**CLAIMS:**

**1.** Use of a live mutated *Bordetella pertussis* strain for the manufacture of a medicament for reducing a T-lymphocyte helper type 1 (Th1)-dominated allergic reaction in a mammal, wherein the strain is mutated to reduce its production of functional pertussis toxin, dermonecrotic toxin, and tracheal cytotoxin while retaining the ability to colonize the mammal, and wherein colonization of the mammal with the strain elicits an anti-inflammatory response which reduces the Th1-dominated allergic reaction in the mammal.

**2.** The use of claim 1, wherein the strain comprises a mutated pertussis toxin *(ptx)* gene, a deleted or mutated dermonecrotic *(dnt)* gene, and a heterologous *ampG* gene.

**3.** The use of claim 1 or claim 2, wherein the colonization of the mammal with the strain occurs prior to onset of the allergic reaction in the mammal.

**4.** The use of claim 2, wherein the heterologous *ampG* gene is an *E. coli ampG* gene that replaces the wild-type *Bordetella* strain *ampG* gene.

**5.** The use of claim 2, wherein the mutation of the *ptx* gene comprises the substitution of an amino acid involved in substrate binding and/or an amino acid involved in catalysis.

**6.** The use of claim 5, wherein the substitution of the amino acid involved in substrate binding comprises R9K and the substitution of the amino acid involved in catalysis comprises E129G.

**7.** The use of claim 2, wherein the heterologous *ampG* gene is the only heterologous gene in the strain.

**8.** The use of any one of claims 1 to 7, wherein the Th1-dominated allergic reaction is contact dermatitis.