~~We~~ Claims:

1. A transformed insect comprising at least one exogenous gene, wherein the insect is of a genus selected from the group consisting of *Hermetia*, *Gryllodes*, *Gryllus*, *Acheta*, *Tenebrio*, and *Alphitobius*.

2. The transformed insect of claim 1, wherein the exogenous gene is comprised within somatic cells of the insect~~.~~

~~3. The transformed insect of claim 1, wherein the exogenous gene is comprised~~ or within the germline of the insect.

4~~3~~. The transformed insect of claim ~~3~~2, wherein the exogenous gene is stably heritable.

~~5~~4. The transformed insect according to any one of claims 1-4~~3~~, wherein the insect is a species genus selected from the group consisting of *Hermetia illucens, Gryllodes sigillatus, Gryllus assimilis, Acheta domesticus, Tenebrio molitor, Tenebrio obscurus,* or *Alphitobius diaperinus*.

~~6. The transformed insect according to any one of claims 1-4, wherein the insect is *Hermetia illucens*.~~

~~7~~5. The transformed insect according to any one of claims 1-4~~3~~, wherein the insect is a mealworm selected from the group consisting of *Tenebrio molitor*, *Tenebrio obscurus and Acheta domesticus*.

~~8~~6. The transformed insect of any one of claims 1-~~7~~5, wherein the insect is an embryo, larva, pupa or adult.

~~9~~7. The transformed insect of any one of claims 1-~~8~~6, wherein the insect expresses a recombinant protein encoded by the at least one exogenous gene~~,~~ ~~.~~

~~10. The transformed insect of claim 9, wherein~~ the insect expresses at least 2 mg, 5 mg, 10 mg, 15, mg, 20 mg, or 25 mg of the recombinant protein~~,~~.

~~11. The transformed insect of claim 9, wherein~~ the insect expresses at least 30 mg, 35 mg, 40 mg, 45 mg of the recombinant protein~~,~~ or

~~12. The transformed insect of claim 9, wherein~~ the recombinant protein is at least 10% 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, or 70% of the total protein expressed by the insect.

~~13~~8. The transformed insect of ~~any one of claims~~claim ~~9~~7~~-12~~, wherein the recombinant protein is selected from the group consisting of an antibody, an antigen, an antigen-binding molecule, an enzyme, a hormone, a component of a vaccine, and a virus-like particle.

~~14~~9. The transformed insect of any one of claims 1-~~13~~8, wherein the at least one exogenous gene is integrated into the insect genome by transposon-mediated integration

~~15~~10. The transformed insect of any one of claims 1-~~14~~9, wherein the at least one exogenous gene is under the control of *drosophila melanogaster hsp70* promoter.

~~16~~11. A reared insect derived from the transformed insect of any one of claims 1-~~15~~10, wherein the reared insect comprises the at least one exogenous gene.

~~17. The reared insect of claim 16, wherein the reared insect expresses a recombinant protein encoded by the at least one exogenous gene.~~

~~18. The reared insect of claim 16 or claim 17, wherein the reared insect is removed by 1, 2, 3, 4 or 5 generations from the transformed insect.~~

~~19. The reared insect of claim 16 or claim 17, wherein the reared insect is removed by greater than 5 generations from the transformed insect.~~

~~20~~12. A pupa derived from the transformed insect of any one of claims 1-~~15~~ 10 or from the reared insect of ~~any one of claims~~claim ~~16~~11~~-19~~.

~~21~~13. A larva derived from the transformed insect of any one of claims 1-~~15~~ 10 or from the reared insect of ~~any one of claims~~claim ~~16~~11 ~~-19~~.

~~22~~14. An egg derived from the transformed insect of any one of claims 1-~~15~~ 10 or from the reared insect of claim 11~~any one of claims 16-19~~.

~~23~~15. An adult insect derived from the transformed insect of any one of claims 1-~~15~~ 10 or from the reared insect of claim 11~~any one of claims 16-19~~.

~~24~~16. A biomass produced from the transformed insect of any one of claims 1-~~15~~ 11 or from the reared insect of any claim 11~~one of claims 16-19~~.

~~25~~17. A recombinant protein isolated from the transformed insect of any one of claims 1-~~15~~ 11 or from the reared insect of claim 11~~any one of claims 16-19~~.

~~26. The recombinant protein of claim 25, wherein the protein is selected from the group consisting of an antibody, an antigen, an antigen-binding molecule, an enzyme, a hormone, a component of a vaccine, and a virus-like particle.~~

~~27~~18. A method for producing a protein comprising:

a. transforming a first stage of an insect selected from the group consisting of *Hermetia illucens, Gryllodes sigillatus, Gryllus assimilis, Acheta domesticus, Tenebrio molitor, Tenebrio obscurus,* or *Alphitobius diaperinus*, wherein the transformation results in the integration of an expression cassette into the genome of the insect and wherein the expression cassette comprises a gene encoding a heterologous protein, wherein the heterologous gene is under the control of a heat shock promoter;

b. heat-shocking the transformed insect at a second stage; and

c. harvesting biomass comprising the protein from the transformed insect.

~~28. The method of claim 27, wherein the first stage is an egg or an embryo.~~

~~29. The method of claim 27, wherein the second stage is a larva, a pupa or an adult.~~

~~30~~19. A method for producing a protein comprising:

a. transforming an insect selected from the group consisting of *Hermetia illucens, Gryllodes sigillatus, Gryllus assimilis, Acheta domesticus, Tenebrio molitor, Tenebrio obscurus,* or *Alphitobius diaperinus*, wherein the transformation results in the integration of an expression cassette into the germline of the insect and wherein the expression cassette comprises a gene encoding a heterologous protein,

b. breeding the transformed insect to produce a subsequent generation insect; and

c. harvesting biomass comprising the protein from the subsequent generation insect.

~~31. The method of claim 30, wherein the method further comprises a step of mass rearing the subsequent generation insect, prior to the step of harvesting the biomass.~~

~~32. The method of claim 30 or claim 31, wherein the transforming step is performed at the insect egg or embryo stage.~~

~~33. The method of any one of claims 30-32, wherein the biomass is harvested from larva, pupa or adult stages.~~

~~34. The method of any one of claims 30-33, wherein the heterologous gene is under the control of a heat shock promoter, and the method further comprises heat shocking the subsequent generation insect prior to harvesting the biomass.~~

~~35. The method of claim 27 or claim 34, wherein the heat shock promoter is the *drosophila melanogaster hsp*70 promoter.~~

~~36. The method of any one of claims 27-35, wherein the insect expresses at least 2 mg, 5 mg, 10 mg, 15, mg, 20 mg, or 25 mg of the heterologous protein.~~

~~37. The method of any one of claims 27-35, wherein the insect expresses at least 30 mg, 35 mg, 40 mg, 45 mg of the heterologous protein.~~

~~38. The method of any one of claims 27-35, wherein the heterologous protein is at least 10% 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, or 70% of the total protein expressed by the insect.~~

~~39~~20. The method of any one of claims ~~27~~18-~~38~~19, wherein the method further comprises isolating the heterologous protein from the biomass.

~~40~~21. The method of any one of claims ~~27~~18-~~38~~19, wherein the method further comprises enriching or partially purifying the heterologous protein from the biomass.

~~41~~22. The method of any one of claims ~~27~~18-~~40~~21, wherein the transforming step comprises transposon-mediated integration of the expression cassette.

~~42~~23. The method of claim ~~41~~22, wherein the transforming step further comprises providing a transposase enzyme active in the insect, and wherein the expression cassette is flanked at each end by a transposable element.

~~43. The method of claim 42, wherein the transposase enzyme is provided as a coding region on a helper plasmid or a coding region encoded by a nucleic acid or as a transposase protein.~~

~~44~~24. The method of any one of claims ~~27~~18-~~43~~23, wherein the insect is a *Hermetia illucens*.

~~45~~25. The method of any one of claims ~~27~~18-~~43~~23, wherein the insect is a mealworm selected from the group consisting of *Tenebrio molitor*, *Tenebrio obscurus* and *Acheta domesticus*.

~~46. The method of any one of claims 27-45, wherein the transforming step comprises physical or chemical delivery of the expression cassette.~~

~~47. The method of any one of claims 27-45, wherein the transforming step comprises injection, DNA particle bombardment, electroporation, injection followed by electroporation, hydrodynamic, ultrasound, or magnetofection.~~

~~48. The method of any one of claims 27-47, wherein the heterologous protein is selected from the group consisting of an antibody, an antigen, an antigen-binding molecule, an enzyme, a hormone, a component of a vaccine, and a virus-like particle.~~

~~49. A heterologous protein bio-manufactured by any one of the methods of claims 27-47.~~

~~50~~26. The method of any one of claims ~~27~~18-~~47~~25, wherein the expression vector expresses virus-like particles (VLP).

~~51. A VLP bio-manufactured by the method of claim 50.~~

~~52. A vaccine component bio-manufactured by any one of the methods of claims 27-49.~~

~~53~~27. The method of any one of claims ~~27~~18-~~49~~25, wherein the method further comprises isolating the heterologous protein from the whole body of the transformed larvae.

~~54~~28. The method of any one of claims ~~27~~18-~~49~~25~~55~~, wherein the method further comprises isolating the heterologous protein from the hemolymph, the fat body, or secretory glands of the transformed larvae.

~~55. An isolated heterologous protein produced by the method of claim 53 or claim 54.~~

~~56~~29. A method for producing transformed insect comprising transforming an insect egg or embryo of *Hermetia illucens* by providing a transposase enzyme active in the insect, and an expression cassette, wherein the expression cassette comprises a gene encoding a heterologous protein and wherein the expression cassette is flanked at each end by a transposable element, whereby the transformation results in the integration of the expression cassette into the genome of the insect.

~~57. The method of claim 56, wherein the transposase enzyme is provided as a coding region on a helper plasmid or a coding region encoded by a nucleic acid or as a transposase protein.~~

~~58. The method of claim 56 or claim 57, wherein the expression cassette is comprised within somatic cells of the insect.~~

~~59. The method of claim 56 or claim 57, wherein the expression cassette is comprised within the germline of the insect.~~

~~60. The method of any one of claims 56-59, wherein the insect expresses at least 2 mg, 5 mg, 10 mg, 15, mg, 20 mg, or 25 mg of the heterologous protein.~~

~~61. The method of any one of claims 56-59, wherein the insect expresses at least 30 mg, 35 mg, 40 mg, 45 mg of the heterologous protein.~~

~~62. The method of any one of claims 56-59, wherein the heterologous protein is at least 10% 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, or 70% of the total protein expressed by the insect.~~

~~63. The method of any one of claims 56-62, further comprising harvesting the heterologous protein from the insect.~~

~~64~~30. The method of ~~any one of~~ claim~~s 56~~29~~-63~~, wherein the method further comprises:

a. breeding the transformed insect to produce a subsequent generation insect; and

b. harvesting biomass comprising the heterologous protein from the subsequent generation insect.

~~65~~31. A transformed insect produced by the method of any one of claims ~~56~~29~~-64~~30.

~~66~~32. A transformed pupae produced by the method of any one of claims 29-30~~56-64~~.

~~67~~33. A transformed embryo produced by the method of any one of claims 29-30~~56-64~~.

~~68~~34. A transformed larva produced by the method of any one of claims 29-30~~56-64~~.

~~69~~35. A population of transformed insects produced by the method of claim ~~64~~30, wherein the method further comprising a step of mass rearing the transformed insect, prior to the step of harvesting the biomass.