

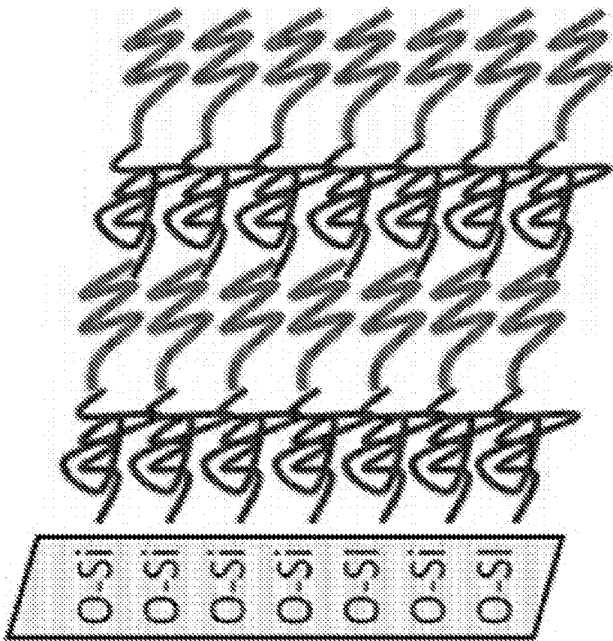


FIG. 1

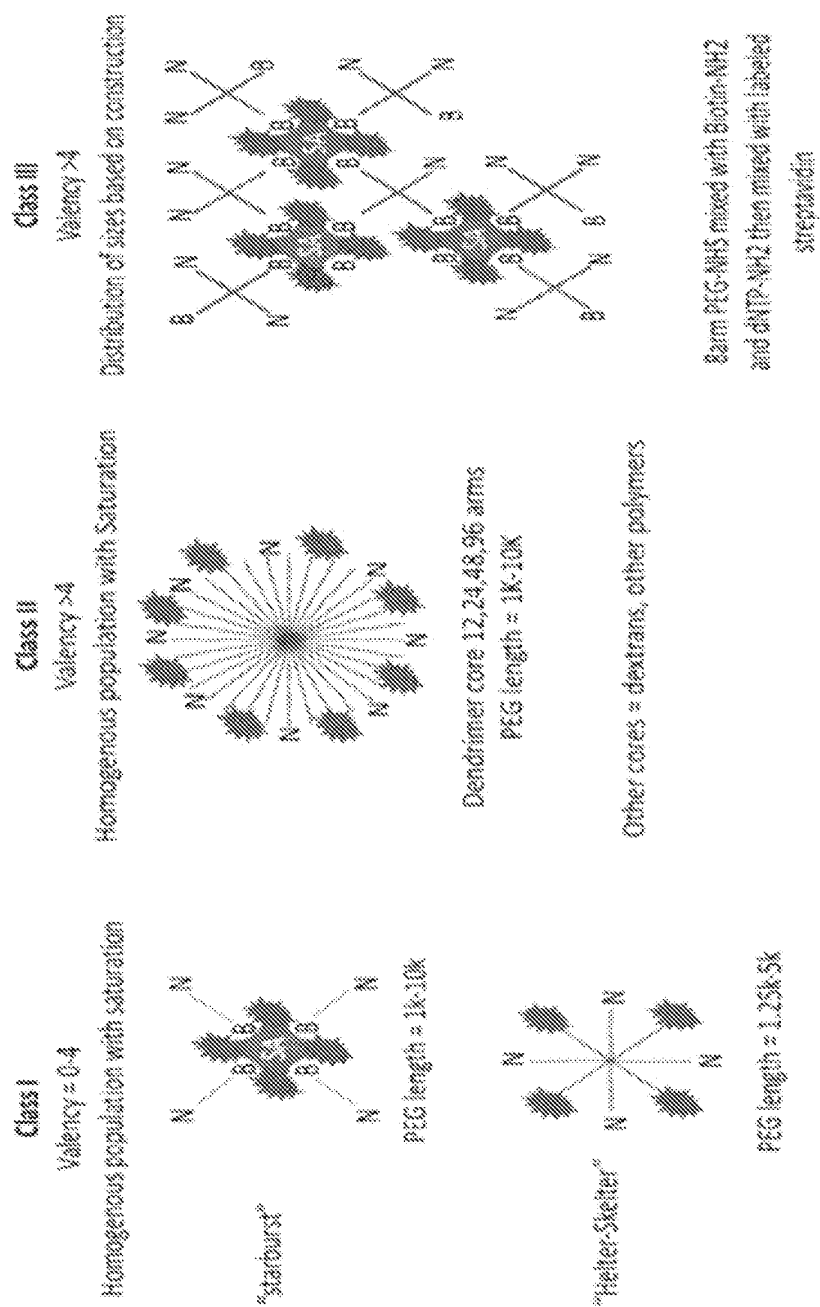


FIG. 2

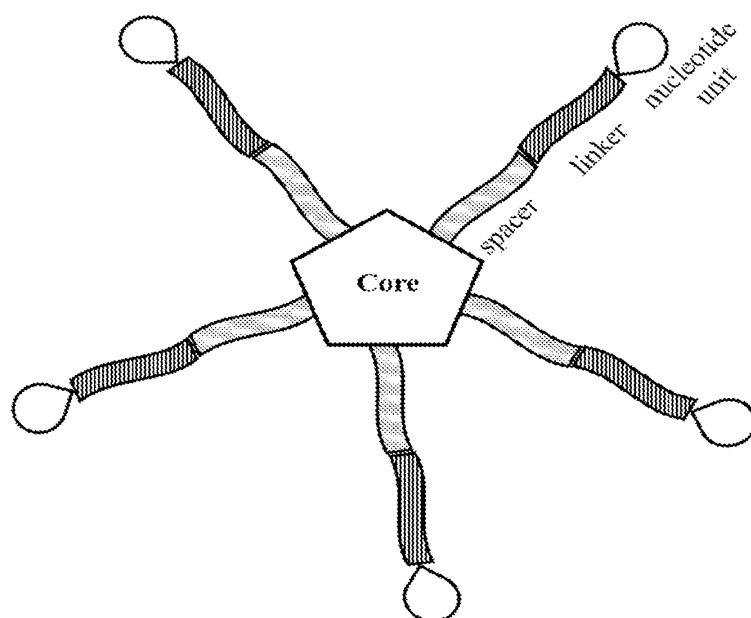


FIG. 3

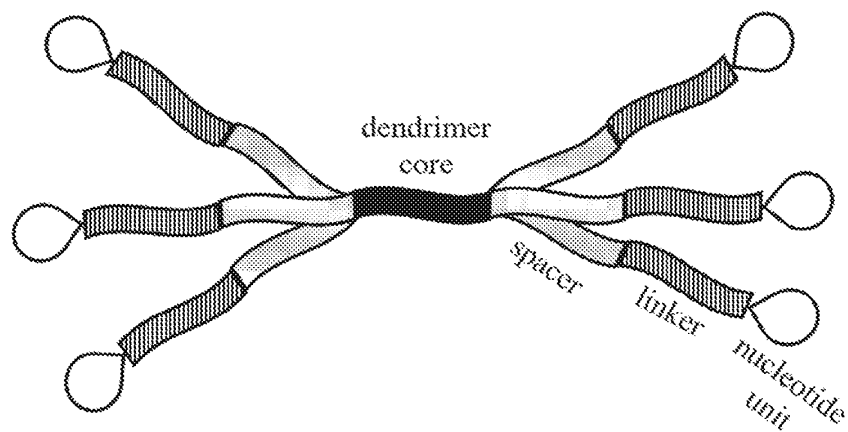


FIG. 4

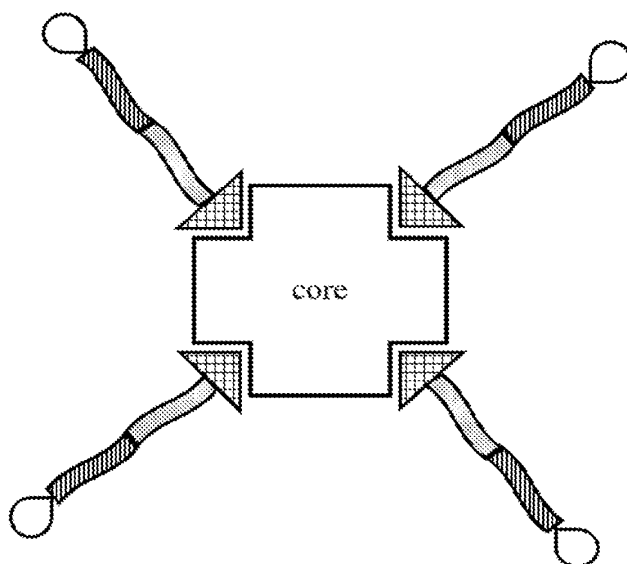


FIG. 5

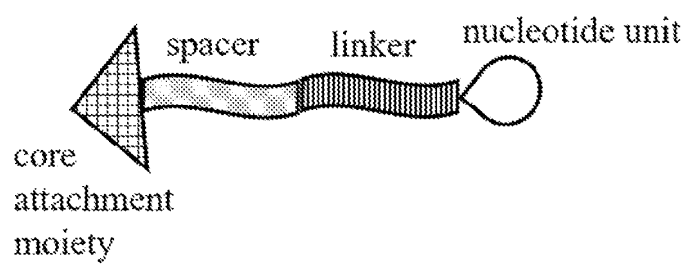
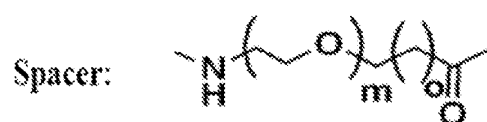
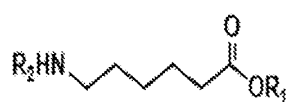


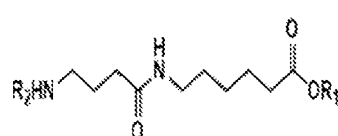
FIG. 6

**Linkers:**

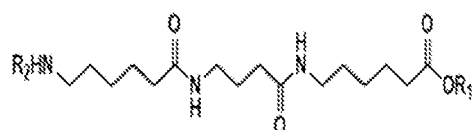
11 atom Linker:



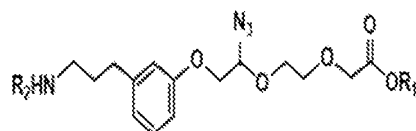
16 atom Linker:



23 atom Linker:



N3 Linker:

**FIG. 7**

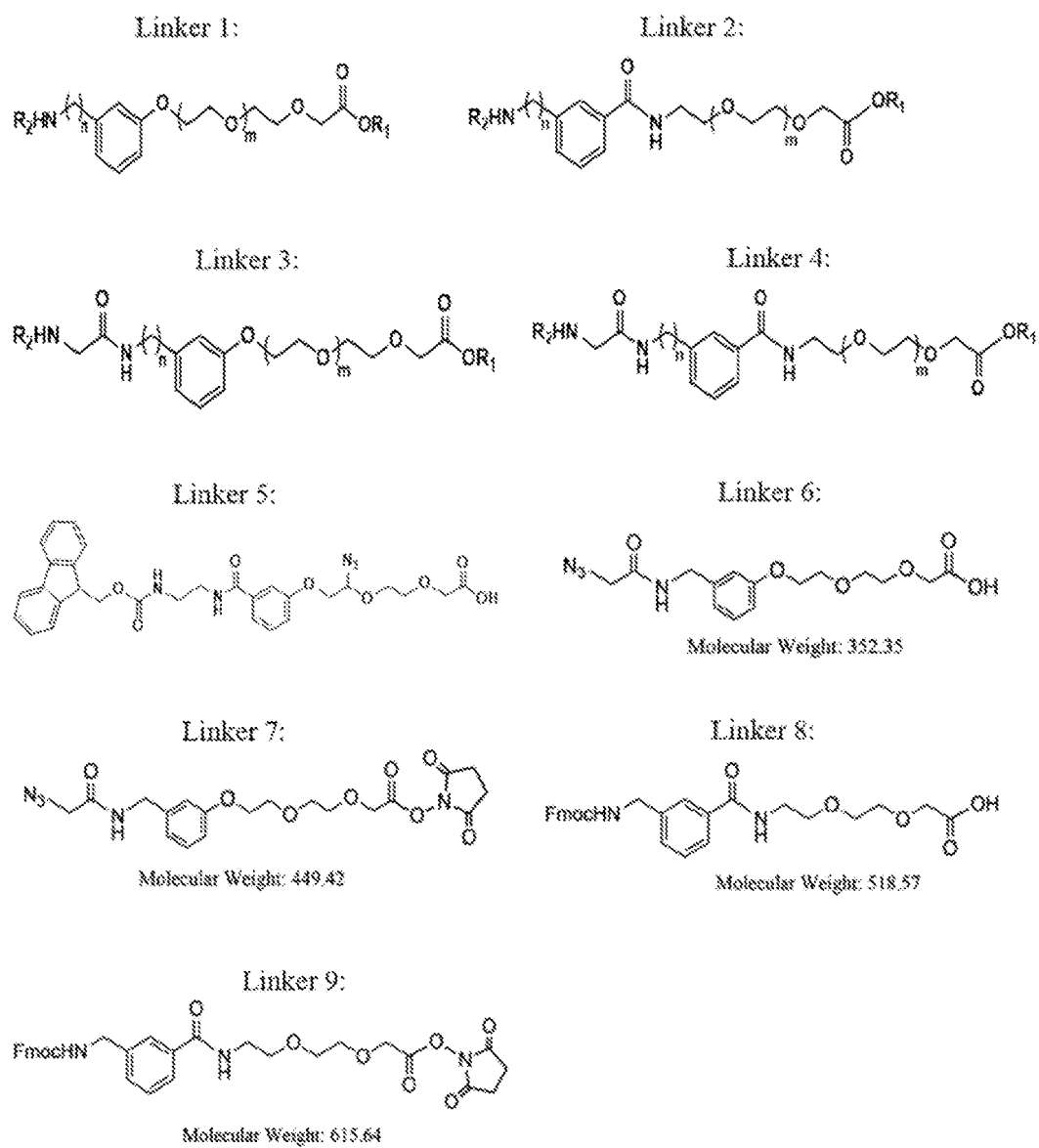
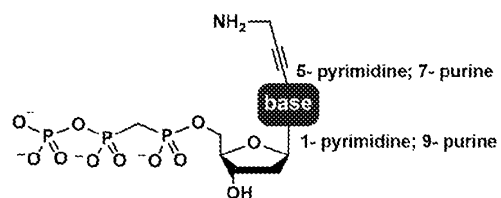
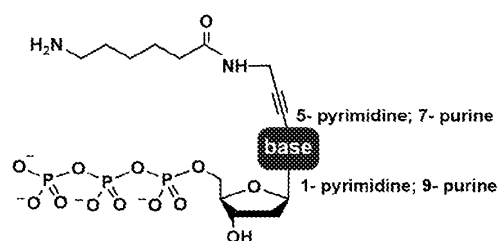
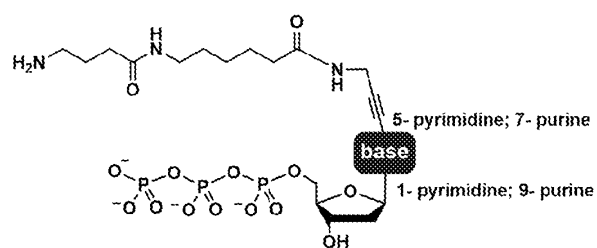
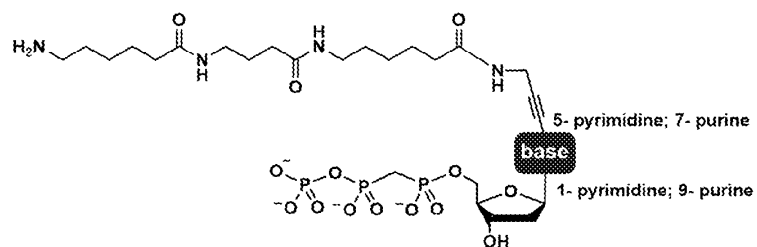
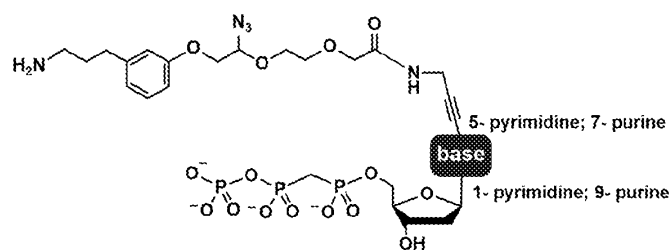
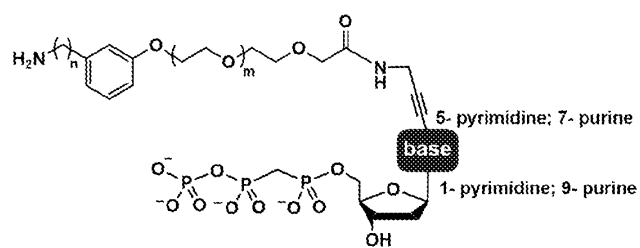
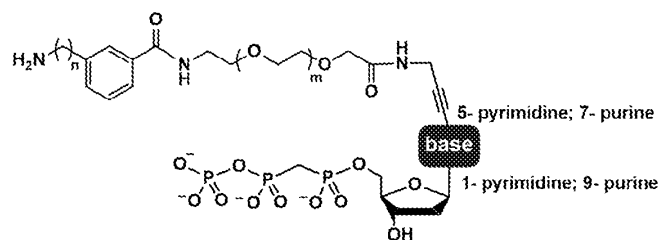
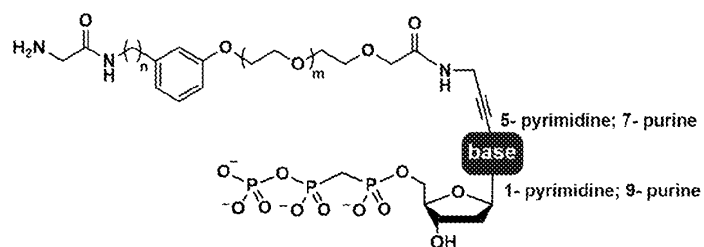


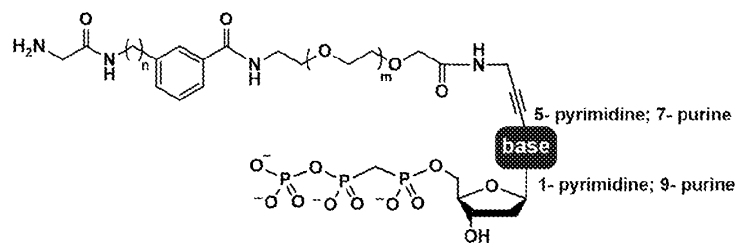
FIG. 8

dNTP-PA-NH₂:**dNTP-PA-11 Atom Linker-NH₂:****dNTP-PA-16 Atom Linker-NH₂:****FIG. 9A**

dNTP-PA-23 Atom Linker-NH₂:**dNTP-PA-N3 Linker-NH₂:****dNTP-PA-Linker 1-NH₂:****FIG. 9B**

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dNTP-PA-Linker 2-NH₂:**dNTP-PA-Linker 3-NH₂:****FIG. 9C**



The diagram shows a DNA probe structure. At the 5' end, there is a phosphate group (O⁻-P(=O)(O⁻)₂) linked to a deoxyribose sugar. The sugar is connected to a pyrimidine or purine base (labeled 'base' in a black box). The base is further connected to a linker consisting of a carbonyl group, an ethylene glycol chain, and an azide group (N₃). The azide group is attached to a phenyl ring, which is also substituted with a 3-aminopropyl group (H₂N-CH₂-CH₂-CH₂-). Labels indicate '5. pyrimidine; 7. purine' for the base and '1. pyrimidine; 9. purine' for the sugar attachment points.

FIG. 9D

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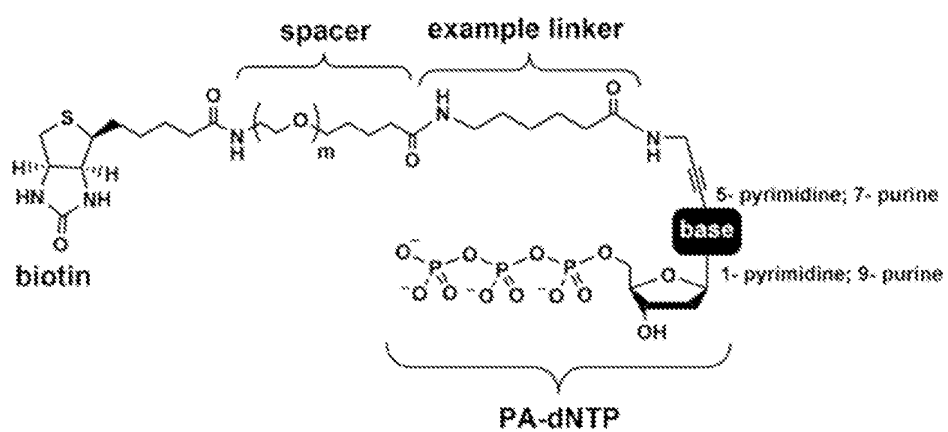


FIG. 10

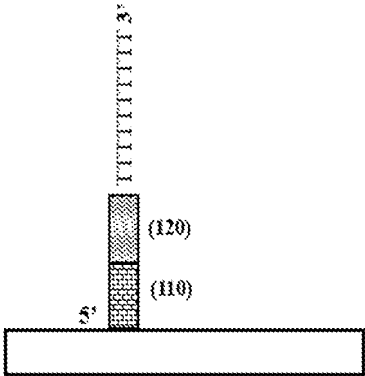


FIG. 11

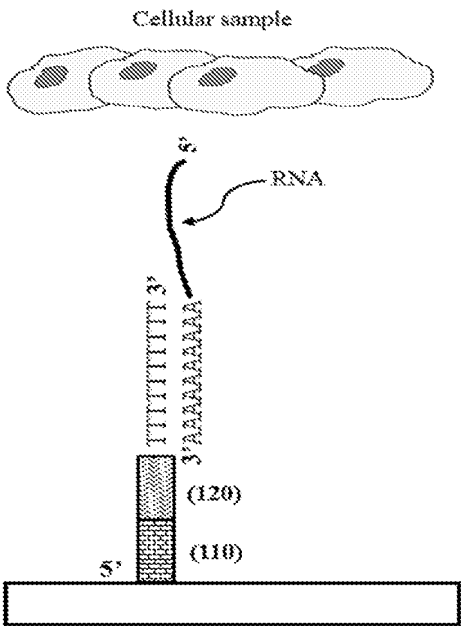


FIG. 12

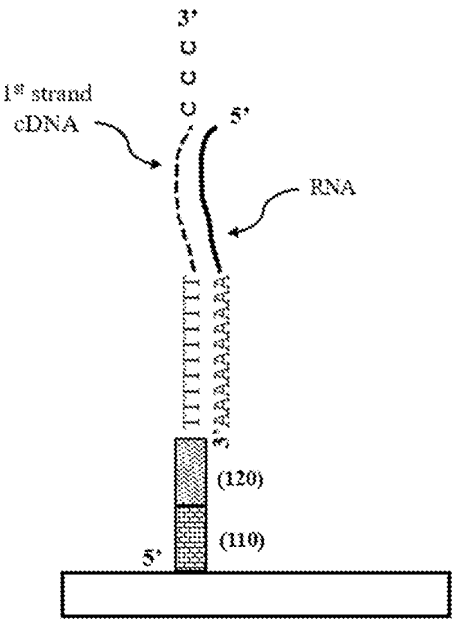


FIG. 13

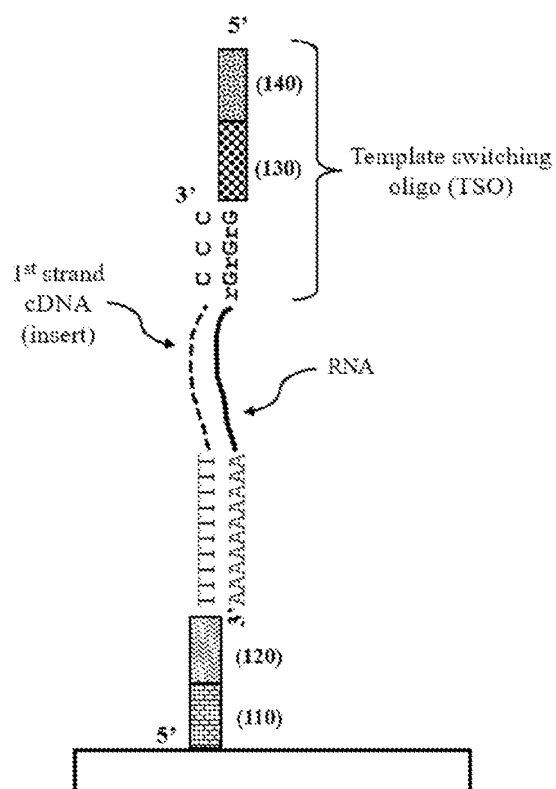


FIG. 14

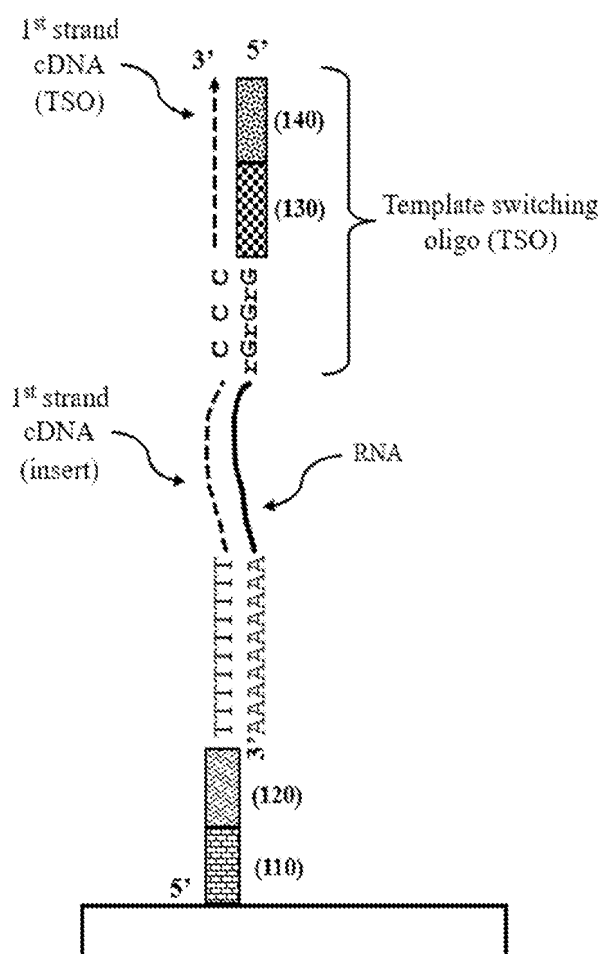


FIG. 15

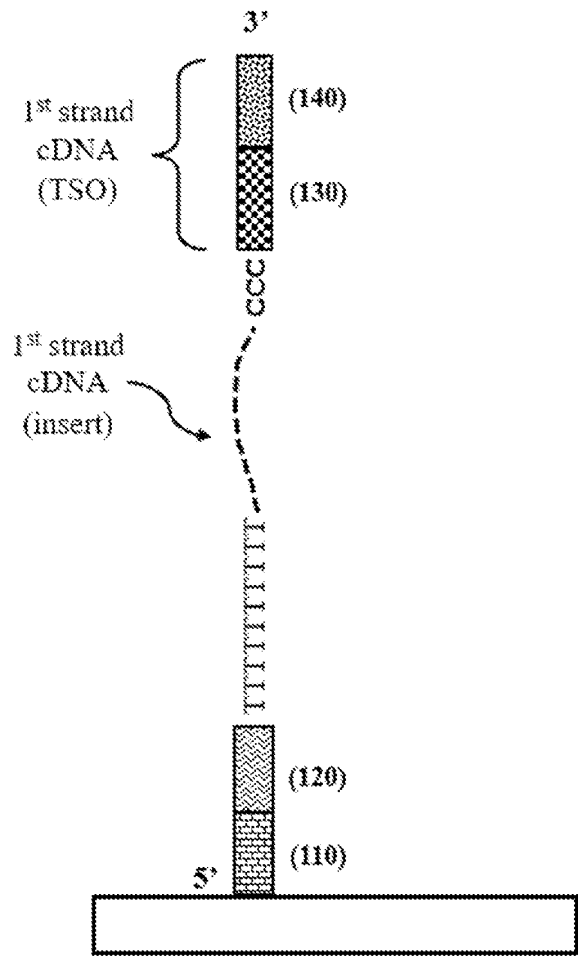


FIG. 16

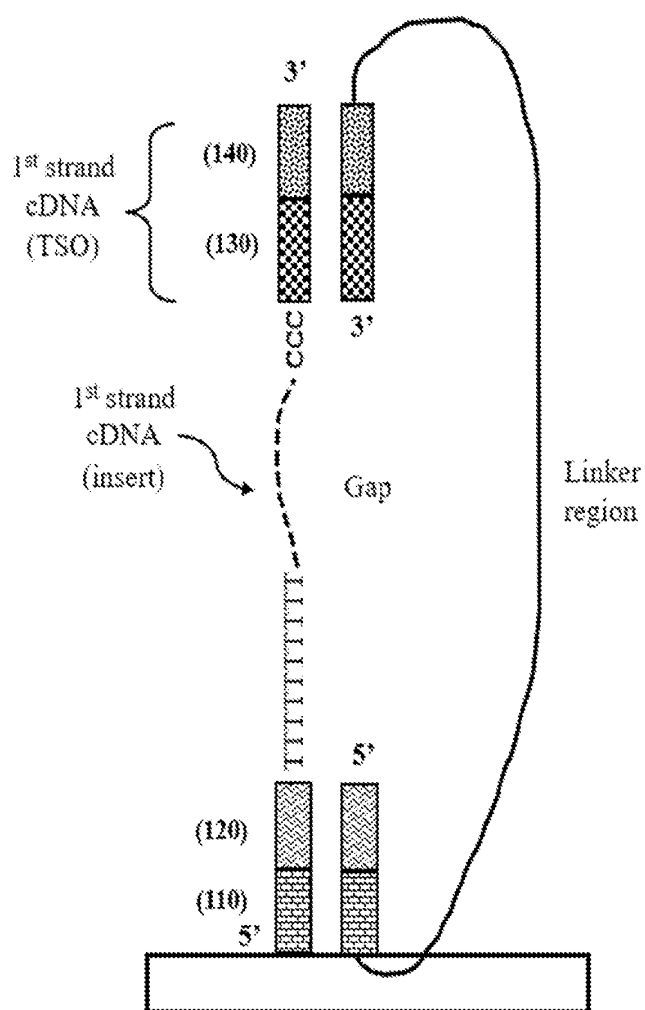


FIG. 17

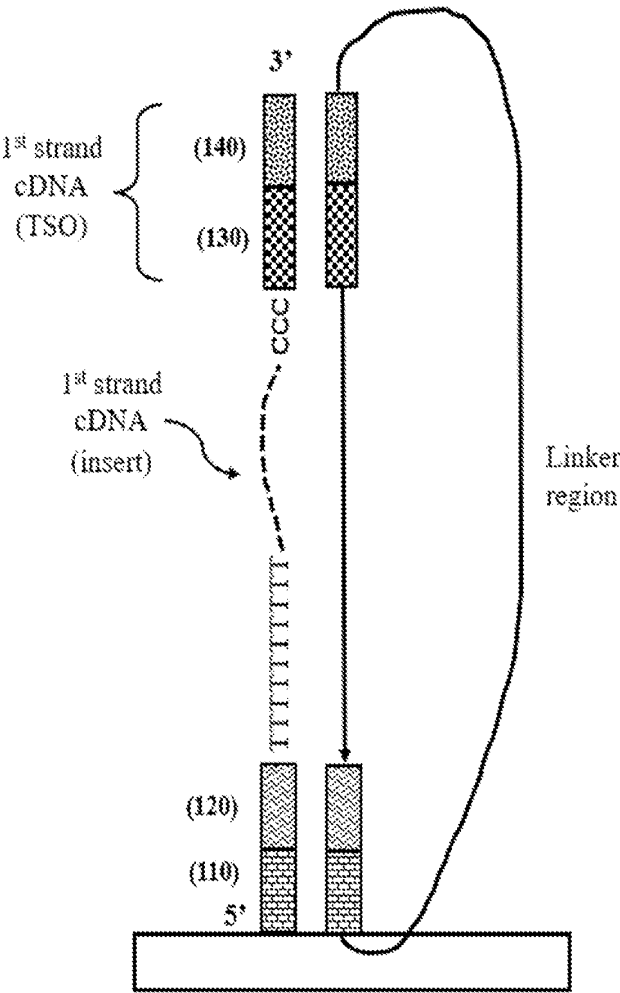


FIG. 18

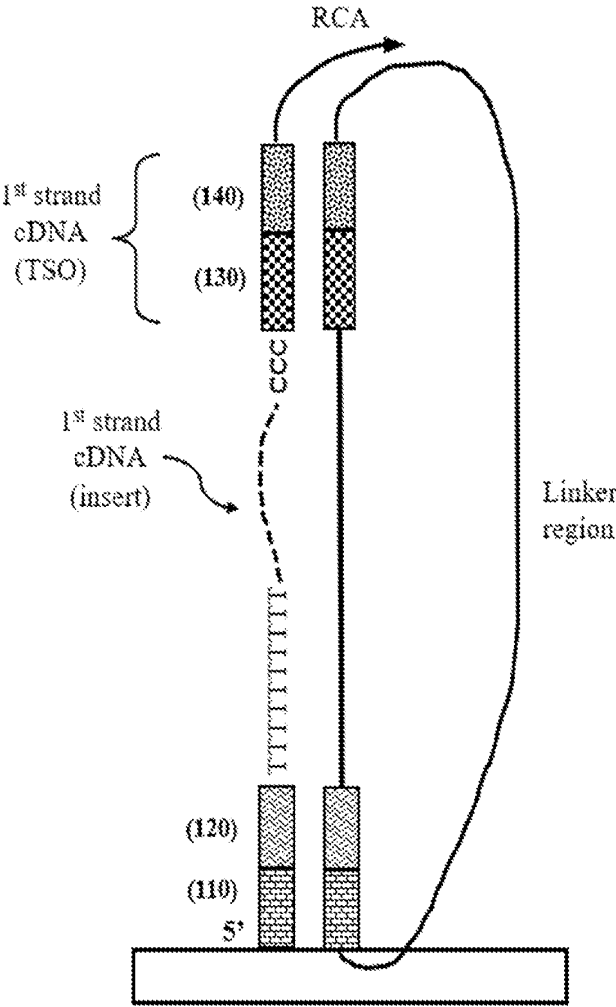


FIG. 19

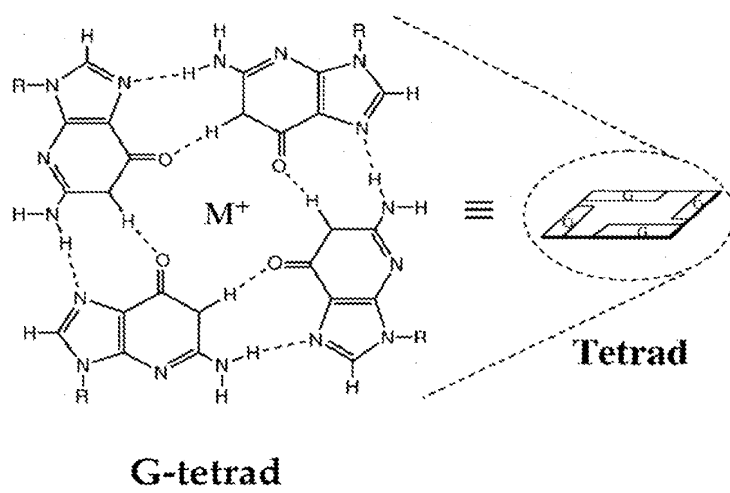


FIG. 20

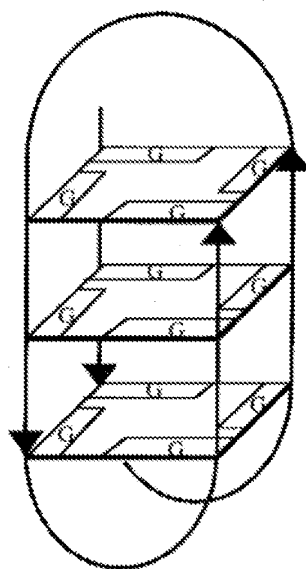


FIG. 21