

Acute BVDV infections in non bovine species

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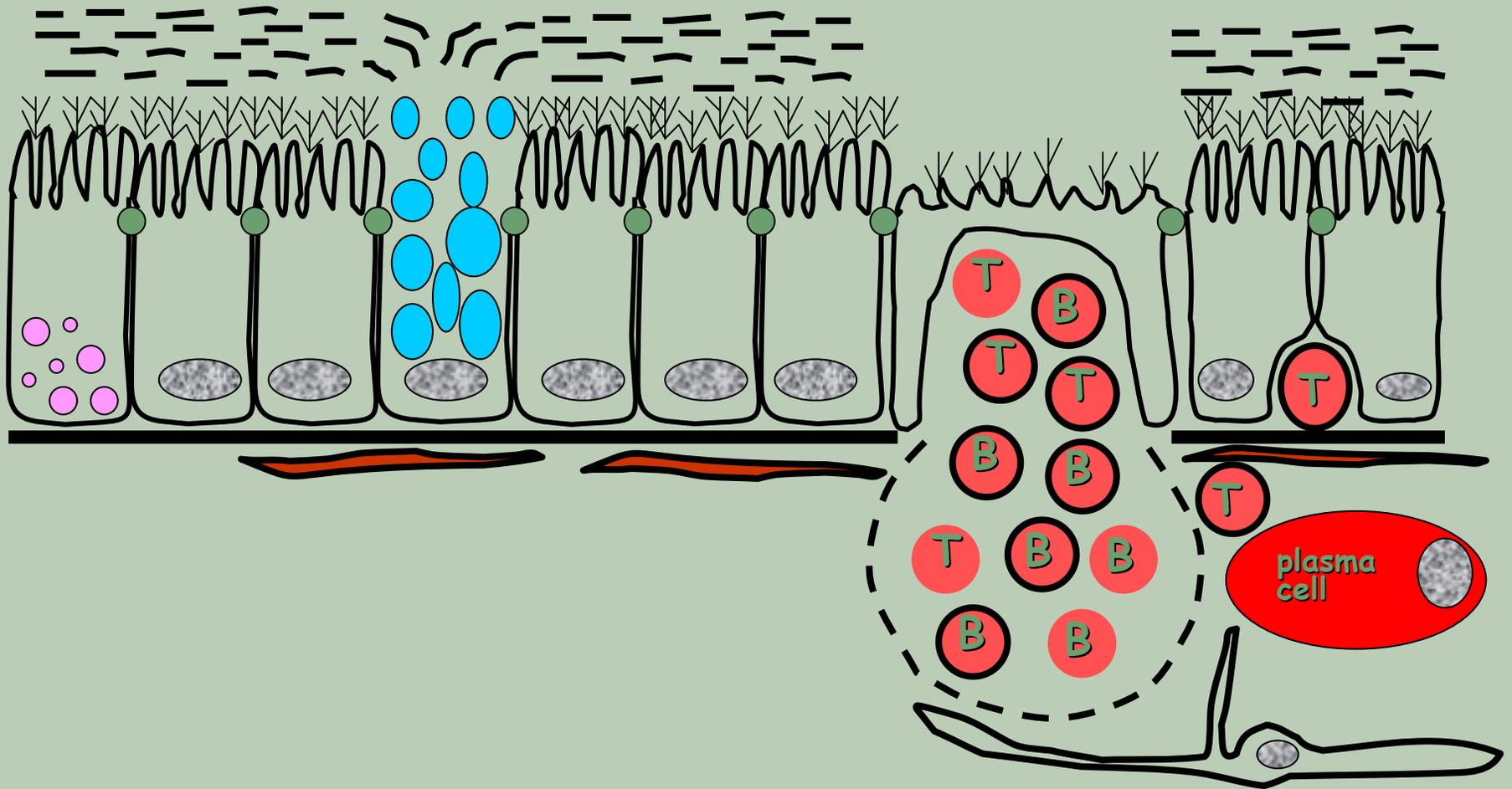
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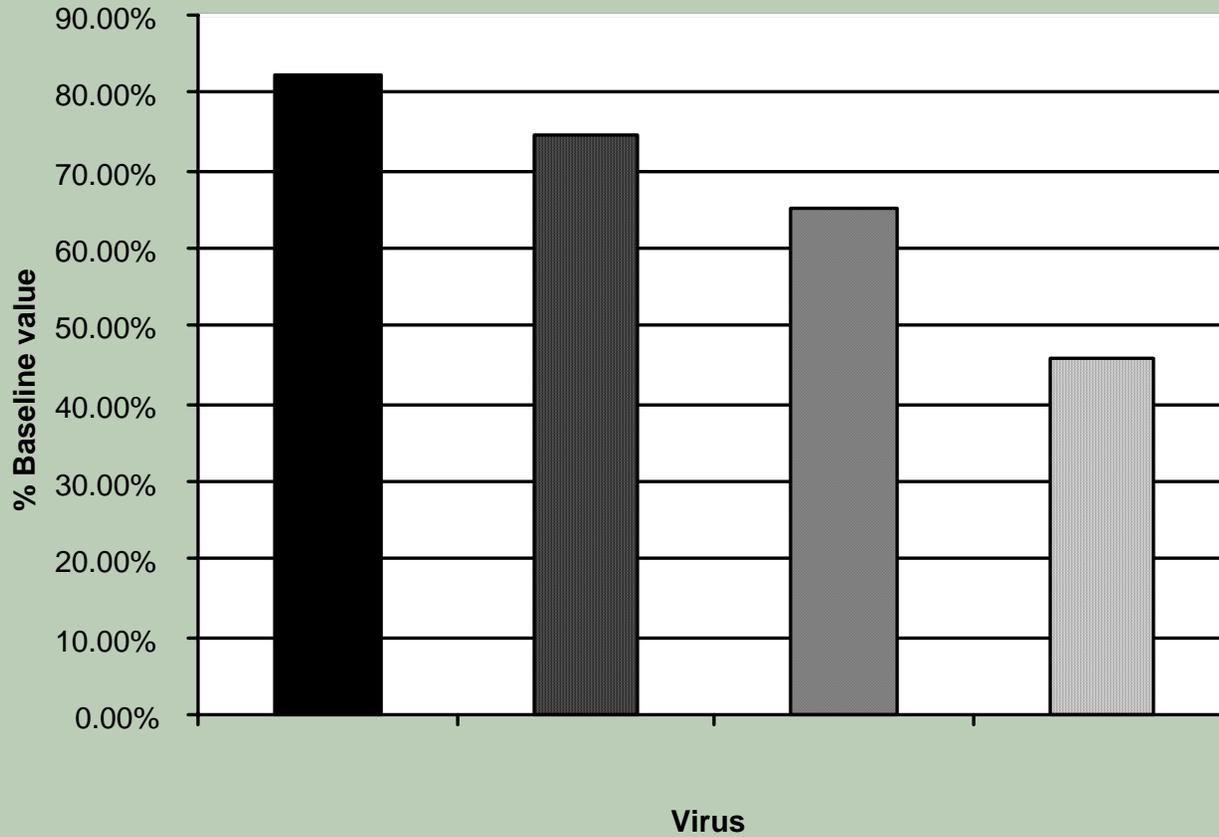
BVDV targets the immune system



Typical progression of acute infection in cattle

- Biphasic fever
 - **First peak days 3 to 5, 2nd peak days 6 to 12**
- Viremia
 - **Virus isolated from buffy coat, serum and nasal swabs between days 3 and 11**
- Lymphocyte drop
 - **Days 6 to 9**
- Platelet drop (**only with highly virulent**)
 - **Days 9 to 11**
- Depression
 - **Days 9 to 13**
- Clinical disease
 - **Days 9 to 13**
- Recovery

WBC at Day Six Post Infection



■ BVDV2-28508-5

▨ BVDV2-296

▩ BVDV2-BRSV

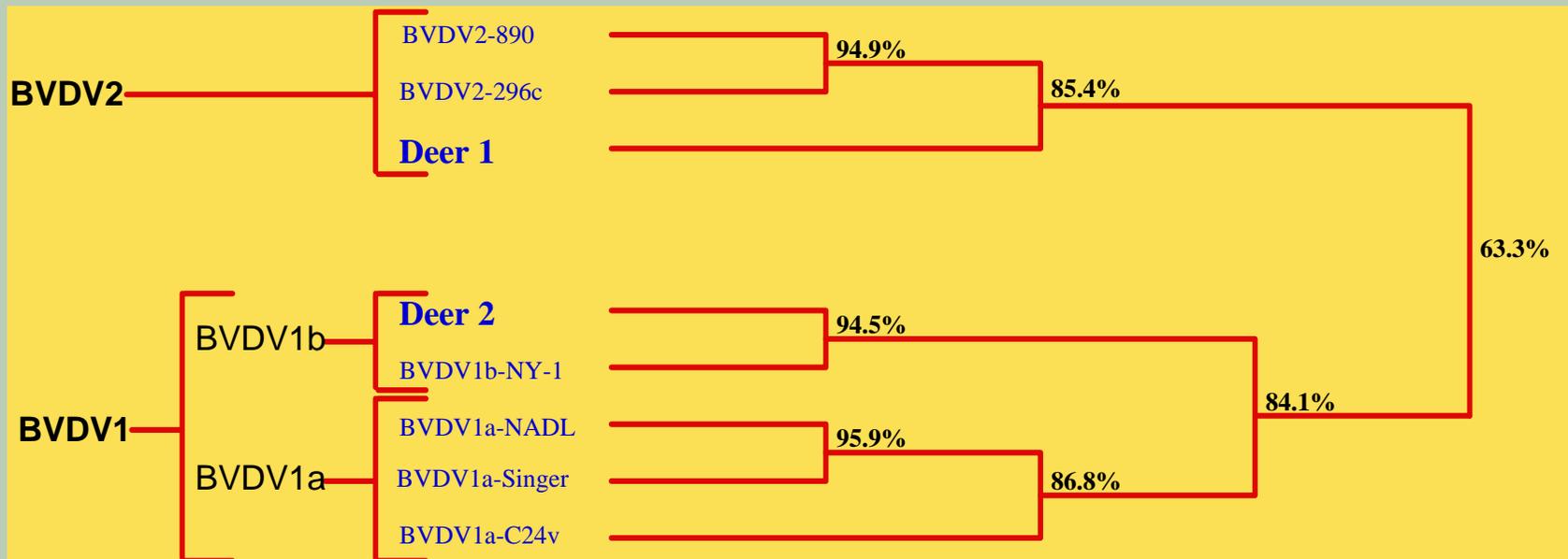
▧ BVDV2-1373

3 viruses from field

- Two viruses from apparently "PI" deer
- One virus from acute outbreak of BVDV in pigs
 - High morbidity and death loss

BVDV isolated from deer

- Isolated from two separate deer in South Dakota
 - submitted and found negative for CWD
- IHC similar to that seen with bovine PI



Acute study in deer



- 2 to 4 week old white tail fawns
 - Free of BVDV and antibodies to BVDV
- 3 groups
 - 4 inoculated with Deer 1 (BVDV 2 strain)
 - 4 inoculated with Deer 2 (BVDV 1b strain)
 - 2 sham inoculated
- 3.5 mls 5.6×10^6 TCID/ml by oral/nasal route
- Temp daily, blood samples baseline, 3, 6, 9, 11, 13 days post inoculation

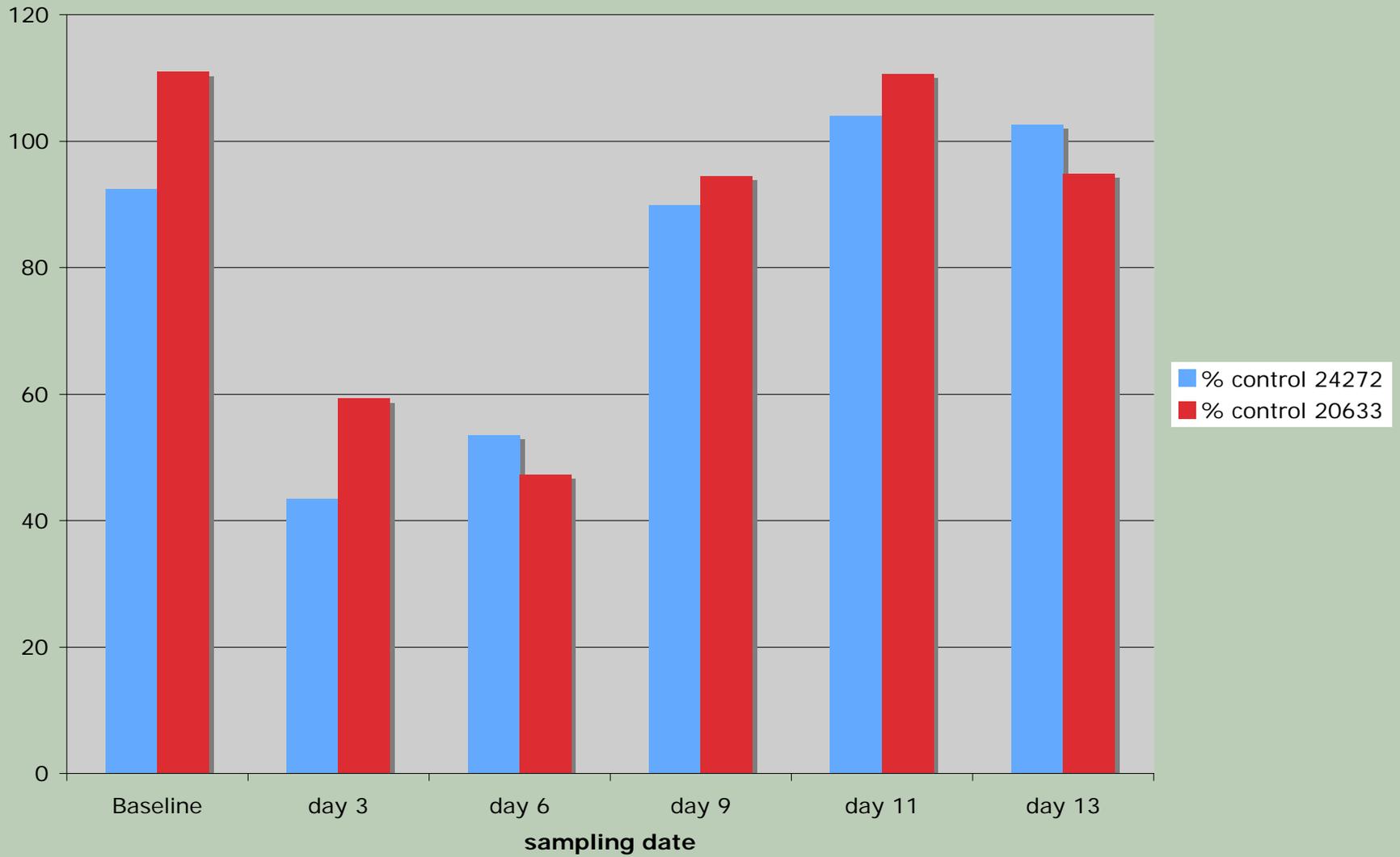
Acute study in deer



- No overt clinical disease
- Input virus isolated on day 6 from both groups
- Both inoculated groups exhibited fever and averaged $> 50\%$ decrease in circulating lymphocytes
- Fawns infected with BVDV 1 (type 2 BVDV) had statistically significant decreases in platelets.

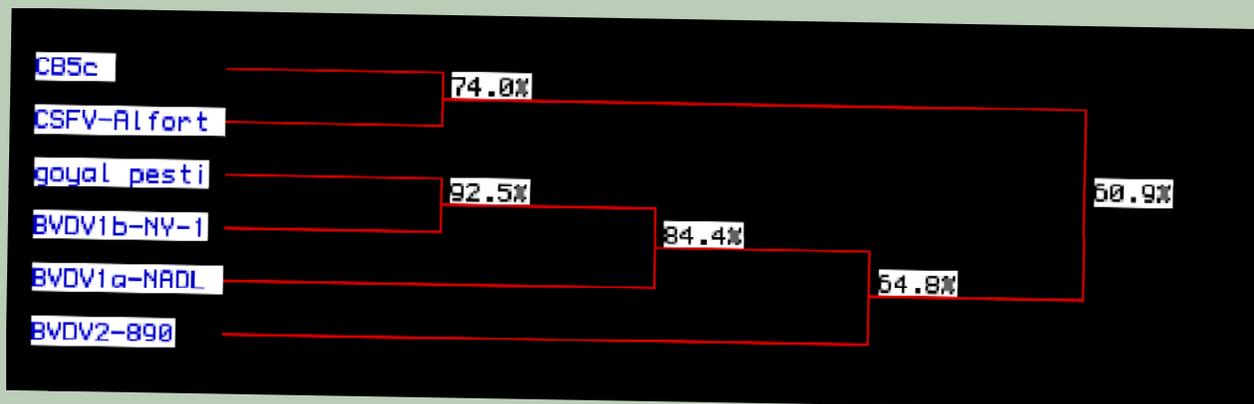
Treatment group	Number of days avg. temp for group > 102.5	Highest avg. daily temperature for group	Highest individual temperature recorded for group
Inoculated with Deer 1 isolate	7	103.5	104
Inoculated with Deer 2 isolate	6	103.5	105
Sham inoculated (control)	0	102.2	102.5

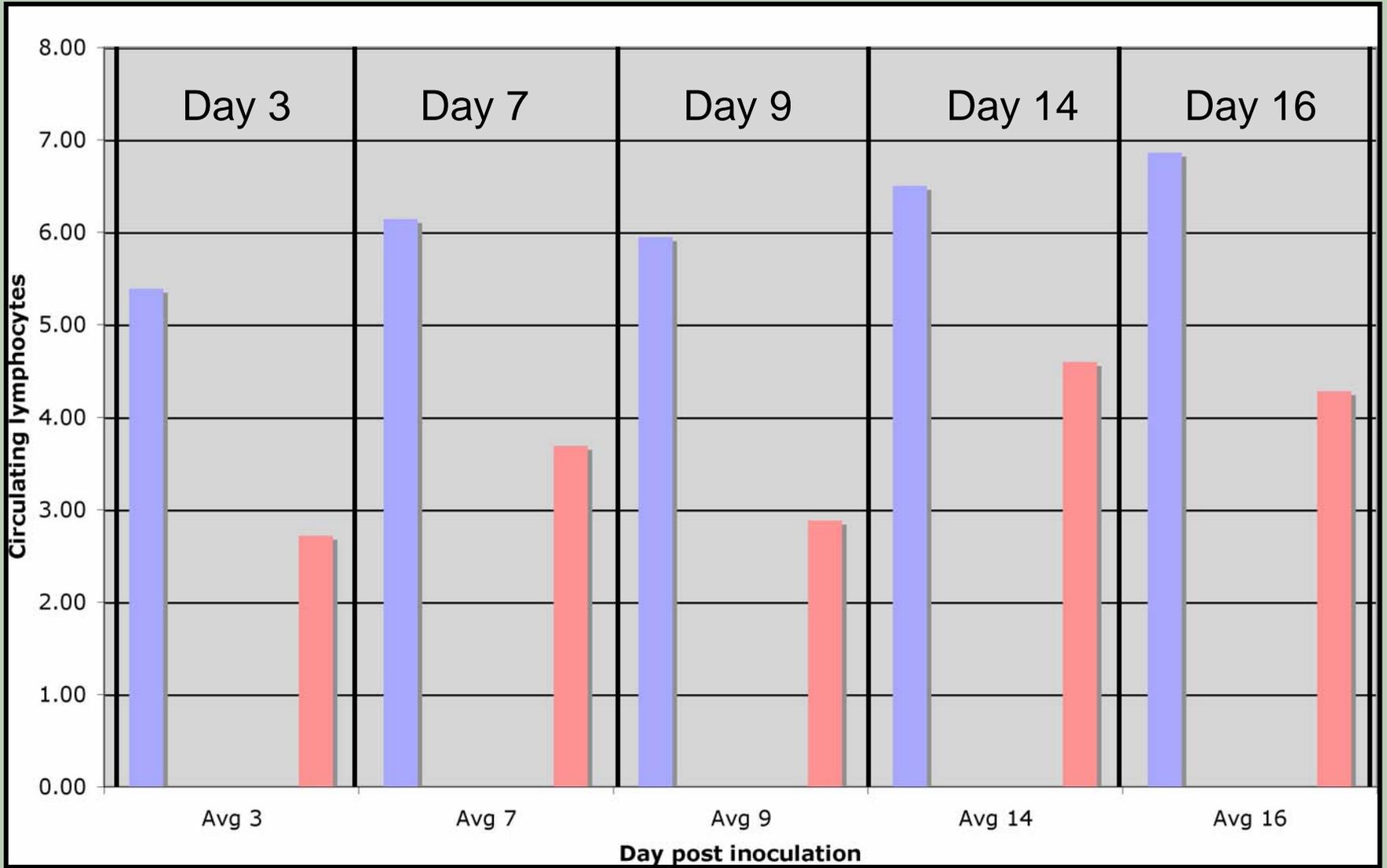
Circulating lymphocytes



Pig virus experiment

- 4 week old CD/CD pigs
- 3 mls 10⁶ TCID₅₀/ml oral/nasal route
- Observed for overt clinical disease
- Blood samples collected days 0, 3, 7, 9, 14 for counts





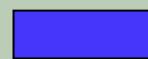
 Inoculated
 Control

Variant BVDV1b Mab panels

	BVDV 1b lab strains		BVDV 1b field strains				BVDV 1b strains from	
	NY-1	TGAN	Gill93	Hess9804	NMSU925	Hess135-89	Deer	Pig
CA-82	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue	Blue
CA-36	Yellow	Blue	Blue	Yellow	Yellow	Yellow	Blue	Blue
CA-34	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
CA-3	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue	Blue
CA-1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Blue	Blue



Binding



No Binding

Conclusions

- **Decrease in lymphocytes observed with three different viruses in two different species**
- **Suggests possible immune suppression**

A photograph of three young spotted fawns standing in a row against a plain white wall. The fawns are light brown with numerous white spots. They are standing on a dark, possibly wooden, floor. The fawn on the left is looking towards the camera. The middle fawn has its mouth open as if calling. The fawn on the right is looking slightly to the right. Each fawn has a small yellow tag on its ear.

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