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A new antiviral therapeutic strategy for the prevention of *Rotavirus* infections

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Rotaviruses (RV) are one of the leading causes of severe diarrhea in young children throughout the World. According to the WHO, rehydration, zinc supplements, nutrient-rich foods and the availability of health professionals are key measures to treat diarrhea but there is poor availability of interventions in developing countries. Three vaccines are available but they only reduce the viral load, lessoning symptoms while the virus still replicates. Therefore, the search for a cost-effective therapeutic is important in reducing morbidity and mortality of RV infections in developing countries. The purpose of our studies is to investigate the effects of highly purified small molecules extracted from peanut (*Arachis hypogaea*) hairy root cultures. The desired effects include prevention of diarrheal symptoms and the establishment of a robust protective immunity. Recent studies show that selected natural products and synthetic small molecules inhibit specific viruses, bacteria and parasites. Stilbenoids are small molecules composed of polyphenolic compounds functioning as phytoalexins which are secondary metabolites with antimicrobial activity. They are produced by grapes, peanuts and some berries. The stilbenoid resveratrol demonstrates strong antioxidant and chemo-preventive properties. Our laboratory tested four highly purified stilbenoids to determine their effects on the RV replication in a human intestinal cell line. Our data shows a significant decrease in the amount of virus progeny with the addition of two of the four stilbenoids tested. A possible explanation of the observed effects is due to the ability of the stilbenoids to bind to cellular receptors present on the cell lines used in this study.

Biography

Rebecca D Parr has obtained her PhD at Texas A&M University in College Station, TX by characterizing and comparing the spike proteins of two pathotypes of the avian *Coronavirus*, infectious bronchitis virus. Her Post-doctoral research experiences are extensive in exploring host-pathogen interactions, viral pathogenesis and host cell protein interactions that effect cell processes of coronaviruses, baculoviruses and rotaviruses. Her recent research efforts have focused on understanding the mechanisms of action of the *Rotavirus* enterotoxic protein, NSP4 to help design a more effective vaccine. After initiating and directing a Master of Science in Biotechnology Program at Arkansas State University, Jonesboro, AR, she was accepted as an Assistant Professorship at Stephen F Austin State University, Nacogdoches, TX to continue teaching and expanding her research on antiviral strategies using natural products. She has published more than 20 papers in peer reviewed journals and 2 book chapters.

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