

-continued

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<210> SEQ ID NO 36
<211> LENGTH: 32
<212> TYPE: DNA
<213> ORGANISM: Artificial
<220> FEATURE:
<223> OTHER INFORMATION: oligonucleotide that can form a haipin

<400> SEQUENCE: 36

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<213> ORGANISM: Artificial
<220> FEATURE:
<223> OTHER INFORMATION: exemplary target sequence

<400> SEQUENCE: 39

acgttcagt                                                           9

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1. A probe for sequencing a nucleic acid molecule, comprising:

a polymerizing agent having an active site capable of binding to a target nucleic acid molecule and promoting synthesis of a complementary nucleic acid molecule that elongates as complementary nucleotides are incorporated into the complementary nucleic acid molecule; and one or more molecular linkers spaced apart on the polymerizing agent, wherein the one or more of the linkers carry a nucleotide analog that is capable of reversibly binding to the target nucleic acid molecule, without being detached from the linker, by specifically binding with a complementary nucleotide in the target nucleic acid molecule, wherein specific binding of the nucleotide analog on the linker with a complementary nucleotide in the target nucleic acid molecule is indicated by emission of a characteristic signal that indicates pairing of the nucleotide analog on the linker with its complementary nucleotide.

2. (canceled)

3. The probe of claim 1, wherein the nucleotide analog comprises a non-hydrolyzable nucleotide analog.

4. The probe of claim 3, wherein the non-hydrolyzable nucleotide analog comprises a non-hydrolyzable triphosphate nucleotide analog.

5. (canceled)

6. The probe of claim 1, where the nucleotide analog is a mononucleotide.

7. (canceled)

8. The probe of claim 1, wherein the one or more molecular linkers comprises at least four independent linkers, each of which carries a different nucleotide analog capable of specifically binding with a different nucleotide in the target nucleic acid molecule.

9. The probe of claim 1, wherein the one or more molecular linkers form a branch structure, wherein each branch carries a different nucleotide analog capable of specifically binding with a different nucleotide in the target nucleic acid molecule.

10. The probe of claim 9, wherein the branch structure comprises at least four branches, wherein each branch carries a different nucleotide analog capable of specifically binding with a different nucleotide in the target nucleic acid molecule.

11. The probe of claim 1, wherein the polymerizing agent is associated with a tag, and wherein each of the nucleotide