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Studying CD8⁺ T cells in health and disease

Research emphasis:

Dr. Hess's laboratory focuses on CD8⁺ T cells. In dogs, we're working on developing adoptive T-cell therapy for eradicating chemoresistant cancer cells in lymphoma, histiocytic sarcoma and hemangiosarcoma. In cats, our long-term goal is to understand why CD8⁺ T-cell defenses fail when confronted with the mutant coronavirus that causes feline infectious peritonitis.

Application:

- Antigen discovery in canine lymphoma & sarcomas
- T-cell epitope identification in canine viral infections
- T-cell receptor (TCR) minimal residual disease tracking in canine lymphoma
- Feline Leukocyte Antigen (FLA) allele discovery

Collaboration potential:

- DLA/FLA Class I sequencing
- TCR sequencing in dogs & cats

Selected publications:

Holmes JC, Holmer SG, Ross P, Buntzman AS, Frelinger JA, and Hess PR. 2013. Polymorphisms and tissue expression of the Feline Leukocyte Antigen Class I loci FLA-E, -H and -K. *Immunogenetics*, doi: 10.1007/s00251-013-0711-z.

Gojanovich GS, Ross P, Holmer SR, Holmes JC and Hess PR. 2013. Characterization and allelic variation of the transporters associated with antigen processing (TAP) genes in the domestic dog (*Canis lupus familiaris*). *Dev Comp Immunol*. <http://dx.doi.org/10.1016/j.dci.2013.07.011>

Ross P, Holmes JC, Gojanovich GS, and Hess PR. 2012. A cell-based MHC stabilization assay for the detection of peptide binding to the canine classical class I molecule, DLA-88. *Vet Immunol Immunopathol*, 150(3-4):206-212.

Ross P, Buntzman AS, Vincent BG, Grover EN, Gojanovich GS, Collins EJ, Frelinger JA, and Hess PR. 2012. Allelic diversity at the DLA-88 locus in the Golden Retriever and Boxer breeds is limited. *Tissue Antigens*, 80(2): 175-183.