Determining the FIV status of FIV-vaccinated cats using in-house tests

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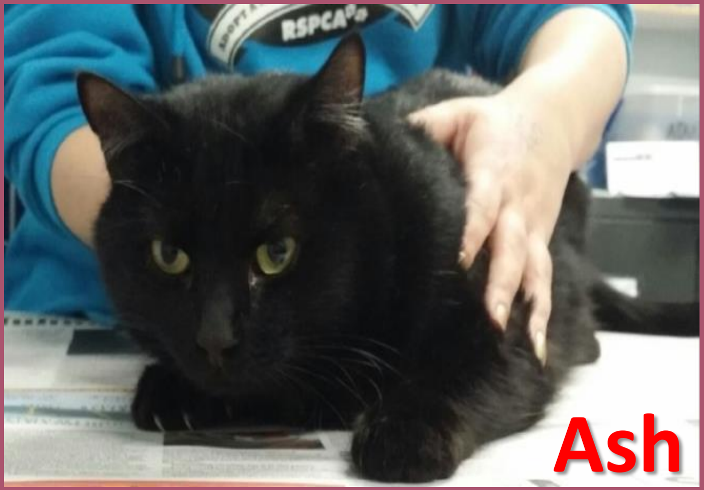

FACULTY OF
VETERINARY SCIENCE

The University of Sydney
Centre for Veterinary Education

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Determining the feline immunodeficiency virus (FIV) status of FIV-vaccinated cats using point-of-care antibody kits

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FIV – what is it?

Virus that can be transmitted through fighting, blood transfusions, and mother → kitten

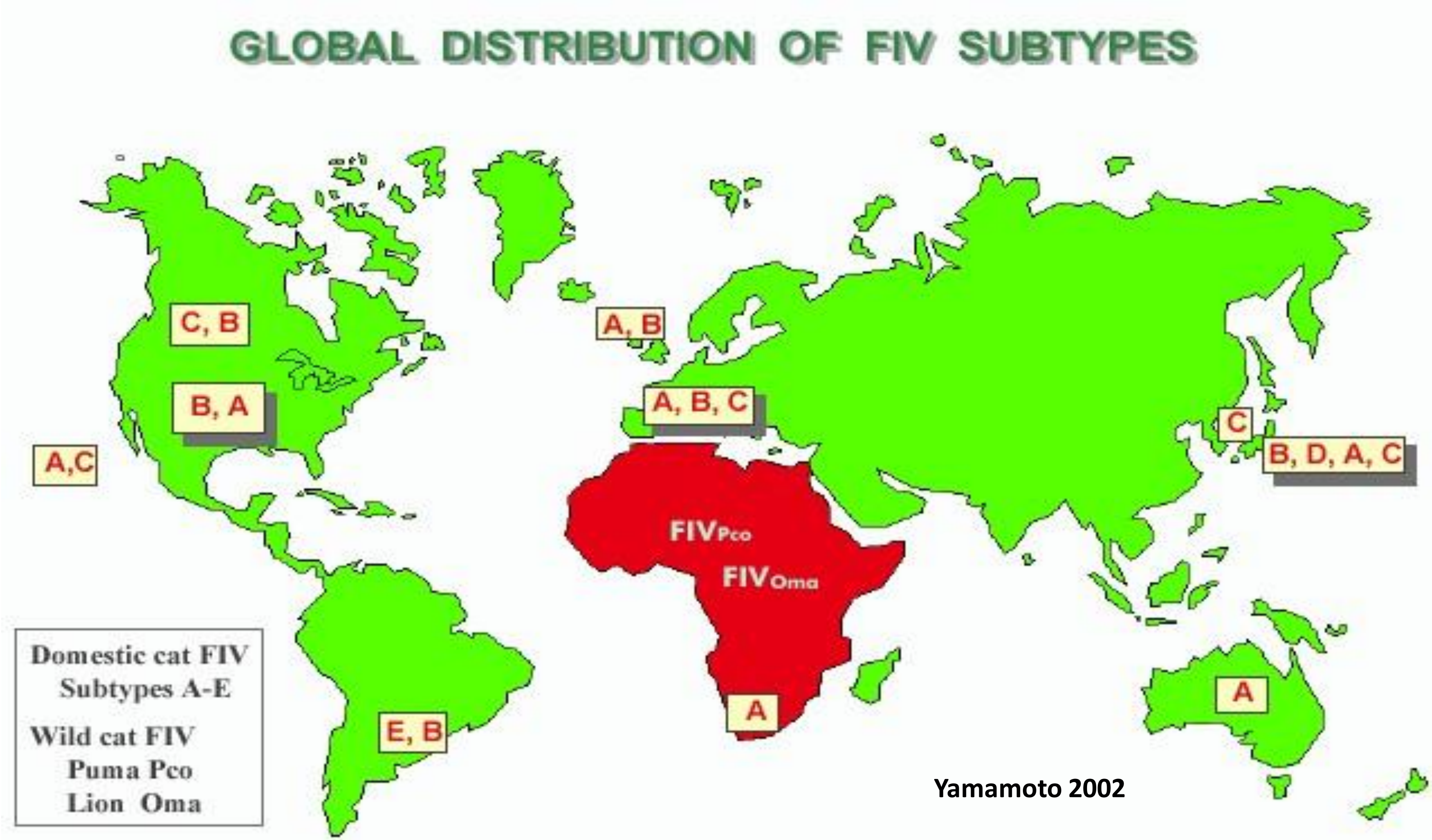
Similar in structure to HIV (Family *Retroviridae*, Genus *Lentivirus*)

Disease outcomes variable – but cats definitely at risk of developing lymphoma (a type of cancer)

Infection is **LIFELONG**

Photo courtesy of A/Prof Jacqui Norris

FIV – worldwide distribution

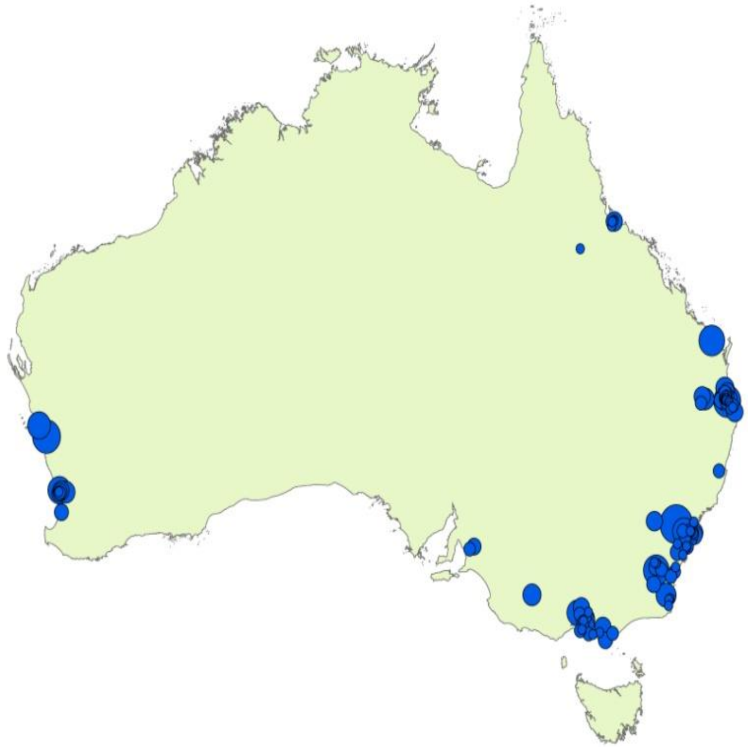


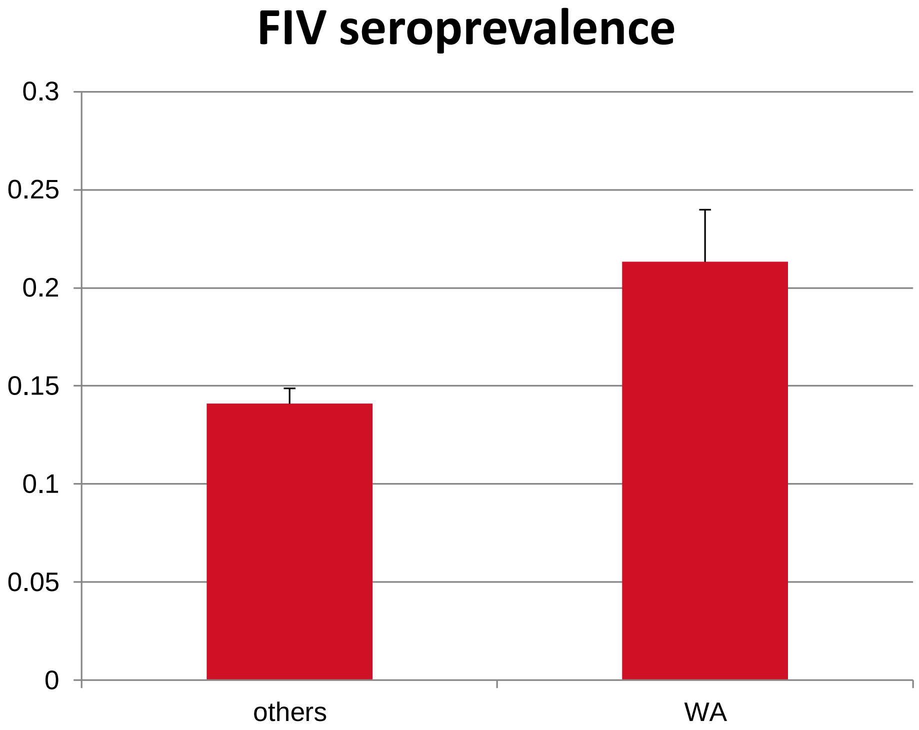
Yamamoto 2002

FIV prevalence in Australia

Westman et al. 2015 (in preparation)

Most recent and largest study = **<u>15%</u>** (305/2083)



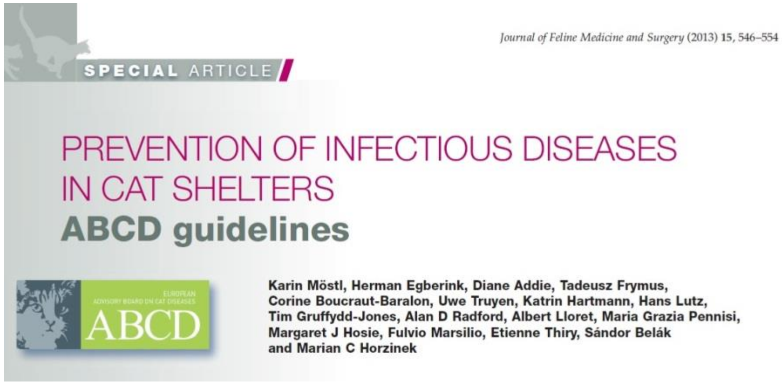


Testing for FIV - recommendations

* All cats before adoption

* Any ‘sick’ cat

* Blood donors


Journal of Feline Medicine and Surgery (2013) 15, 546–554
SPECIAL ARTICLE

PREVENTION OF INFECTIOUS DISEASES IN CAT SHELTERS
ABCD guidelines

Karin Möstl, Herman Egberink, Diane Addie, Tadeusz Frymus, Corine Boucraut-Baralon, Uwe Truyen, Katrin Hartmann, Hans Lutz, Tim Gruffydd-Jones, Alan D Radford, Albert Lloret, Maria Grazia Pennisi, Margaret J Hosie, Fulvio Marsilio, Etienne Thiry, Sándor Belák and Marian C Horzinek

American Association of Feline Practitioners FIV & FeLV Testing Guidelines

Drs. Foster & Smith Educational Staff

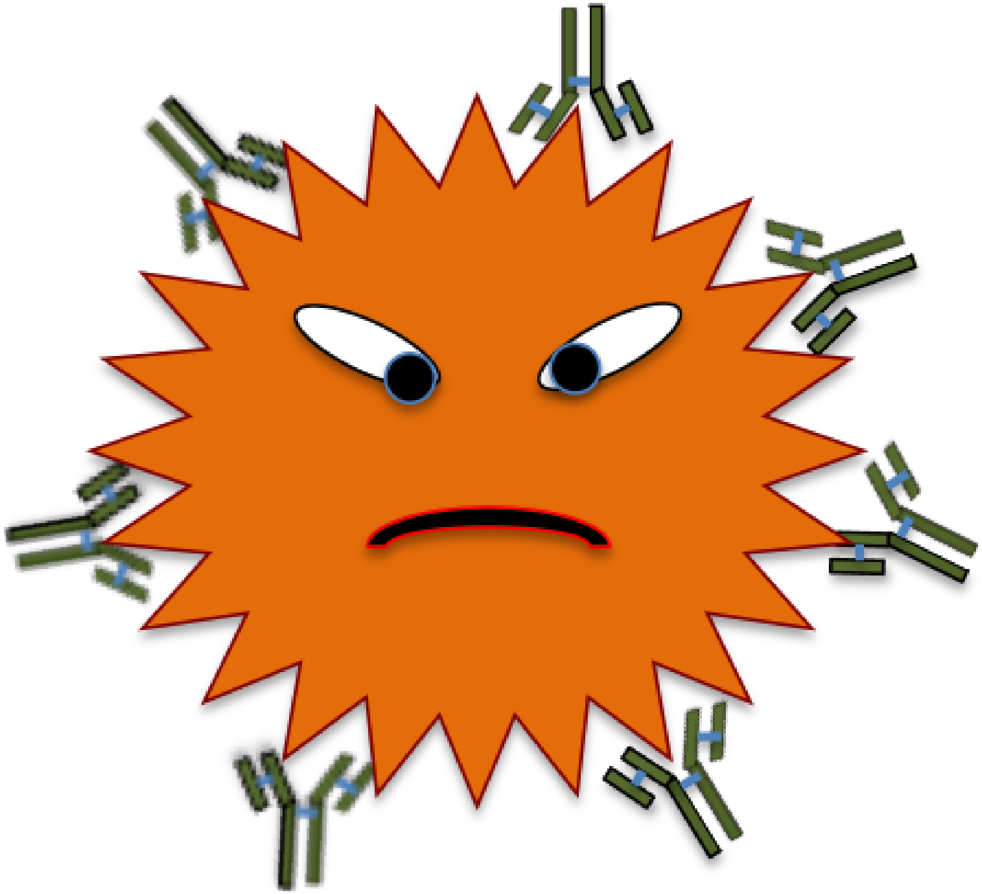
April 2001 News

The American Association of Feline Practitioners is initiating an educational campaign to increase the testing of cats for feline immunodeficiency virus (FIV). The campaign will include television commercials, materials for other media such as newspapers and magazines, a website, and materials for veterinarians and staff. In addition, they have designed a form (see below) that cat owners can fill out and present to their veterinarians, to help their veterinarian determine what testing may be necessary. The new recommendations for testing cats for FIV and feline leukemia virus (FeLV) are summarized in the following table.

Situation	FIV	FeLV
During Sickness	When cats are sick, regardless of previous negative results. While many signs (such as fever, stomatitis, vomiting, and diarrhea) are obvious indicators of illness, other signs are subtle and may include changes in behavior, grooming, and eating habits.	Same as FIV, including sick cats that have been vaccinated for FeLV.

Photo courtesy of Dr. Anne Fawcett

Serological (antibody) testing

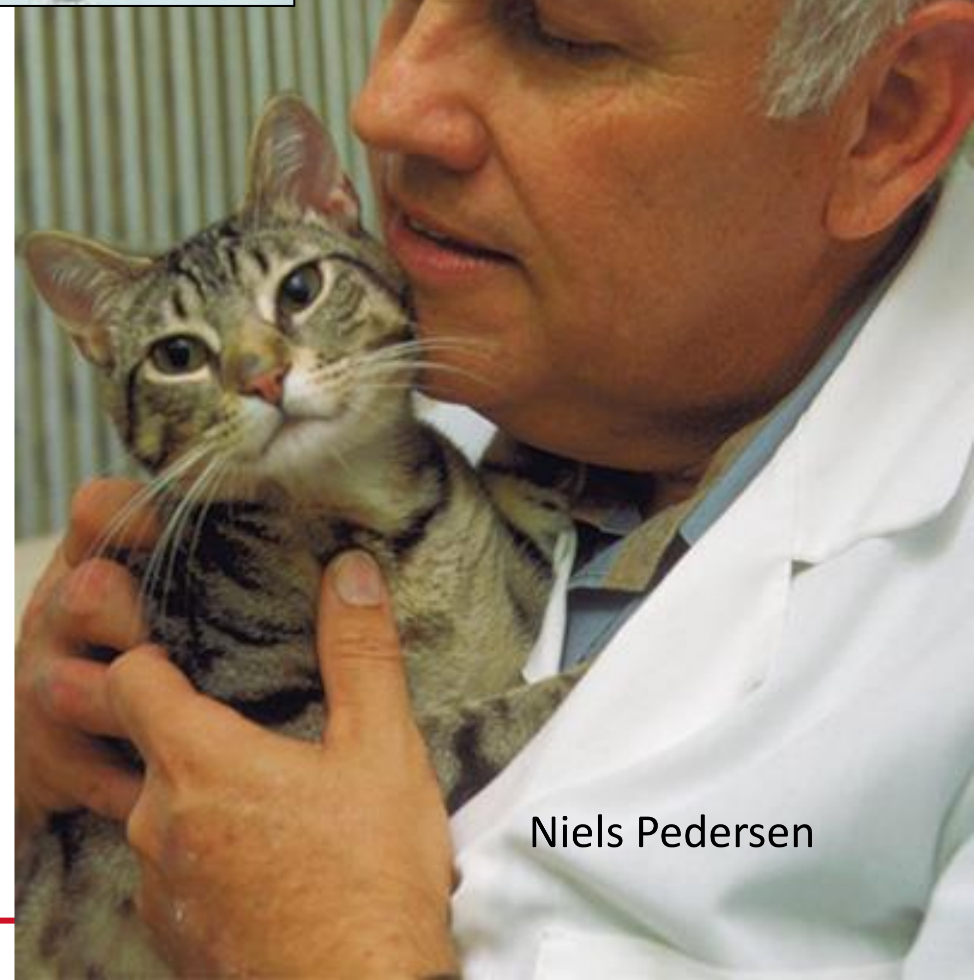


https://downhousesoftware.files.wordpress.com/2013/04/opsonized-cell.png

FIP – DANGEROUS!

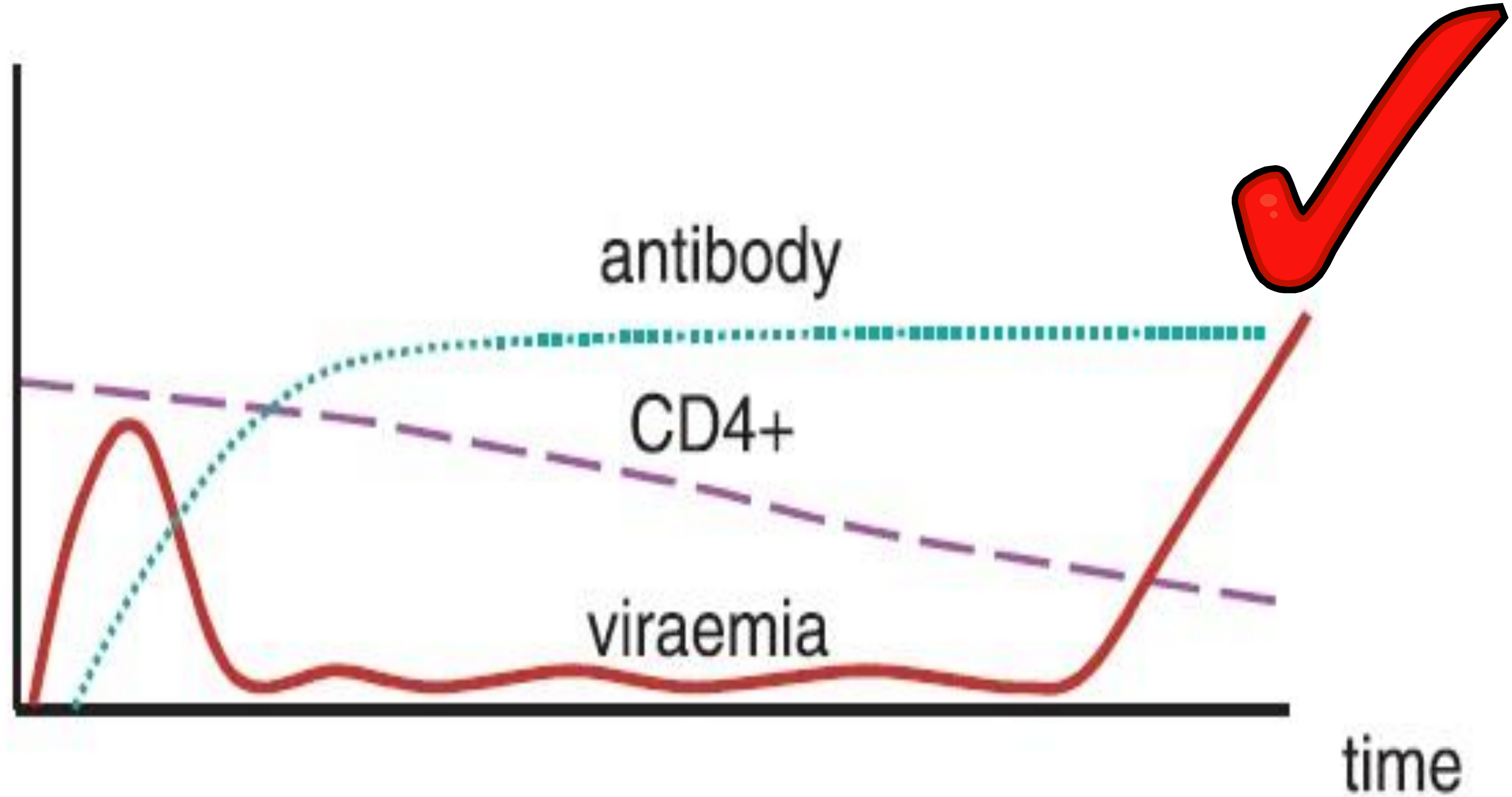
DO NOT USE SEROLOGICAL (antibody) TESTS FOR DIAGNOSIS OF FIP……EVER!!!

They are a waste of money and dangerous



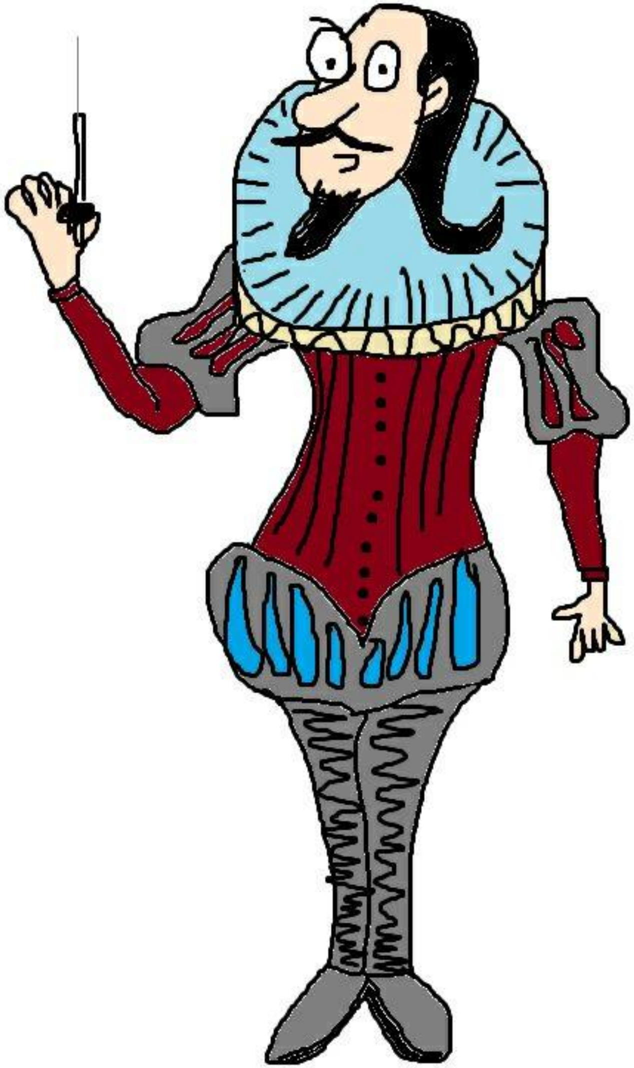
Niels Pedersen

Serological (antibody) testing for FIV



Hosie, M.J., Beatty, J.A., 2007. Vaccine protection against feline immunodeficiency virus: setting the challenge. Aust. Vet. J. 85, 5-12.

FIV vaccination – why the fuss?



FIV vaccination – A diagnostic dilemma!

Vaccinated

Infected

Vaccinated <u>AND</u> infected

Photo courtesy of Lynda du Cross

WSAVA FIV vaccination guidelines

Not recommended. Vaccination induces production of antibodies indistinguishable from those developed in response to FIV infection, and interferes with antibody-based FIV diagnostic tests for at least a year following vaccination.

(http://www.wsava.org/guidelines/vaccination-guidelines)

Photo courtesy of Dr. Amelia Fung (Tunisia 2015)

Study design

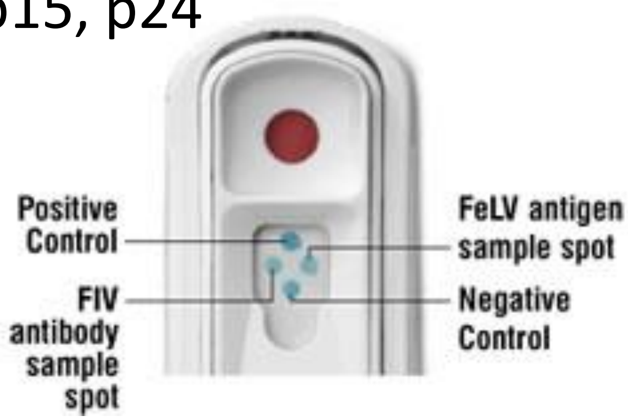
Vaccinated (n=119)	Controls (n=239)
Vaccinated against FIV at least ONCE	NEVER vaccinated against FIV
0.5 to 17 years-of-age	0.5 to 20 years-of-age
Vaccination guidelines NOT followed (last FIV vaccination 74 days – 6.9 years)	

FIV testing

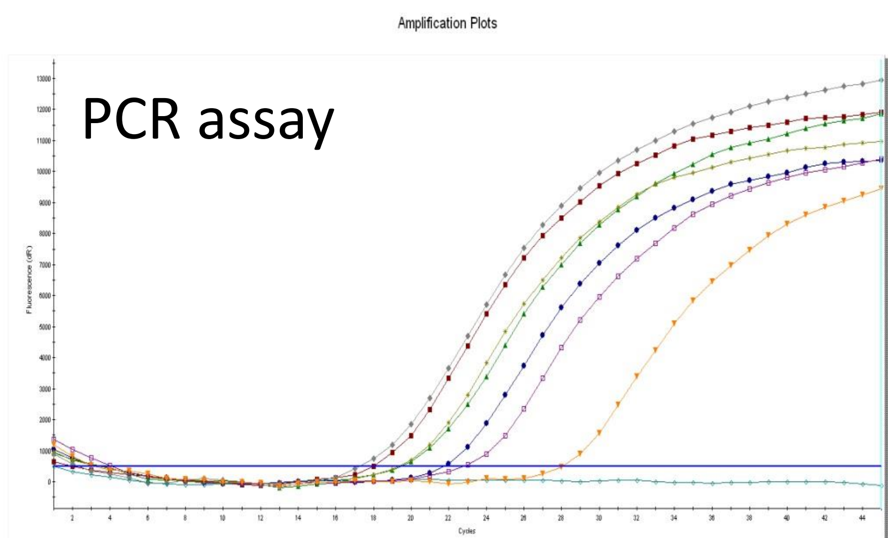
gp40

p24, gp40

p15, p24



PCR assay



FIV testing (continued)

Virus isolation at the University of Florida with Professor Janet Yamamoto and Dr. Ruiyu Pu

The University of Sydney

Results

Infected (5/119)

Vaccinated (108/119)

Application #1

If these 119 vaccinated cats had entered a shelter…

Screening test used	No. of kits used	No. of PCRs required ($50/test)
SNAP Combo	119	119 (=$5,950)
Anigen Rapid	119	5 (=$250)
Witness	119	11 (=$550)

Application #2

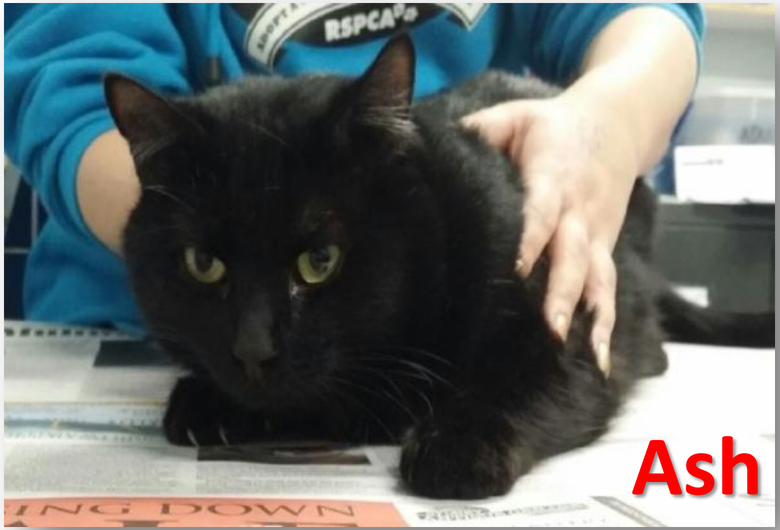
Identification of FIV-vaccinated UNINFECTED cats

Test	Result
SNAP Combo	+
Anigen Rapid	−
Witness	−
qPCR	−

Application #3

Identification of FIV-vaccinated INFECTED cats

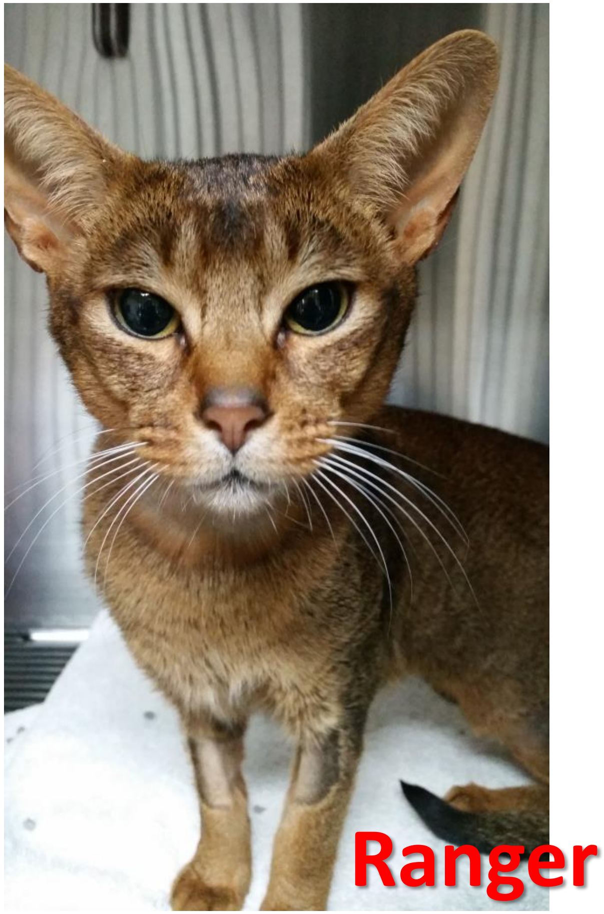
Test	Result
SNAP Combo	+
Anigen Rapid	+
Witness	+
qPCR	+



Application #4

Pre- and post- blood transfusion from a FIV-vaccinated cat

Test	Result
SNAP Combo (pre-transfusion)	−
SNAP Combo (post-transfusion)	+
Anigen Rapid	−
Witness	−



FIV Status determined by panel of serology, PCR +/- virus isolation	IDEXX SNAP p15, p24	Anigen Rapid p40, p24	Witness p40
Truly FIV infected cats (irrespective of FIV vaccination history)	+	+	+
NON-FIV infected cats (FIV-vaccinated)	+	-	-

Summary

- Screening for FIV infection should be done using Anigen Rapid or Witness FIV antibody test kits

Suggested algorithm

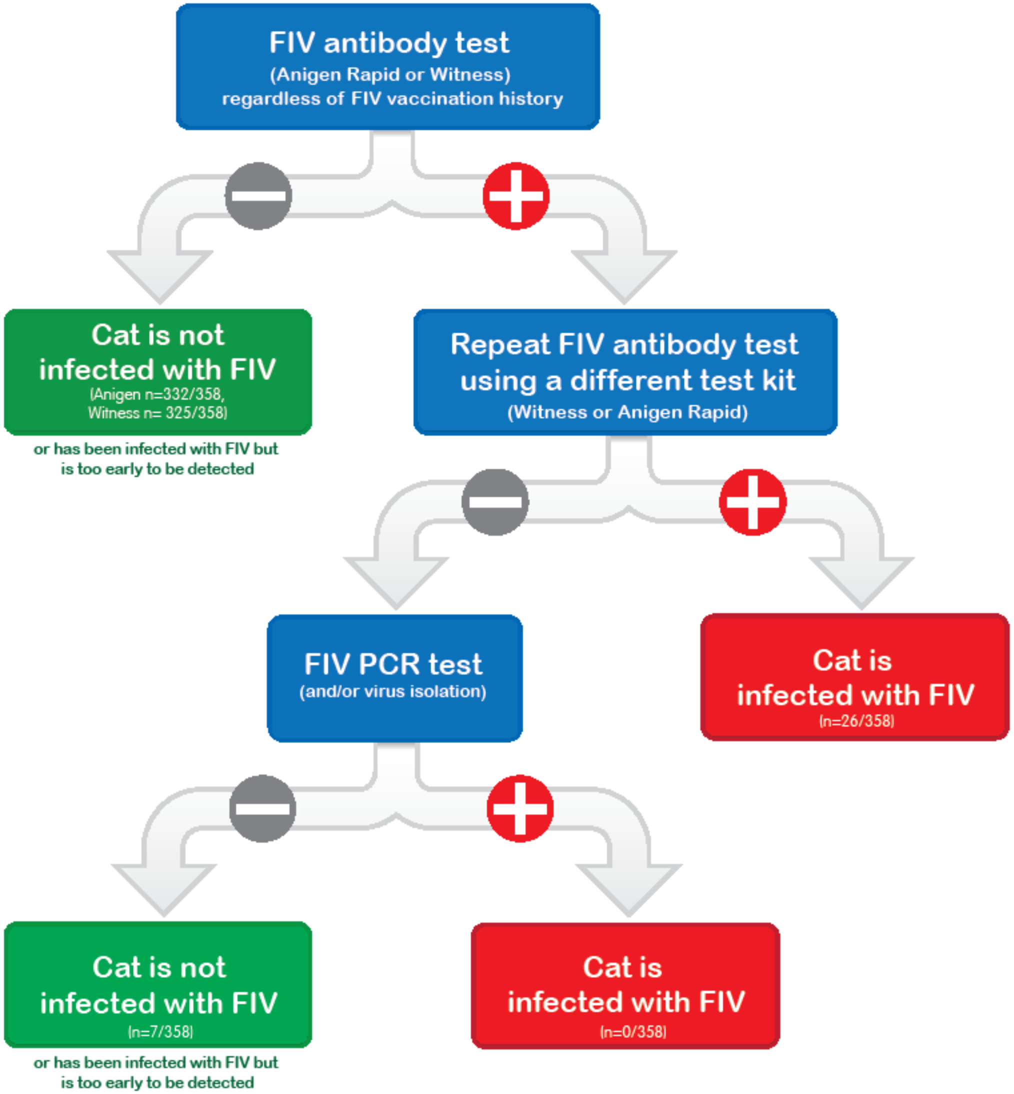


Photo courtesy of Dr. Amelia Fung

FIV vaccine efficacy?

2017!

Acknowledgements

THE UNIVERSITY OF SYDNEY
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zoetis
BIONOTE
AUSTRALIAN VETERINARY ASSOCIATION
ASAVA AUSTRALIAN SMALL ANIMAL VETERINARY ASSOCIATION

Questions?


Résidence Princesse de la Mer
A NOTER !
SEULS LES PROPRIETAIRES
D'UNE PLACE DE PARKING SONT AUTORISES A SE
GARER DANS LA RESIDENCE
Le Bureau du Syndic


UCDAVIS
School of Veterinary Medicine
The feline immunodeficiency virus (FIV) was discovered in this laboratory in June 1986
School of Veterinary Medicine
Pedersen, N.C./ Ho, E.W./ Brown, M.L./ Yamamoto, J.K.
Isolation of a T-lymphotropic Virus from Domestic Cats with an Immunodeficiency-like Syndrome. Science 235: 790-793