

# 9<sup>th</sup> International Virology Congress and Expo

March 13-14, 2017 London, UK

## Molecular characterization of foot and mouth disease virus serotypes circulating in Bangladesh for the development of inactivated trivalent vaccine

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Total 15 samples were collected from cattle infected with FMD, of which 85 (56.29%) was adapted in BHK-21 cell. Viral RNA was extracted from virus infected BH-21 cell culture fluid using RNA extraction kit (Promega®, USA) and used for amplification of *VP1* gene with specific primers by RT-PCR for FMD virus serotyping, of which, 31 (43.67%), 26 (36.62%), 10 (14.08%) were positive for serotype A, O, Asia 1, respectively and 4 (5.63%) for mixed. Partial sequencing of *VP1* gene was performed two from each serotypes and comparison conducted using the BLAST search and 92-99%, 92-100% and 96-98% homology were found with some FMD virus serotypes O, A and Asia-1 isolates of Bangladesh, India, Pakistan, Nepal and Bhutan, respectively. Isolates of this study belonged to PanAsia-02 sub-lineage of ME-SA topotype (serotype O), genotype VII (18) of ASIA topotype (serotype A) and Lineage C (serotype Asia-1), respectively. BAU FMD Vac-1 and -2 developed from isolated FMD virus and antibody titers were determined in sero-negative calves by ELISA and SNT and compared with commercially available FMD vaccines. Vaccines were administered in single and booster dose order; of which BAU FMD Vac-1 produced better immune response than other vaccines including BAU FMD Vac-2. Highest antibody titers were found in all vaccines at 60 dpv, and after 60 dpv the antibody titers gradually decline. Protective immunity persists up to 5 months (single dose) and 6 months (booster dose) in case of BAU FMD Vac-1. On the other hand in case of with BAU FMD Vac-2, Raksha® and Aftovaxpur® protective immunity persisted only 4 months (single dose) and 5 months (booster dose). Efficacy test of BAU FMD Vac-1 and 2 vaccines were carried out in guinea pigs and found 100% potent against FMD virus serotypes O, A and Asia-1.

### Biography

M Bahanur Rahman has completed his PhD from Kyoto University, Japan and Post-doctoral studies from Changing University, Molecular Genetics Laboratory, Department of Microbiology and Immunology, Taiwan and Proteomics Lab of Max Planck Institute for Developmental Biology, Tübingen, Germany. He is a Professor of Microbiology, Department of Microbiology and Hygiene, Bangladesh Agricultural University, Mymensingh, Bangladesh. He is also working as a Senior Regional Vaccine Consultant, Department of Livestock Services (DLS), Government of Bangladesh. He has published more than 65 papers in reputed journals and has been serving as an Editorial Board Member of *Bangladesh Journal of Microbiology, Microbes and Health and Journal of Environmental Science and Natural Resources*.

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