

Equine Herpes Virus Update



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Presented here in 2014

Collaborative Research Group

- **UCDavis – Drs. Ray Wack, Nicola Pusterla**
- **Lincoln Park Zoo – Drs. Kathryn Gamble, John Flanders**
- **Bear TAG – Dr. Darin Collins**
- **Polar Bear SSP – Dr. Wynona Shellabarger**
- **Equid TAG – Dr. Diana Boon**

Equine Herpes Virus – What?

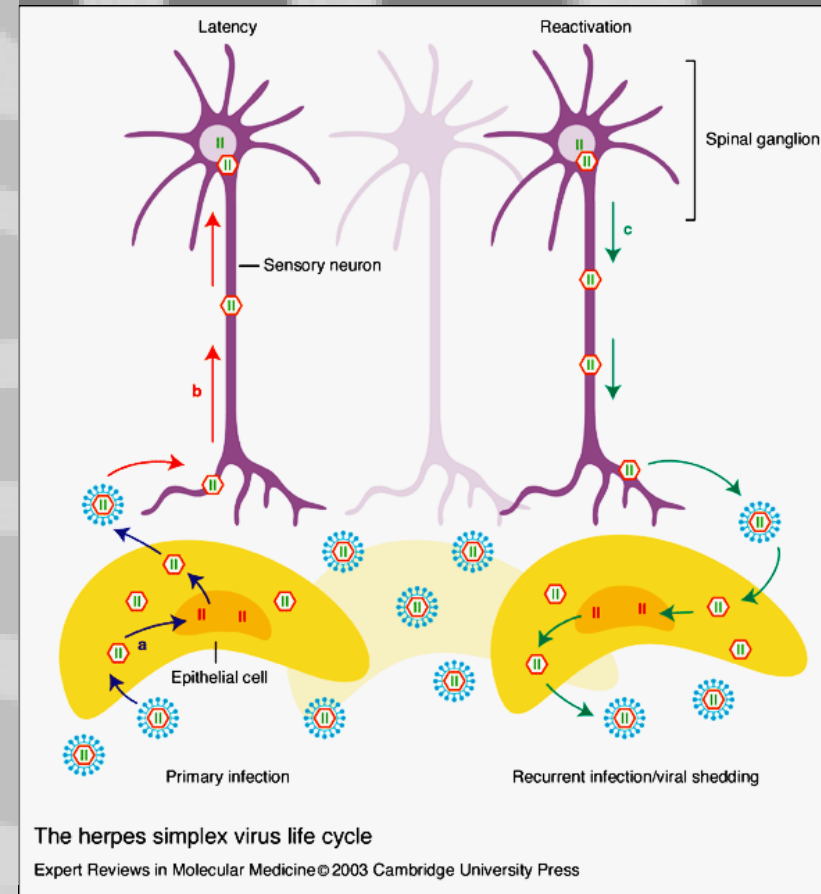
Typical herpes virus

- Almost all horses infected in first month of life
- Becomes latent for life
- Subclinical, asymptomatic
- Stress causes activation

Respiratory Disease

Abortion

Neurological disease



Equine Herpes Virus – What?

Virus Strains

EHV -1- Respiratory Disease, Abortion

- **Equine Herpesvirus Myeloencephalopathy (EHM)**

EHV – 2 (gamma)

- **Cytomegalovirus, Uncertain Role**

EHV – 3 – STD, Coital Exanthema

EHV – 4 – Rhinopneumonitis - Foals

EHV – 5 – Chronic Lung Fibrosis

EHV – 9 – Close to 1 but Multispecies

Equine Herpes Virus – What?

Domestic Horses

- EHV -1: Adults

Respiratory

Abortion

Neuro disease 75%

Single Mutation

- EHV – 4: Foals

Rhinopneumonitis



<http://www.labgrab.com/files/science-news/images/LabGrab/horse-genome.jpg?1257520370>

Equine Herpes Virus – What?

Domestic Horses

- Vaccination q3-6 mo
- Short Immunity
- No Test Required For Movement
- Quarantine For Neurologic Form Only



www.wormsandgermsblog.com/uploads/image/Horse%20trailer.jpg

Equine Herpes Virus – Why Care ?

It's not just horses anymore!

- **Llama, Alpaca, 1996**
- **Thomson Gazelle 1997 EHV9**
- **Camel 1998**
- **Onager, Zebra, Gazelle 2007, 2015
(private)**
- **Polar Bears 2007 EHV9, 2010 EHV1/9**
- **Giraffe 2008 EHV 9**
- **Black Bear 2011 EHV1 2015 (2)**
- **Rhino Abortion 2012**

Equine Herpes Virus – Preliminary Results

Targeted 31 institutions

23 sent samples (76%)

THANKS!

Also non-zoo samples

- **Private owned zebras**
- **Black bear rehab center**



Equine Herpes Virus – Preliminary Results

**Developed and validated
test methods for zebra
and bear species**

**Virus isolation, PCR and
antibody detection on
nasal swabs and blood
samples**



Preliminary Results

30% ELISA Neg for EHV 1 & EHV 4

53% ELISA Neg EHV 1 & Pos EHV 4

17% ELISA Pos EHV 1 & Pos EHV 4

Exotic equids exposed to EHV

Preliminary Results

NON AZA Animals:

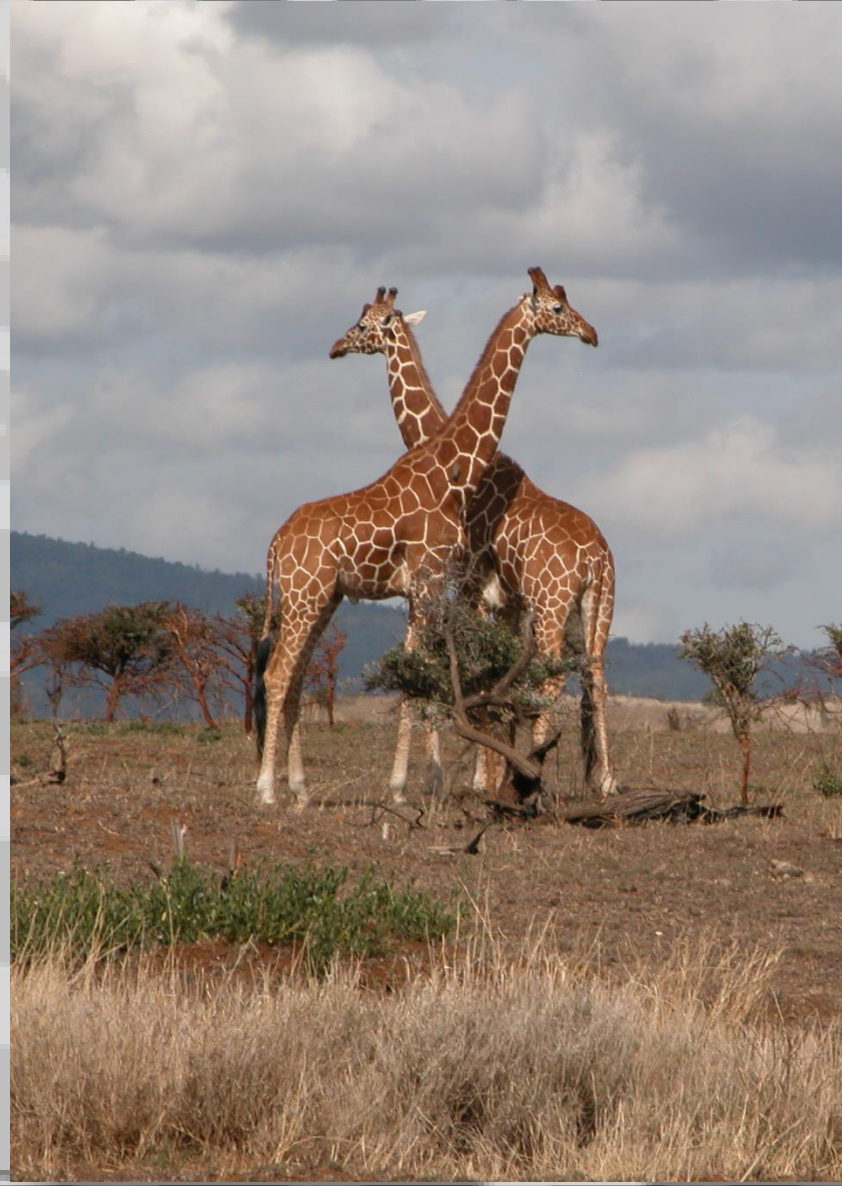
- **Zebra POS for EHV 1 & POS EHV 4**
- **Black bear POS EHV 1**



Equine Herpes Virus

Take home messages:

- Thanks for samples!
- Publication forth coming
- Vaccinate your zebras
- Minimize transmission to bears
- Consider EHV as cause of neuro disease in bears



Questions?



UC DAVIS

VETERINARY MEDICINE

Karen C. Drayer Wildlife Health Center