CLAIMS

1. A method for producing an influenza HA split vaccine which is capable of producing an antibody that binds to an LAH of an HA stem region, the method comprising:

subjecting an influenza HA split vaccine, which has not undergone a formalin treatment, to an acidic treatment.

~~2. A method for producing an influenza HA split vaccine which is capable of producing an antibody that binds to an LAH of an HA stem region, the method comprising:~~

~~subjecting an influenza HA split vaccine to an acidic treatment, and~~

~~thereafter, subjecting the influenza HA split vaccine to a formalin treatment.~~

~~3~~2. A method for producing an influenza HA split vaccine which is capable of producing an antibody that binds to an LAH of an HA stem region, the method comprising:

subjecting an influenza HA split vaccine, which has not undergone a formalin treatment, to an acidic treatment, and

thereafter, subjecting the influenza HA split vaccine to a formalin treatment.

~~4~~3. The method of ~~any one of~~ Claim~~s~~ 1 ~~to~~r ~~3~~2, wherein the influenza HA split vaccine is also effective against an influenza virus that causes antigenic variation.

~~5~~4. The method of any one of Claims 1 to ~~4~~3 wherein the acidic treatment is performed at a pH of 4.4 to 5.8.

~~6. The method of any one of Claims 1 to 5 wherein the acidic treatment is performed at 10°C to 60°C.~~

~~7~~5. The method of any one of Claims 1 to ~~6~~4 wherein the influenza HA split vaccine is of type H3N2 or type H1N1.

~~8~~6. The method of any one of Claims 1 to ~~7~~5 wherein the influenza HA split vaccine is of type H3N2 or type H1N1, except for the method comprising steps: a treatment is performed by adding 0.15 M citrate buffer (pH 3.5) to an influenza HA split vaccine of type H3N2 or type H1N1 suspended in phosphate buffered saline to bring the pH to 5.0; after 30 minutes at room temperature, 1 M Tris buffer (pH 8.0) is added so that the pH is returned to 7.3; centrifugation is performed to obtain a membrane fusion-type HA split vaccine; and then formalin is added to the membrane fusion-type HA split vaccine to a final concentration of 0.05 v/v%, and left standing for several days.

~~9~~7. The method of any one of Claims 1 to ~~7~~5 wherein the influenza HA split vaccine is of type H3N2 or type H1N1, except for the method comprising steps: a treatment is performed by adding 0.15 M citrate buffer (pH 3.5) to an influenza HA split vaccine prepared from strain X31 of type H3N2 or strain A/Puerto Rico/8/34 of type H1N1 suspended in phosphate buffered saline to bring the pH to 5.0; after 30 minutes at room temperature, 1 M Tris buffer (pH 8.0) is added so that the pH is returned to 7.3; centrifugation is performed to obtain a membrane fusion-type HA split vaccine; and then formalin is added to the membrane fusion-type HA split vaccine to a final concentration of 0.05 v/v%, and left standing for several days.

~~10~~8. The method according to any one of Claims 1 to ~~9~~7 wherein the influenza HA split vaccine is an influenza HA split vaccine of a single HA subtype.

~~11~~9. The method according to any one of Claims 1 to ~~9~~7 the method comprising: mixing two or more of influenza HA split vaccine antigens, each of which is produced by subjecting an influenza HA split vaccine of a single subtype to an acidic treatment.

1~~2~~0. An influenza HA split vaccine which is capable of producing an antibody that binds to an LAH of an HA stem region, the vaccine being produced by subjecting an influenza HA split vaccine, which has not undergone a formalin treatment, to an acidic treatment.

~~13. An influenza HA split vaccine which is capable of producing an antibody that binds to an LAH of an HA stem region, the vaccine being produced by a production process comprising: subjecting an influenza HA split vaccine to an acidic treatment; and thereafter, subjecting the influenza HA split vaccine to a formalin treatment.~~

14~~1~~. An influenza HA split vaccine which is capable of producing an antibody that binds to an LAH of an HA stem region, the vaccine being produced by a production process comprising: subjecting an influenza HA split vaccine, which has not undergone a formalin treatment, to an acidic treatment; and thereafter, subjecting the influenza HA split vaccine to a formalin treatment.

15~~2~~. The influenza HA split vaccine of ~~any one of~~ Claims 12~~0~~ ~~to~~r 14~~1~~, which is also effective against an influenza virus that causes antigenic variation.

~~16. The influenza HA split vaccine of any one of Claims 12 to 15 which is produced by the method of Claim 8 or 9.~~

17~~3~~. Use of the influenza HA split vaccine of any one of Claims 12~~0~~ to 16~~2~~ for the manufacture of a vaccine for protection from infection with influenza.