

simultaneously, and detecting the sequence of signals from the plurality of sequencing reactions.

**56.** The method of claim **55**, wherein a plurality of polymerizing agents, target nucleic acid molecules, or oligonucleotide primers are fixed directly or indirectly to the substrate in a predetermined pattern, and detecting the sequence of signals further comprises correlating the signal with a nucleic acid molecule corresponding to a predetermined position within that pattern.

**57-61.** (canceled)

**62.** The method of claim **37**, wherein the target nucleic acid molecule is present in a biological sample obtained from a subject.

**63.** The method of claim **37**, wherein the target nucleic acid molecule is present in a cell, and exposing the template

nucleic acid molecule to an oligonucleotide primer and the probe comprises introduction of the oligonucleotide primer and the probe into the cell.

**64.** (canceled)

**65.** The method of claim **37**, wherein the target nucleic acid strand comprises one or more mutations associated with disease.

**66.** The probe of claim **1**, further comprising a primer that specifically hybridizes to the target nucleic acid sequence under high stringency conditions, wherein the primer is attached to the polymerizing agent via a molecular linker.

**67.** (canceled)

**68.** The probe of claim **11**, wherein the tags associated with the nucleotide analogs are a coded fluorophore set that permits the detection and correction of errors.

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