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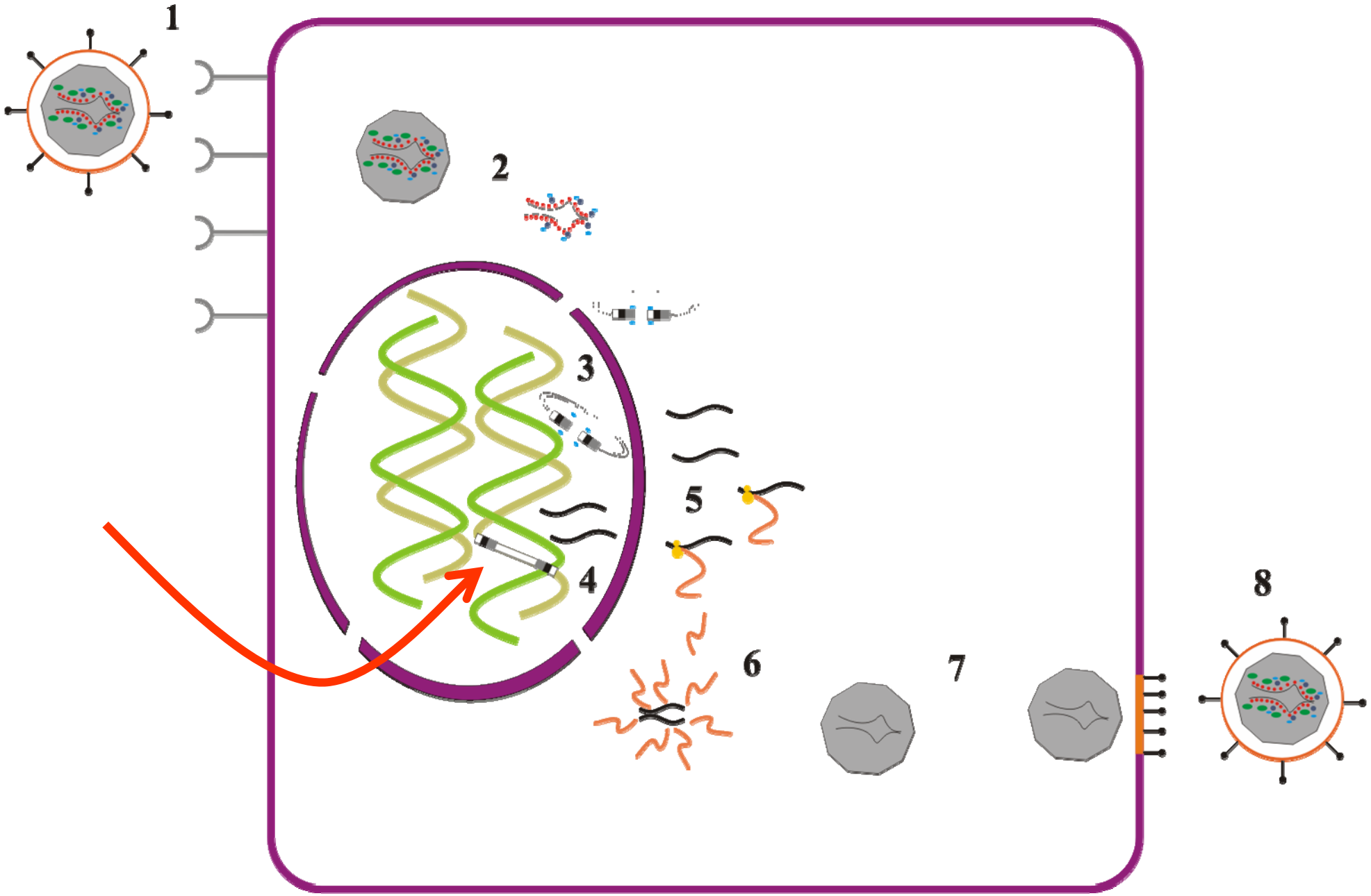
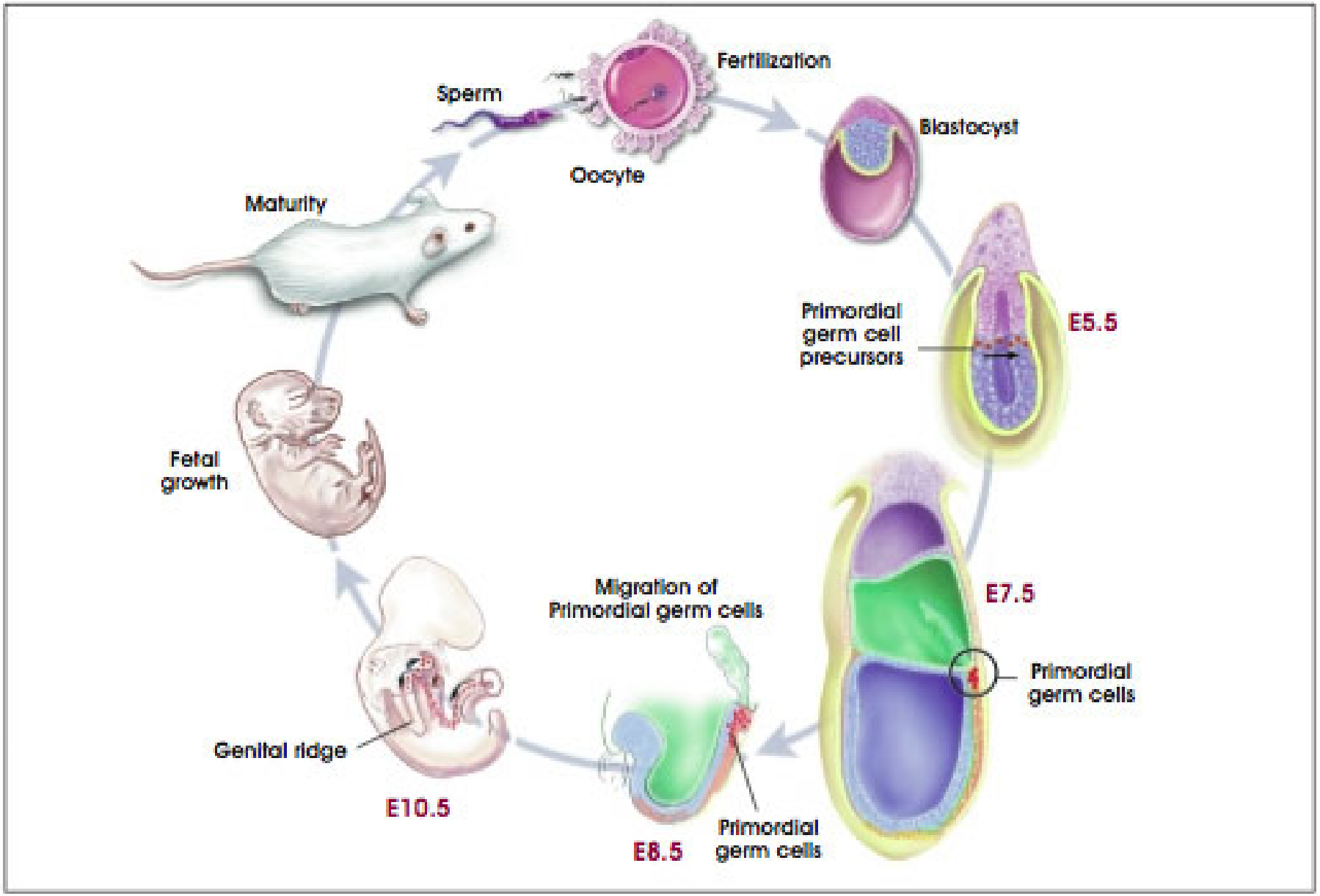
Isolation of an Infectious Endogenous Retrovirus in Live Attenuated Vaccines for Pets

Massimo Palmarini

ociated with the infected cell



gration of “endogenous” retroviruses in genome of the host



erent lifestyles.....

Exogenous" retroviruses: horizontally transmitt
om infected to uninfected host like any other
rus

Endogenous" retroviruses: vertically transmitte
om mother to offspring like any other Mendelia
enes

logenous retroviruses (ERVs)

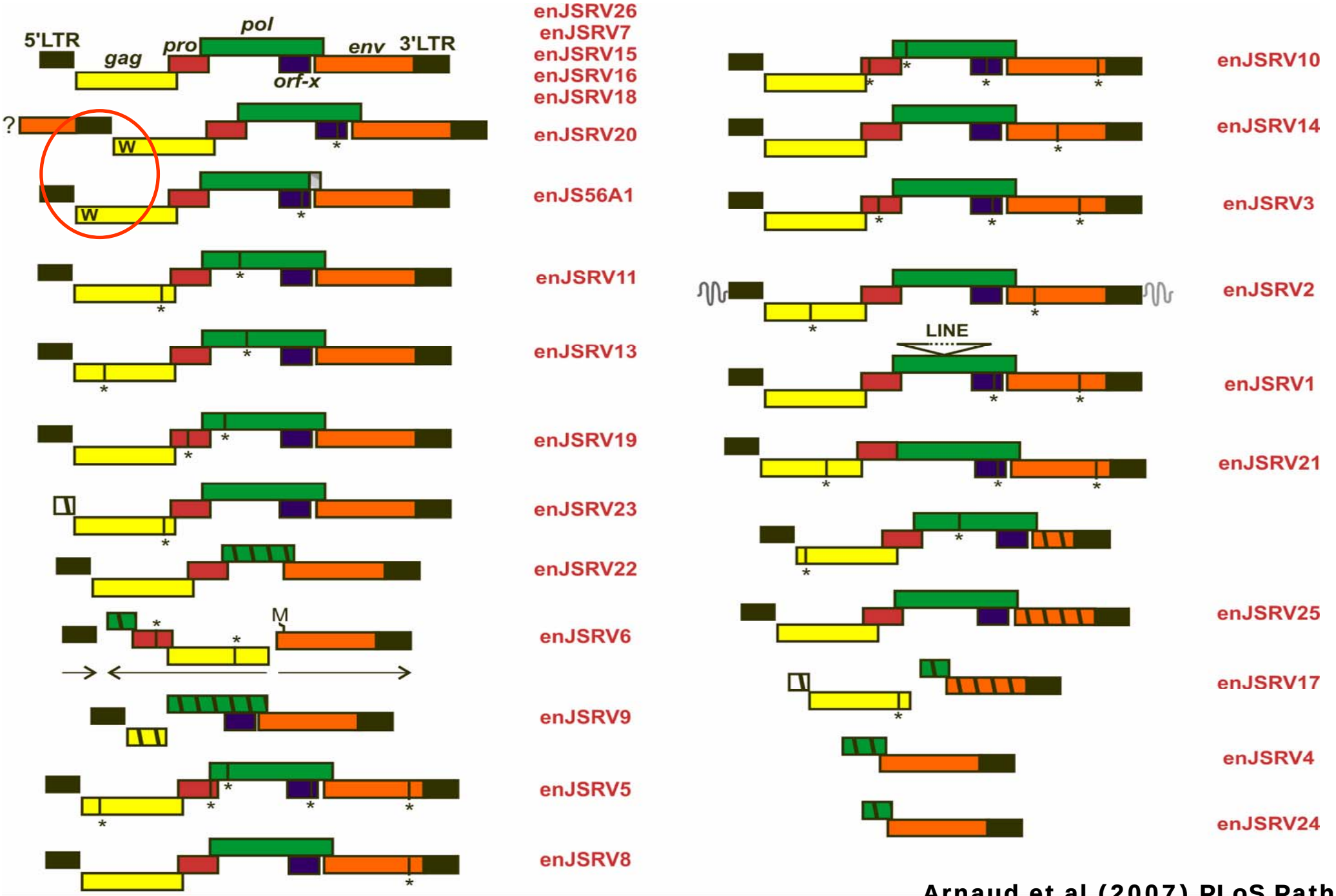
orm a substantial part of the genome of every
nimal species (e.g. ~ 8% of the human genom

0-100 ERV families in each species (several
opies for each family)

ost ERVs are replication defective (during
volution they have acquired mutations/deletion
at hamper their ability to replicate)

r genomes infectious ERVs

SRVs) in the sheep genome



Arnaud et al (2007) PLoS Pathogens;

RVs fixed in the genome of any give
imal species can be assumed to b
n-pathogenic, otherwise they would n
urvive" evolution.

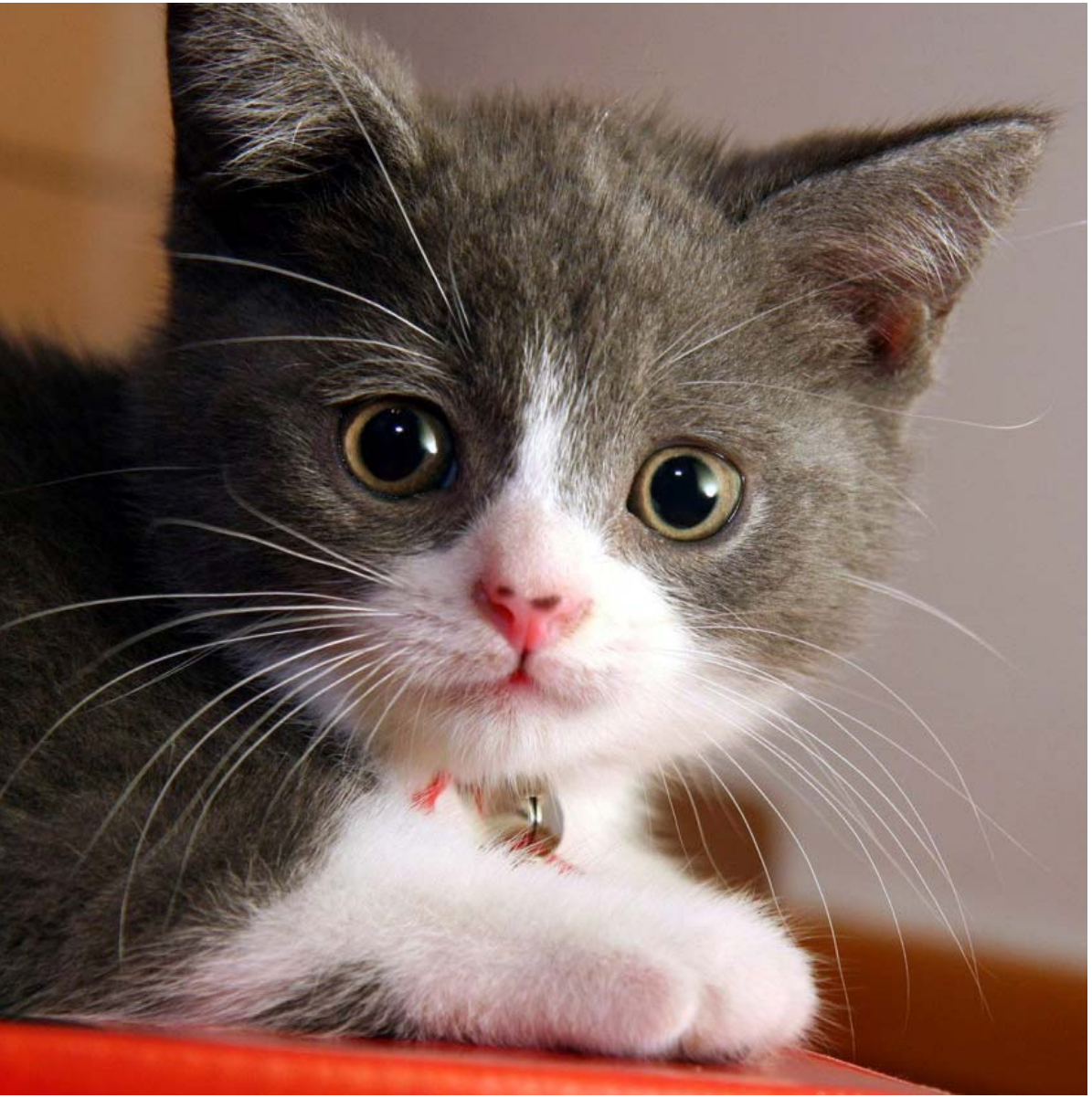
wever, there are no difference
tween an exogenous pathogen
troviruses and ERVs with the exceptio
at the latter have reached a
olutionary equilibrium with their host.

SRVs are…

ssential for reproductive biology of sheep *(Dunlap*
PNAS 2006, 103:14390)

nterfere with the replication of exogenous
athogenic retroviruses *(Mura et al, PNAS 2004, 101:11117*
naud et al PLoS Pathogens 2007, 3:e170)

-114

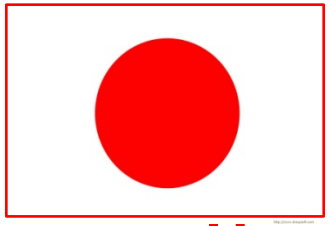


- Replication competent ERV of cats

- Expressed in variable amou by several cat cell lines incl CRFK

- Could RD-114 be in vaccin for pets? (Takayuki Miyaza

perimental approach

an 

ccines licensed in
pan

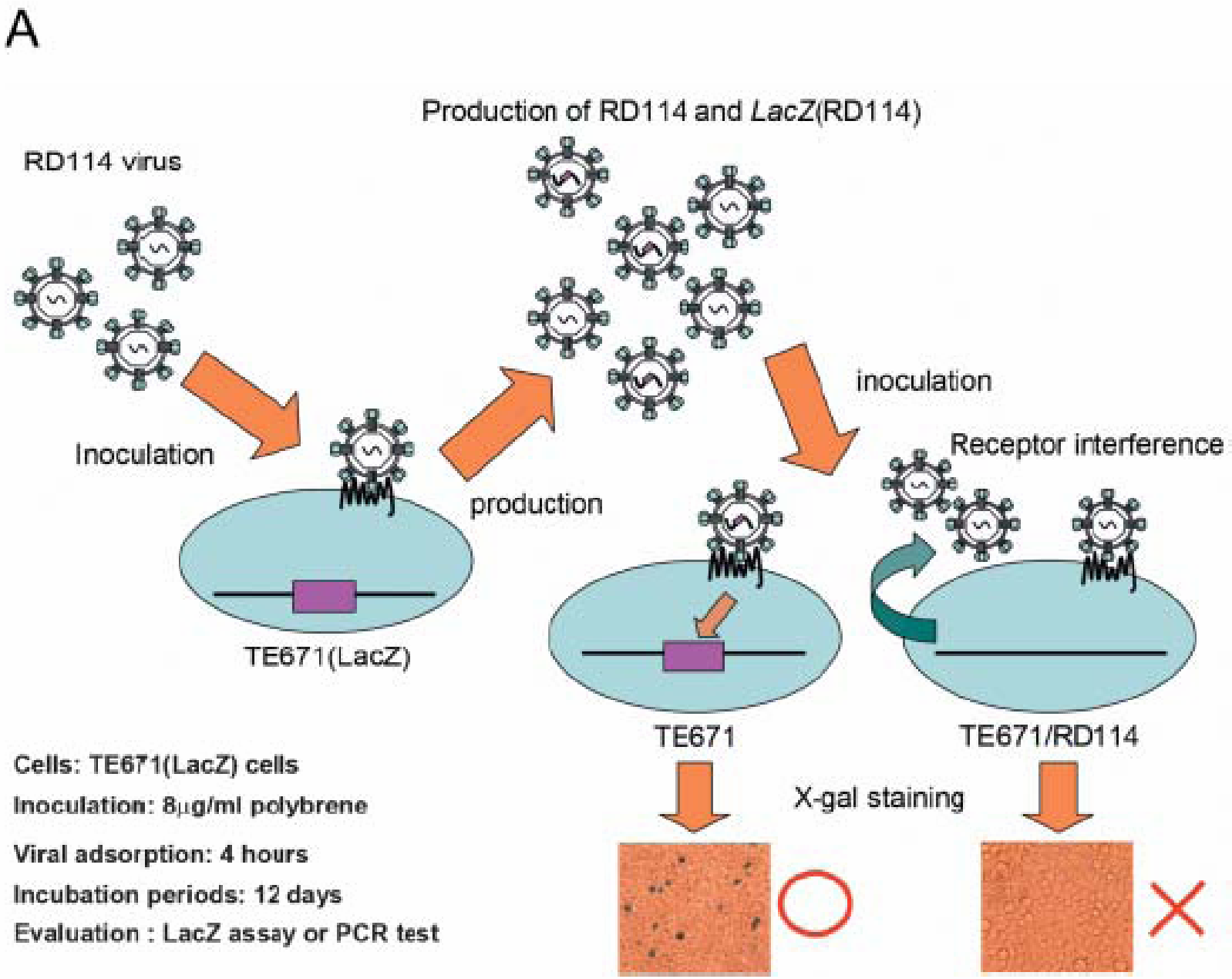
cZ interference
say

CR

UK 

- Vaccines licensed in U
- Virus isolation in TE6
- Western blotting
- RT-assay

Z Intereference assay



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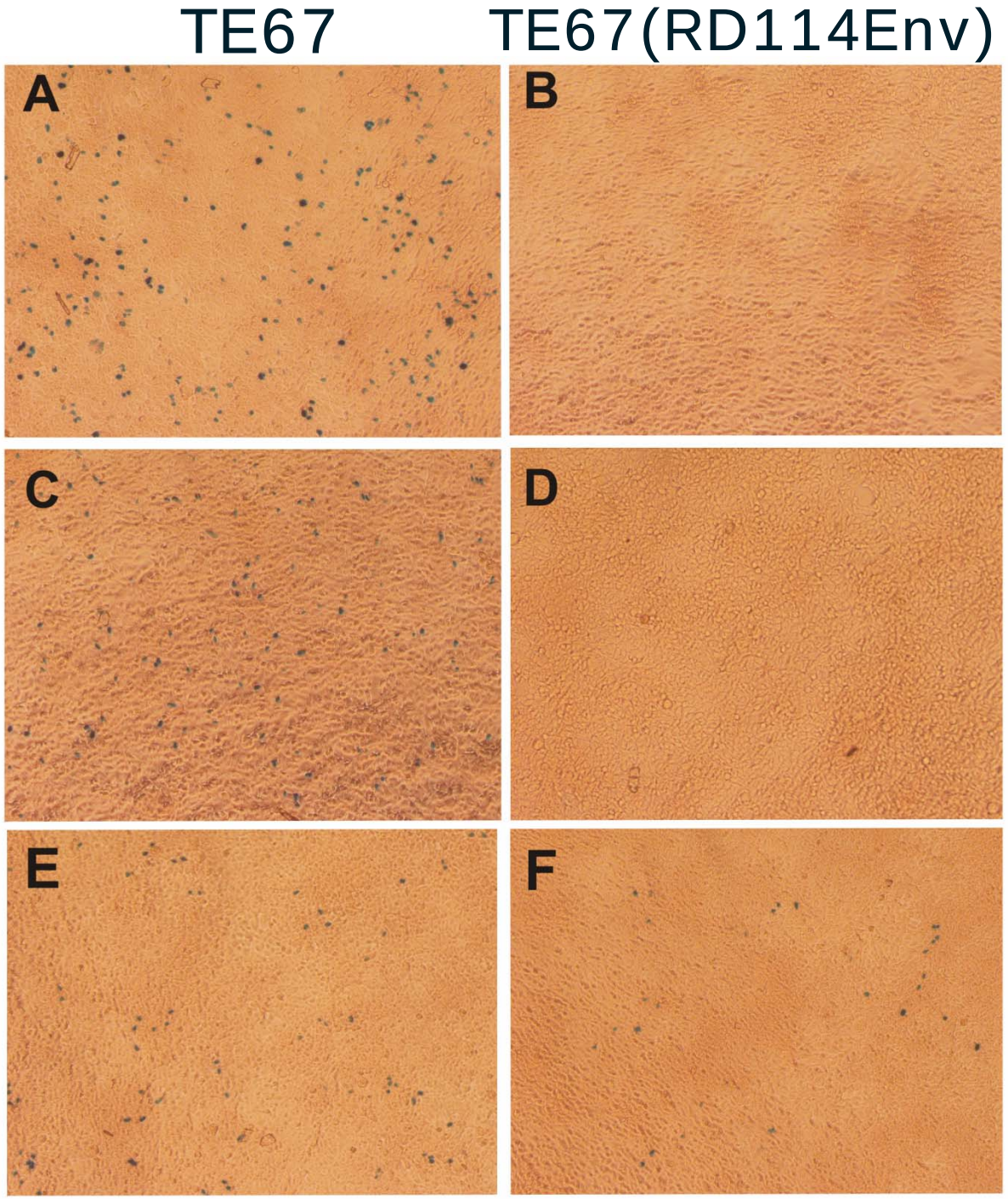

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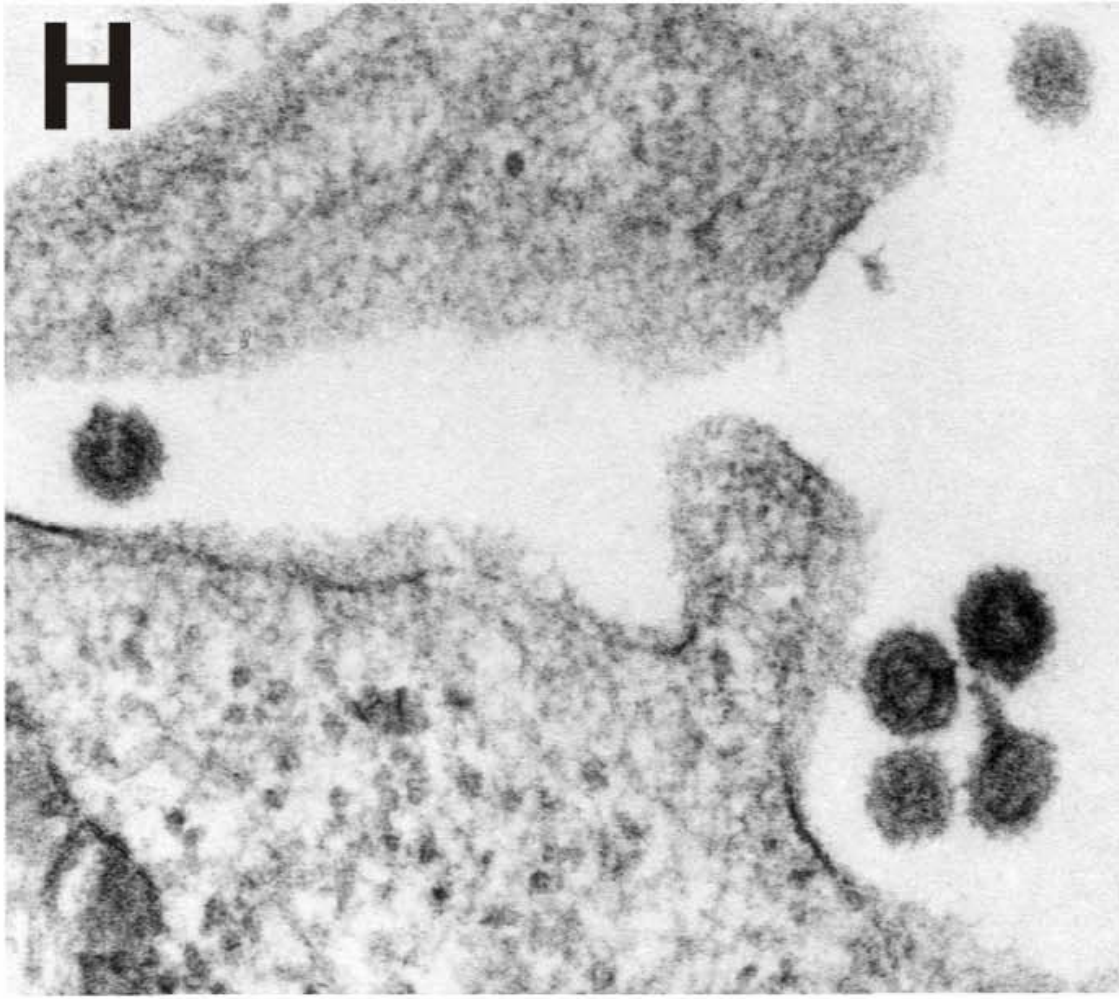

d in the UK

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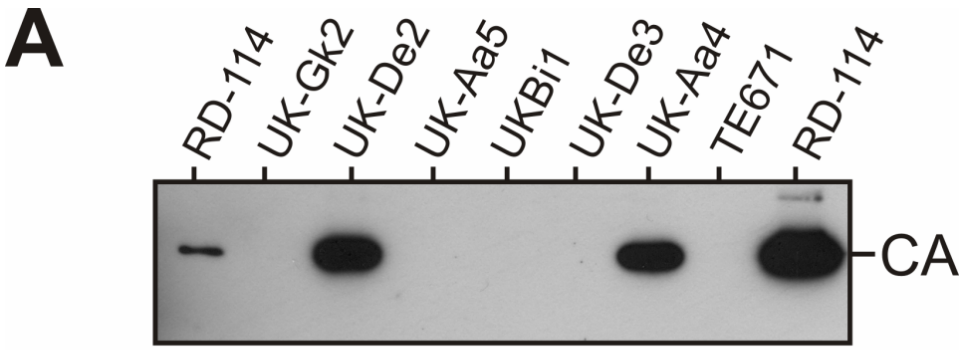

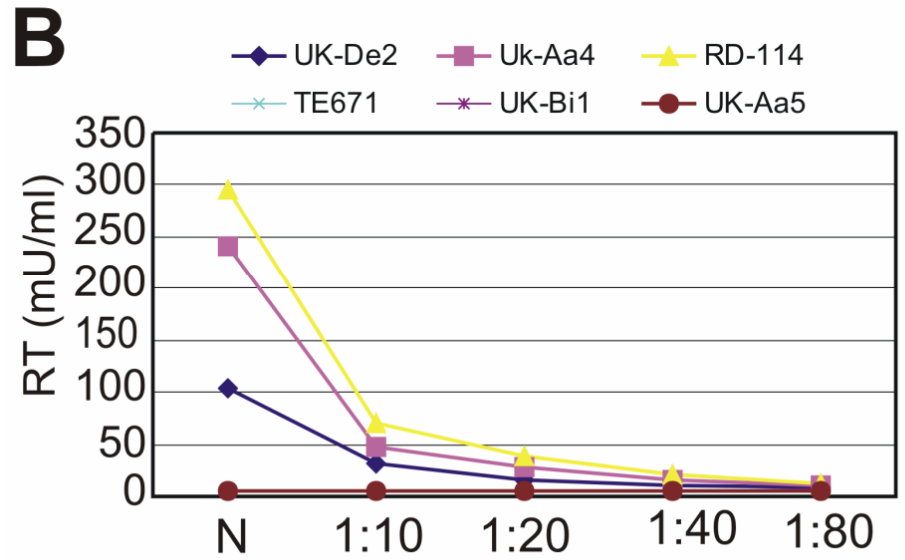

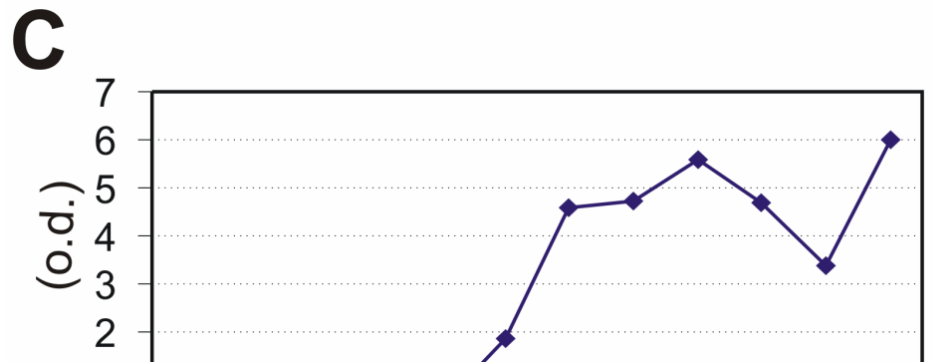

Vaccine code[a]	Target species[b]	No. of positive results/no. of vials tested by[c]:	
		LacZ or Western blotting LacZ[d]	PCR or RT activity-PCR[e]
J-Aa1	**Cats**	**3/6**	**2/2**
J-Aa2	**Cats**	**1/1**	**1/1**
J-Aa3	**Cats**	**0/2**	**0/2**
J-Bc1	Cats	0/3	0/3
J-Bc2	Cats	0/3	0/3
J-Cd1	Dogs	2/2	2/2
J-Co1	Dogs	1/1	1/1
J-Co2	Dogs	1/1	1/1
J-De1	**Dogs**	**1/1**	**1/1**
J-Ef1	Dogs	0/1	0/1
J-Gk1	Dogs	0/1	0/1
J-Ab1	Dogs	0/1	0/1
J-Gl1	Dogs	0/1	0/1
J-Em1	Cats	0/1	0/1
J-Hn1	Cats	0/3	0/1
		Western blotting[f]	RT[g]
UK-Aa4	**Cats**	**3/4**	**2/3**
UK-Aa5	**Cats**	**0/2**	**0/2**
UK-Bi1	Dogs	0/2	0/2
UK-De2	**Dogs**	**2/2**	**2/2**
UK-De3	**Dogs**	**1/4**	**1/3**
UK-Eg1	Dogs	0/1	nt
UK-Gk2	Dogs	0/2	0/2
UK-Eh1	Dogs	0/2	0/2
TE671	–	0/4	0/2

nclusions

114 was detected in live attenuated vaccines for cats and d

ection of RD-114 was carried out in two different laboratorie
g different techniques and reagents

114 levels in vaccines are very low. Virus was not detectabl
ys in every batch/vial of a “RD-114 +” vaccine

hods to detect retroviruses in veterinary vaccines might not
uate

knowledgements

oto University

ajuki Miyazawa

osuke Yoshikawa

saya Okada

CVR

Matt Golder

Hazel Stewart

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