insect (e.g. honeybee queen) is vaccinated with a dead non-disease causing bacteria *Enterococcus, e.g., Melissococcus sp., e.g., Melissococcus plutonius*. Vaccination of queen bees with dead *Melissococcus plutonius* will protect against brood diseases, e.g., caused by *Enterococcus, e.g., Melissococcus sp*. or *Melissococcus plutoinus* and other disease causing bacteria, e.g. *Paenibacillus sp.*, including, but not limited to *Paenibacillus alvei* (PA), *Paenibacillus dentritiformis* (PD), or *Paenibacillus larvae* (PL). In addition, vaccination with *Paenibacillus sp.*, including, but not limited to *Paenibacillus alvei* (PA), *Paenibacillus dentritiformis* (PD), or *Paenibacillus larvae* (PL) will protect against brood diseases caused by disease pathogens other than a disease caused by a *Paenibacillus sp.*, including, but not limited to *Paenibacillus alvei* (PA), *Paenibacillus dentritiformis* (PD), or *Paenibacillus larvae* (PL) or a diseases caused by *Melissococcus plutonius*.

[10a] In one aspect, this disclosure provides the use of a vaccine composition for the manufacture of a medicament for immunizing a queen bee or passing immunity from the bee queen to bee larvae produced by the queen bee against a bacterial disease, wherein the vaccine composition comprises an effective amount of dead non-disease whole cells or cell wall fragments of a non-disease causing bacterial species, and wherein the medicament is to be administered to the bee queen thereby immunizing the queen bee and the bee larvae produced by the queen bee.

[10b] In another aspect, this disclosure provides the use of an effective amount of a composition comprising a dead non-disease causing bacteria for the manufacture of a medicament for immunizing a bee larvae against Foulbrood disease, wherein the composition is to be administered to a worker bee or a bee queen, thereby immunizing the bee larvae produced by the queen bee.

[10c] In another aspect, this disclosure provides the use of a composition comprising whole cells or cell wall fragments of at least one dead, non-disease species of *Paenibacillus* for the manufacture of a medicament for preventing or treating European foulbrood in a population of honeybees, wherein the composition is to be administered to a queen bee of the population.

[10d] In another aspect, this disclosure provides the use of a composition comprising whole cells or cell wall fragments of at least one dead, non-disease species of *Bacillus* for the manufacture of a medicament for preventing American foulbrood in a population of honeybees, wherein the composition is to be administered to a queen bee of the population.

[10e] In another aspect, this disclosure provides a method for preparing a vaccine for an insect or other invertebrate, the method comprising isolating whole cells or cell wall fragments from at least one dead of a bacterial *Melissococcus plutonius*.

[10f] In another aspect, this disclosure provides a vaccine composition prepared by a method as described herein.

[10g] In another aspect, this disclosure provides a kit comprising the vaccine composition described herein, and instructions for use.

[11] In one aspect, the bacterial species in the vaccine is non-disease causing bacterial species. In one aspect, the vaccine composition comprise a non-disease causing bacterial species and comprises whole cells or cell wall fragments of at least one dead non-disease causing bacterial species. In another aspect, the vaccine composition can comprise dead *Melissococcus plutonius* and dead *Paenibacillus sp.* In one embodiment, the composition also can contain, for example, invertebrate, insect, bee or honeybee feed.

[12] Further, the disclosure relates to generally immunizing invertebrates to protect against disease by using non-disease causing bacteria. In further embodiments, the honeybee as disclosed herein can be substituted with any other insect or invertebrate. In some embodiments, the insect is a social insect.

[13] The disclosure also provides a vaccine composition comprising *Melissococcus plutonius* bacteria that is useful to immunize invertebrates to protect against disease by non-*Melissococus plutonius* bacterial disease causing bacteria. In one aspect, the vaccine composition comprise a non-disease causing bacterial species and comprises whole cells or cell wall fragments. The composition also can contain, for example, invertebrate, insect or honeybee feed. In further embodiments, the honeybee as disclosed herein can be substituted with any other insect or invertebrate. In some embodiments, the insect is a social insect.