

## **427g Surface Modification of Bovine Red Blood Cells with Methoxypoly(Ethylene Glycol)**

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Methoxypolyethylene glycol (mPEG) covalently bound to the surface of human red blood cells (hRBC) has been shown to decrease immunological recognition of surface antigens. Our goal is to similarly modify bovine RBCs to reduce the demand on human blood donations needed for blood transfusions. We have modified the surface of bovine red blood cells (bRBCs) with the succinimidyl ester of methoxy poly(ethylene glycol) propionic acid (SPA-mPEG). The oxygen binding properties of PEGylated bRBCs remained unaltered with SPA-mPEG concentrations up to 4 mM when reacted with bRBCs at a hematocrit of 12%. Viscosity measurements of PEGylated bRBCs at a hematocrit of 40% show similar viscosities to hRBCs ~ 3 cp. Studies on the meniscus packing in a capillary show some altered deformability of PEGylated bRBCs, but blood flow through the capillary appears to remain unhindered. Taken together, the results of this study demonstrate the feasibility of PEGylating bRBCs to yield modified cells with similar oxygen binding and flow properties similar to that of hRBCs.