

Human blood for use in biological assays

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Principal Investigator: Gregory R. Moe, PhD

Synopsis:

We have identified a novel sialic acid derivative, which we refer to as neuraminic acid containing polysialic acid or neuPSA, that is expressed by pathogenic bacteria *Neisseria meningitidis* group B and C and in many human cancers including leukemias, lymphomas, melanomas, and neuroblastomas. Our hypothesis is that antibodies to neuPSA and drugs that affect the expression of neuPSA can prevent infectious disease caused by group B and C bacteria and may be useful in preventing or treating human cancers.

The specific aims of this study are to evaluate functional activity of polyclonal antisera and monoclonal antibodies produced by immunization with neuPSA vaccines to: 1) protect against disease caused by *N. meningitidis* group B and C as determined by bactericidal and opsonophagocytotic assays with human complement and blood-derived phagocytic cells, and ex vivo passive protection in whole human blood, 2) induce cytotoxicity in human cancer cell lines by antibody dependent cytotoxicity (ADC), complement dependent cytotoxicity (CDC), and antibody-dependent cellular cytotoxicity (ADCC) as determined by viability assays using human blood-derived complement and cells, and 3) evaluate binding and possible cytotoxicity to normal blood-derived cells that have or have not been induced to divide by treatment with mitogenic agents.