

a second specific region of the at least one target nucleic acid, wherein the second specific region is different from the first specific region of the at least one target nucleic acid;

(ii) contacting the sample with an at least second copy of the first probe capable of recognizing and binding the first specific region of the at least one target nucleic acid; or

(iii) contacting the sample with an at least third probe capable of recognizing and binding a first specific region of an at least second target nucleic acid, wherein the at least second target nucleic acid is different from the at least one target nucleic acid;

wherein the probes comprise:

a target binding domain and a barcode domain

wherein the target binding domain comprises 20-60 nucleotides; and

wherein the barcode domain comprises a first attachment region comprising a nucleic acid sequence capable of being bound by a first complementary nucleic acid molecule, a first complementary nucleic acid molecule of a first reporter complex or a first hybridizing nucleic acid molecule, an at least second attachment region comprising a nucleic acid sequence capable of being bound by an at least second complementary nucleic acid molecule, an at least second complementary nucleic acid molecule of an at least second reporter complex or an at least second hybridizing nucleic acid molecule and an at least third attachment region comprising a nucleic acid sequence capable of being bound by an at least third complementary nucleic acid molecule, an at least third reporter complex or an at least third hybridizing nucleic acid molecule.

11. The method of claim 10 further comprising repeating steps (1) to (9) of claim 1 with the at least second probe, the at least second copy of the first probe, or the at least third probe.

12. The method of claim 1, wherein the target nucleic acid is first immobilized to a substrate prior to contact by a probe, by at least binding a first position of the target nucleic acid with a first capture probe that comprises a first affinity binding reagent that selectively binds to the substrate, wherein the first capture probe binds the target nucleic acid at a different position on the target nucleic acid than the at least one probe binds to the target nucleic acid.

13. The method of any one of claims 1 to 12, wherein each reporter complex comprising a detectable label comprises a complementary nucleic acid molecule and a primary nucleic acid

molecule, wherein the complementary nucleic acid molecule is directly linked to the primary nucleic acid molecule.

14. The method of any one of claims 1 to 12, wherein each reporter complex comprising a detectable label comprises a complementary nucleic acid molecule and a primary nucleic acid molecule, wherein the complementary nucleic acid molecule is indirectly linked to the primary nucleic acid molecule via a cleavable linker.

15. The method of claim 14, wherein the cleavable linker is independently selected from the group photo-cleavable, chemically cleavable and enzymatically cleavable.

16. The method of claim 13, wherein each primary nucleic acid molecule is hybridized to at least one, at least two, at least three, at least four, at least five or at least six secondary nucleic acid molecules.

17. The method of claim 16, wherein the each secondary nucleic acid molecule independently comprises a cleavable linker.

18. The method of claim 17, wherein the cleavable linker is independently selected from the group photo-cleavable, chemically cleavable and enzymatically cleavable.

19. The method of claim 16, wherein the secondary nucleic acid molecule or molecules comprise at least one detectable label.

20. The method of claim 16, wherein each secondary nucleic acid molecule is hybridized to at least one, at least two, at least three, at least four, at least five, at least six or at least seven tertiary nucleic acid molecules comprising at least one detectable label.