

Optimization of revaccination
procedure to improve protection
against Marek's disease

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Introduction

- Difficulties to improve vaccines against MD
- Double vaccination
 - Difficulties to reproduce at the lab
 - Second vaccine better than first vaccine (Witter, Reddy, and Gimeno, unpublished)
 - No standardization of protocols

Objectives

- To optimize the protocol for MD revaccination
- To determine if double vaccination reduce the load of challenge virus DNA load in the feather pulp

Material and Methods

Experiment 1

Chickens: SPAFAS

Viruses: HVT, SB1, 648A

Challenge: 14 days

Sampling: FP

3, 7, 14, 28, 46 dpc

Test: real time PCR

Experiment 2

Chickens: SPAFAS

Viruses: HVT, SB1, 648A

Challenge: 2 days

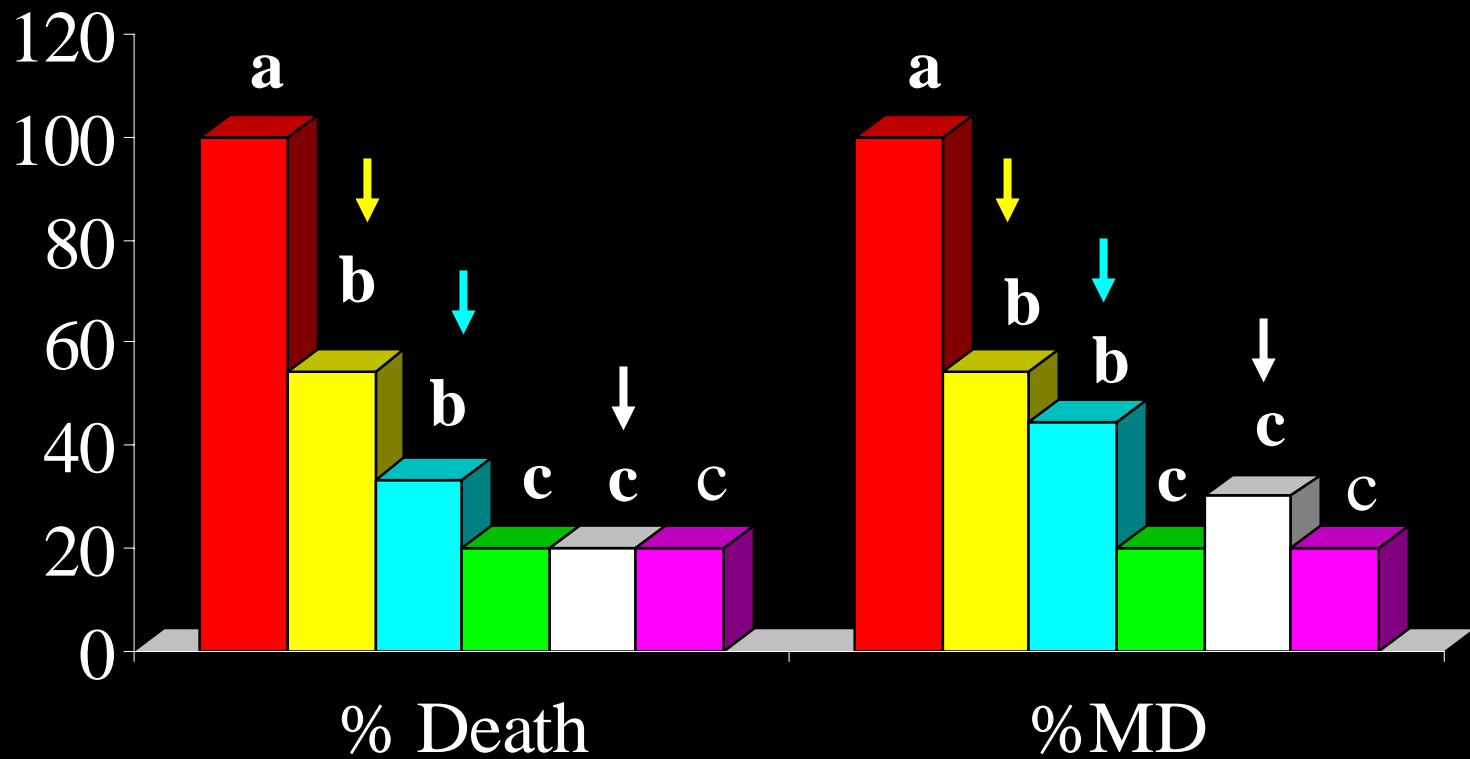
Sampling: FP

3, 5, 10, 16, 30, and 56 dpc

Test: real time PCR

Material and Methods

Lot	#	First vaccine	Second vaccine	Chall 14 d SC
1	15	HVT IO (18ED)		648A
2	15	HVT SC (1d)		648A
3	15	HVT +SB-1 SC (1d)		648A
4	15	HVT +SB-1 SC (7d)		648A
5	15	HVT IO (18ED)	HVT +SB-1 SC (1d)	648A
6	15	HVT SC (1d)	HVT +SB-1 SC (7d)	648A



■ HVT SC

■ HVT IO

■ Biv 1d

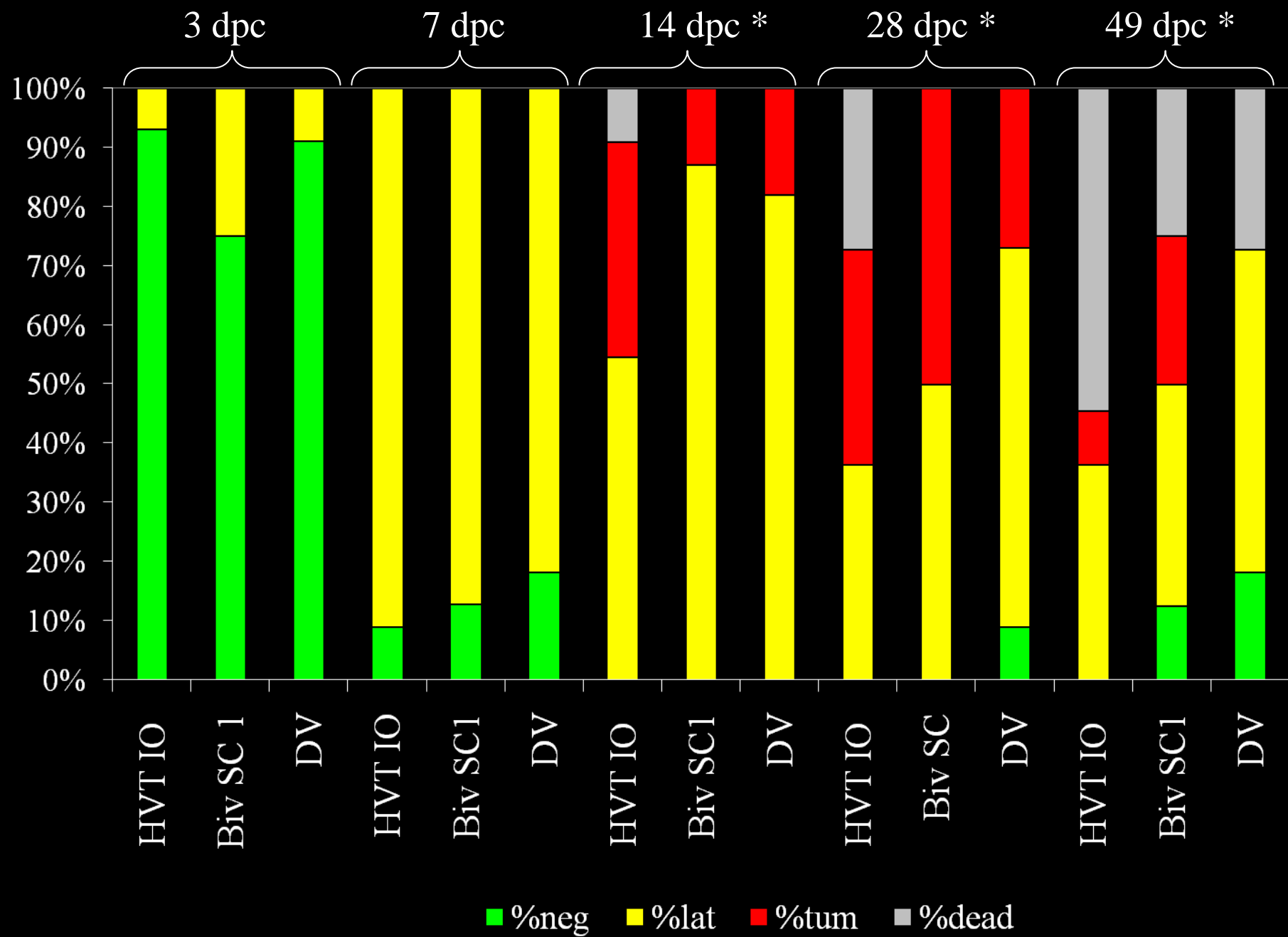
■ Biv 7d

■ HVT IO + Biv 1d

■ HVT SC + Biv 7d

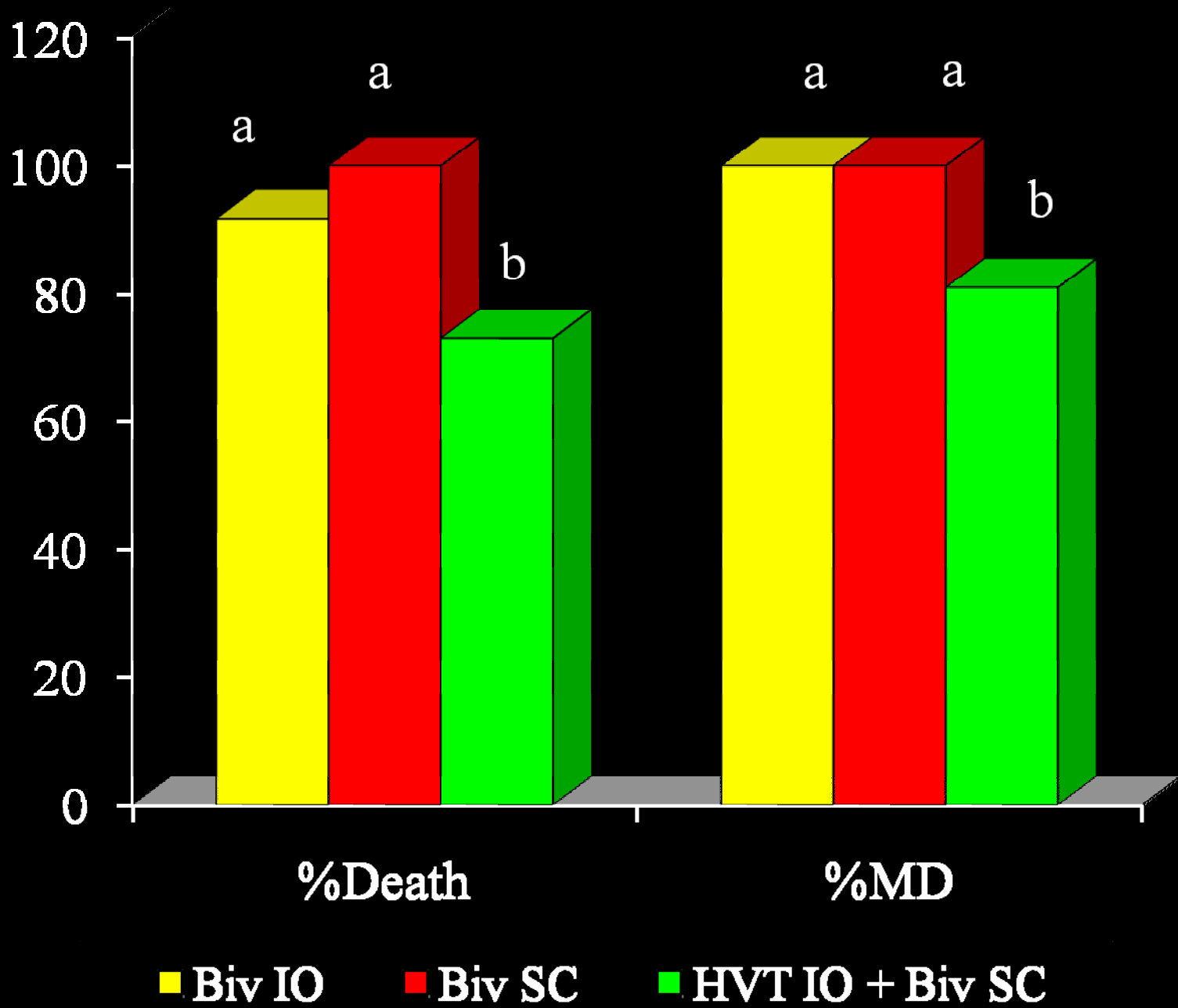
Classification based on challenge virus DNA load in feather pulp

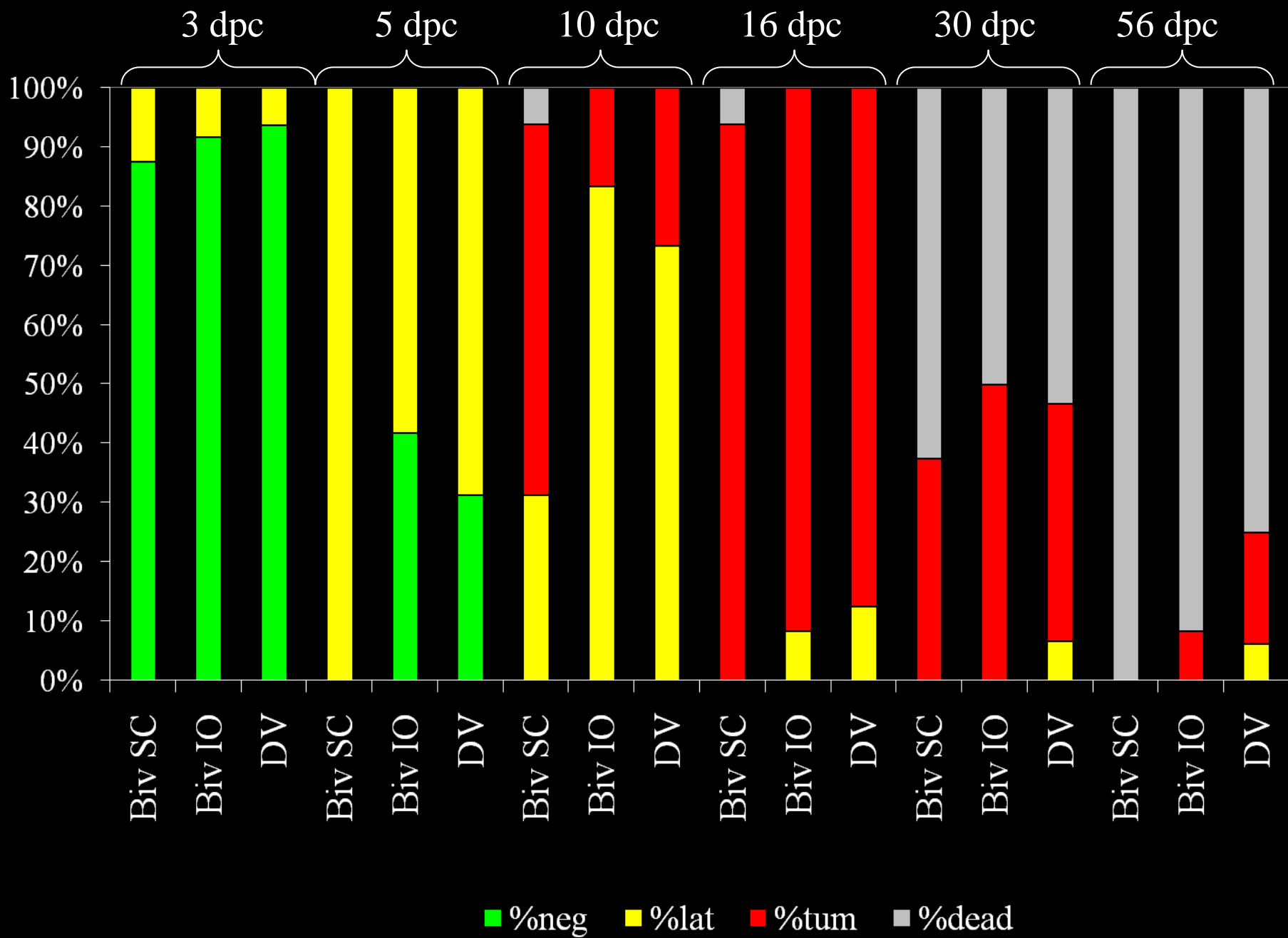
- Negative
 - No detectable Ct for gB gene by real time PCR
- Latently infected
 - $Ct_{CKN}/Ct_{gB} < 0.7$
- Transformed cells in feather pulp
 - $Ct_{CKN}/Ct_{gB} > 0.7$



Material and Methods

Lot	#	First vaccine	Second vaccine	Chall 2d SC
1	15	HVT +SB-1 IO (18ED)		648A
2	15	HVT +SB-1 SC (1d)		648A
3	15	HVT IO (18ED)	HVT +SB-1 SC (1d)	648A
4	15			648A





Conclusions

- Administration of a second MD vaccine has a benefit on the protection against MD
- Administration of the first vaccine *in ovo* followed by a second vaccine at day of age seems to be an adequate protocol to enhance protection
- Lower levels of protection are related to earlier onset of infections, earlier mortality and higher load of challenge virus DNA in the feather pulp

Further studies

- Can double vaccination can be used to increase CVI988-induced protection?
- What is the immunological mechanisms behind the benefit of double vaccination?