



Australasian Veterinary  
Students' Conference  
2005





























# Australasian Veterinary Students' Conference 2005

Communication

Specialisation

# Communicating specialist knowledge

FIP and microalbuminuria  
as examples



Richard A. Squires



~~a human being~~

Should be able to change a diaper,  
plan an invasion,  
butcher a hog,  
conn a ship,  
design a building,  
write a sonnet,  
balance accounts,  
build a wall,  
set a bone,  
comfort the dying,  
take orders,  
give orders,  
cooperate,  
act alone,  
solve equations,  
analyze a new problem,  
pitch manure,  
program a computer,  
cook a tasty meal,  
fight efficiently,  
die gallantly.

Specialization is for insects.

"Specialization is  
for insects"

Lazarus Long /  
Robert A. Heinlein





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"Specialization is  
for insects"

Lazarus Long /  
Robert A. Heinlein

# Glass half empty or half full?



# What is a specialist?

*“An individual who has narrowed down to such an extent that she / he has lost the broad competency of a generalist...”*

Half empty



# What is a specialist?

*“An individual who has gained very advanced skills, knowledge and understanding in one or more defined areas of special interest...”*

Half full



# What is a specialist?

*Society generally defines 'specialists' as having advanced knowledge in a fairly substantial area. I can think of no good reason for this. You could 'specialise' in one or several very narrow fields, while remaining a generalist. The number of these fields could grow over time. You could start now...*

# Specialisation: shades of grey





Where's the  
motivation to  
'specialise'...

or at least to gain  
specialist-level  
knowledge and  
understanding in a  
particular area?

**patient care  
communication**



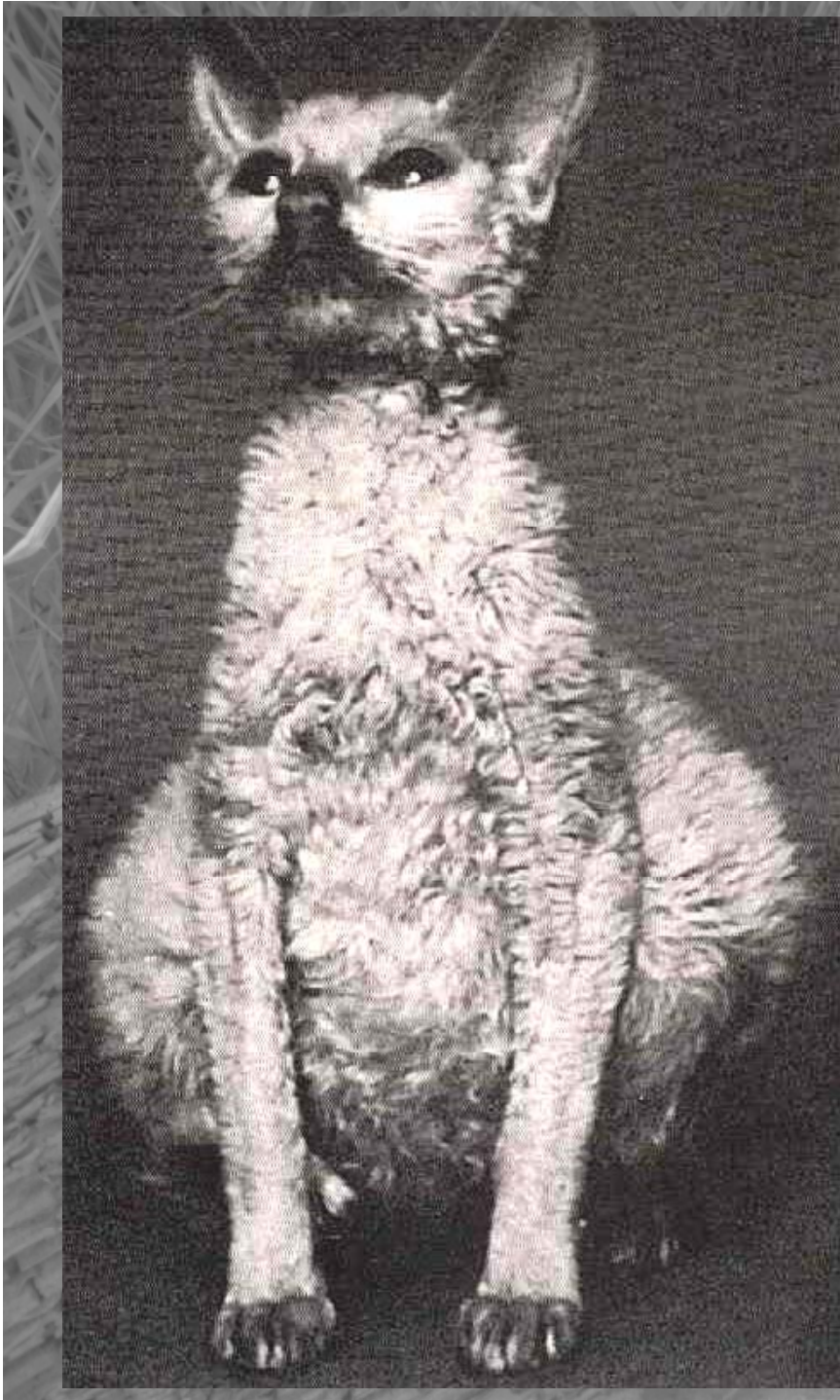
Am I equipped  
to understand  
and convey  
'specialist level'  
material?

***In general, YES!***

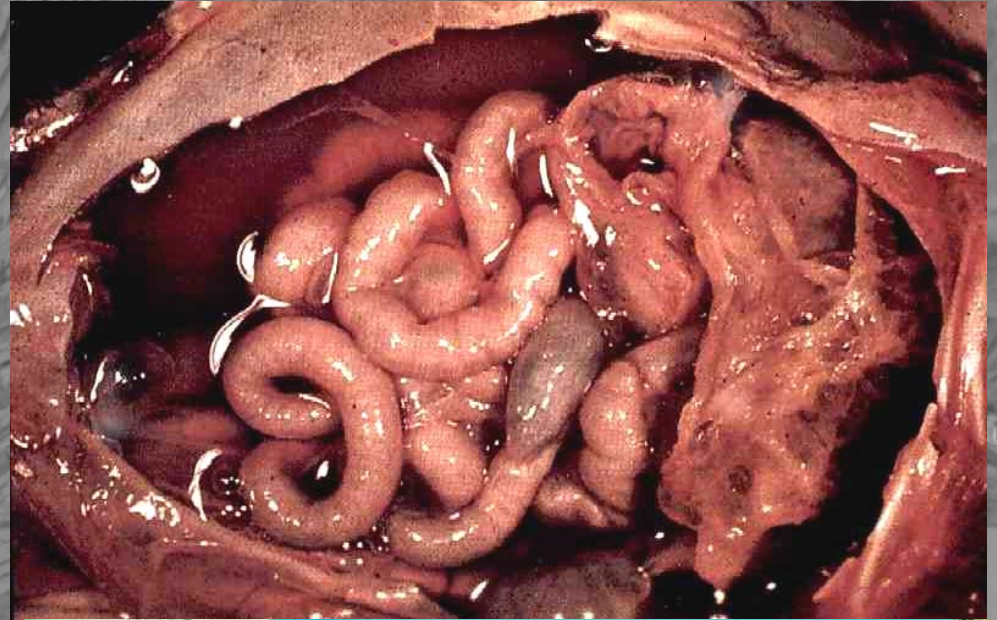


## Case challenge

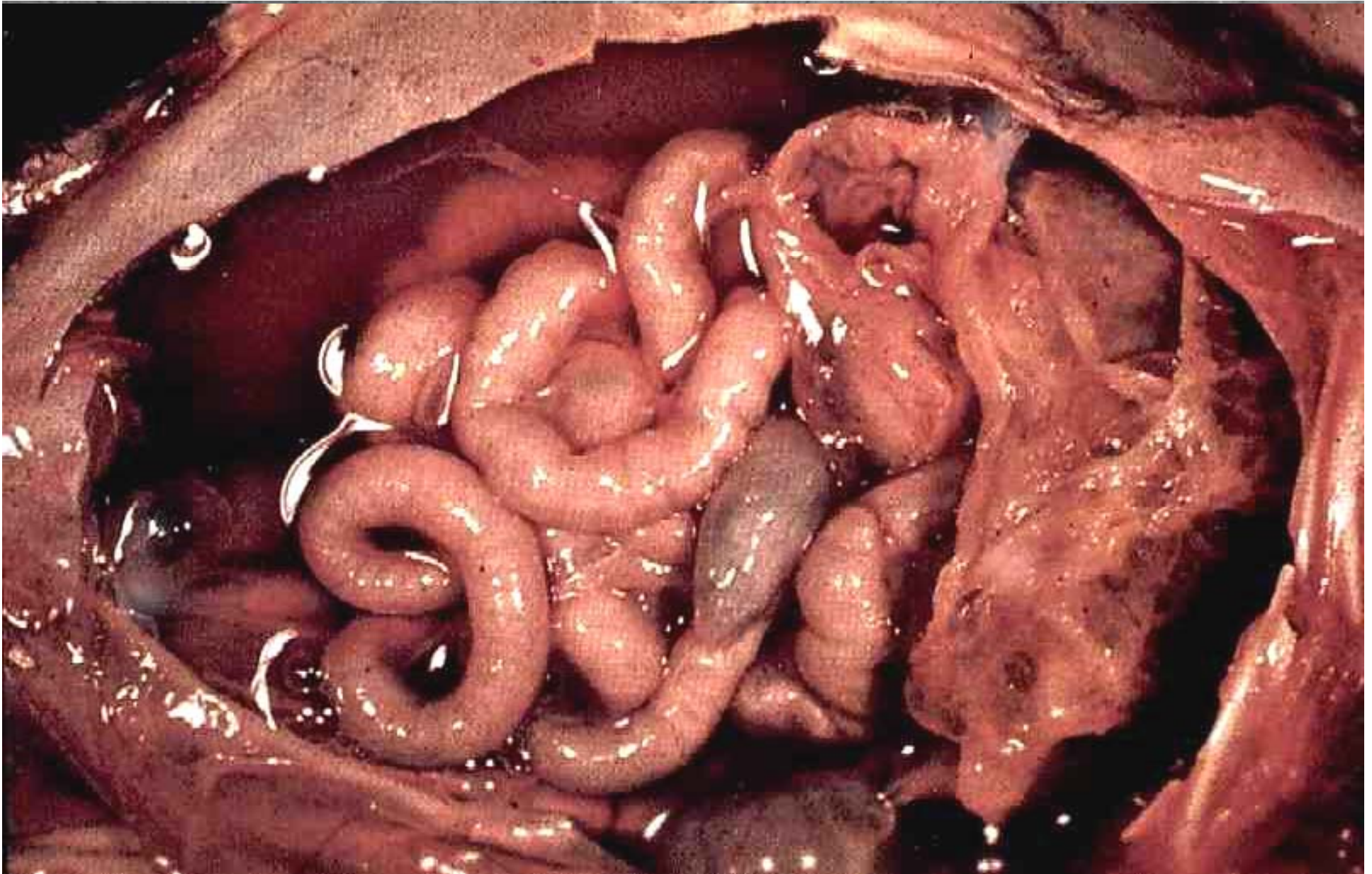
*A breeder of Birman cats has had several kittens she has sold die of feline infectious peritonitis (FIP) a few weeks to months after the sale. She is absolutely distraught. What would you ask her / say to her?*



"Wet" / effusive FIP



"Dry" / non-effusive FIP



“Wet” FIP

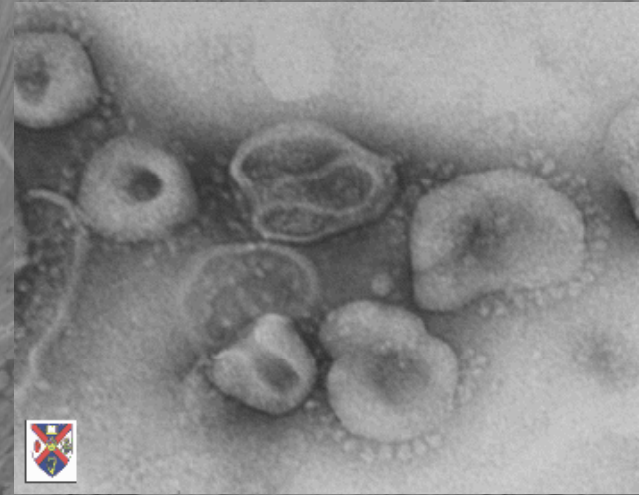
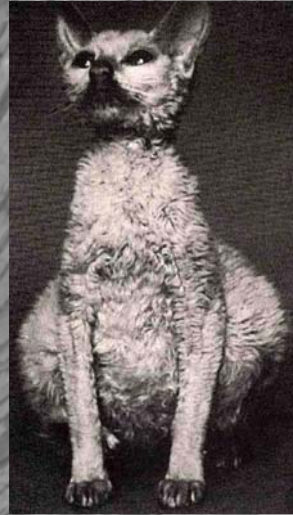
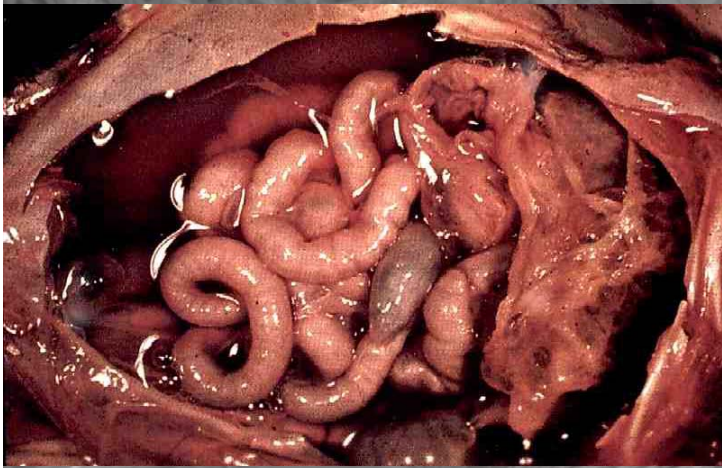


“Dry” FIP



# Feline coronavirus

- Faecal-oral transmission
- Virus widespread in all cat populations
- FCV seropositivity rate is high, but FIP is an uncommon consequence of infection
- Only 1-5% of FCV-infected animals develop FIP (mainly kittens, some older cats)
- FCV persists in the intestinal tract and continues to replicate at low levels for ages in some cats
  - *i.e.*, some infected cats are long-term carriers



*Feline coronavirus*  
(FCV)

Feline enteric  
coronavirus  
(FECV)

Feline infectious  
peritonitis virus  
(FIPV)



## *Feline coronavirus variants*

- FECV
  - Has a tropism for intestinal epithelial cells
  - May cause diarrhoea [usually mild or inapparent]
- FIPV
  - Has a tropism for macrophages
  - Causes death



# FIPV and FECV

- Indistinguishable serologically
- Discriminating PCR tests are highly questionable
  - Defining sequence differences are not yet fully understood
  - FIPVs in various parts of the world are very similar to the local FECVs, less similar to distant FIPVs



# Epizootiology of FECVs

- Each cat develops and harbours its own distinct FECV 'quasispecies'
- Evidence is mounting that FIPVs are mutants of FECV arising *de novo* in each FECV-infected animal
- Rarely, a small epizootic of FIP may occur, with horizontal TXN of a FIPV

# *In vivo* mutations of FECV → FIPV

**FECV**

Intestinal epithelial cell tropism

Spontaneous mutations

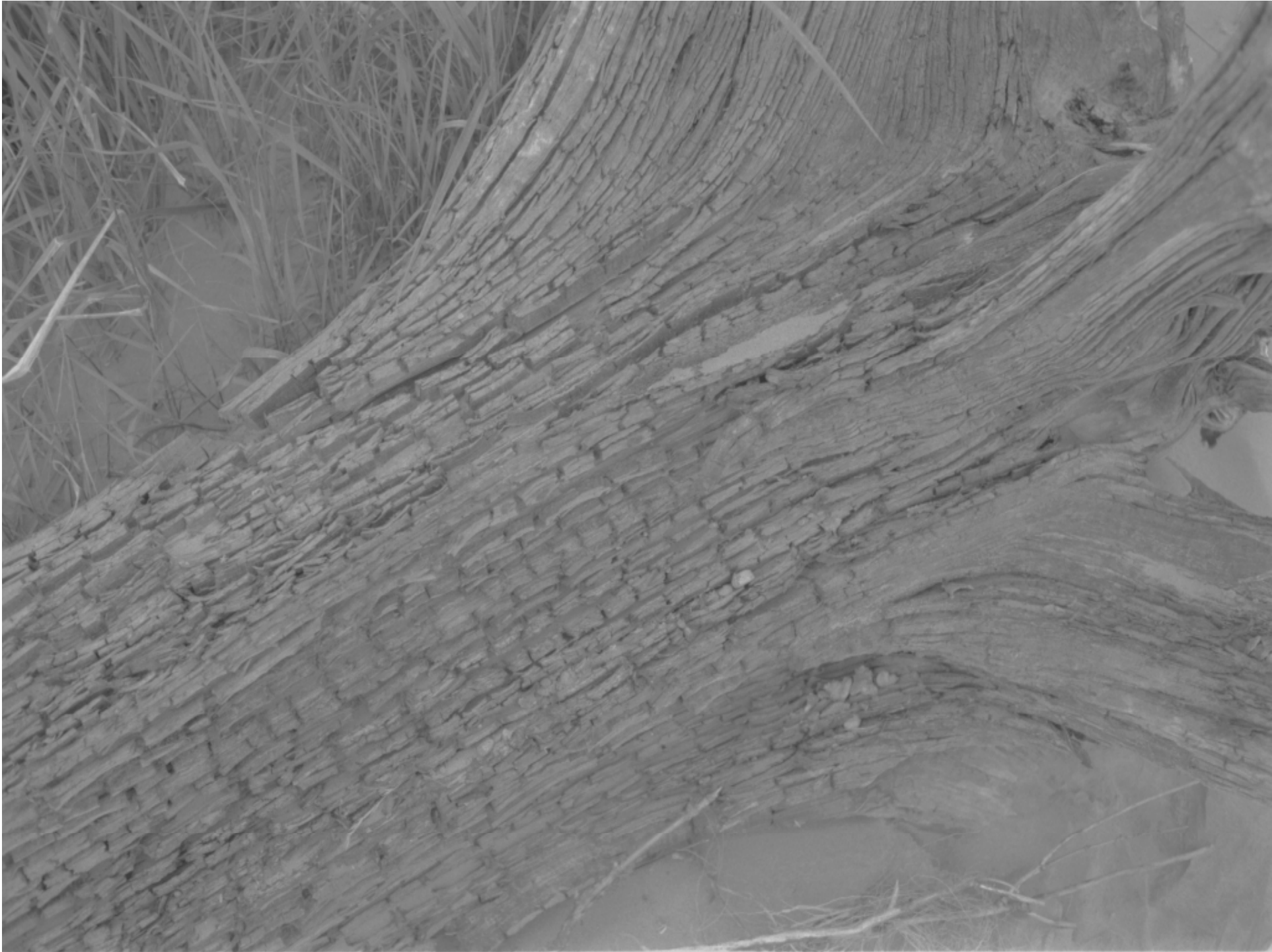
Recombination with other coronaviruses

ineffective immune response

**FIPV**

Severe disease

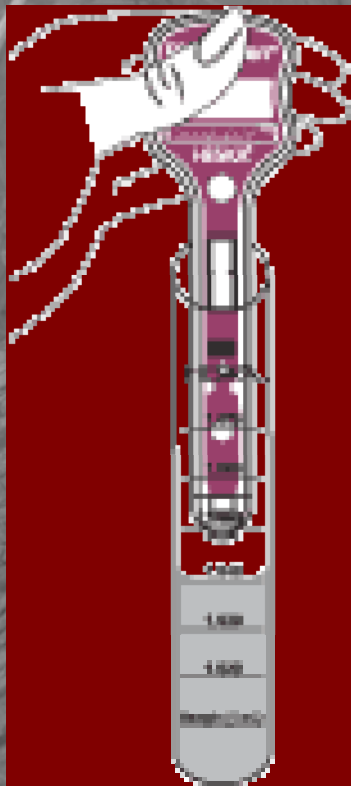
Macrophage tropism



Communicating 'specialist level'  
knowledge and understanding  
about proteinuria

*Should veterinarians recommend  
that all apparently healthy animals  
above a certain age be routinely  
tested for microalbuminuria?*

# Why is proteinuria so topical?



'In-clinic' microalbuminuria detection kits have become available for purchase from Heska <http://www.heska.com>

# Clinic Lab Book



## CONTENTS:

- » [RUNNING THE TEST](#)
- » [READING TEST RESULTS](#)
- » [MANAGING POSITIVE CANINE CASES](#)
- » [MANAGING POSITIVE FELINE CASES](#)
- » [FAQS](#)
- » [CLINICAL DATA](#)
- » [CASE STUDIES](#)
- » [TESTIMONIALS](#)
- » [GETTING STARTED](#)
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## E.R.D.-HealthScreen™ Urine Tests

*Early Detection is Always the Best Medicine*

**NEW RESEARCH CONFIRMS:  
MICROALBUMINURIA IS LINKED  
TO THE PRESENCE OF DISEASE.**

**Only ONE Test Can Detect It.**



E.R.D.-HealthScreen™  
Canine and Feline Urine Tests

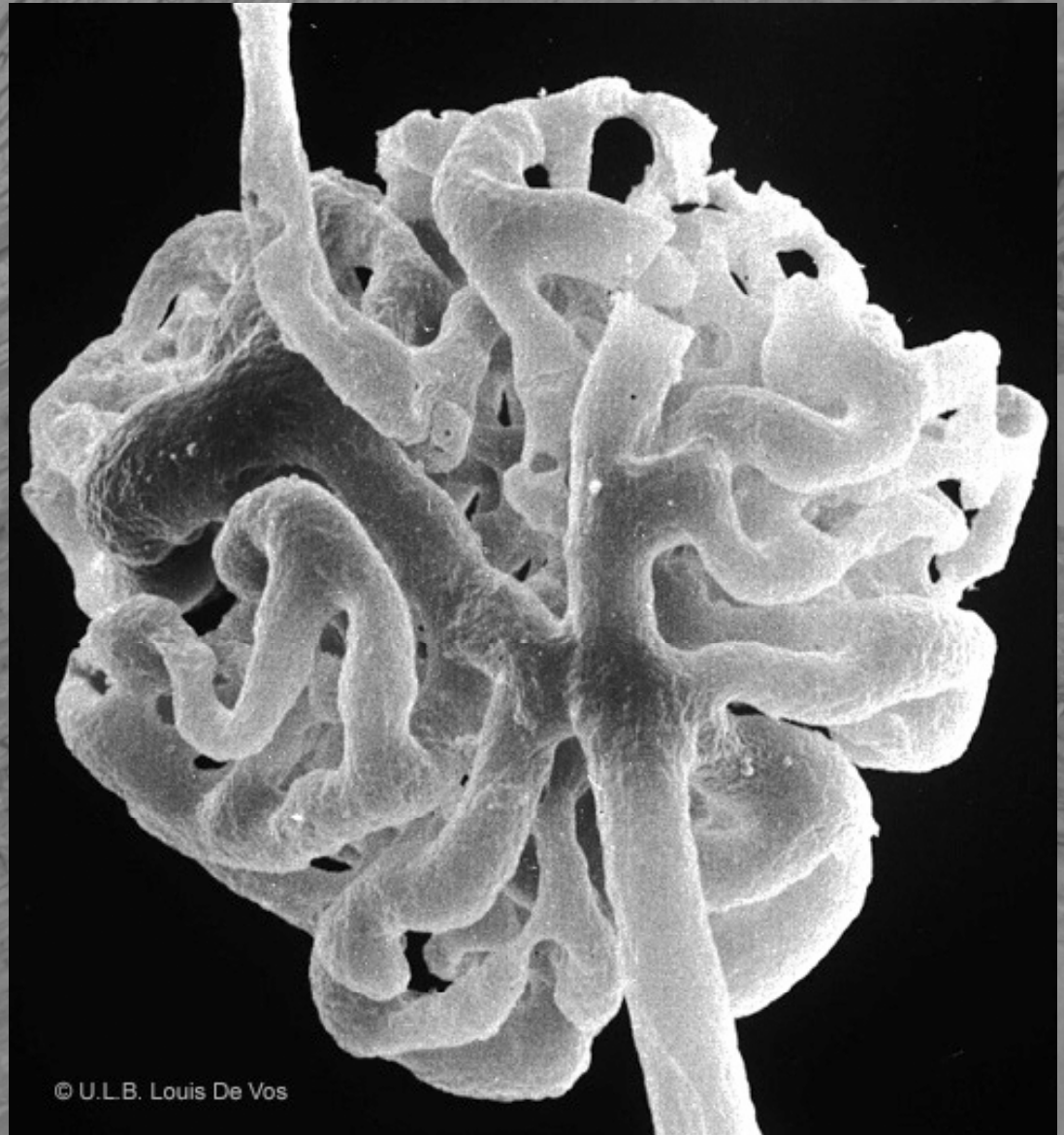
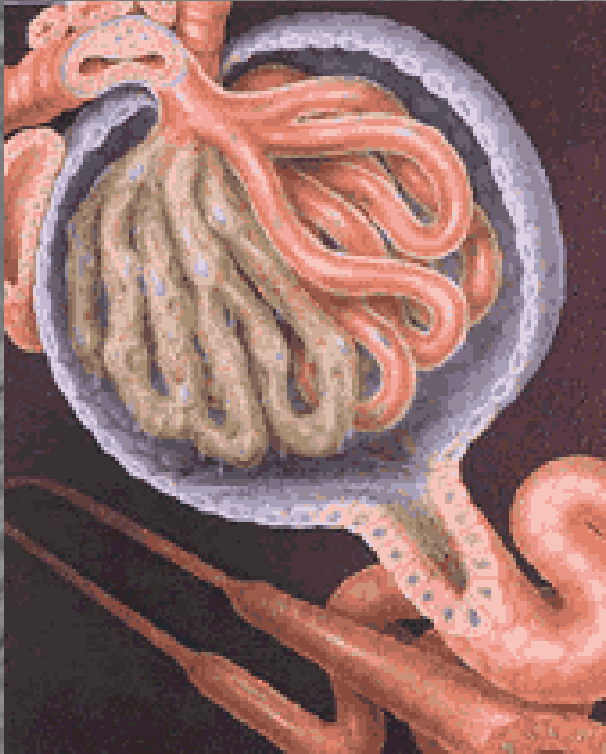
Patents Pending

Clinic Education and  
Client Awareness Tools

**[ORDER HERE](#)**

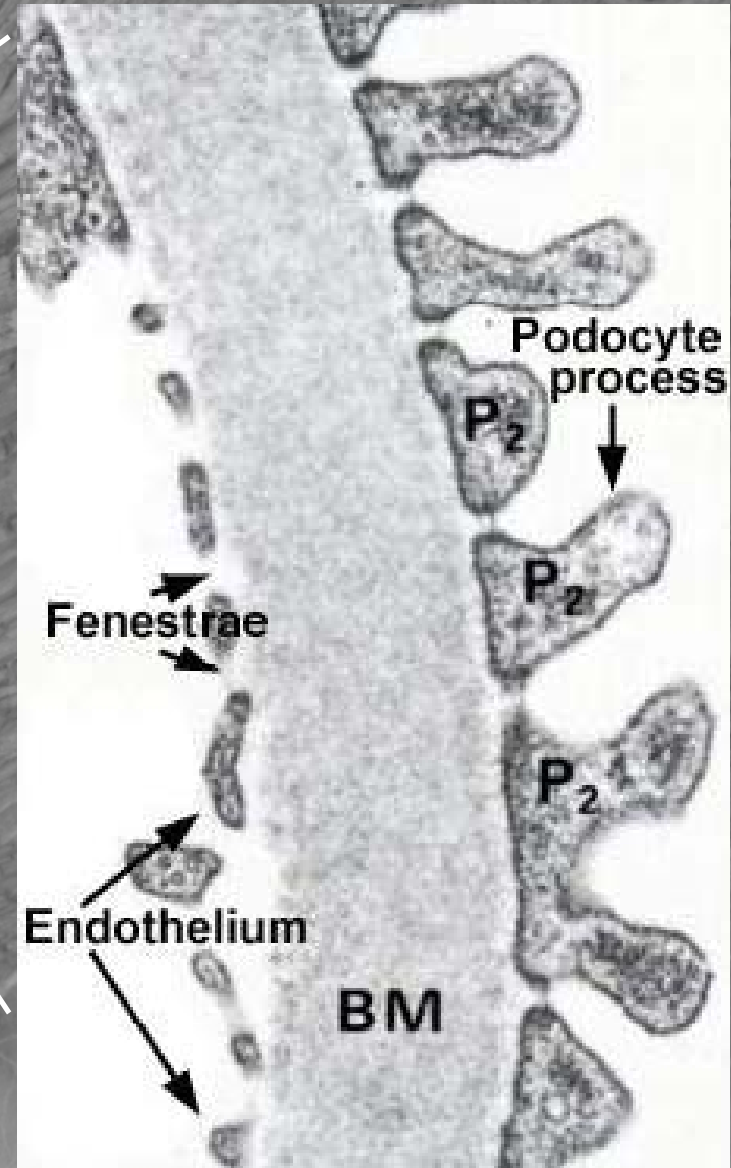
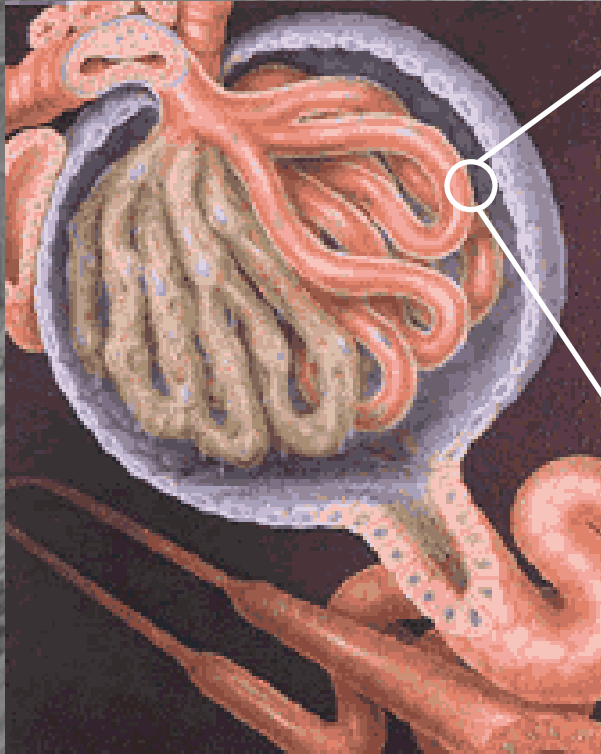
**Other PROMOTIONS**

# Glomerular proteinuria

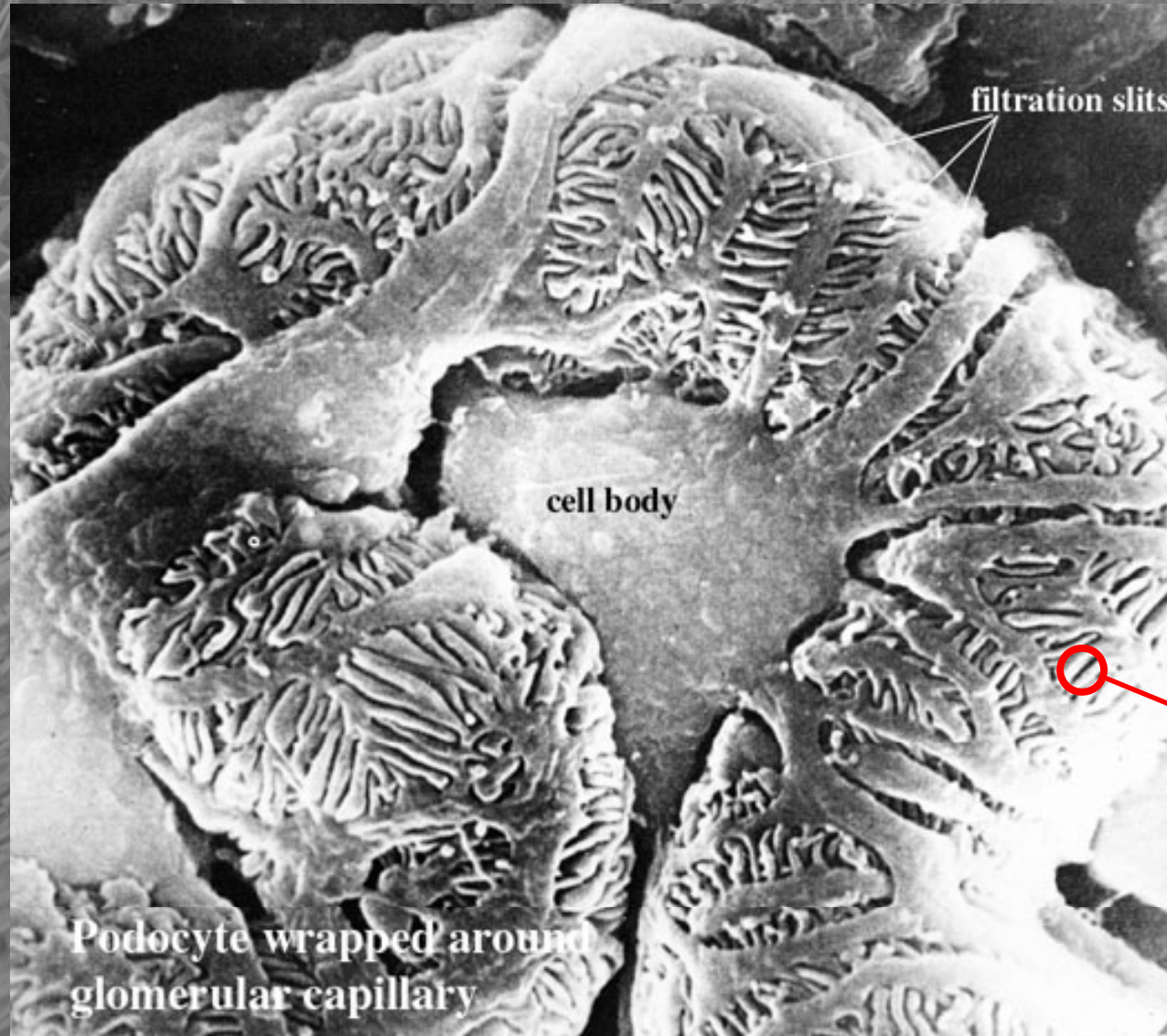




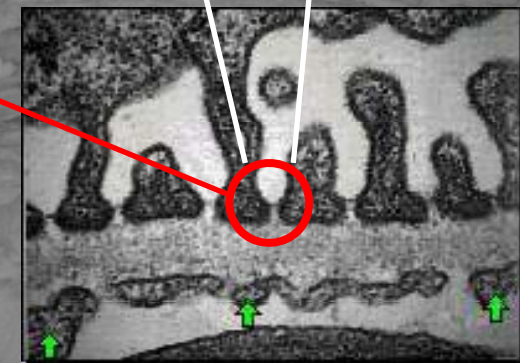
# Glomerular proteinuria



# Glomerular proteinuria



Slit diaphragm



# Microalbuminuria

*“Mildly excessive albumin in the urine. The concentration is abnormally high but is below the limit of detection of most ‘conventional’ urine dipsticks”*

Approx.  $0.01 - 0.3\text{g/L} = 1 - 30\text{ mg/dl}$



# Case challenge



## 5 year-old MC Black Labrador Retriever – Case outline

- One week of low grade epistaxis
- Severe stiffness of gait
- Swollen painful joints
- Fever
- Anorexia

## 5 year-old MC Labrador Retriever – Findings

- Mature neutrophilia
- Mild thrombocytopenia
- Borderline hypoalbuminaemia (22g/L)
- Polyarthrititis (suppurative, no organisms seen)
- Heavy proteinuria (3+ on dipstick)

## 5 year-old MC Labrador Retriever – Findings

- Urine S.G. 1.014, pH 7.5
- No hyperglobulinaemia or free haemoglobin / myoglobin in plasma
- No UTI or other features of an “active” urine sediment
- UP:UC 15 (normal <1)



# 5 year-old MC Labrador Retriever – Findings

- Incisor tooth root abscess



5 year-old MC Labrador  
Retriever – Your thoughts...



Infection, infestation, vaccination, drug Rx, neoplasia

+

antibody

Immune complex formation

Glomerulonephritis

Polyarthrititis

Proteinuria

Stiffness, lameness

## 5 year-old MC Labrador Retriever – Case progress

- Incisor tooth was pulled, releasing pus from the root abscess
- Signs of polyarthrititis, fever and anorexia resolved within one week
- UP:UC improved dramatically within 3 weeks

# Complications of glomerular proteinuria

- Renal failure
- Hypercoagulable state
- Thromboembolism
- Systemic arterial hypertension



# Glomerular proteinuria as a marker

- The value of detecting mild albuminuria (*i.e.*, microalbuminuria) in cats and dogs as a marker for various renal and non-renal diseases is currently under investigation
  - Diagnostic value?
  - Prognostic value?
  - Indications?



## Current controversies

*Should veterinarians recommend that all apparently healthy animals above a certain age be routinely tested for microalbuminuria?*

*If so, what should be done about the animals that yield positive test results?*

## Current controversies

*Is the current definition of microalbuminuria as established by Heska, (i.e., the reference range for urine albumin concentration established using their ELISA) applicable to dogs and cats of all ages?*

# Current controversies

Age (dogs)	% with MA*
< 3 years	7.4
3-5	8.6
6-8	20
9-11	36
12+	49.1

\*n=3,041



## Current controversies

*Assuming for a moment that detection of MA correlates accurately with the presence of renal lesions, to what extent might these lesions represent a risk to the quality and quantity of life of the patient?*

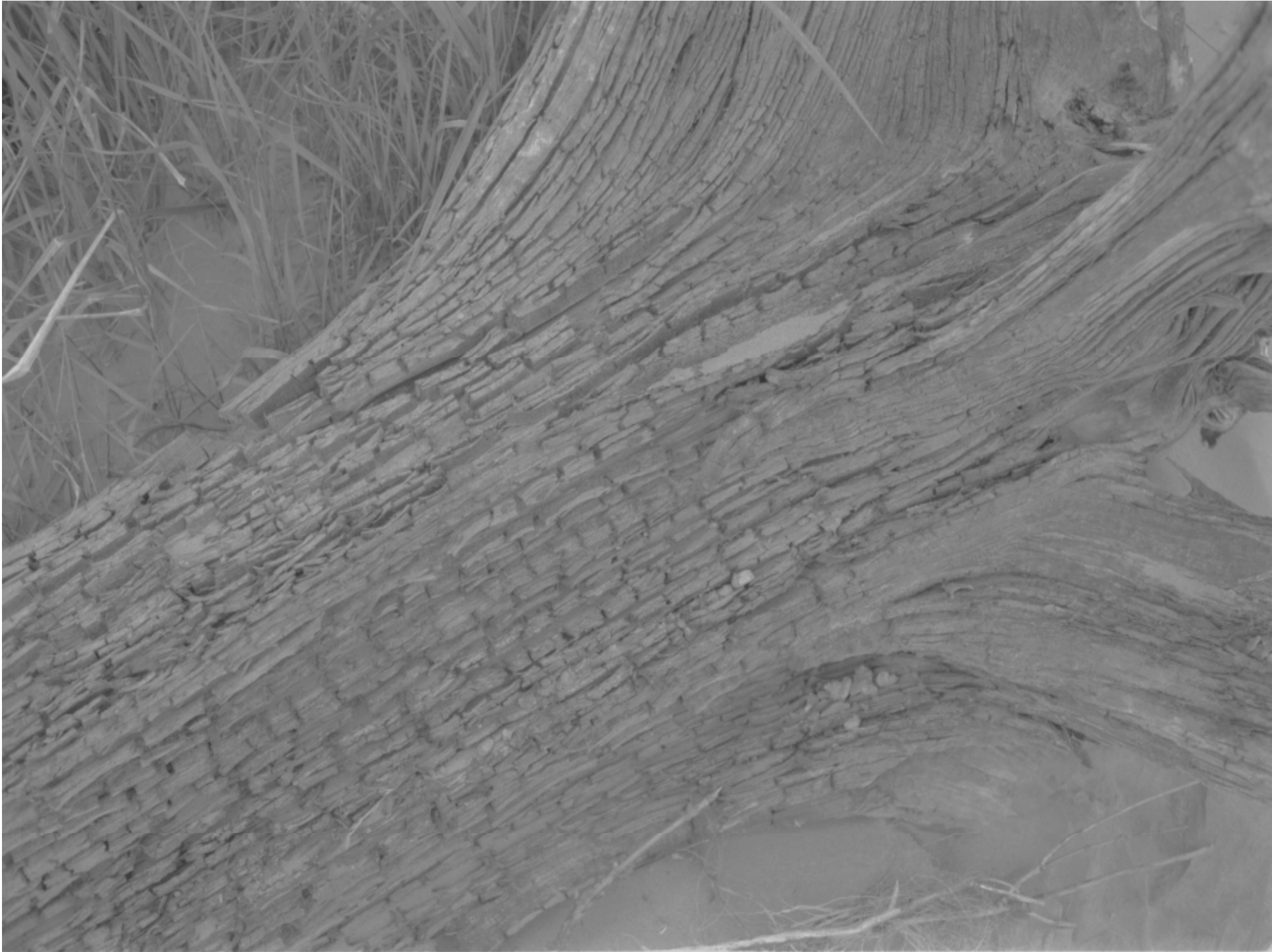
Progressive vs. non-progressive renal disease

# Current controversies

*What is the anticipated benefit of this proposed monitoring intervention to the health and happiness of patient and client?*

Over-test: monitor and (perhaps) treat many animals unnecessarily

Under-test: miss an opportunity to intervene effectively in some cases



# The future of specialisation?

- An increasing degree of specialisation in veterinary undergraduate curriculae?
- Limited licensure?
- Substantial “transfer” courses and exams for post-grad veterinarians wishing to make a career change?

# The Future

- Increasingly convenient consultations for you and your clients with 'career specialists' using new technologies?
- Pressure to refer an increasing range and number of 'challenging' cases to 'career specialists'?

# Summary

- Communicating 'specialist level' knowledge to clients will be an enjoyable, rewarding, everyday part of the professional lives of most of you.
- Access to high quality information resources will further improve in the near future
- Your challenge will be to assimilate, comprehend and effectively communicate your understanding of this information to your clients.