Claims

1. A microchip for a nucleic acid amplification reaction, comprising:

a laminated substrate comprising a first layer and a second layer;

an entrance through which a liquid enters from the outside;

a plurality of wells configured to function as reaction sites of the nucleic acid amplification reaction; and

a flow channel through which the liquid entered through the entrance is fed into each of the wells,

wherein a plurality of reagents needed for the reaction are laminated and anchored in a prescribed order in each of the wells,

wherein the entrance, the wells and the flow channel are formed on the first layer and are enclosed between the first and second layers; and

wherein the first and second layers are made of light permeable materials.

2. The microchip for the nucleic acid amplification reaction according to claim 1,

wherein an anchored layer of an oligonucleotide primer is laminated over an anchored layer of an enzyme.

3. The microchip for the nucleic acid amplification reaction according to claim 1,

wherein an anchored layer of an enzyme is laminated over an anchored layer of an oligonucleotide primer.

4. The microchip for the nucleic acid amplification reaction according to claim 2 or 3,

wherein an anchored layer of a reaction buffer solute is laminated between the anchored layer of the enzyme and the anchored layer of the oligonucleotide primer.

5. A method of manufacturing a microchip for a nucleic acid amplification reaction, the method comprising the steps of:

providing a first substrate layer;

forming a flow channel, on the first substrate layer, wherein the flow channel comprising an entrance through which a liquid enters from the outside;

forming a plurality of wells along the flow channels, wherein the wells are configured to function as reaction sites of the nucleic acid amplification reaction, wherein the liquid entering through the entrance is fed into each of the wells;

laminating and anchoring a plurality of reagents needed for the reaction in a prescribed order in each of the wells; and

laminating the first substrate layer with a second substrate later such that the entrance, the wells and the flow channel are enclosed between the first and second layers; and

wherein the first and second layers are made of light permeable materials.

6. The method of manufacturing the microchip for the nucleic acid amplification reaction according to claim 5, further comprising:

wherein the step of laminating and anchoring the plurality of reagents comprises the steps of dropping and drying an enzyme solution in each of the wells, and then dropping and drying an oligonucleotide primer solution.

7. The method of manufacturing the microchip for the nucleic acid amplification reaction according to claim 6,

wherein the step of laminating and anchoring comprises the steps of dropping and drying a reaction buffer solute solution after the dropping and drying of the enzyme solution in each of the wells, and before the dropping of the oligonucleotide primer solution.

8. The method of manufacturing the microchip for the nucleic acid amplification reaction according to claim 7,

wherein the of laminating the first substrate with the second substrate comprises the step of activating the surfaces of the substrate layers with an oxygen plasma treatment or a vacuum ultraviolet light treatment.

Claims

1. A microchip for a nucleic acid amplification reaction, comprising:

an entrance through which a liquid enters from the outside;

a plurality of wells configured to function as reaction sites of the nucleic acid amplification reaction; and

a flow channel through which the liquid entered through the entrance is fed into each of the wells,

wherein a plurality of reagents needed for the reaction are laminated and anchored in a prescribed order in each of the wells,

wherein an anchored layer of an oligonucleotide primer is laminated over an anchored layer of an enzyme.

2. The microchip for the nucleic acid amplification reaction according to claim 1,

wherein an anchored layer of a reaction buffer solute is laminated between the anchored layer of the enzyme and the anchored layer of the oligonucleotide primer.

3. A method of manufacturing a microchip for a nucleic acid amplification reaction, comprising:

a first step of laminating and anchoring a plurality of reagents needed for the reaction in a prescribed order in each of a plurality of wells configured to function as reaction sites of the nucleic acid amplification reaction, formed on a substrate layer, wherein the first step includes processes of dropping and drying an enzyme solution In each of the wells, and then dropping and drying an oligonucleotide primer solution,

further comprising:

a second step of activating and adhering surfaces of the substrate layers to which the reagents are laminated and anchored.

4. The method of manufacturing the microchip for the nucleic acid amplification reaction according to claim 3,

wherein the first step includes processes of dropping and drying a reaction buffer solute solution after the dropping and drying of the enzyme solution in each of the wells, and before the dropping of the oligonucleotide primer solution.

5. The method of manufacturing the microchip for the nucleic acid amplification reaction according to claim 4,

wherein the second step includes process of activating the surfaces of the substrate layers with an oxygen plasma treatment or a vacuum ultraviolet light treatment.