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Professor

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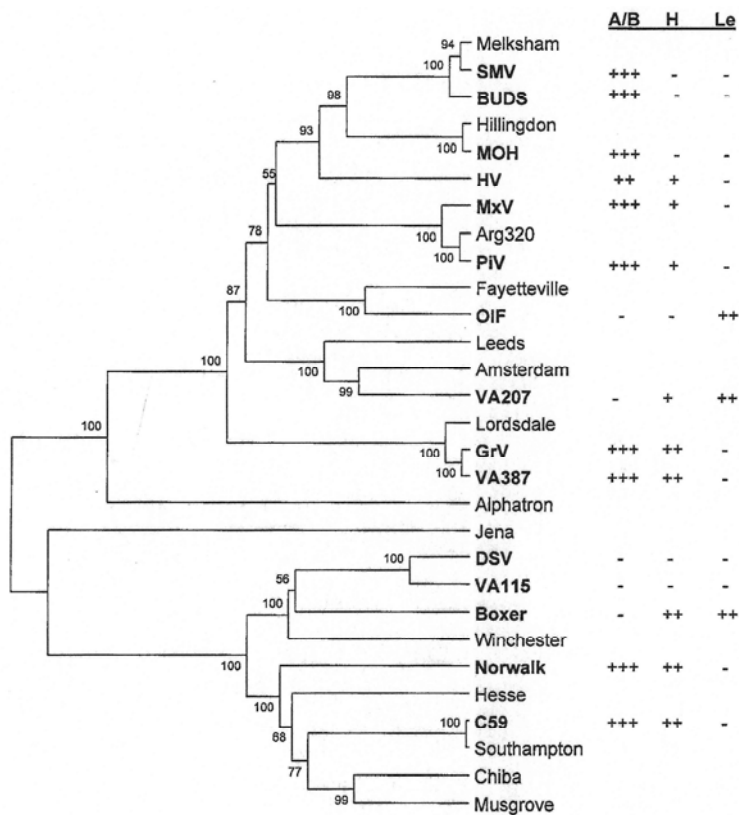
Description of Research:

Dr. Jiang's research focuses on the interaction of Norovirus (NV) with human histo-blood group antigen receptors. He has characterized the receptor binding patterns of fourteen strains of NVs using recombinant virus-like particles (VLPs) generated from baculovirus-infected insect cells and identified eight receptor binding patterns defined by the ABO, Lewis, and secretory blood types of saliva donors. The eight binding patterns are classified into two binding groups: the A/B binding group and the Lewis binding group. A genetic relatedness has been found among strains with similar binding patterns. The molecular basis of the pathogen/receptor interaction has been further elucidated, including mapping of the binding domain and characterization of the binding interface. Based on these data, Dr. Jiang has proposed a model of the receptor/ligand interaction.

Collaborations:

Dr. Jiang collaborates with Dr. Morrow investigating how the glycans found in breast milk serve as a protective measure by inhibiting pathogens from adhering to their receptors. Dr. Cohen is a co-investigator on his DOD grant to study preventive therapy in humans.

Representative Figure:



Phylogenetic tree and prediction of human histo-blood group antigen (HBGA) targets of noroviruses determined by binding and blocking experiments. The phylogenetic tree was constructed based on the amino acid sequences of the entire capsid genes using the UPGMA clustering method (MEGA v2.1) with Poisson correction distance calculations. Bootstrap values are indicated as percentages of 125 replicates. The potential HBGA targets for individual strains are shown on the right side of the panel. The binding results of each strain were assigned based on reactions in assays with saliva and/or oligosaccharide conjugates. "+" indicates a positive binding observed in any of the assays, "++", "+++" indicate higher binding signals, and "-" indicates no binding. Fig. 3 from J Virol, 2005: 79:6714-6722.