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Fields of Interest: Blood typing

Dr. Miller's research has been in species-specific and individual blood typing of a variety of species, especially cattle and doves. Parentage analysis in disputed sire-dam problems, phenogrouping of red cell factors, and pattern analysis of reagent reactions, as well as taxonomic relationships, developmental characters of antigens, and albumin, transferrin and hemoglobin characterizations by gel electrophoresis have been made. These and regular genetic characters have been especially disclosed in a species-hybrid colony. Dihybrid linkage tests have been extensive.

Lectin and antibody reactivities of species and individual red cells have disclosed juvenile and recessive characters not usually encountered in classical immunogenetics. These results have contributed to a molecular view of why blood types exist. Endeavors include a screening test demonstrating the suitability of blood testing new world camels for taxonomic relationships. Blood typing of goats is being performed for basic immunogenetic cross comparisons with cattle and sheep. Utility of such tests will include parentage analysis, now becoming as important for goats as for cattle. Also, the tests should help clarify the "freemartin-like" results in polled goats twins.

Selected References:

Miller, W.J. 1976. Blood groups: Why do they exist? *BioScience* 26:557-562.

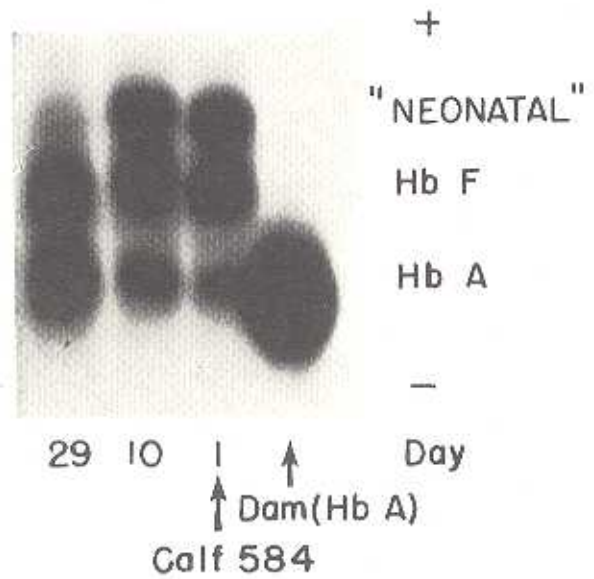
Miller, W.J., Hollander, P.J. and Franklin, W.L. 1985. Blood typing South American camelids. *J. Heredity* 76:369-371.

Miller, W.J., Hollander, P.J. and de Carillo, I.P. 1986. Further Search for Interaction Antigens on Erythrocytes in Selected Species Hybrids of Birds. *Poultry Science* 65:1028-1033.

Miller, W.J. 1989. *A Survey of Genetics*. Ginn Press pp. 321.



Partial dominant inheritance of silky dove, *Streptopelia risoria*.



Electrophoretic pattern of hemoglobins of dam and her calf after long gestation (306 days). Notice persistence of fetal hemoglobin (Hb F) in calf on postdelivery day 29.