

Assessing Immunization across Life Stages of the Cuban Treefrog (*Osteopilus septentrionalis*) to the Pathogenic Chytrid Fungus (*Batrachochytrium dendrobatidis*)

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Abstract : Emerging diseases are key factors in the disconcerting rate of contemporary amphibian declines. The chytrid fungus, *Batrachochytrium dendrobatidis* (Bd), ranks among the chief pathogenic challenges to vulnerable amphibian populations. Although live Bd can immunosuppress amphibian hosts, amphibian exposure to dead Bd can induce an adaptive immune response, leading to acquired resistance to the pathogen. In this experiment, dose and duration of flash-frozen Bd were manipulated over a variety of life-stages of the Cuban treefrog (*Osteopilus septentrionalis*) and the magnitude of acquired resistance to the pathogen was quantified via qPCR analyses of spore abundance post subsequent live Bd challenges. It was found that Cuban treefrogs can develop resistance to Bd and that life stage, dose and duration thresholds exist for acquired resistance. This experiment will aid in facilitating the development of a vaccine against Bd which could be used on location and could help curb worldwide amphibian declines associated with this pathogen.

Keywords : acquired resistance, ecoimmunology, emerging infectious disease, fungal host response, fungal pathogen, immunization

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