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Cloning of Immunoglobulin cDNAs from the Jamaican Fruit Bat (*Artibeus jamaicensis*)

Biological Sciences

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Bats have recently been identified as reservoirs of infectious agents that cause disease in humans, including rabies virus, SARS-like coronaviruses, Ebola and Marburg viruses, and Nipah and Hendra viruses. Little research has been done on how bats host these viruses without developing pathology. It has recently been determined that the Jamaican fruit bat (*Artibeus jamaicensis*) is highly susceptible to Tacaribe virus (TCRV), which is closely related to the viruses that cause the South American hemorrhagic fevers (SAHF). Previous work from our lab suggested Jamaican fruit bats infected with TCRV to be a viable animal model for SAHF; the presence of neurogenic tremors is a key symptom seen in both bat and human pathology. Characterization of the immunoglobulins (Ig) is a fundamental process to developing this animal model. The purpose of this study is to examine Ig mRNAs to clone and characterize IgG, IgA, and IgM genes. This strategy will allow us to identify segments where immunoglobulin genes differ between classes and reveal variable, diversity, and joining regions that contribute to immunoglobulin diversity. Total RNA was extracted from a bat spleen sample and reverse transcribed to cDNA. Ig specific CH1 domain primers were used to amplify sequences to be cloned into a cloning vector. Competent *E. coli* cells were transformed and screened for correct plasmid inserts. Bacterial plasmids were purified and sequenced. Orthologous IgG, IgA and IgM sequences from other mammalian species were acquired from Genbank for comparative analysis with Jamaican fruit bat sequences. To this end, we have cloned constant regions of Jamaican fruit bat IgG, IgA, and IgM. We aim to subclone amplified gene fragments into expression vectors and produce Ig-specific antibodies. We will use these antibodies to characterize bat immune responses to TCRV and compare them to human antibody responses to the viruses that cause the SAHF.