CLAIMS

What is claimed is:

1. An antibody or antigen-binding fragment thereof that specifically binds to an epitope in α-toxin of *Staphylococcal aureus* or a fragment thereof; wherein the antibody or antigen-binding fragment thereof comprises complementarity determining regions (CDRs) of a heavy chain variable region and complementarity determining regions of a light chain variable region, wherein the complementarity determining regions of the heavy chain variable region comprise CDRH1, CDRH2 and CDRH3 regions, and the complementarity determining regions of the light chain variable region comprise CDRL1, CDRL2 and CDRL3 regions, and wherein:

the CDRH1 region comprises the amino acid sequence ~~selected from the group~~ consisting of SEQ ID NO~~s~~: 1~~ to 2 or a substantially similar sequence thereof~~; the CDRH2 region comprises the amino acid sequence ~~selected from the group~~ consisting of SEQ ID NO~~s~~: 3~~ to 6 and 31 or a substantially similar sequence thereof~~; the CDRH3 region comprises the amino acid sequence ~~selected from the group~~ consisting of SEQ ID NO~~s~~: 7~~ to 9 or a substantially similar sequence thereof~~; and

the CDRL1 region comprises the amino acid sequence ~~selected from the group~~ consisting of SEQ ID NO~~s~~: 10~~ to 13 or a substantially similar sequence thereof~~; the CDRL2 region comprises the amino acid sequence ~~selected from the group~~ consisting of SEQ ID NO~~s~~: 14~~ to 15 or a substantially similar sequence thereof~~; the CDRL3 region comprises the amino acid sequence ~~selected from the group~~ consisting of SEQ ID NO~~s~~: 16~~ to 18 or a substantially similar sequence thereof~~.

~~2. The antibody or antigen-binding fragment thereof according to claim 1, wherein~~

~~the CDRH1 region comprises the amino acid sequence of SEQ ID NO: 1 or a substantially similar sequence thereof; the CDRH2 region comprises the amino acid sequence of SEQ ID NO: 3 or a substantially similar sequence thereof; the CDRH3 region comprises the amino acid sequence of SEQ ID NO: 7 or a substantially similar sequence thereof; and~~

~~the CDRL1 region comprises the amino acid sequence of SEQ ID NO: 10 or a substantially similar sequence thereof; the CDRL2 region comprises the amino acid sequence of SEQ ID NO: 14 or a substantially similar sequence thereof; the CDRL3 region comprises the amino acid sequence of SEQ ID NO: 16 or a substantially similar sequence thereof.~~

~~3.~~2. The antibody or antigen-binding fragment thereof according to claim 1, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 19~~ or a substantially similar sequence thereof~~; and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 20~~ or a substantially similar sequence thereof~~.

~~4.~~3. The antibody or antigen-binding fragment thereof according to claim 1, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising the amino acid sequence selected from the group consisting of SEQ ID NOs: 21 to 23~~ or a substantially similar sequence thereof~~; and a light chain variable region comprising the amino acid sequence selected from the group consisting of SEQ ID NOs: 24 to 26~~ or a substantially similar sequence thereof~~.

~~5.~~4. The antibody or antigen-binding fragment thereof according to claim 1, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 27~~ or a substantially similar sequence thereof~~; and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 28~~ or a substantially similar sequence thereof~~.

~~6.~~5. The antibody or antigen-binding fragment thereof according to claim 1, wherein the antibody or antigen-binding fragment thereof comprises a heavy chain variable region comprising the amino acid sequence of SEQ ID NO: 29~~ or a substantially similar sequence thereof~~; and a light chain variable region comprising the amino acid sequence of SEQ ID NO: 30~~ or a substantially similar sequence thereof~~.

~~7.~~6. The antibody or antigen-binding fragment thereof according to claim 1, wherein the antibody is a mammalian antibody, monoclonal antibody, chimeric antibody, humanized antibody or human antibody.

~~8.~~7. A pharmaceutical composition for neutralizing α-toxin of *Staphylococcal aureus* in a subject in need, comprising the antibody or antigen-binding fragment thereof according to any of claims 1 to ~~7~~ 6 and pharmaceutically acceptable carriers or excipients.

~~9.~~8. The pharmaceutical composition according to claim ~~8~~7, wherein the antibody binds α-toxin with KD ranging from 1 x 10^{-7} to 1 x10^{-10} M.

~~10.~~9.The pharmaceutical composition according to claim ~~8~~7, which provides passive immunotherapy in the context of *S. aureus* infections.

~~11.~~10. A pharmaceutical composition for treating, prophylactic treating and/or preventing diseases and/or disorders caused by *Staphylococcal aureus* infection in a subject in need, comprising the antibody or antigen-binding fragment thereof according to any of claims 1 to ~~7~~ 6 and pharmaceutically acceptable carriers or excipients.

~~12.~~11. The pharmaceutical according to claim ~~11~~10, wherein the diseases and/or disorders caused by *Staphylococcal aureus* infection is pneumonia.

~~13.~~12. A method for detecting α-toxin of *Staphylococcal aureus* in a sample, wherein the method comprises contacting the sample with the antibody or antigen-binding fragment thereof according to any of claims 1 to ~~7~~6.

~~14.~~13. A kit for detecting α-toxin of *Staphylococcal aureus* in a sample, wherein the kit comprises the antibody or antigen-binding fragment thereof according to any of claims 1 to ~~7~~6.