WHAT IS CLAIMED IS:

1. A method of producing a virus like particle (VLP) in a plant comprising,

a) introducing a nucleic acid comprising a regulatory region active in the plant and operatively linked to a chimeric nucleotide sequence encoding, in series, an ectodomain from a virus trimeric surface protein or fragment thereof, fused to an influenza transmembrane domain and cytoplasmic tail, into the plant, or portion of the plant, the ectodomain is from a non-influenza virus trimeric surface protein and heterologous with respect to the influenza transmembrane domain, and the cytoplasmic tail, and

b) incubating the plant or portion of the plant under conditions that permit the expression of the nucleic acid, thereby producing the VLP.

2. The method of claim 1, wherein the ectodomain from the virus trimeric surface protein or fragment thereof is derived from a virus of a family of Retroviridae, Rhabdoviridae, Herpesviridae, Coronaviridae, Paramyxoviridae, Poxviridae or Filoviridae family.

3. The method of claim 1, wherein the ectodomain from the virus trimeric surface protein or fragment thereof is derived from the genus Lentivirus, Lyssavirus, Varicellovirus, Coronavirus or Ebolavirus.

4. The method of claim 1, wherein ectodomain from the virus trimeric surface protein or fragment thereof is derived from Human immunodeficiency virus (HIV), Rabies virus, Varicella zoster virus (VZV), Severe acute respiratory syndrome (SARS) virus, Ebola virus, Measles, Mumps, Varicella, Cytomegalovirus, Ebola/Filovirus, Herpesvirus, Epstein-Barr virus or Smallpox.

5. The method of claim 1, wherein the ectodomain from the virus trimeric surface protein or fragment thereof is derived from F protein, S protein, env protein, G protein, a E envelope glycoprotein, B envelope glycoprotein, C envelope glycoprotein, I envelope glycoprotein, H envelope glycoprotein, GP glycoprotein, or hemagglutinin.

6. The method of claim 1, wherein in the step of introducing (step a), the nucleic acid is transiently expressed in the plant.

7. The method of claim 1, wherein, in the step of introducing (step a), the nucleic acid is stably expressed in the plant.

8. The method of claim 1, further comprising a step of:

c) harvesting the plant and purifying the VLP.

9. The method of claim 1, wherein, in the step of introducing (step a), one or more than one additional nucleic acid, selected from the group of a nucleotide sequence encoding one or more than one chaperone protein, proton channel protein, protease inhibitor, or a combination thereof, is introduced to the plant.

10. The method of claim 1, wherein the VLP does not contain a viral matrix or a core protein.

11. The method of claim 1, wherein in the step of introducing (step a), the influenza transmembrane domain and cytoplasmic tail is a H5 transmembrane domain and cytoplasmic tail or an H3 transmembrane domain and cytoplasmic tail.

12. A VLP produced by the method of claim 11.

13. The VLP of claim 12, comprising a chimeric virus protein bearing plant-specific N-glycans, or modified N-glycans.

14. The VLP of claim 12, comprising one or more than one lipid derived from the plant.

15. A composition comprising an effective dose of the VLP of claim 12 for inducing an immune response, and a pharmaceutically acceptable carrier.

16. The method of claim 1 wherein the influenza transmembrane domain and cytoplasmic tail is obtained from H5 (A/Indonesia/05/2005) and comprises the nucleotide sequence defined in SEQ ID NO:41, or the influenza transmembrane domain and cytoplasmic tail is obtained from H3 (A/Brisbane/10/2007) and comprises the sequence defined in SEQ ID NO:42.

WHAT IS CLAIMED IS:

1. A method of producing a virus like particle (VLP) in a plant comprising,

a) introducing a nucleic acid comprising a regulatory region active in the plant and operatively linked to a chimeric nucleotide sequence encoding, in series, an ectodomain from a virus trimeric surface protein or fragment thereof, fused to an influenza transmembrane domain and cytoplasmic tail, into the plant, or portion of the plant, the ectodomain is from a non-influenza virus trimeric surface protein and heterologous with respect to the influenza transmembrane domain, and the cytoplasmic tail, and

b) incubating the plant or portion of the plant under conditions that permit the expression of the nucleic acid, thereby producing the VLP, the VLP comprising viral proteins, wherein the viral proteins consist of chimeric viral surface proteins.

2. The method of claim 1, wherein the ectodomain from the virus trimeric surface protein or fragment thereof is derived from a virus of a family of Retroviridae, Rhabdoviridae, Herpesviridae, Coronaviridae, Paramyxoviridae, Poxviridae or Filoviridae family.

3. The method of claim 1, wherein the ectodomain from the virus trimeric surface protein or fragment thereof is derived from the genus Lentivirus, Lyssavirus, Varicellovirus, Coronavirus or Ebolavirus.

4. The method of claim 1, wherein ectodomain from the virus trimeric surface protein or fragment thereof is derived from Human immunodeficiency virus (HIV), Rabies virus, Varicella zoster virus (VZV), Severe acute respiratory syndrome (SARS) virus, Ebola virus, Measles, Mumps, Varicella, Cytomegalovirus, Ebola/Filovirus, Herpesvirus, Epstein-Barr virus or Smallpox.

5. The method of claim 1, wherein the ectodomain from the virus trimeric surface protein or fragment thereof is derived from F protein, S protein, env protein, G protein, a E envelope glycoprotein, B envelope glycoprotein, C envelope glycoprotein, I envelope glycoprotein, H envelope glycoprotein, GP glycoprotein, or hemagglutinin.

6. The method of claim 1, wherein in the step of introducing (step a), the nucleic acid is transiently expressed in the plant.

7. The method of claim 1, wherein, in the step of introducing (step a), the nucleic acid is stably expressed in the plant.

8. The method of claim 1, further comprising a step of:

c) harvesting the plant and purifying the VLP.

9. The method of claim 1, wherein, in the step of introducing (step a), one or more than one additional nucleic acid, selected from the group of a nucleotide sequence encoding one or more than one chaperone protein, proton channel protein, protease inhibitor, or a combination thereof, is introduced to the plant.

10. The method of claim 1, wherein the VLP does not contain a viral matrix or a core protein.

11. The method of claim 1, wherein in the step of introducing (step a), the influenza transmembrane domain and cytoplasmic tail is a H5 transmembrane domain and cytoplasmic tail or an H3 transmembrane domain and cytoplasmic tail.

12. A VLP produced by the method of claim 11.

13. The VLP of claim 12, comprising a chimeric virus protein bearing plant-specific N-glycans, or modified N-glycans.

14. The VLP of claim 12, comprising one or more than one lipid derived from the plant.

15. A composition comprising an effective dose of the VLP of claim 12 for inducing an immune response, and a pharmaceutically acceptable carrier.

16. The method of claim 1 wherein the influenza transmembrane domain and cytoplasmic tail is obtained from H5 (A/Indonesia/05/2005) and comprises the nucleotide sequence defined in SEQ ID NO:41, or the influenza transmembrane domain and cytoplasmic tail is obtained from H3 (A/Brisbane/10/2007) and comprises the sequence defined in SEQ ID NO:42.