Dr. Nigel Yarlett
Department of Chemistry and Physical Sciences
Dyson College of Arts and Sciences

"Role of the Cryspovirus in Severity and Persistence of Cryptosporidosis."

Cryptosporidiosis, a diarrheal disease prevalent in economically poor regions, is transmitted by poor hygiene. At highest risk are young children and immunocompromised individuals. Pediatric survivors demonstrate stunted growth and cognitive impairment resulting in long term effects on these communities; There is no effective therapy available for pediatric cases. All known species of Cryptosporidia contain a dsRNA virus, termed, Crypsovirus; however, the role of the virus in disease pathology is unknown. The hollow fiber culture method allows production of C. parvum cultures lacking the virus that can be used for comparison of disease pathology with wild type cultures. We have evaluated a series of antivirals targeting dsRNA viruses and have shown that lamivudine was capable of sterilizing the cultures producing a continuously growing C. parvum virus-free culture. We propose that the virus is shed during the infection which overwhelms the host immune response and facilitates prolonged infection and persistence of diarrheal symptoms. Using a mouse model we will compare the immune response in C. parvum virus free and C. parvum wt phenotypes. The spectrum of antibody production by both phenotypes will be compared. The results will provide important information concerning the role of Cryspovirus in disease severity due to cryptosporidiosis.