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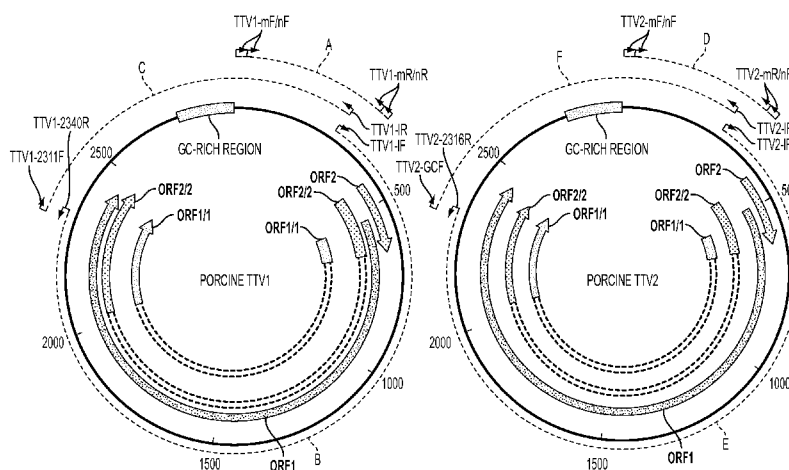


FIG. 1A

(57) Abstract: The present invention provides four purified preparation containing a polynucleic acid molecule encoding porcine Torque teno virus (PTTV) genotypes or subtypes PTTV1a-VA, PTTV1b-VA, PTTV2b-VA, and PTTV2c-VA. The present invention also provides infectious DNA clones, biologically functional plasmid or viral vector containing the infectious nucleic acid genome molecule of the same. The present invention further provides live, attenuated, vector-expressed and purified recombinant capsid subunit or killed viral vaccines for protection against PTTV infection. The present invention additionally provides subunit vaccines comprising PTTV specific gene products, especially ORF1 capsid gene product for protection against PTTV infection. Further, the present invention provides methods for diagnosing PTTV infection via polymerase chain reaction (PCR) using specific primer for PTTV1, PTTV2, and individual PTTV1 genotypes. Finally, the present invention provides methods for diagnosing PTTV infection via immunological methods, e.g., enzyme-linked immunoabsorbent assay (ELISA) and Western blot using PTTV specific antigens for detecting serum PTTV specific antibodies.