having

from zero to ten contiguous or branched carbon and/or heteroatoms, with at least one R containing a linking group capable of attachment to a solid support or a polymeric matrix;

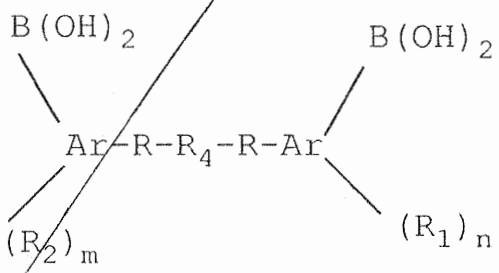
and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without the one or more electron withdrawing groups.

18. The compound of claim 17, wherein R_1 and R_2 each comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

19. The compound of claim 17, wherein R_4 comprises an anthracene residue.

20. A method for the production of an indicator macromolecule for detecting the presence or concentration of an analyte in an oxidative environment, said method comprising copolymerizing:

a) one or more indicator component monomers which individually are not sufficiently water soluble to permit their use in an aqueous environment for detecting the presence or concentration of said analyte, wherein the indicator component monomer comprises compound having the following structure:



wherein:

-each Ar is an aryl group;

-each R_1 and R_2 are the same or different and are an electron withdrawing group;

-m and n are each independently integers from 1 to 10;

-R_4 is a detectable moiety; and

-each R is independently a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, with at least one R further containing a polymerizable monomeric unit; and

b) one or more hydrophilic monomers;

such that the resulting macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without the one or more electron withdrawing groups.

21. The method of claim 20, wherein R_1 and R_2 each comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

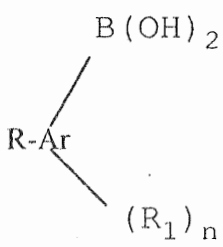
22. The method of claim 20, wherein R_4 comprises an anthracene residue.

23. The method of claim 20, wherein the compound comprises:

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxy-

ethyl)amino]methyl]anthracene (**4c**);
9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);
9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);
or a residue or salt thereof.

24. A compound having the following structure:



wherein:

-Ar is an aryl group;

-each R_1 is the same or different and is an electron withdrawing group;

-n is an integer from 1 to 10; and

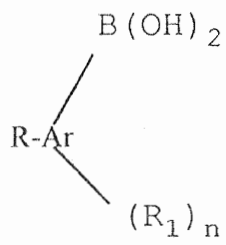
-R is a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, which linking group further contains a polymerizable monomeric unit and a detectable moiety;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without electron withdrawing group(s).

25. The compound of claim 24, wherein R_1 comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

26. The compound of claim 24, wherein the detectable moiety comprises an anthracene residue.

27. A compound having the following structure:



wherein:

-Ar is an aryl group;

-each R_1 is the same or different and is an electron withdrawing group;

-n is an integer from 1 to 10; and

-R is a linking group to a chromatographic support, said linking group having from zero to ten contiguous or branched carbon and/or heteroatoms;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without electron withdrawing group(s).

28. The compound of claim 27, wherein R_1 comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

CLAIMS:

1. A method for using a molecule in oxidative conditions, which comprises:

a) obtaining a molecule having an aryl boronic acid residue having one or more electron withdrawing groups on the aromatic moiety which contains the boronic acid residue, such that the molecule has enhanced oxidation resistance as compared to a corresponding molecule without the one or more electron withdrawing groups; and

b) subjecting the molecule having the one or more electron withdrawing groups to oxidative conditions.

2. A method for detecting the presence or concentration of an analyte in a sample in an oxidative environment, said method comprising:

a) exposing the sample to an indicator molecule having a detectable quality that changes when the indicator molecule is exposed to the analyte, said molecule comprising an aryl boronic acid residue having one or more electron withdrawing groups on the aromatic moiety which contains the boronic acid residue, such that the indicator molecule has enhanced oxidation resistance as compared to the corresponding molecule without the one or more electron withdrawing groups; and

b) measuring any change in said detectable quality to thereby determine the presence or concentration of said analyte in said sample.

3. The method of claim 1 or 2, wherein the electron withdrawing group comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

4. The method of claim 1, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety further comprises a detectable group.

5. The method of claim 4, wherein the detectable group comprises an anthracene residue.

6. The method of claim 1, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety is associated with a device that is implanted in a mammal.

7. The method of claim 5, wherein the device determines the presence or concentration of glucose *in vivo*.

8. The method of claim 1 or 2, wherein the molecule having one or more electron withdrawing groups on the aromatic moiety comprises:

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxy-ethyl)amino]methyl]anthracene (**4c**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);

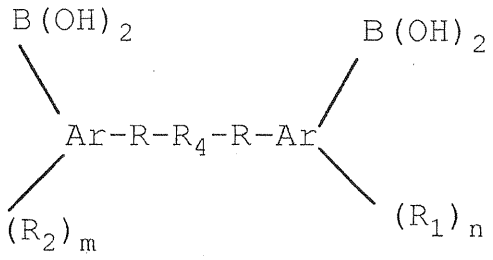
9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);

or a residue or salt thereof.

9. The method of claim 2, wherein the change in the detectable quality is an optical change.

10. The method of claim 2, wherein the analyte is glucose.

11. A compound having the following structure:



wherein:

-each Ar is an aryl group;

-each R_1 and R_2 are the same or different and are an electron withdrawing group;

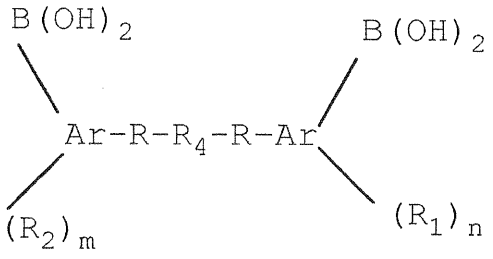
-m and n are each independently integers from 1 to 10;

-R_4 is a detectable moiety; and

-each R is independently a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, with at least one R further containing a polymerizable monomeric unit;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without the one or more electron withdrawing groups.

12. A compound having the following structure:



wherein:

-each Ar is an aryl group other than phenyl;

-each R_1 and R_2 are the same or different and are an electron withdrawing group;

-m and n are each independently integers from 1 to 10;

-R_4 is a detectable moiety; and

-each R is independently a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, with at least one R containing a linking group capable of attachment to a solid support or a polymeric matrix;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without the one or more electron withdrawing groups.

13. The compound of claim 11 or 12, wherein R_1 and R_2 each comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

14. The compound of claim 11 or 12, wherein R_4 comprises an anthracene residue.

15. The compound of claim 11, wherein the compound comprises:

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxy-ethyl)amino]methyl]anthracene (**4c**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-

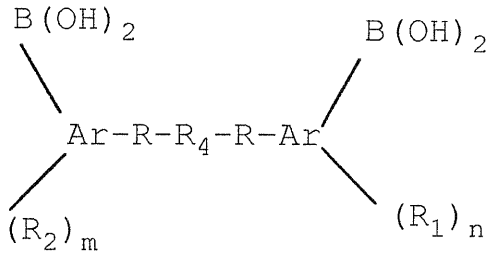
tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);

or a residue or salt thereof.

16. A method for the production of an indicator macromolecule for detecting the presence or concentration of an analyte in an oxidative environment, said method comprising copolymerizing:

a) one or more indicator component monomers which individually are not sufficiently water soluble to permit their use in an aqueous environment for detecting the presence or concentration of said analyte, wherein the indicator component monomer comprises compound having the following structure:



wherein:

-each Ar is an aryl group;

-each R_1 and R_2 are the same or different and are an electron withdrawing group;

-m and n are each independently integers from 1 to 10;

-R_4 is a detectable moiety; and

-each R is independently a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, with at least one R further containing a polymerizable monomeric unit; and

b) one or more hydrophilic monomers;

such that the resulting macromolecule is capable of detecting the presence or concentration of said analyte in an aqueous environment and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without the one or more electron withdrawing groups.

17. The method of claim 16, wherein R_1 and R_2 each comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

18. The method of claim 16, wherein R_4 comprises an anthracene residue.

19. The method of claim 16, wherein the compound comprises:

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[3-(methacrylamido)propyl-amino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethyl)benzyl]-N-[2-carboxy-ethyl)amino]methyl]anthracene (**4c**);

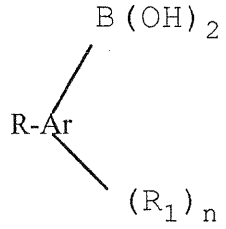
9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-3-(trifluoromethylsulfonyl)benzyl]-N-[2-(carboxyethyl)amino]methyl]anthracene (**21**);

9-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-

bis(trifuoromethyl)benzyl]-N-[3-(methacrylamido)propylamino]methyl]-10-[N-[6-(4,4,5,5,-tetramethyl-1,3,2-dioxaborolano)-2,4-bis(trifuoromethyl)benzyl]-N-[2-(carboxyethyl)amino]-methyl]anthracene (**27a**);

or a residue or salt thereof.

20. A compound having the following structure:



wherein:

-Ar is an aryl group;

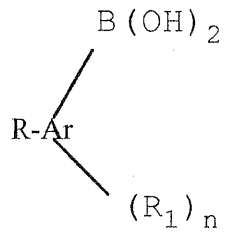
-each R_1 is the same or different and is an electron withdrawing group;

-n is an integer from 1 to 10; and

-R is a linking group having from zero to ten contiguous or branched carbon and/or heteroatoms, which linking group further contains a polymerizable monomeric unit and a detectable moiety;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without electron withdrawing group(s).

21. A compound having the following structure:



wherein:

-Ar is an aryl group;

-each R_1 is the same or different and is an electron

withdrawing group;

-n is an integer from 1 to 10; and

-R is a linking group to a chromatographic support, said linking group having from zero to ten contiguous or branched carbon and/or heteroatoms;

and wherein the compound has enhanced oxidation resistance as compared to the corresponding compound without electron withdrawing group(s).

22. The compound of claim 20 or 21, wherein R_1 comprises one or more of the following: halogen, cyano, nitro, halo substituted alkyl, carboxylic acid, ester, sulfonic acid, ketone, aldehyde, sulfonamide, sulfone, sulfonyl, sulfoxide, halo-substituted sulfone, halo-substituted alkoxy, halo-substituted ketone, amide, or combinations thereof.

23. The compound of claim 20, wherein the detectable moiety comprises an anthracene residue.