Claims

1. A biomolecule analysis kit comprising:

a reaction container configured to perform an enzymatic reaction, the reaction container including:

a base portion which has a container-shaped portion, and

a modified portion which is provided on at least the inner surface of the container-shaped portion, the modified portion being formed by modifying a surface of the base portion to have an adsorption rate lower than that of the base portion at which at least one of a sample which becomes a target of analysis in the enzymatic reaction and a reagent for the enzymatic reaction is adsorbed thereonto, wherein

a signal resulting from the enzymatic reaction is configured to be detected when the enzymatic reaction is performed in the reaction container.

2. The biomolecule analysis kit according to claim 1, wherein

the modified portion has a lower adsorption rate than that of the base portion at which the sample is absorbed thereonto, and a background in the signal detection is lower than a case in which the base portion is exposed in the reaction container.

3. The biomolecule analysis kit according to claim 1 or 2, wherein

the modified portion has a lower adsorption rate than that of the base portion at which the sample is absorbed thereonto; and

a signal intensity in the signal detection is higher than a case in which the base portion is exposed in the reaction container.

4. The biomolecule analysis kit according to any one of claims 1 to 3, wherein each of the container-shaped portions has a bottomed cylindrical shape having an approximately circular opening portion having a diameter of equal to or less than 5 μm.

5. A biomolecule analysis kit comprising:

a reaction container including a container-shaped portion configured so that a sample that becomes a target of analysis is supplied to the container-shaped portion, a base portion in which the container-shaped portion is formed, and a modified portion which is provided on at least the inner surface of the container-shaped portion, the modified portion being formed by modifying a surface of the base portion to have an adsorption rate lower than that of the base portion at which at least one of the sample and a reagent used for an enzymatic reaction of the sample is adsorbed thereonto, and

the reagent configured to be supplied to the reaction container, wherein

the reagent contains an adsorption inhibitor for reducing an adsorption rate of at least one of the sample and the reagent with respect to the base portion; and

a signal resulting from the enzymatic reaction is configured to be detected when the enzymatic reaction is performed in the reaction container.

6. The biomolecule analysis kit according to any one of claims 1 to 5, wherein the enzymatic reaction is an isothermal reaction.

7. The biomolecule analysis kit according to any one of claims 1 to 6, wherein the sample that becomes a target of analysis includes any one of DNA, RNA, miRNA, mRNA, and a protein, and a target substance of analysis is any one of DNA,

RNA, miRNA, mRNA, and a protein.

8. The biomolecule analysis kit according to claim 7, wherein

the target substance of analysis is a nucleic acid, and the enzymatic reaction is an isothermal reaction not requiring PCR amplification of the nucleic acid.

9. The biomolecule analysis kit according to any one of claims 1 to 8, wherein

the reagent generates a signal by any one of fluorescence, light emission, pH, light absorption, and electric potential.

10. A biomolecule analysis method, comprising:

performing the enzymatic reaction in the reaction container and analyzing the biomolecule using the biomolecule analysis kit according to any one of claims 1 to 9.

11. A biomolecule analysis kit comprising:

a reaction container configured to perform an enzymatic reaction, the reaction container including a plurality of container-shaped portions configured so that a sample is supplied through a flow channel to the container-shaped portions and a base portion in which the container-shaped portions are formed, and

a reagent configured to be supplied to the reaction container and used for the enzymatic reaction, wherein

the reagent contains a surfactant for reducing the surface tension of the reagent;

the base portion has a hydrophobic surface provided on a surface of the base portion and in a region between the plurality of container-shaped portions; and

fluorescene or a colorimetric signal resulting from the enzumatic reaction is

configured to be detected when the enzymatic reaction is performed in the reaction container.

12. The biomolecule analysis kit according to claim 5, wherein the adsorption inhibitor is a surfactant.

13. The biomolecule analysis kit according to claim 12, wherein the surfactant is a nonionic surfactant.

14. The biomolecule analysis kit according to claim 13, wherein the nonionic surfactant is Tween 20.

15. The biomolecule analysis kit according to claim 13, wherein the nonionic surfactant is Triton-100.

16. The biomolecule analysis kit according to claim 12, wherein

the concentration of the surfactant is equal to or greater than 0.0005% and equal to or less than 5%.

17. A biomolecule analysis method comprising:

feeding a reagent into a flow channel in a reaction container which has the flow channel and a plurality of container-shaped portions such that the plurality of wells is filled with the reagent; and

feeding an oil sealing solution into the flow channel and sealing the reagent into the plurality of wells with the oil sealing solution, forming the plurality of wells into a

plurality of independent reaction containers for nucleic acid detection, and thereby detecting a nucleic acid in the reaction container, wherein

any one of the reagent and the oil sealing solution contains a surfactant; and

the reaction container has a hydrophobic surface provided on a surface of the reaction container and in a region between the plurality of container-shaped portions.

18. The biomolecule analysis method according to claim 17, further comprising:

a step of filling the plurality of wells with a wash buffer through the flow channel before filling the plurality of wells with the reagent.

19. A biomolecule analysis method using the biomolecule analysis kit according to any one of claims 1 to 9 or 11 to 16, wherein

after a wash buffer is supplied to the container-shaped portion, the reagent is supplied to the container-shaped portion, the enzymatic reaction is performed in the reaction container, and the biomolecule is analyzed.