The mission of the CNPRC is to improve human health and quality of life through support of exceptional nonhuman primate research programs.

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Viral Mechanisms of Persistence and Pathogenesis

My laboratory investigates the mechanisms of rhesus cytomegalovirus (RhCMV) persistence and pathogenesis to develop clinically relevant strategies that can prevent and/or treat human cytomegalovirus (HCMV) disease. My lab developed the rhesus macaque model of HCMV to enable studies in nonhuman primates that translate to human clinical trials. Our primary research focus is to identify viral determinants of latency, persistence and pathogenesis. Our goals include (1) define RhCMV mechanisms of persistent persistence, (2) characterize determinants of pathogenesis, (3) identify protective immune responses, (4) design novel strategies that prevent RhCMV infection and disease, and (5) develop reagents for clinical trials in humans.

Our data validate rhesus macaques as a relevant animal model to study how chronic viral infections modulate host immunity and impact imaging of the immune system, potentially leading to new therapies promoting healthy aging in humans.

To contact Dr. Peter Barry and for more information on his research, see:
http://www.cnprc.ucdavis.edu/peter-barry/

Using the Nonhuman Primate Model of HCMV to Guide Vaccine Development

Deere JD and Barry PA
PMC4014706

The interplay between immune maturation, age, chronic viral infection and environment

PMC4436863

This figure (adapted from Chang and Barry, Proc Natl Acad Sci 107:22647, 2010) illustrates the effects of how human cytomegalovirus weakens our immune response when humans are infected with this virus. HCMV, the birth defect virus, expresses a viral protein (cmvIL-10) that suppresses our immune response to the virus. This viral process greatly complicates the strategies for HCMV vaccines that could limit development of a protective vaccine against congenital HCMV infection.