What is claimed is:

1. An array, comprising:
a support including a plurality of discrete wells;
a gel material positioned in each of the discrete wells;
a sequencing primer grafted to the gel material; and
a non-sequencing entity grafted to the gel material;
each of the sequencing primer and the non-sequencing entity being in its as-grafted form.

2. The array as defined in claim 1, wherein the non-sequencing entity is selected from the group consisting of a dendrimer, polydextran, methacryloyloxyethyl phosphorylcholine, poly(ethylene glycol), poly(ethylene imine), poly-L-lysine, propargyl methacrylate, poly(methyl methacrylate), poly(N-isopropylacrylamide), poly(ethylene glycol) acrylate, poly(propylene imine), poly(vinyl alcohol), poly(2-ethyl-2-oxazoline), polyacrylic acid, poly(trolox ester), a peptide, and a non-functional primer.

3. The array as defined in claim 2, wherein the non-sequencing entity is the non-functional primer, and wherein the non-functional primer is polyT or polyA.

4. The array as defined in claim 2, wherein the non-sequencing entity is poly(ethylene glycol) having a molecular weight ranging from about 0.5 KDa to about 10 KDa.

5. The array as defined in any of claim 1 or claim 2, wherein the non-sequencing entity is grafted to the gel material through a terminal functional group selected from the group consisting of an alkyne, a norbornyl, a copper free click moiety, and a thiol.

6. The array as defined in any of claim 1 or claim 5, wherein the non-sequencing entity includes a linker and a triplet state quencher or an anti-oxidant bound to the linker.

7. The array as defined in claim 6 wherein:

the linker is selected from the group consisting of a dendrimer, polydextran, methacryloyloxyethyl phosphorylcholine, poly(ethylene glycol), poly(ethylene imine), poly-L-lysine, propargyl methacrylate, poly(methyl methacrylate), poly(N-isopropylacrylamide), poly(ethylene glycol) acrylate, poly(propylene imine), poly(vinyl alcohol), poly(2-ethyl-2-oxazoline), polyacrylic acid, and poly(trolox ester); and

one of:

the triplet state quencher is selected from the group consisting of cyclo-octyltetraene (COT), Trolox (6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid), and nitrobenzyl alcohol (NBA); or

the anti-oxidant is selected from the group consisting of ascorbate, glutathione, gallic acid, catechin, Trolox (6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid), and vitamin E.

8. The array as defined in any of claim 1 or claim 5, wherein the non-sequencing entity includes a linker and a fluorescence resonance energy transfer (FRET) donor bound to the linker.

9. The array as defined in claim 8 wherein:

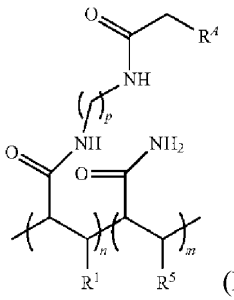
the linker is selected from the group consisting of a dendrimer, polydextran, methacryloyloxyethyl phosphorylcholine, poly(ethylene glycol), poly(ethylene imine), poly-L-lysine, propargyl methacrylate, poly(methyl methacrylate), poly(N-isopropylacrylamide), poly(ethylene glycol) acrylate, poly(propylene imine), poly(vinyl alcohol), poly(2-ethyl-2-oxazoline), polyacrylic acid, and poly(trolox ester); and

the FRET donor is selected from the group consisting of a donor dye to FRET with a green-emitting dye and a donor dye to FRET with a red-emitting dye.

10. The array as defined in any of the preceding claims, wherein a molar ratio of the non-sequencing entity to the sequencing primer ranges from about 0.25:1 to about 5:1.

11. The array as defined in any of the preceding claims wherein:

gel material includes a recurring unit of Formula (I):



(I)

wherein:

R^1 is H or optionally substituted alkyl;

R^A is selected from the group consisting of azido, optionally substituted amino, optionally substituted alkenyl, optionally substituted hydrazone, optionally substituted hydrazine, carboxyl, hydroxy, optionally substituted tetrazole, optionally substituted tetrazine, nitrile oxide, nitrone, and thiol;

R^5 is selected from the group consisting of H and optionally substituted alkyl;

each of the $-(CH_2)_p-$ can be optionally substituted;

p is an integer in the range of 1 to 50;

n is an integer in the range of 1 to 50,000; and

m is an integer in the range of 1 to 100,000.

12. An array, comprising:

a support including a plurality of discrete wells;

a gel material positioned in each of the discrete wells;

a sequencing primer grafted to the gel material; and

a spacer grafted to the gel material, the spacer being selected from the group consisting of a dendrimer, polydextran, methacryloyloxyethyl phosphorylcholine, poly(ethylene glycol), poly(ethylene imine), poly-L-lysine, propargyl methacrylate, poly(methyl methacrylate), poly(N-isopropylacrylamide), poly(ethylene glycol) acrylate, poly(propylene imine), poly(vinyl alcohol), poly(2-ethyl-2-oxazoline), polyacrylic acid, poly(trolox ester), and combinations thereof.

13. The array as defined in claim 12, further comprising a triplet state quencher, an anti-oxidant, or a fluorescence resonance energy transfer (FRET) donor bound to the spacer.

14. The array as defined in claim 13 wherein:
the triplet state quencher is bound to the spacer; and
the triplet state quencher is selected from the group consisting of cyclo-octyltetraene (COT), Trolox (6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid), and nitrobenzyl alcohol (NBA).

15. The array as defined in claim 13 wherein:
the anti-oxidant is bound to the spacer; and
the anti-oxidant is selected from the group consisting of ascorbate, glutathione, gallic acid, catechin, Trolox (6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylic acid), and vitamin E.

16. The array as defined in claim 13 wherein:
the FRET donor is bound to the spacer; and
the FRET donor is selected from the group consisting of a donor dye to FRET with a green-emitting dye and a donor dye to FRET with a red-emitting dye.

17. The array as defined in any of claims 12-16 wherein a molar ratio of the spacer to the sequencing primer ranges from about 0.25:1 to about 5:1.

18. The array as defined in any of claims 12-17, wherein the spacer is grafted to the gel material through a terminal functional group selected from the group consisting of an alkyne, a norbornyl, a copper free click moiety, and a thiol.

19. A method, comprising:
positioning a gel material in each of a plurality of discrete wells of a support;
grafting a sequencing primer to the gel material; and
grafting a non-sequencing entity to the gel material.

20. The method as defined in claim 19 wherein the sequencing primer is grafted to the gel material before or after the non-sequencing entity is grafted to the gel material.

21. The method as defined in claim 19 wherein the sequencing primer and the non-sequencing entity are co-grafted to the gel material.

22. The method as defined in claim 21 wherein co-grafting is accomplished by:

depositing a mixture of the sequencing primer and the non-sequencing entity onto the support having the gel material thereon; and

incubating the support at a predetermined temperature.

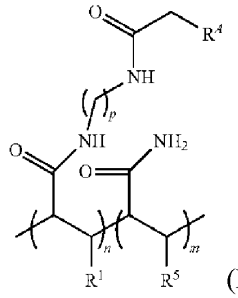
23. The method as defined in any of claims 19-22 wherein:

the non-sequencing entity is selected from the group consisting of a dendrimer, polydextran, methacryloyloxyethyl phosphorylcholine, poly(ethylene glycol), poly(ethylene imine), poly-L-lysine, propargyl methacrylate, poly(methyl methacrylate), poly(ethylene glycol) acrylate, poly(propylene imine), poly(vinyl alcohol), poly(2-ethyl-2-oxazoline), polyacrylic acid, poly(trolox ester), a peptide, and a non-functional primer; and

the non-sequencing entity is grafted to the gel material through a terminal functional group selected from the group consisting of an alkyne, a norbornyl, a copper free click moiety, and a thiol.

24. The method defined in any of claims 19-23 wherein:

gel material includes a recurring unit of Formula (I):



(I)

wherein:

R^1 is H or optionally substituted alkyl;

R^4 is selected from the group consisting of azido, optionally substituted amino, optionally substituted alkenyl, optionally substituted hydrazone, optionally substituted

hydrazine, carboxyl, hydroxy, optionally substituted tetrazole, optionally substituted tetrazine, nitrile oxide, nitrone, and thiol;

R^5 is selected from the group consisting of H and optionally substituted alkyl;

each of the $-(CH_2)_p-$ can be optionally substituted;

p is an integer in the range of 1 to 50;

n is an integer in the range of 1 to 50,000; and

m is an integer in the range of 1 to 100,000.