THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A composition comprising an inactivated and/or killed *H. pylori* cell or a cell lysate thereof and a pharmaceutically acceptable carrier, wherein said *H. pylori* cell is incapable of colonizing the mucosa of a mammal.

2. The composition according to claim 1, wherein the composition is for mucosal delivery.

3. A composition comprising isolated and inactivated and/or killed *H. pylori* cells or a cell lysate thereof, wherein said composition is formulated to be administered mucosally to a subject for interrupting or slowing or arresting or preventing an atopic march or progression of an atopic march in the subject.

4. The composition according to claim 3, wherein interrupting or slowing or arresting or preventing an atopic march or progression of an atopic march in the subject comprises delaying or preventing or interrupting or slowing the onset of one or more allergic conditions in the subject.

5. The composition according to claim 4, wherein an allergic condition comprises allergic eczema, urticaria, hives, rhinitis, wheezing, airway resistance, airway restriction, lung inflammation, food allergy, or asthma.

6. The composition according to claim 5, wherein an allergic condition comprises airway resistance in response to an allergen and wherein said composition is for reducing said airway resistance.

7. The composition according to claim 5, wherein an allergic condition comprises lung inflammation in response to an allergen and wherein said composition is for reducing said lung inflammation.

8. The composition according to claim 7, wherein reduced lung inflammation is characterized by a reduced level of cell infiltrate in lung.

9. The composition according to claim 4 or 5, wherein an allergic condition is characterized by an elevated serum level of allergen-specific IgE antibody and/or an

elevated level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or an elevated level of cell infiltrate in lung.

10. The composition according to claim 9, wherein said composition reduces a serum level of allergen-specific IgE antibody and/or a level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or a level of cell infiltrate in lung relative to a level thereof in a subject exposed to an allergen and not administered said composition.

11. The composition according to claim 9, wherein said composition prevents or delays an increase in a serum level of allergen-specific IgE antibody and/or prevents or delays an increase in a level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or prevents or delays an increase in a level of cell infiltrate in lung in a subject exposed to an allergen.

12. The composition according to any one of claims 3 to 11, wherein the *H. pylori* cells are incapable of colonizing the mucosa of the subject.

13. The composition according to any one of claims 1 to 12, wherein the *H. pylori* cells are inactivated and/or killed by heat.

14. The composition according to any one of claims 1 to 12, wherein the *H. pylori* cells are inactivated and/or killed by chemical means.

15. The composition according to any one of claims 1 to 12, wherein the *H. pylori* cells are inactivated and/or killed by irradiation.

16. The composition according to claim 15, wherein the irradiation is gamma irradiation or ultraviolet irradiation.

17. The composition according to any one of claims 1 to 16, wherein the *H. pylori* cells are killed cells.

18. The composition according to any one of claims 3 to 17 comprising a pharmaceutically acceptable carrier.

19. The composition according to any one of claims 1 to 18 formulated for ingestion.

20. The composition according to any one of claims 1 to 18 formulated for inhalation.

21. The composition according to any one of claims 1 to 19, wherein said composition is formulated as a foodstuff or dietary supplement.

22. The composition according to claim 21, wherein the foodstuff comprises an infant formula.

23. The composition according to claim 21, wherein the foodstuff comprises a protein supplement.

24. The composition according to claim 21, wherein said composition is a dairy food product.

25. The composition according to claim 21, wherein said composition is a non-dairy food product.

26. The composition according to any one of claims 21 to 25, wherein the formulation is in a tablet form.

27. The composition according to any one of claims 21 to 25, wherein the formulation is in a powder form.

28. The composition according to any one of claims 21 to 25, wherein the formulation is in a liquid form.

29. The composition according to any one of claims 1 to 28, wherein said composition is formulated for administration to infants.

30. The composition according to claim 29, wherein the infants do not have developed lymphoid structures and/or a developed immune system.

31. The composition according to claim 29, wherein the infants are aged 0 to 5 years.

32. The composition according to any one of claims 29 to 31, wherein the infants are of an age between about 4 months of age and about 12 months of age.

33. The composition according to claim 32, wherein the infants are less than 6 months of age.

34. The composition according to any one of claims 1 to 28, wherein said composition is formulated for administration to children older than about 5 years of age.

35. The composition according to any one of claims 1 to 28, wherein said composition is formulated for administration to adolescents.

36. The composition according to any one of claims 1 to 28, wherein said composition is formulated for administration to adults.

37. The composition according to any one of claims 1 to 36, wherein a daily dosage of said composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^6 cells to about 10^{12} cells.

38. The composition according to any one of claims 1 to 36, wherein a daily dosage of said composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^7 cells to about 10^{11} cells.

39. The composition according to any one of claims 1 to 36, wherein a daily dosage of said composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^8 cells to about 10^{10} cells.

40. The composition according to any one of claims 1 to 36, wherein a daily dosage of said composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^9 cells to about 10^{10} cells.

41. The composition according to any one of claims 1 to 36, wherein a daily dosage of said composition comprises an amount of bacteria or lysate thereof corresponding to about 10^8 cells or 10^9 cells or 10^{10} cells.

42. The composition according to any one of claims 1 to 41, wherein said composition is to be administered over a period of at least about 2 weeks or at least about 4 weeks or at least about 6 weeks or at least about 8 weeks or at least about 10 weeks or at least about 12 weeks.

43. The composition according to any one of claims 1 to 42, wherein said composition promotes a balanced development of an immune system in a juvenile subject

44. The composition according to any one of claims 1 to 43, wherein said composition promotes acquisition of adaptive immunity in a subject.

45. The composition according to any one of claims 1 to 44, wherein said composition promotes acquisition of innate immunity in a subject.

46. The composition according to any one of claims 1 to 45, wherein said composition promotes or enhances CD1d receptor activation and/or CD4-negative and CD8-negative natural killer (NK) cells.

47. The composition according to any one of claims 1 to 46, wherein said composition promotes or enhances γδ T-cell activation.

48. The composition according to any one of claims 1 to 47, wherein said composition promotes or enhances mucosal immunity involving immune recognition and presentation to antigen-presenting cells (APCs).

49. The composition according to any one of claims 1 to 47, wherein said composition promotes a balanced Th1/Th2 immune response to one or more allergens.

50. The composition according to any one of claims 1 to 49 comprising an amount of killed *H. pylori* cells and/or inactivated *H. pylori* cells and/or a cell lysate of said killed or inactivated cells.

51. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for interrupting or slowing or arresting or preventing an atopic march or progression of an atopic march in the subject.

52. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the onset of one or more allergic conditions in the subject.

53. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the onset of one or more of allergic eczema, urticaria, hives, rhinitis, wheezing, airway resistance, airway restriction, lung inflammation, food allergy, or asthma.

54. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the onset of airway resistance in response to an allergen.

55. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the onset of lung inflammation in response to an allergen.

56. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the cell infiltration into lung.

57. Use of an isolated and inactivated and/or killed *H. pylori* in the preparation of a composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the onset of an allergic condition characterized by an elevated serum level of allergen-specific IgE antibody and/or an elevated level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or an elevated level of cell infiltrate in lung

58. The use according to any one of claims 51 to 57, wherein the composition is formulated for administration to an infant.

59. The use according to claim 58, wherein the infant does not have developed lymphoid structures and/or a developed immune system.

60. The use according to claim 58 or 59, wherein the infant is aged 0 to 5 years.

61. The use according to any one of claims 58 to 60, wherein the infant is of an age between about 4 months of age and about 12 months of age.

62. The use according to claim 61, wherein the infant is less than 6 months of age.

63. The use according to any one of claims 51 to 57, wherein the composition is formulated for administration to a child older than about 5 years of age.

64. The use according to any one of claims 51 to 57, wherein the composition is formulated for administration to an adolescent.

65. The use according to any one of claims 51 to 57, wherein the composition is formulated for administration to an adult.

66. The use according to any one of claims 51 to 65, wherein a daily dosage of the composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^6 cells to about 10^{12} cells.

67. The use according to any one of claims 51 to 65, wherein a daily dosage of the composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^7 cells to about 10^{11} cells.

68. The use according to any one of claims 51 to 65, wherein a daily dosage of the composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^8 cells to about 10^{10} cells.

69. The use according to any one of claims 51 to 65, wherein a daily dosage of the composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^9 cells to about 10^{10} cells.

70. The use according to any one of claims 51 to 65, wherein a daily dosage of the composition comprises an amount of bacteria or lysate thereof corresponding to about 10^9 cells.

71. The use according to any one of claims 51 to 70, wherein a daily dosage of the composition is to be administered over a period of at least about 2 weeks or at least about 4 weeks or at least about 6 weeks or at least about 8 weeks or at least about 10 weeks or at least about 12 weeks.

72. The use according to any one of claims 51 to 71, wherein a daily dosage of the composition promotes development of a balanced immune system in a juvenile subject

73. The use according to any one of claims 51 to 72, wherein a daily dosage of the composition promotes acquisition of adaptive immunity in a subject.

74. The use according to any one of claims 51 to 73, wherein a daily dosage of the composition promotes acquisition of innate immunity in a subject.

75. The use according to any one of claims 51 to 74, wherein a daily dosage of the composition promotes or enhances CD1d receptor activation and/or CD4-negative and CD8-negative natural killer (NK) cells.

76. The use according to any one of claims 51 to 75, wherein a daily dosage of the composition promotes or enhances γδ T-cell activation.

77. The use according to any one of claims 51 to 76, wherein a daily dosage of the composition promotes or enhances mucosal immunity involving immune recognition and presentation to antigen-presenting cells (APCs).

78. The use according to any one of claims 51 to 77, wherein a daily dosage of the composition promotes a balanced Th1/Th2 immune response to one or more allergens.

79. Use of the composition according to any one of claims 1 to 50 in interrupting or slowing or arresting or preventing an atopic march or progression of an atopic march in the subject.

80. Use of the composition according to any one of claims 1 to 50 in delaying or preventing or interrupting or slowing the onset of one or more allergic conditions in the subject.

81. Use of the composition according to any one of claims 1 to 50 for delaying or preventing or interrupting or slowing the onset of one or more of allergic eczema, urticaria, hives, rhinitis, wheezing, airway resistance, airway restriction, lung inflammation, food allergy, or asthma.

81. Use of the composition according to any one of claims 1 to 50 in delaying or preventing or interrupting or slowing the onset of airway resistance in response to an allergen.

82. Use of the composition according to any one of claims 1 to 50 in delaying or preventing or interrupting or slowing the onset of lung inflammation in response to an allergen.

83. Use of the composition according to any one of claims 1 to 50 in delaying or preventing or interrupting or slowing the cell infiltration into lung.

84. Use of the composition according to any one of claims 1 to 50 in delaying or preventing or interrupting or slowing the onset of an allergic condition characterized by an elevated serum level of allergen-specific IgE antibody and/or an elevated level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or an elevated level of cell infiltrate in lung.

85. Use of a therapeutically effective amount of killed and/or inactivated *H. pylori* cells in preventing or attenuating allergic airway hyper-responsiveness in lungs of a subject following exposure of the subject to an allergen.

86. Use of a therapeutically effective amount of killed and/or inactivated *H. pylori* cells in preventing or alleviating airway resistance in lungs of an asthmatic subject

following exposure of said subject to an allergen.

87. Use of a thereof a therapeutically effective amount of killed and/or inactivated *H. pylori* cells in preventing an allergic immune response to an allergen in a subject or reducing severity or incidence of an allergic immune response to an allergen in a subject.

88. A method of preventing or attenuating allergic airway hyper-responsiveness in lungs of a subject following exposure of the subject to an allergen, said method comprising administering to the subject a therapeutically effective amount of killed and/or inactivated *H. pylori* cells sufficient to prevent airway hyper-responsiveness in a subject following exposure of said subject to an allergen.

89. A method of preventing or alleviating airway resistance in an asthmatic subject, said method comprising administering to a subject in need thereof a therapeutically effective amount of killed and/or inactivated *H. pylori* cells sufficient to prevent airway hyper-responsiveness in lungs of the subject following exposure of said subject to an allergen.

90. A method of preventing an allergic immune response to an allergen in a subject or reducing severity or incidence of an allergic immune response to an allergen in a subject, said method comprising administering to a subject a in need thereof a therapeutically effective amount of killed and/or inactivated *H. pylori* cells.

91. A method of interrupting or slowing or arresting or preventing an atopic march or progression of an atopic march in a subject, said method comprising administering the composition according to any one of claims 1 to 50 to the subject.

92. A method of delaying or preventing or interrupting or slowing the onset of one or more allergic conditions in a subject, said method comprising administering the composition according to any one of claims 1 to 50 to the subject.

93. A method of delaying or preventing or interrupting or slowing the onset of one or more of allergic eczema, urticaria, hives, rhinitis, wheezing, airway resistance, airway restriction, lung inflammation, food allergy, or asthma in a subject, said method

comprising administering the composition according to any one of claims 1 to 50 to the subject.

93. A method of delaying or preventing or interrupting or slowing the onset of airway resistance in response to an allergen in a subject, said method comprising administering the composition according to any one of claims 1 to 50 to the subject.

94. A method of delaying or preventing or interrupting or slowing the onset of lung inflammation in response to an allergen in a subject, said method comprising administering the composition according to any one of claims 1 to 50 to the subject.

95. A method of delaying or preventing or interrupting or slowing cell infiltration into lung of a subject in response to an allergen, said method comprising administering the composition according to any one of claims 1 to 50 to the subject.

96. A method of delaying or preventing or interrupting or slowing the onset of an allergic condition in a subject, wherein said condition is characterized by an elevated serum level of allergen-specific IgE antibody and/or an elevated level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or an elevated level of cell infiltrate in lung of the subject, and wherein said method comprising administering the composition according to any one of claims 1 to 50 to the subject.

97. The method according to any one of claims 88 to 96, wherein the subject is an infant.

98. The method according to claim 97, wherein the infant does not have developed lymphoid structures and/or a developed immune system.

99. The method according to claim 97 or 98, wherein the infant is aged 0 to 5 years.

100. The method according to any one of claims 97 to 99, wherein the infant is of an age between about 4 months of age and about 12 months of age.

101. The method according to claim 100, wherein the infant is less than 6 months of age.

102. The method according to any one of claims 88 to 96, wherein the subject is a child older than about 5 years of age.

103. The method according to any one of claims 88 to 96, wherein the subject is an adolescent.

104. The method according to any one of claims 88 to 96, wherein the subject is an adult.

105. The method according to any one of claims 88 to 104 wherein said method comprises administering a daily dosage of the *H. pylori* or the composition wherein each dose comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^6 cells to about 10^{12} cells.

106. The method according to any one of claims 88 to 105 wherein said method comprises administering a daily dosage of the *H. pylori* or the composition wherein each dose comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^7 cells to about 10^{11} cells.

107. The method according to any one of claims 88 to 106 wherein said method comprises administering a daily dosage of the *H. pylori* or the composition wherein each dose comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^8 cells to about 10^{10} cells.

108. The method according to any one of claims 88 to 107 wherein said method comprises administering a daily dosage of the *H. pylori* or the composition wherein each dose comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^9 cells to about 10^{10} cells.

109. The method according to any one of claims 88 to 108 wherein said method comprises administering a daily dosage of the *H. pylori* or the composition wherein each dose comprises an amount of bacteria or lysate thereof corresponding to about 10^8 cells or about 10^9 cells or about 10^{10} cells.

110. The method according to any one of claims 88 to 109 wherein said method comprises administering a daily dosage of the *H. pylori* or the composition over a period of at least about 2 weeks or at least about 4 weeks or at least about 6 weeks or at least about 8 weeks or at least about 10 weeks or at least about 12 weeks.

111. The method according to any one of claims 88 to 110 wherein the administration promotes development of a balanced immune system in a juvenile subject

112. The method according to any one of claims 88 to 111 wherein the administration promotes acquisition of adaptive immunity in a subject.

113. The method according to any one of claims 88 to 112 wherein the administration promotes acquisition of adaptive immunity in a subject.

114. The method according to any one of claims 88 to 113 wherein the administration promotes or enhances CD1d receptor activation and/or CD4-negative and CD8-negative natural killer (NK) cells.

115. The method according to any one of claims 88 to 114 wherein the administration promotes or enhances γδ T-cell activation.

116. The method according to any one of claims 88 to 115 wherein the administration promotes or enhances mucosal immunity involving immune recognition and presentation to antigen-presenting cells (APCs).

117. The method according to any one of claims 88 to 116 wherein the administration promotes a balanced Th1/Th2 immune response to one or more allergens.

118. The method according to any one of claims 88 to 117 wherein the subject is asymptomatic for eczema, or asymptomatic for allergy, or asymptomatic for asthma, and wherein said method prevents a subsequent onset of eczema and/or allergy and/or asthma in the subject.

119. The method according to claim 118, wherein isolated and inactivated and/or killed *H. pylori* is administered to a juvenile subject to prevent eczema in the infant or a subsequent onset of allergy or asthma in later life.

120. The method according to claim 119, wherein isolated and inactivated and/or killed *H. pylori* is administered to an adolescent or adult subject to prevent eczema in the subject or a subsequent onset of allergy or asthma in later life.

121. The method according to any one of claims 119 to 120, wherein a subsequent onset of eczema and/or allergy and/or asthma is inducible in an untreated subject to whom the *H. pylori* or the composition has not been administered by exposure of the untreated subject to an allergen.

122. The method according to claim 121, wherein the allergen is an environmental allergen, pollen allergen, dust mite allergen, animal allergen, or chemical allergen.

123. The method according to any one of claims 88 to 117 wherein the subject has suffered previously from one or more incidences of allergic eczema, allergy, or asthma, and wherein said method prevents a subsequent attack or reduces severity of a subsequent attack in the subject.

124. The method according to claim 123, wherein isolated and inactivated and/or killed *H. pylori* is administered to a juvenile subject that has suffered from allergic eczema to prevent a subsequent attack or reduce severity of a subsequent attack, optionally to prevent or slow further atopic march in the subject.

125. The method according to claim 123, wherein isolated and inactivated and/or killed *H. pylori* is administered to an adolescent or adult subject that has suffered previously from allergic eczema and/or allergy and/or asthma, to thereby prevent a subsequent attack or reduce severity of a subsequent attack, optionally to prevent or slow further atopic march in the subject.

126. The method according to any one of claims 123 to 125, wherein a subsequent attack of eczema and/or allergy and/or asthma is inducible in an untreated subject to whom the *H. pylori* or the composition has not been administered by exposure of the untreated subject to an allergen.

127. The method according to claim 126, wherein the allergen is an environmental allergen, pollen allergen, dust mite allergen, animal allergen, or chemical allergen.

128. The method according to any one of claims 88 to 127 wherein administration of isolated and inactivated and/or killed *H. pylori* to a subject reduces the incidence of allergic immune responses in a population of subjects.

129. The method according to any one of claims 88 to 127, wherein administration of isolated and inactivated and/or killed *H. pylori* to a subject reduces the incidence of allergic immune responses in adolescent and/or adult members of the population treated when they were juveniles.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A composition comprising an inactivated and/or killed *H. pylori* cell or a cell lysate thereof and a pharmaceutically acceptable carrier, wherein said *H. pylori* cell is incapable of colonizing the mucosa of a mammal.

2. The composition according to claim 1, wherein the composition is for mucosal delivery.

3. The composition according to claim 1 or claim 2, wherein the *H. pylori* cells are inactivated and/or killed by heat, chemical means or irradiation.

4. The composition according to any one of claims 1 to 3 comprising a pharmaceutically acceptable carrier.

5. The composition according to any one of claims 1 to 4 formulated for ingestion or inhalation.

6. The composition according to any one of claims 1 to 5, wherein said composition is formulated as a foodstuff or dietary supplement.

7. The composition according to claim 6, wherein the foodstuff comprises an infant formula.

8. The composition according to any one of claims 1 to 7, wherein the formulation is in a tablet form, powder form or liquid form.

9. The composition according to any one of claims 1 to 7, wherein a daily dosage of said composition comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^6 cells to about 10^{12} cells, or about 10^7 cells to about 10^{11} cells, or about 10^8 cells to about 10^{10} cells, or about 10^9 cells to about 10^{10} cells.

10. Use of the composition according to any one of claims 1 to 9 in interrupting or slowing or arresting or preventing an atopic march or progression of an atopic march in the subject.

11. Use of a therapeutically effective amount of killed and/or inactivated *H. pylori* cells or a cell lysate thereof for preventing an allergic immune response to an allergen in a subject or reducing severity or incidence of an allergic immune response to an allergen in a subject.

12. The use according to claim 11 wherein said method comprises administering a daily dosage of the *H. pylori* cells or cell lysate wherein each dose comprises an amount of bacteria or lysate thereof in a range corresponding to between about 10^6 cells to about 10^{12} cells.

13. The use according to claim 11 or claim 12, wherein isolated and inactivated and/or killed *H. pylori* cells or cell lysate thereof is administered to a juvenile subject to prevent eczema in the infant or a subsequent onset of allergy or asthma in later life.

14. The use according to any one of claims 11 to 13, wherein said *H. pylori* cells or cell lysate thereof is to be administered over a period of at least about 2 weeks or at least about 4 weeks or at least about 6 weeks or at least about 8 weeks or at least about 10 weeks or at least about 12 weeks.

15. The use according to any one of claims 11 to 14, wherein said use prevents or delays an increase in a serum level of allergen-specific IgE antibody and/or prevents or delays an increase in a level of one or more inflammatory cytokines in bronchioalveolar lavage (BAL) and/or prevents or delays an increase in a level of cell infiltrate in lung in a subject exposed to an allergen.