

4567042**INACTIVATED CANINE
CORONAVIRUS VACCINE**

William M Acree, Bobby Edwards, John W Black assigned to American Home Products Corporation

An efficacious parenterally administered inactivated canine coronavirus vaccine which provides systemic, humoral protection and also protection of the intestinal tract in dogs from infection by virulent canine coronavirus is produced. A method for propagation of the canine coronavirus and its attenuation and a method of evaluating the effectiveness of a canine coronavirus vaccine in canines is also disclosed.

4567043**CANINE CORONA VIRUS
VACCINE**

William M Acree, Bobby Edwards, John W Black assigned to American Home Products Corporation (Del)

An efficacious parenterally administered modified live Canine Corona virus vaccine which provides systemic, humoral protection and also protection of the intestinal tract in dogs from infection by virulent Canine Corona virus is produced. A method for propagation of the Canine Corona virus and its attenuation and a method of evaluating the effectiveness of a Canine Corona virus vaccine in canines is also disclosed.

4567146**SYNTHETIC PLASMID AND
BACTERIA CONTAINING IT**

Nicholas J Brewin, Andrew W B Johnston, Cringleford, United Kingdom assigned to National Research Development Corporation

Bacteria of the genus *Rhizobium* nodulate legumes and are responsible for nitrogen fixation. The energetics of this process are improved if hydrogen uptake ability (Hup) is imparted to the bacteria to recycle some of the hydrogen lost

during the nitrogen fixation. Such Hup is observed in a naturally occurring strain of *Rhizobium leguminosarum* but it was not known how to transfer it to other strains. The present invention provides recombinant plasmids pIJ1008 and pIJ1007 which enable it to be transferred. These plasmids are formed from a transmissible plasmid, synthesized to include a drug-resistance marker, and a plasmid of the naturally occurring strain. Cultures containing the plasmids have been deposited in a culture collection and can be used, after appropriate further crosses as described, to impart Hup to other strains of *Rhizobium*. In addition, cultures containing the starting transmissible plasmids (pVW5J1 and pVW3J1) have been deposited and can be used to prepare strains of *Rhizobium* containing the same or similar recombinant plasmids. Plant growth analysis in laboratory tests demonstrate that rhizobial strains containing these recombinant nodulation plasmids which confer Hup+ ability are superior to the corresponding *Rhizobium* field isolates in terms of overall plant growth dependent on symbiotic nitrogen fixation.

4568362**GASIFICATION METHOD AND
APPARATUS FOR
LIGNOCELLULOSIC PRODUCTS**

Xavier Deglise, Georges Meunier, Philippe Schlicklin, Nancy, France assigned to Tunzini-Nessi Entreprises d'Equipements

The rapid pyrolysis of lignocellulosic products, especially forest waste, is conducted in a fluidized bed of hot refractory particles. The pyrolysis products, comprising solid carbonaceous residue (i.e., char), tars and gas, escape from the bed and cross an overheating zone comprising a packed bed contactor supplied by a rainfall of hot refractory particles. The carbonaceous solid residue is then separated from the produced gases, a portion of which is recycled to fluidize the bed, and burned in a conveyed bed combustion reactor, thus heating the refractory particles that supply the packed bed contactor and the fluidized bed.