Welcome to Veterinary Pharmacology, Therapeutics and Toxicology

227.305

pharmacology why bother?

- treatment options
  - do nothing
  - give drugs
  - surgery
  - change diet
  - euthanasia
- all but first involve drugs!!

administration

- semester 1 - 38 lectures
  - Tuesdays 2 & 3 pm ICLT
  - Thursdays 8 am ICLT
  - Fridays 11 am ICLT
- Library project instead of practicals
- Study guide essential
  - also on web

Course objectives

- have a sound understanding of the effects, mechanism of action and uses of the major groups of drugs used to treat animals (the range of drugs will be extended in 195.409) which will allow you to use these drugs safely and effectively.
- be aware of drugs which are likely to be used in the near future (again, the range of drugs will be extended in 195.409)
- know how and where to obtain further information on drugs
- have a sound understanding of the principles of pharmacokinetics and how these are used to ensure that an animal receives the correct dose of drug
- be able to evaluate scientific and clinical reports of drug trials and apply this knowledge to veterinary practice

Text books

- not necessary
- suggestions in study guide
- study guide is designed for reference
  - not memorising
- CALVE web site
  - http://calve.massey.ac.nz/pharm

Assessment

- Semester 1
  - 30 min computer MCQ exam 10%
  - group essay 10%
- Semester 2
  - 2 hour essay exam 40%
    - 4 out of 8 essays
  - 1 hour computer MCQ exam 20%
  - group dissertation 20%

Assessment

- Essays
  - Designed to test depth of knowledge
  - Integration with other subjects necessary
- MCQs
  - Designed to test breadth of knowledge
  - ie, a large no. of very specific questions

Exam marking

- Essays
  - The facts +75%
  - Other pertinent info +10%
  - Concise communication +10%
  - Use of English +5%
  - Minor mistakes -5%
  - Stupid mistakes -10%
  - Dangerous mistakes -30%

Exam marking

- MCQs
  - WebCT

practice tests

- questions in study guide at end of each chapter
  - answers for MCQs provided
  - it is up to you to use these
  - same questions on CALVE website
  - same questions on WebCT
    - practice test only!

lectures

- timetable in study guide
- subject to change
  - check notice board
- lectures on CALVE web site

Group work Sem 1

- Choose groups of four
- You will be given the titles of 2 papers
- Go to the library and find your papers
- Decide on the major findings, reliability and relevance to veterinary medicine
- Write a 3000 word review
- hand it in by 19th May
- marks are shared equally between group

Group work marks

- 10% of total mark
  - Analysis of methods 4%
  - Analysis of results 2%
  - Discussion of relevance 3%
  - Clear style of writing 1%

Analysis of methods

- What are the authors trying to show?
  - Does the experimental design allow them to do this?
- Is the measure of outcome appropriate?
  - Observer bias, drug effects, etc
- Are there suitable controls?
- Were drug doses suitable?
- Are the numbers sufficient?

Analysis of results

- Are the statistical tests appropriate?
- Are the results statistically significant?
- Are the results important?
- Are the conclusions justified by the data?
- How do the results compare to other studies?

Relevance

- How do the findings relate to veterinary practice in NZ?

Style

- Correct English
- Concise, incisive and interesting!!!

style

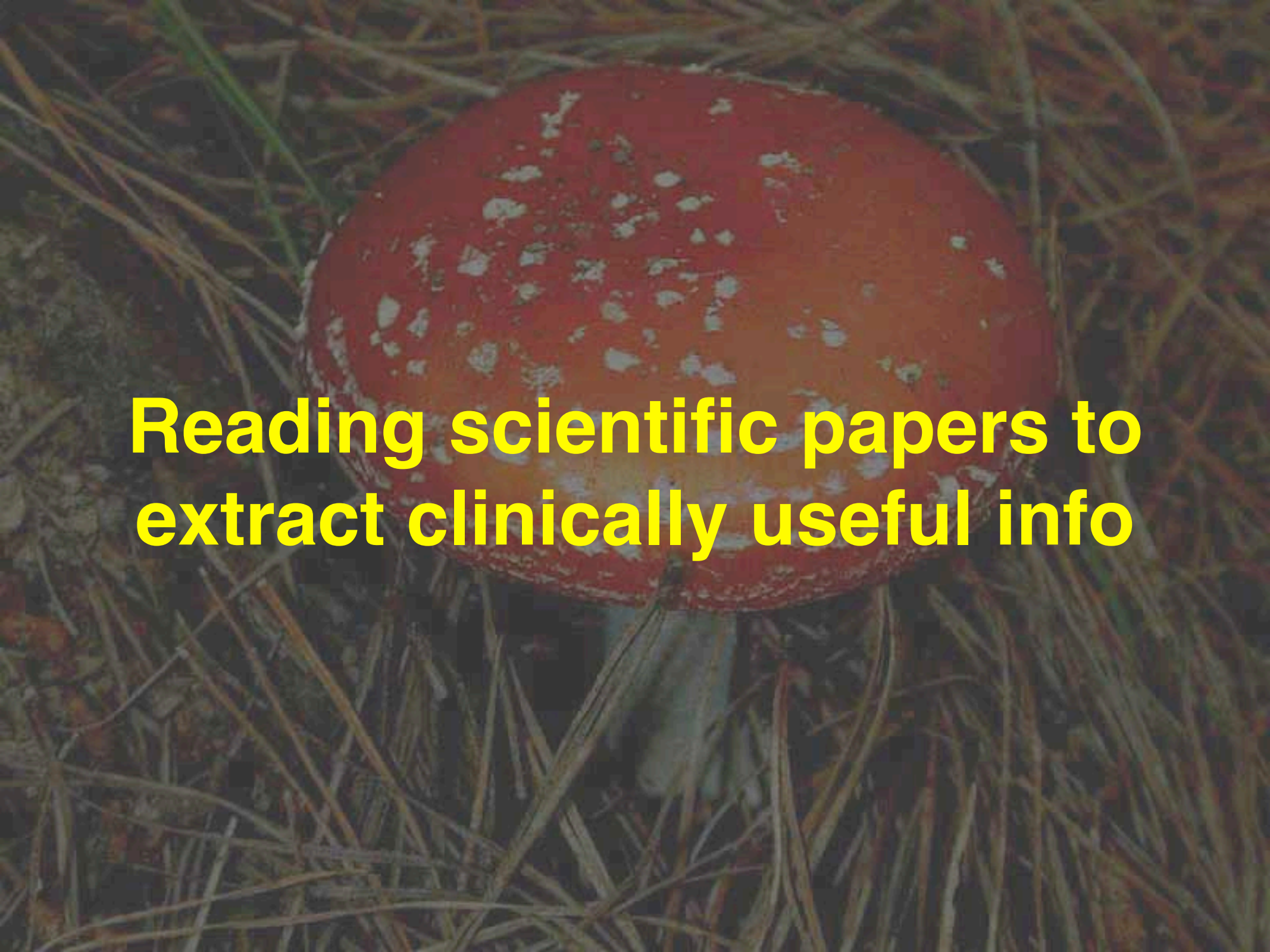
- Never use a long word where a short one will do
- If it is possible to cut out a word, cut it out
- Never use the passive sense where you can use the active
- Never use jargon if there is an English equivalent
- Break these rules where necessary

Info required

- Before using drugs in animals ask
  - Does it work?
  - Is it safe?
    - What side effects are expected?
    - What monitoring is required?
  - What is the best dose and route?
  - How long is it likely to last?
  - Is it expensive?
  - Do the benefits outweigh the risks?

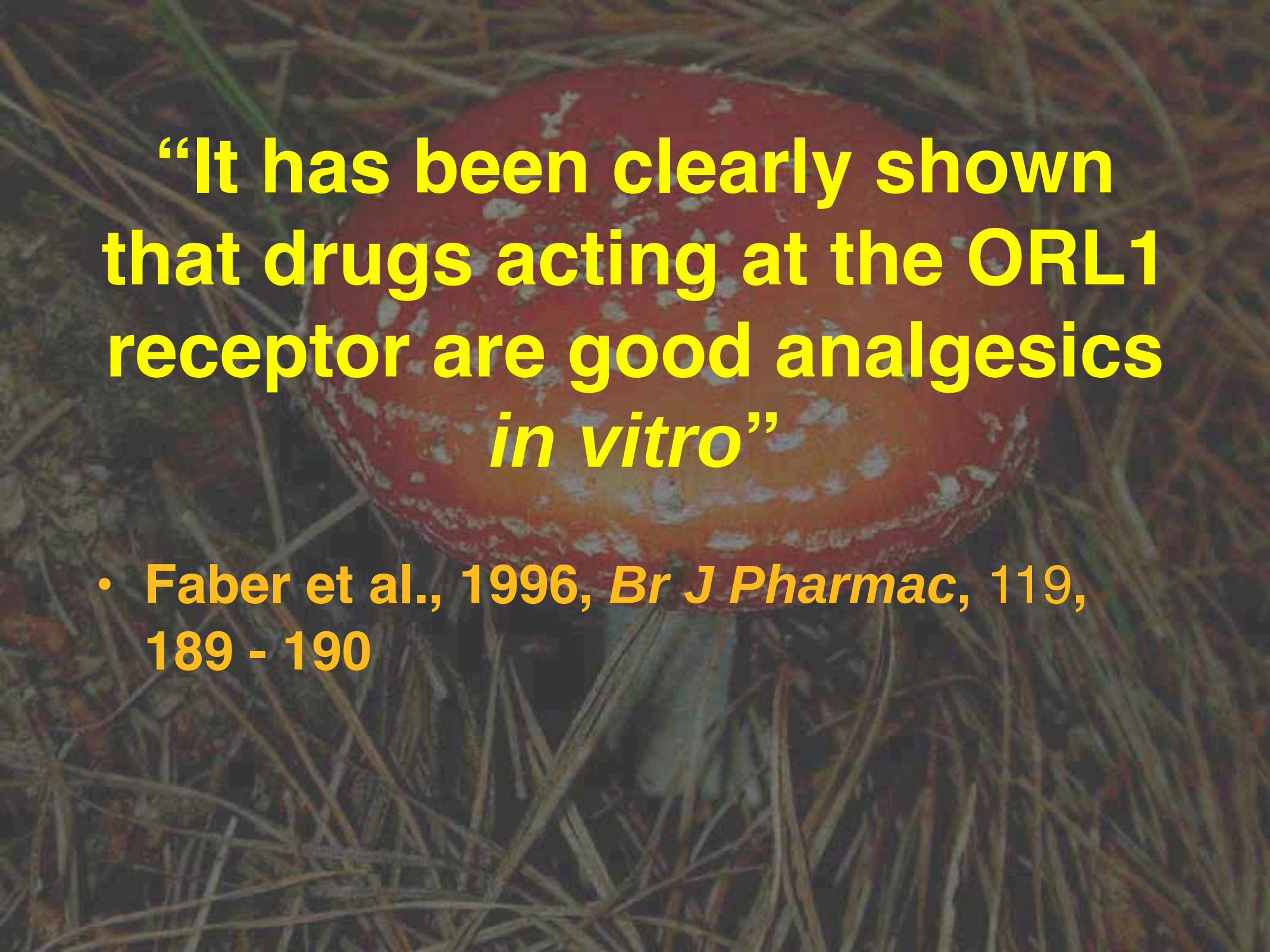
Sources of info

- scientific literature
  - evidence based medicine
- colleagues
- textbooks
- www
- drug companies
  - IVS
  - New Ethicals catalogue / MIMS
  - advertising


Reading scientific papers to
extract clinically useful info

Types of papers

- Veterinary clinical trials
  - Science is usually conspicuously absent
- Human clinical trials
  - Limited relevance
- Basic science papers
  - Usually written by scientists with no idea about clinical problems


"It has been clearly shown that drugs acting at the ORL1 receptor are good analgesics *in vitro*"
• Faber et al., 1996, *Br J Pharmac*, 119, 189 - 190

reading papers

- Are the results of the study valid?
  - randomisation
  - all animals accounted for
- What are the results?
  - size of treatment effect
  - precision
- Will the results help me in caring for my patients?
  - benefits worth the potential harm?


When reading papers
be sceptical!!!

Group work Sem 2

- use the skills you learned in semester 1 to write a publishable review of a subject in depth
- more details next semester
- think about subjects as you do semester 1 work!!

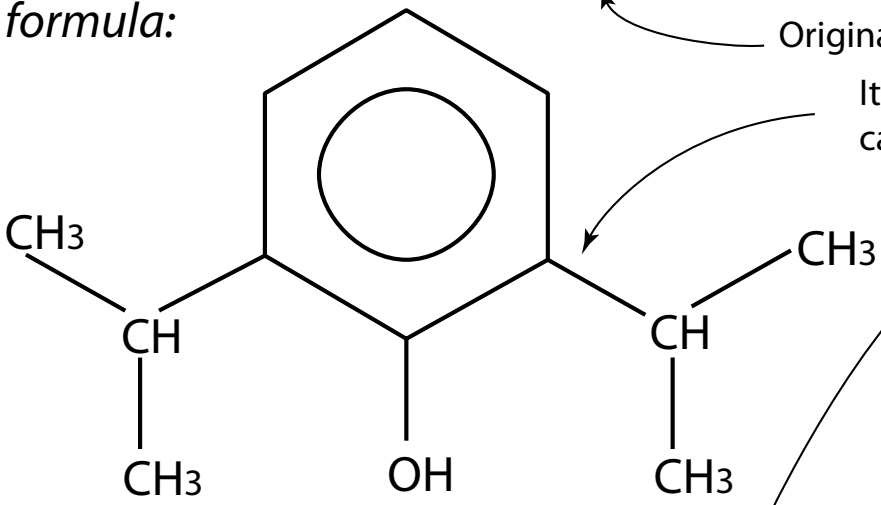
Drug names

- Learn approved names
  - Usually BANs in NZ
  - USANs often different
  - INNs sometimes different again

drug company number: **ICI 35 368**

Originally developed by ICI (now AstraZeneca).

formula:



It is sometimes useful to know a drug's structure: cats can have problems metabolising phenols.

There are two different international classifications for chemical names, IUPAC &CA

Chemical Abstracts Service Registry No. A unique no. applied by the American Chemical Society for use in their chemical database. Not much use to pharmacologists.

In the past drugs were approved by several different bodies, so older drugs may have different British Approved Names or United States Adopted Names. They are all supposed to be approved by the WHO now and have International Non-proprietary Names although these can be provisional (pINN) or recommended (rINN).

chemical name: **2,6 di-isopropylphenol**
2,6 bis(1 methylethyl)phenol

CAS number: **2078-54-8**

approved name: **propofol**

trade names:

veterinary: **"Rapinovet"** (Schering-Plough)
"Aquafol" (Parnell)

human: **"Diprivan"** (AstraZeneca)
"Propofol Inj" (Baxter)
"Propofol Inj" (Abbott)
"Recofol" (Pacific)

Propofol (the active ingredient) is formulated in a suitable vehicle for injection into animals. The original vehicle was a soya bean lipid emulsion. It was then sealed into vials and has different labels stuck on it for human or veterinary use (Diprivan or Rapinovet). Since the patent ran out, other companies are now making and selling propofol in different formulations, eg Aquafol is an aqueous solution.


Pharmacology
is
fun!