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(54) Title: DEFECTIVE ENTITIES AND USES THEREFOR

(57) Abstract: The present invention discloses the structure and sequence of *aroQ* from *Bordetella pertussis*, which are useful *inter alia* for the production of the genetically modified attenuated *Bordetella* strains of the present invention and for detecting and isolating variant *aroQ* genes and expression products. The present invention also discloses attenuated *Bordetella* strains of pathogenic origin, and more particularly genetically modified *Bordetella* strains, which have been attenuated by disruption or inactivation of the *aroQ* gene. The genetically modified *Bordetella* strain of the present invention has a reduced capacity to propagate in a mammalian host, but remains viable in the host for a period of time sufficient to induce a protective immune response against the natural pathogenic *Bordetella* counterpart. The present invention is also directed to the use of such genetically modified *Bordetella* strains in immunopotentiating compositions for treating and/or preventing *inter alia Bordetella* infections, and particularly pathogenic infections, caused by *Bordetella*.