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Generation of gateway clone library of virulence associated genes of zoonotic buffalopox virus: State-of-the-art resource for proteome analysis

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In recent times, frequent epidemics of buffalopox virus (BPXV), a close variant of vaccinia virus in buffaloes, cows and humans in India is posing a potential public health concern following the cessation of smallpox vaccination globally. Currently lack of effective prophylaxis against BPXV infections warrants the need for BPXV proteome analysis so as to identify potential vaccine candidate, as well as to elucidate the host–pathogen interactions. In this context, Gateway clone library of Open Reading Frames (ORFs) of virulence associated genes of zoonotic buffalopox virus (BPXV) was generated and preserved in the repository of Veterinary Type Culture Collection, Hisar, Haryana, India. This study involved the development of biological resource collection in the form of gateway entry clones of 19 virulence associated ORFs (*C3L, crmB, B28R, cbp, B29R, IL-18, C7L, ZFA, N1l , K1L, K3L, E3L, A39F, B5R, L5R, D8L, A21L, A27L & B1R*) of BPXV. The targeted ORFs have been amplified by two rounds of PCRs using ORF-specific primers without stop codons and having lambda phage att sites. The amplicons were cloned into Gateway vector-pDONR221 (Invitrogen) by homologous recombination and recombinant clones were selected by antibiotic resistance and suicidal action of ccd gene of the vector. The generated Gateway entry clones were validated by sequencing the ORFs and preserved in the repository. This is the only available flexible Gateway entry clone library of BPXV which will serve as state-of-the-art resource to scientific community for high-throughput proteome analysis of BPXV with the futuristic aim of development of 3rd generation vaccines against BPXV.

Biography

B C Bera has completed his PhD at the age of 28 years from Indian Veterinary Research Institute, Izatnagar, Uttar Pradesh. He is working as scientist at Veterinary Type Culture Collection, Hisar, Haryana. He is working in the area of molecular epidemiology of animal viruses especially on equine influenza virus, buffalopox & Camelpox viruses. He has published more than 17 research articles in reputed journals.

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