

## C L A I M S

1. A multi-nucleic-acid reaction tool comprising:  
a support configured to support a reaction field of a  
liquid phase; a plurality of primer fixing regions  
mutually independently arranged on at least a surface  
of the support, the surface being in contact with the  
reaction field when the liquid phase forms the reaction  
field; ~~and~~ a plurality of types of primer sets  
releasably fixed, for each type, on the plurality of  
primer fixing regions and configured to amplify a  
plurality of types of target sequences, respectively;  
and a thickener releasably fixed on each of the primer  
fixing regions.

2. The multi-nucleic-acid amplification reaction  
tool according to claim 1, wherein the support has a  
container shape or a channel shape.

~~3. The multi-nucleic-acid amplification reaction  
tool according to claim 1, further comprising a  
thickener releasably fixed on the primer fixing region.~~

43. The multi-nucleic-acid amplification reaction  
tool according to claim 1, further comprising a cover  
attached on the support and forming a chamber to retain  
a reaction solution together with the support.

54. The multi-nucleic-acid amplification reaction  
tool according to claim 1, wherein the support  
comprises a base plate.

65. The multi-nucleic-acid amplification reaction  
tool according to claim 54, which is a nucleic acid  
detecting device, wherein the support comprises a  
groove portion at a first surface thereof,

the groove portion comprises a channel-type  
chamber for a nucleic acid sample to react, and

a cross section of the channel-type chamber is  
larger than a cross section of a region other than the  
channel-type chamber in the groove portion.

76. The multi-nucleic-acid amplification reaction  
tool according to claim 54, further comprising:

a sensor portion for detection of nucleic acid which is formed on the support;

a wire formed on the support and connected to the sensor; and

5           a protective film formed on the support,  
          wherein the multi-nucleic-acid amplification reaction tool is a nucleic acid detecting device that detects a nucleic acid amplification product by the sensor portion after carrying out a nucleic acid  
10       amplification reaction in a chamber for the sensor portion and a nucleic acid sample to react with each other, and

          the protective film comprises at least an opening to expose a lower layer portion including a part of the  
15       support in a liquid contact region for the nucleic acid sample on the support.

87. The multi-nucleic-acid amplification reaction tool according to claim 76, wherein the sensor portion is an electrode.

20       98. The multi-nucleic-acid amplification reaction tool according to claim 87, wherein the protective film covers the wire in the liquid contact region.

109. The multi-nucleic-acid amplification reaction tool according to claim 76, wherein the  
25       protective film is formed of at least one selected from the group consisting of polyethylene, ethylene, polypropylene, polyisobutylene, polyethylene terephthalate, unsaturated polyester, a fluorine-containing resin, polyvinyl chloride, polyvinyliden  
30       chloride, polyvinyl acetate, polyvinyl alcohol, polyvinyl acetal, an acrylic resin, polyacrylonitrile, polystyrene, an acetal resin, polycarbonate, polyamide, a phenol resin, a urea resin, an epoxy resin, a melamine resin, a styrene-acrylonitrile copolymer, an  
35       acrylonitrile-butadiene-styrene copolymer, a silicon resin, polyphenylene oxide and polysulfone, and glass, quartz glass, alumina, sapphire, forsterite, silicon

carbide and a metal oxide.

~~11~~10. The multi-nucleic-acid amplification reaction tool according to claim ~~7~~6, wherein the protective film comprises a novolak resin, an epoxy resin, a polyolefin resin and a silicon resin.

~~12~~11. The multi-nucleic-acid amplification reaction tool according to claim 1, the support comprising a first plate formed of a hard material; the multi-nucleic-acid amplification reaction tool further comprising: a channel packing and a second plate;

wherein the channel packing comprises: a nucleic acid reaction channel; a first syringe to store a nucleic acid sample; a second syringe to store a chemical liquid that is used for nucleic acid reaction; a third syringe to store a liquid flowing out from the nucleic acid detection channel; a first channel that connects the first syringe and the second syringe and the nucleic acid detection channel; and a second channel that connects the nucleic acid detection channel and the third syringe; and the channel packing is integrally formed of a soft material; and the second plate is formed of a hard material, and

the multi-nucleic-acid amplification reaction tool being a nucleic acid reaction cassette,

wherein the first plate faces a first surface of the channel packing, and the second plate faces a second surface opposite to the first surface, and the first plate and the second plate seal the channel packing together.

~~13~~12. A multi-nucleic-acid amplification reaction carrier comprising: a base body; a plurality of primer fixing regions mutually independently arranged on at least a surface of the base body; ~~and~~ a plurality of types of primer sets releasably fixed, for each type, on the plurality of primer fixing regions and configured to amplify a plurality of types target

sequences, respectively; and a thickener releasably  
fixed on each of the primer fixing regions.

~~1413.~~ A multi-nucleic-acid amplification method  
comprising:

5           releasably fixing, for each type, a plurality of  
types primer sets for amplification of a plurality of  
types of target nucleic acids, respectively, onto a  
plurality of mutually independent fixing regions of at  
least one surface of a support, the support configured  
10       to support a reaction field of a liquid phase, and the  
surface being in contact with the reaction field, when  
the liquid phase forms the reaction field;

          adding a reaction solution for performing an  
amplification of nucleic acid onto the support to form  
15       a reaction field; and

          carrying out an amplification reaction for each of  
the plurality of types target nucleic acids in the  
reaction field in a presence of a thickener in the  
reaction solution.