

Claims

[Claim 1] Improved immuno-PCR method by using cDNA display comprising the steps of:

- immobilizing, to a solid phase, a first antibody capable of binding to a target molecule;
- contacting a sample fluid to the first antibody so that the first antibody can bind to the target molecule in said sample fluid;
- contacting said target molecule to a cDNA display molecule;
- wherein the cDNA display molecule comprises:
 - a nucleic acid being composed of 1) a backbone which is a double strand comprising mRNA and its complementary DNA (cDNA) and 2) a side chain strand having a polypeptide conjugation site, and
 - a polypeptide encoded by the cDNA,
- wherein the side chain strand is a single-stranded DNA and is bound to the cDNA which forms a double-strand with the mRNA,
- wherein the polypeptide is bound to the side chain strand at the polypeptide conjugation site, and has activity to bind to the target molecule; and
- conducting polymerase chain reaction to amplify and detect said cDNA quantitatively.

[Claim 2] The improved immuno-PCR method by using cDNA display according to claim 1, wherein the first antibody is bound to the solid phase directly.

[Claim 3] The improved immuno-PCR method by using cDNA display according to claim 1, wherein the first antibody is bound to the solid phase via biotin-streptavidin interaction.

[Claim 4] The improved immuno-PCR method by using cDNA display according to any one of claims 1 to 3, wherein the first antibody is any one selected from the group consisting of IgG, a single chain variable fragment of IgG fragment thereof, a single domain antibody, and a peptide aptamer that binds to an epitope of the target molecule.

[Claim 5] The improved immuno-PCR method by using cDNA according to any one of claims 1 to 4, wherein the polypeptide is any one selected from the group consisting of a single chain variable fragment of IgG, a single domain antibody, and a peptide aptamer that binds to a different epitope of the target molecule from the first antibody.

[Claim 6] The improved immuno-PCR method by using cDNA display according to any one of claims 1 to 5, wherein the polypeptide conjugation site is composed of any one selected from

the group consisting of puromycin and derivative thereof.