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New marker vaccine and DIVA assays for hemorrhagic septicemia in cattle

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Haemorrhagic Septicemia (HS) is an acute, fatal disease of bovines caused by *Pasteurella multocida*. Unavailability of marker vaccines and tests for differentiating infected from vaccinated animals (DIVA) hamper its control. We report here development of a marker vaccine and two DIVA assays for HS in cattle. The marker vaccine was prepared from *P. multocida* grown under iron restricted conditions and lysed by a bacteriophage. The titers were significantly higher in marker vaccinated cattle at 210 days post immunization (DPI) ($P<0.01$) by IHA, 90 DPI ($P<0.05$) by MAT, 90 and 120 DPI ($P<0.05$) by IHA and 90 DPI ($P<0.05$) by ELISA, than the conventional alum precipitated HS vaccine immunized (CV) animals. At 60 DPI, the MAT and IHA titers (\log_{10}) peaked to 2.20 and 2.27 in MV cattle whereas in CV cattle, titers were 2.13 and 2.05, respectively. Mean \log_{10} titers by ELISA in MV and CV cattle were 2.33 and 1.70 at 90 DPI and 2.22 and 2.07 at 60 DPI whereas at 120 DPI the titers were 2.12 and 1.74, respectively. The DIVA immunoblot and ELISA analysis of *P. multocida* OMPs with sera of MV animals revealed antibody to a 137 KDa iron receptor absent in sera of infected or CV animals.

Biography

Hari Mohan Saxena is Head of Microbiology at GADVASU. He was a Counselor in Indian Embassy, Moscow. He is a Member of Expert Panel on Vaccines of European Society for Translational Medicine and Immunology Advisory Board and Editorial Board of Web Med Central, UK. He is an Editor of *Frontiers in Immunology* and *Journal of Clinical Immunology and Immunopathology*. He was on Steering Committee of Science Advisory Board, USA and President and Fellow of Indian Society for Veterinary Immunology & Biotechnology. He has USA, Chinese and South African patents. He is a Fellow of World Innovation Foundation and National Academy of Veterinary Sciences.

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