Claims

WHAT IS CLAIMED IS:

1. A container, comprising a sample receptacle and a cap, wherein:

the cap comprises a reservoir for retaining a composition, a first piercing member and a first pierceable barrier for sealing said composition within said reservoir;

the sample receptacle comprises a first open end for receiving a sample, and one or more second piercing members, said first open end is configured for closure by said cap and for receiving said composition;

said first piercing member and said one or more second piercing members are configured to disestablish the first pierceable barrier from opposite side of said first pierceable barrier when said first open end is closed by said cap;

wherein said cap comprises a wall defining the outer perimeter of said reservoir, wherein an outer surface of said wall is made from or is coated with an elastomeric material for sealingly engagement against an inner surface of said sample receptacle when said first open end is closed by said cap;

wherein at least a portion of an interior surface of the sample receptable, configured to be in contact with said wall of the cap when the cap is closed, is made from or is coated with an elastomeric material substantially coextensive with said elastomeric material of the outer surface of the wall; and

wherein pressure inside said container is greater than atmospheric pressure when said first open end is closed and pressed by said cap.

2. The container according to claim 1, wherein said sample receptacle comprises two of said second piercing members configured to allow said first piercing member to be positioned between two of said second piercing members when said first open end is closed by said cap.

3. The container according to claim 1, wherein said sample receptacle comprises one or more of a third piercing members located on an outer base surface of said

sample receptacle, said one or more said third piercing members extend outwardly from said outer base surface.

4. The container according to claim 1, wherein sample receptacle comprises an extension, said extension extends outwardly from said outer base surface of said sample receptacle and an inner of said extension is in fluidic communication with said first open, and wherein said sample receptacle comprises a filter, said filter is configured to filter out debris from sample.

5. The container according to claim 3, wherein said one or more third piercing members are configured to disestablish a pierceable barrier of an adapter, when said container is mounted on said adapter.

6. The container according to claim 5, wherein said sample receptacle comprises one or more outer rings, said one or more outer ring extends outwardly from said outer base surface of said sample receptacle, and wherein at least a portion of inner surface of said adapter, configured to be in contact with said one or more outer rings of said container when said container is mounted on said adapter, is made from or is coated with an elastomeric material substantially coextensive with said elastomeric material of said outer surface of said one or more outer rings, to form a fluid tight seal when said container is mounted on said adapter.

7. The container according to claim 1, wherein said cap comprises a first snap feature and said sample receptacle comprises a second snap feature, said first snap feature and said second snap feature are configured for said first open to be irreversibly closed by said cap.

8. The container according to claim 1, wherein said sample receptacle has a height of no less than about 10 mm.

9. A system , comprising: a container according to claim 1 and a device comprising first layer, said first layer comprises a sample receiving inlet, and at least one fluid channel extending from and in fluidic communication with said sample receiving inlet, the terminus of each fluid channel is in fluid communication with a vent sealed by a hydrophobic vent material.

10. The system according to claim 9, said system comprises a reader, said reader comprises a thermo control module and a signal detection module.

11. The system according to claim 10, said reader comprise a heating block, said heating block is configured for uniform heating a reaction chamber of said device.

12. A method for preparing a sample derived from a subject, comprising:

I) introducing the sample into a sample receptacle through a first open end of said sample receptable;

II) closing said first open end irreversibly by attaching a cap to said sample receptable;

III) said cap comprises a reservoir for retaining a composition, a first piercing member and a first pierceable barrier for sealing said composition within said reservoir; wherein said cap comprises a wall defining the outer perimeter of said reservoir, wherein an outer surface of said wall is made from or is coated with an elastomeric material for sealingly engagement against an inner surface of said sample receptacle when said first open end is closed by said cap;

IV) said sample receptacle comprises one or more second piercing members; wherein at least a portion of an interior surface of the sample receptable, configured to be in contact with said wall of the cap when the cap is closed, is made from or is coated with an elastomeric material substantially coextensive with said elastomeric material of the outer surface of the wall;

V) when the first open end of the sample receptacle is closed by said cap, said first piercing member and said one or more second piercing members effect a force to disestablish the first pierceable barrier from opposite side of said first pierceable barrier.

13. A method for determining the presence and/or amount of a target in a sample, comprising:

I) preparing the sample using the container of claim 1,

II) mounting the container comprising the prepared sample on the device comprising a first layer, said first layer comprises a sample receiving inlet, and at least one fluid channel extending from and in fluidic communication with said sample

receiving inlet, the terminus of each fluid channel is in fluid communication with a vent sealed by a hydrophobic vent material; and

III) inserting said device into a reader comprising a thermo control module and a signal detection module.