

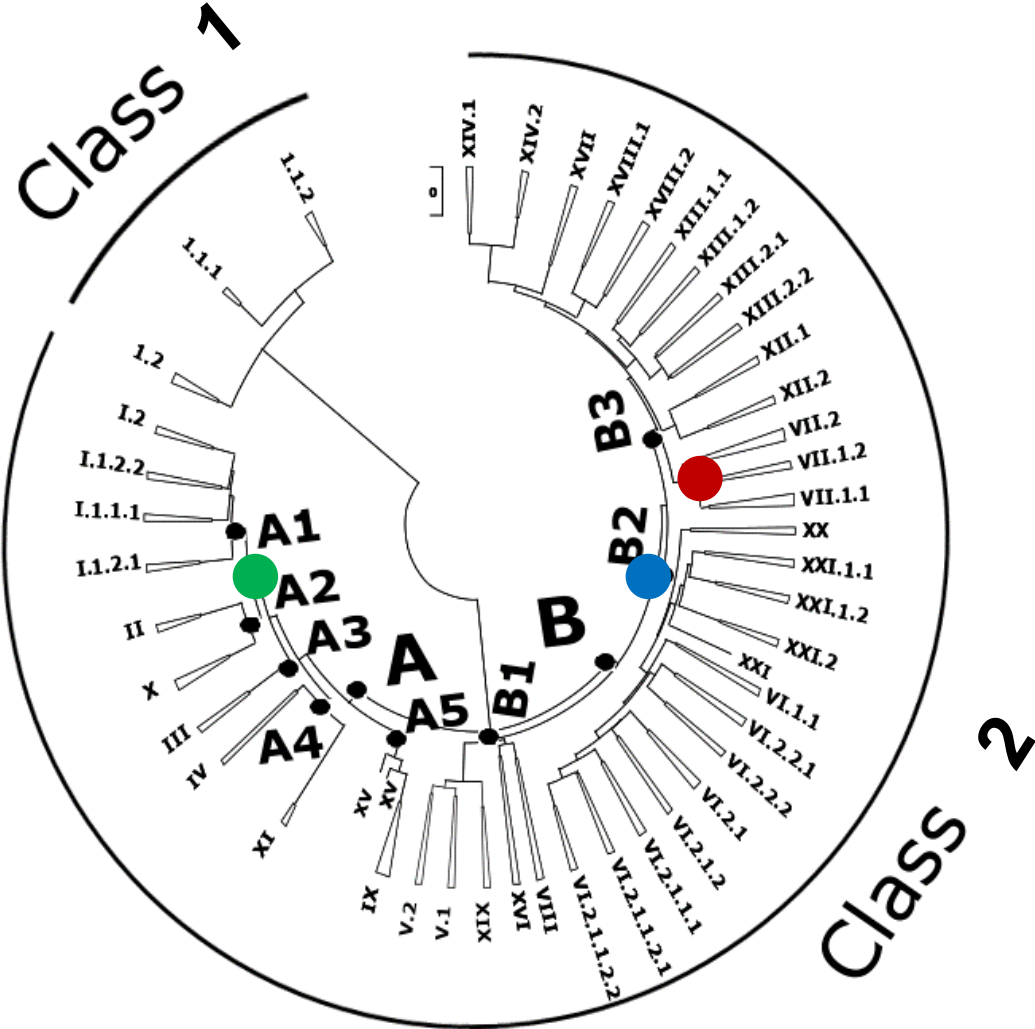
Case report: detection of a NDV genotype 2.I vaccine type from a broiler flock

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NRL Newcastle Krankheit, Institut für Virusdiagnostik

(Leitung Prof. Dr. M. Beer)

Phylogeny / F-protein



Class 1: mostly apathogenic, in wild water birds, spill over to poultry

Class 2: poultry relevant strains,
 historical: 2.I & 2.II, ●
 pigeon type: 2.VI (branch B2) ●
 current pandemic 2.VII ●

Mandatory ND Vaccination in Germany

- Owners have to get chicken and turkeys vaccinated against Newcastle disease
- Licenced vaccines comprise inactivated and live vaccines.
- Live vaccines are applied by drinking water, eye drop or as aerosols. Approved to protect for 6 weeks.
- Inactivated vaccines have to be applied by needle, preferentially after priming with live vaccines. Approved to protect for one year.



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Licensed ND vaccines in Germany

Brand name	Company	Strain
Avinew NEO	Boehringer Ingelheim	VG/GA
Avinew	Boehringer Ingelheim	VG/GA
HatchPak Avinew	Boehringer Ingelheim	VG/GA
Avishield ND B1	Genera Inc, Kraotia	B1
Avishield ND	Genera Inc, Kraotia	LaSota
Nobilis ND Clone 30	Intervet / MSD	clone 30 / LaSota
Nobilis ND C2	Intervet/ MSD	C2
PRIMUM Newcastle F	Laboratories Calier S.A.	HB1
HIPRAVIAR B1	Laboratories Calier S.A.	B1
PRIMUM Newcastle C	Laboratories Calier S.A.	NDV_CLS
AviPro ND C131	Lohmann / Elanco	cloned LaSota
AviPro ND Lasota	Lohmann / Elanco	LaSota
AviPro ND HB1	Lohmann / Elanco	B1
Poulvac ND Hitchner	Zoetis	B1
Poulvac NDV	Zoetis	Ulster 2C

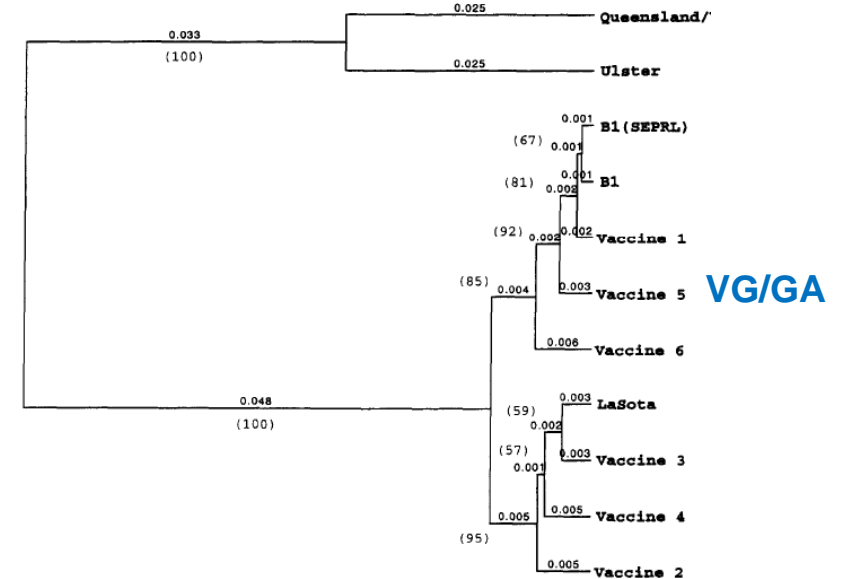


0264-410X(95)00252-9

Vaccine, Vol. 14, No. 8, pp. 761-766, 1996
Published by Elsevier Science Ltd.
Printed in Great Britain

Characterization of Newcastle disease virus vaccines by biological properties and sequence analysis of the hemagglutinin-neuraminidase protein gene

Bruce S. Seal*†, Daniel J. King* and Joyce D. Bennett*



Seal et al., Vaccine, 1996



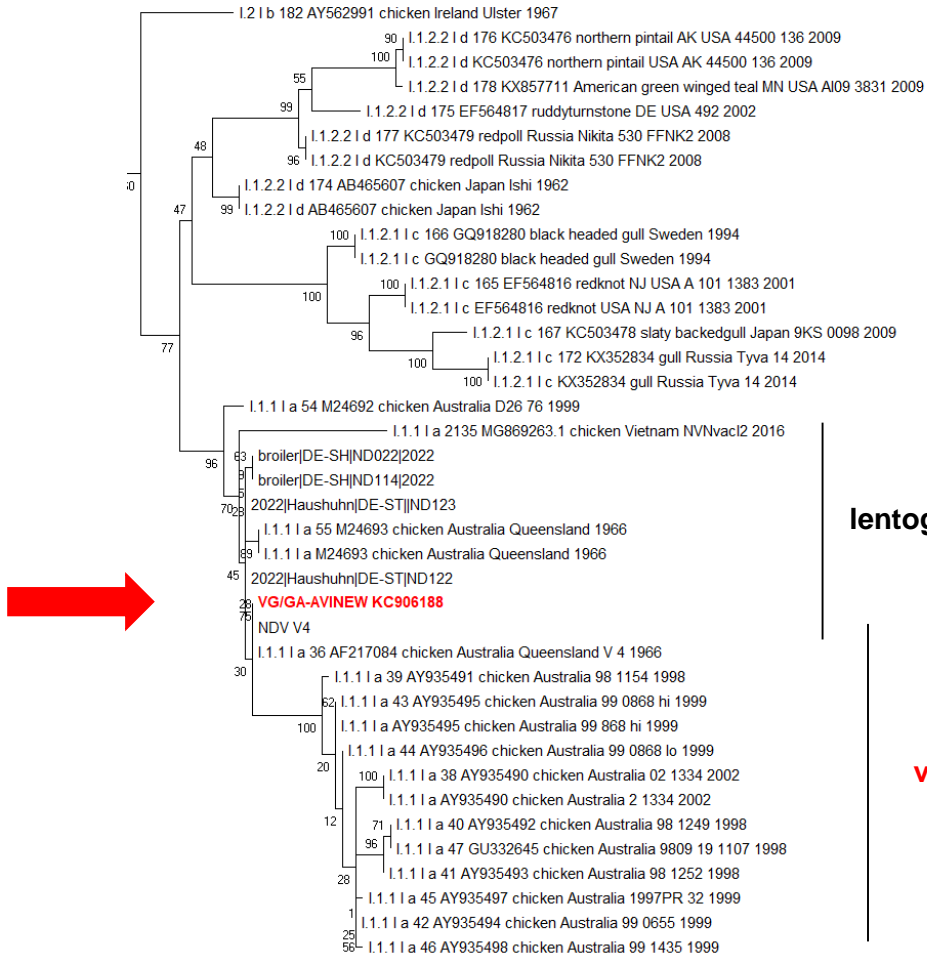
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AVINEW is a genotype 2.I vaccine

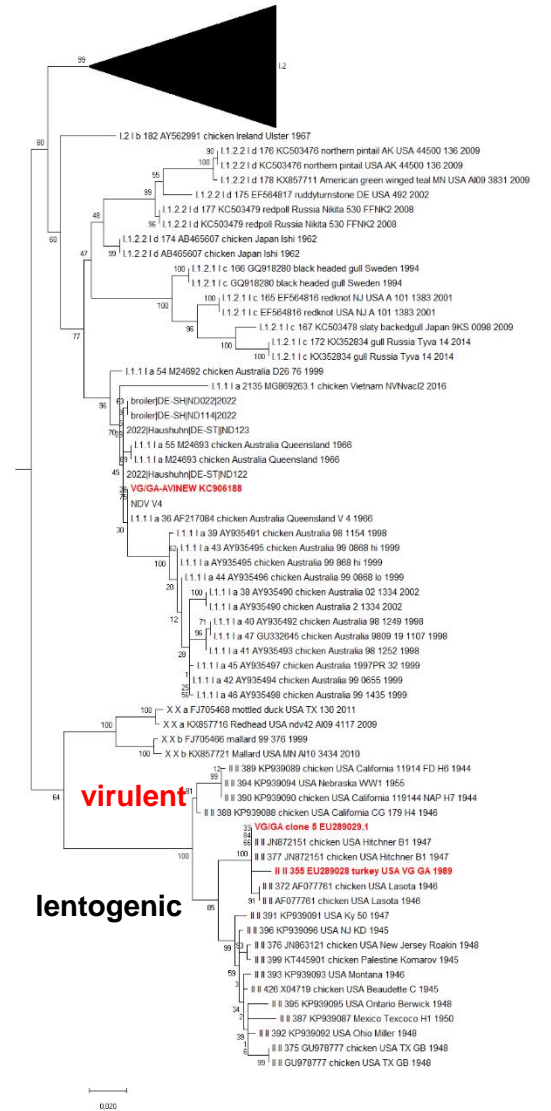


2.I.2
(wild bird)

lentogenic

2.I.1

virulent



2.I.2

2.I.1

2.XX

lentogenic

2.II



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Case 1

	M	F-Path(FAM)	F-lento(HEX)	F-PP
2022ND00003	pos (Ct 34,3)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00004	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00005	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00006	pos (Ct 36,2)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00007	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00008	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00009	pos (Ct 34,2)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00010	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00011	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00012	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00013	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00014	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00015	pos (Ct 29,6)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00016	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00017	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00018	pos (Ct 33)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00019	pos (Ct 35,7)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00020	pos (Ct 34,3)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00021	pos (Ct 36,6)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00022*	pos (Ct 28,1)	neg (No Ct)	neg (No Ct)	neg (No Ct)

Cover letter

“samples from pre slaughter inspection”

Analyse von
Nukleotid-
sequenzen

Spaltstelle:
GKQGR*LIG
Homologie: I.1.
1/ck/Australia
/Queensland/1
966

*Adenovirus



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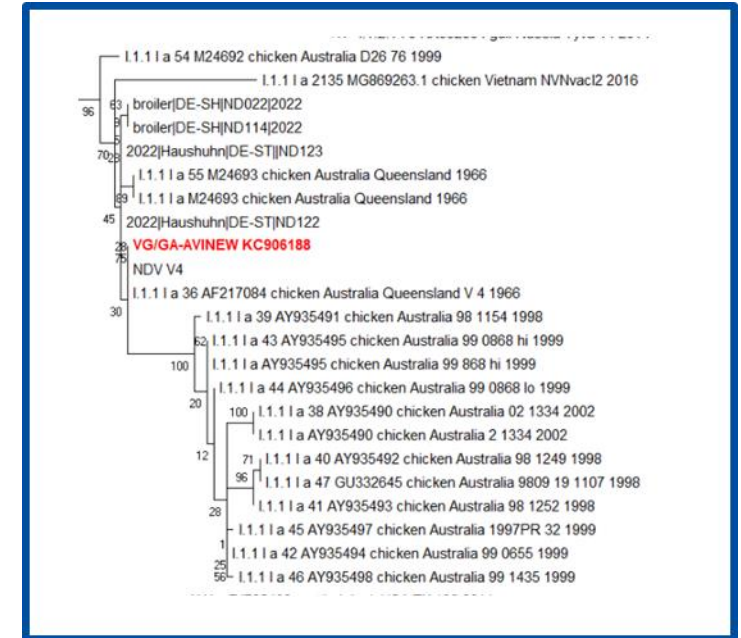
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Case 2 // same flock : next rearing period

	M	F-Path(FAM)	F-lento(HEx)	F-PP
2022ND00109	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00110	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00111	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00112	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00113	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00114	pos (Ct 31,1)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00115	pos (Ct 36)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00116	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00117	pos (Ct 35,6)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00118	pos (Ct 31,7)	neg (No Ct)	neg (No Ct)	neg (No Ct)
2022ND00119	neg (No Ct)	neg (No Ct)	neg (No Ct)	neg (No Ct)



Cover letter

“5 euthanized broilers,
downer; spreaded legs; APMV-1 pos”



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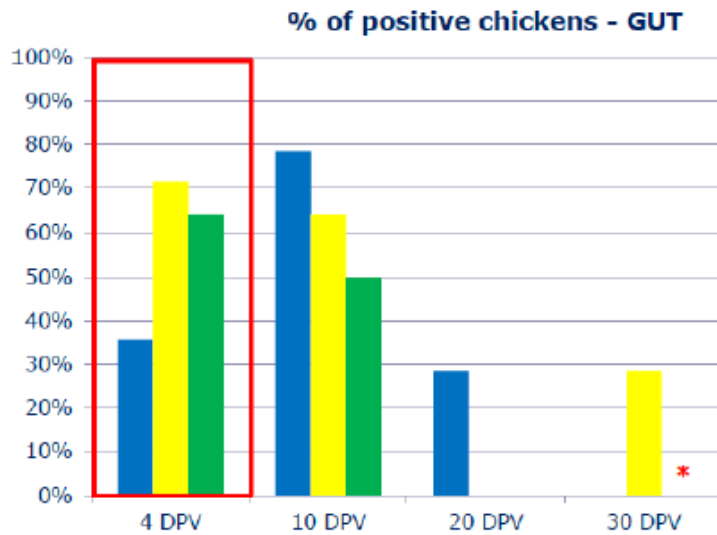
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AVINEW : shedding

Stephane.LEMIERE@boehringer-ingenelheim.com

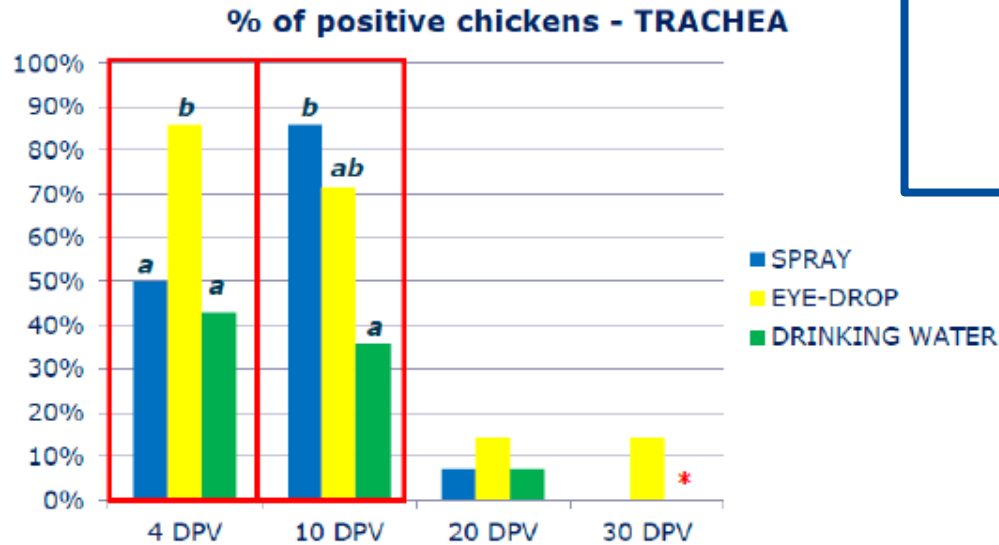
NEWCASTLE DISEASE LIVE VACCINE CAPABILITIES

Results – PCR in Gut

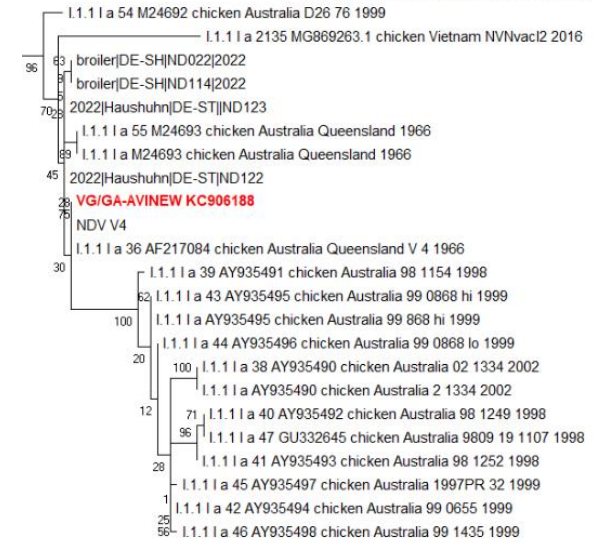


* No samples were collected for the drinking water group at 30 DPV

Results – PCR in Trachea



* No samples were collected for the drinking water group at 30 DPV



<https://dk.fli.de>



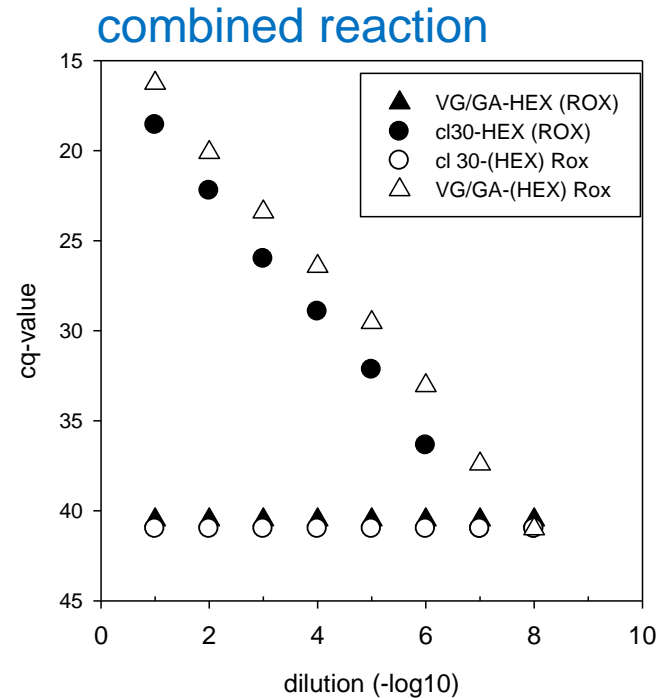
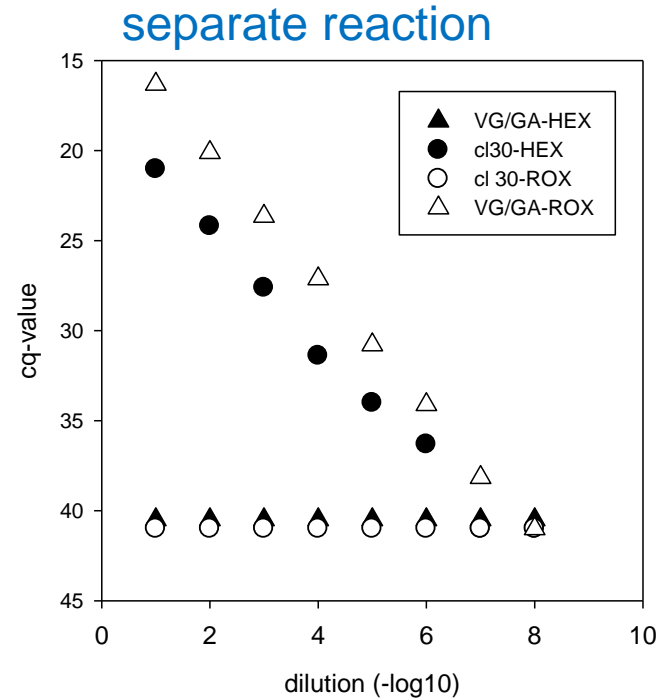
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Lentogenic vaccine RT-qPCR



2.II RT gPCR HEX

fw: TCCGTAGGATACAAGAGT

rev: GGCAGTTGCAACCCCAAG

Hex-CTCCTATAAGGCGCCCCTGTCTC-BHQ-1

2.I RT gPCR ROX

fw: CTATCCGTAGGATACAAGAGTC

rev: GCAACCCCRAGAGCYACA

Rox-TGGCGCCTATAAGRCGYCCCTGT-BHQ-2

- Combined HEX/ROX F RT-qPCR detects genotype 2.I and 2.II vaccine strains



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Summary -Conclusion

- NDV pathotype-specific RT-qPCRs provide a fast diagnostic approach
- Adaptation of F gene RT-qPCR to genotype 2.I VG/GA enables specific recognition of avirulent vaccine viruses
- Prolonged NDV circulation in broiler flocks might indicate inter-animal vaccine spread - has to be considered for NDV diagnostics



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Zeit für Fragen / time for questions

