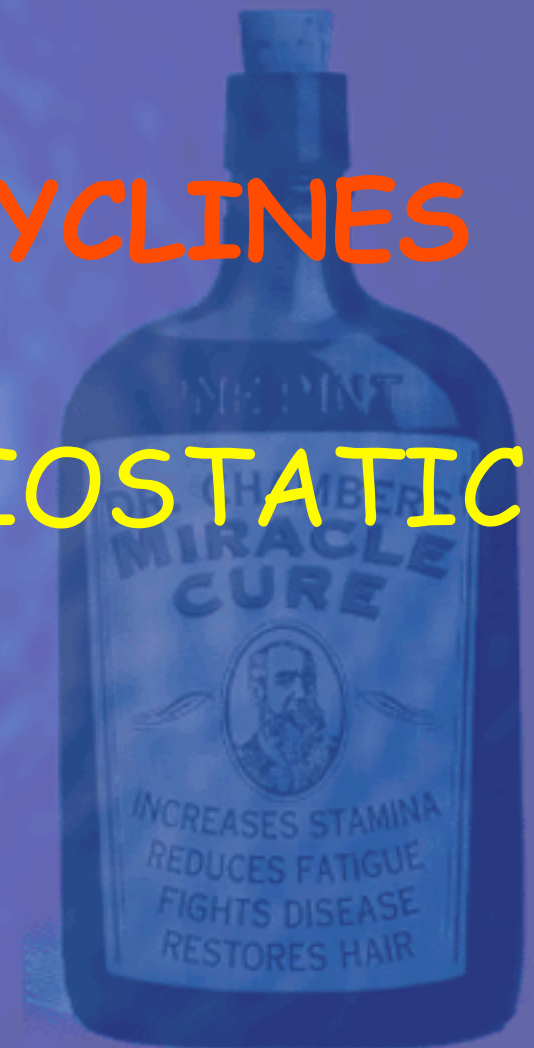


ANTIMICROBIALS



TETRACYCLINES
BACTERIOSTATIC



ANTIMICROBIALS

TETRACYCLINES

Tetracycline

Oxytetracycline

Chlortetracycline

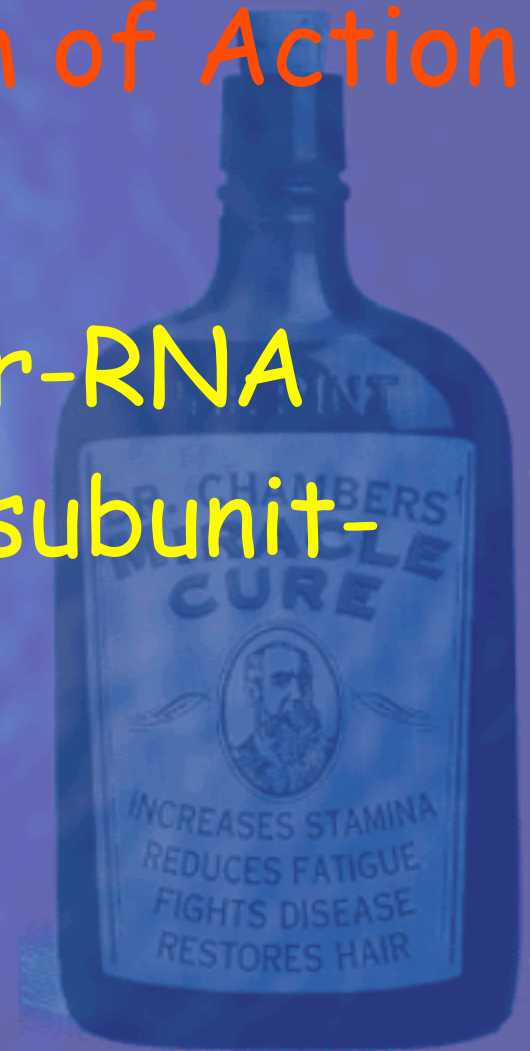
Doxycycline



ANTIMICROBIALS

Tetracyclines - Mechanism of Action

Inhibit aminoacyl-transfer-RNA
binding to 30S ribosomal subunit-
mRNA



ANTIMICROBIALS

Tetracyclines - Pharmacokinetics

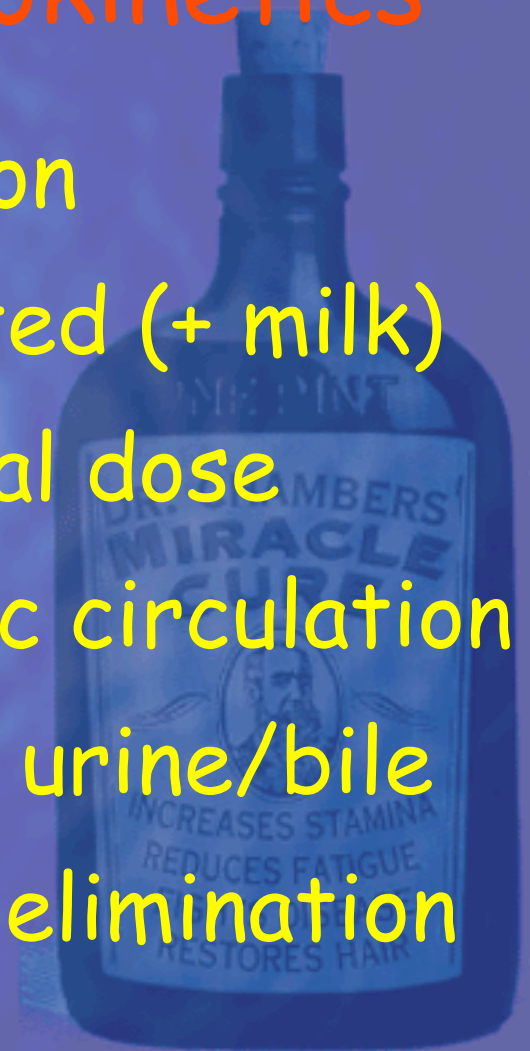
Amphoteric- improves distribution

Lipid soluble - well distributed (+ milk)

Bioavailability - about 50% of oral dose

Liver metabolism & enterohepatic circulation

- tetracycline, oxytetracycline urine/bile
- Doxycycline - bile and faecal elimination



ANTIMICROBIALS

Tetracyclines

Chelated by divalent cations (Ca^{+2})

Penicillins and tetracyclines are antagonistic!!!
(except uterine boluses)

Intramuscular - irritating, painful
pyrrolidine (PVP) causes less injury
pain at IM site \$\$



ANTIMICROBIALS

Tetracyclines - toxicity

GIT- fatal enterocolitis/horse

- Diarrhoea, superinfections
- Pseudomembraneous colitis

Vitamin B deficiency

Yellow teeth and bones (antianabolic)

Contraindicated in pregnant animals



ANTIMICROBIALS

Tetracyclines - toxicity

Bitter - salivation

Cardiovascular collapse (IV)

Drug fever, rashes, photosensitivity

"Fanconi-like" syndrome (out of date)

Inhibit hepatic metabolism

Nephrotoxicity with large overdose



ANTIMICROBIALS

Tetracyclines - Spectrum of Activity

Broad spectrum antibiotics

Gram + and Gram -

Mycoplasma, Rickettsia

Chlamydia, protozoa



Tetracyclines

Gram Positive Bacteria

Staphylococcus, Strep, Clostridium

Listeria monocytogenes,

Gram Negative Bacteria

Some efficacy – especially doxycycline e.g. Bordetella, Brucella, Pasteurella, Shigella

**Actinobacillus ligniersi,
Moraxella**

Anaerobes

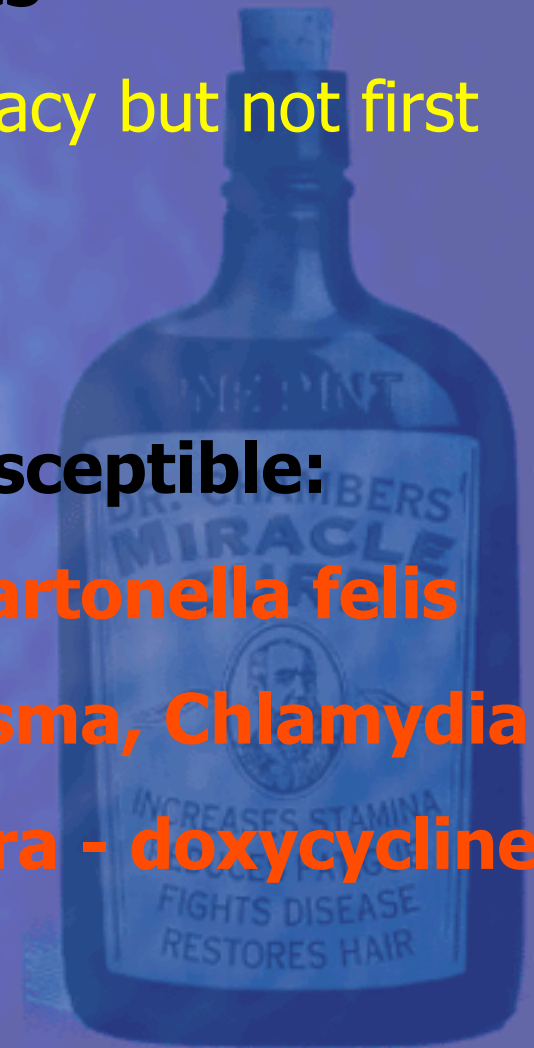
Some efficacy but not first choice

Other susceptible:

Haemobartonella felis

Mycoplasma, Chlamydia

Leptospira - doxycycline



ANTIMICROBIALS

TETRACYCLINES - USES

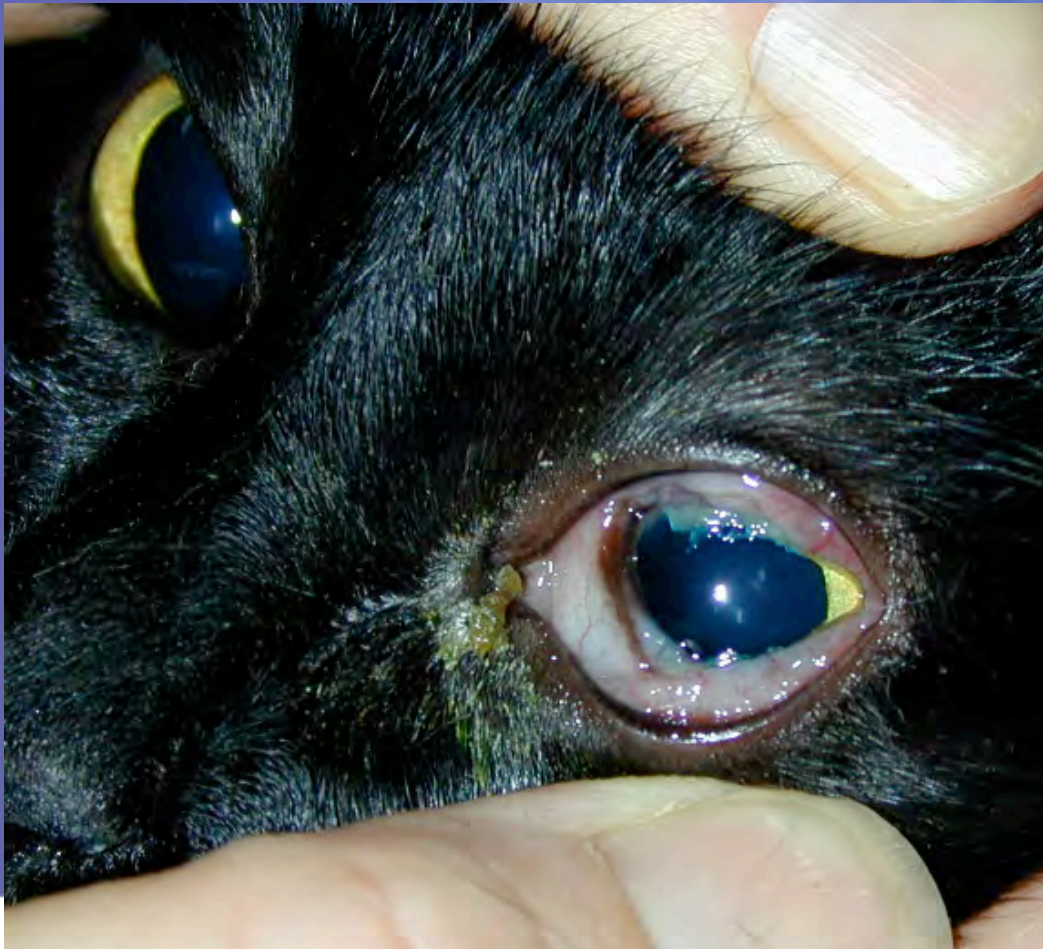
- Broad spectrum in activity but resistance limits use
- Pneumonia
- Uterine boluses
- footrot
- leptospirosis (doxycycline)
- black leg



ANTIMICROBIALS

TETRACYCLINES - USES

- chlamydia (*Chlamydophila felis* in cats)



CAUTION S4

SUPPLY WITHOUT PRESCRIPTION ILLEGAL
KEEP OUT OF REACH OF CHILDREN
FOR ANIMAL TREATMENT ONLY

VibraVet 100 Tablets for large dogs

Doxycycline (as monohydrate) 100mg/tablet

Antibiotic

For the treatment of infections caused by or associated with
doxycycline-susceptible organisms in large dogs.

150 Tablets

pfizer

NDC 0009-0571-06

15 mL

Panmycin Aquadrops®

Liquid

tetracycline liquid

100 mg per mL

For Use in Animals Only

Caution: Federal (USA) law restricts
this drug to use by or on the order of a
licensed veterinarian.



Pharmacia & Upjohn



ANTIMICROBIALS

Chloramphenicol & Florfenicol

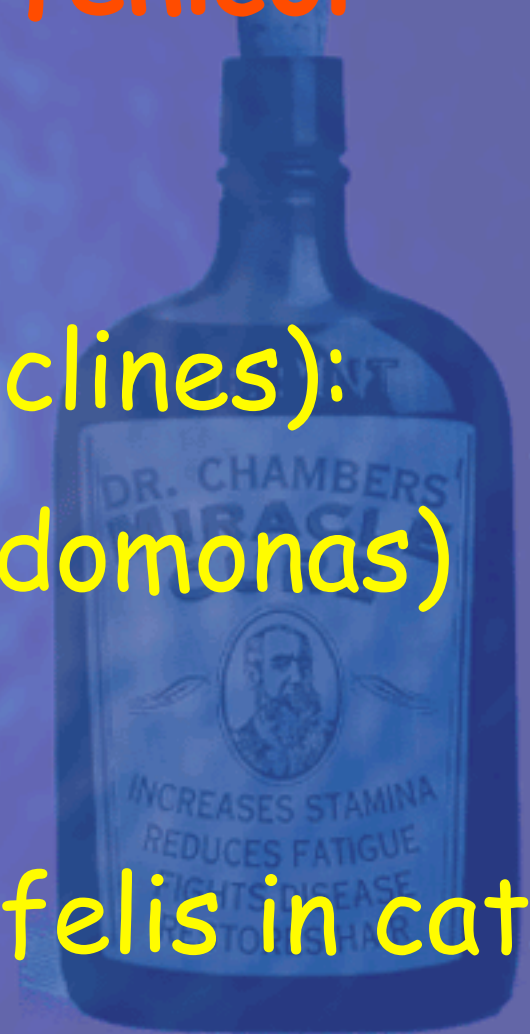
Bacteriostatic

Activity (similar to tetracyclines):

Gram + / gram - (not *Pseudomonas*)

Rickettsia

Chlamydia (not DoC for *C felis* in cat)



ANTIMICROBIALS

Chloramphenicol - Pharmacokinetics

Highly lipid soluble (penetrates eye)

Bioavailability 100%

Excreted primarily in the urine

Accumulation in cat plasma

due to poor ability to glucuronidate



ANTIMICROBIALS

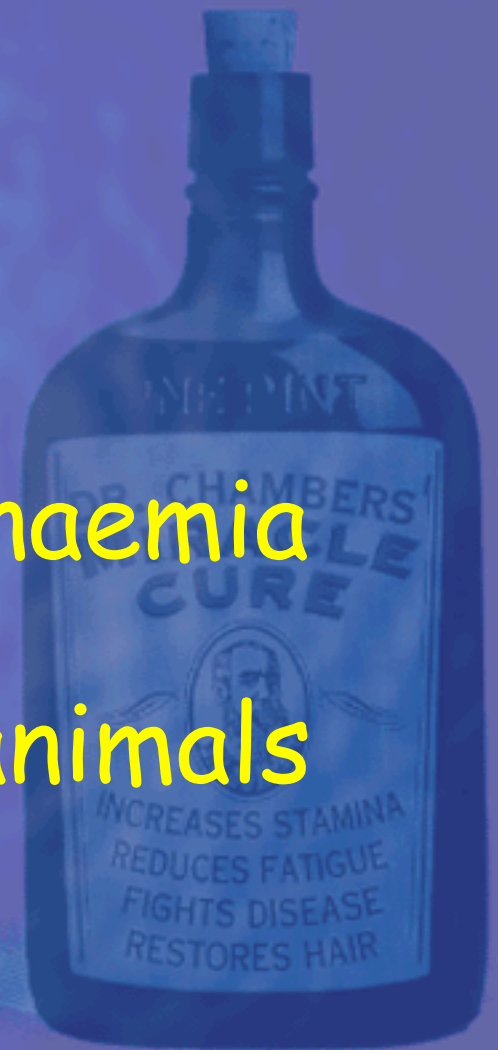
Chloramphenicol

Toxicity

Associated with aplastic anaemia

Banned in food producing animals

Warn owners if dispensing



ANTIMICROBIALS

Chloramphenicol

USES

Topical eye treatment for chlamydia

Good penetration to the eye & CNS



ANTIMICROBIALS

Florfenicol

Adverse effects - associated with testicular atrophy in bulls

USES:

Respiratory diseases of cattle

Pink eye

Foot rot



ANTIMICROBIALS

Macrolides

Bacterostatic

Inhibit Protein Synthesis



ANTIMICROBIALS

MACROLIDES

♦ erythromycin

♦ azithromycin

♦ tylosin



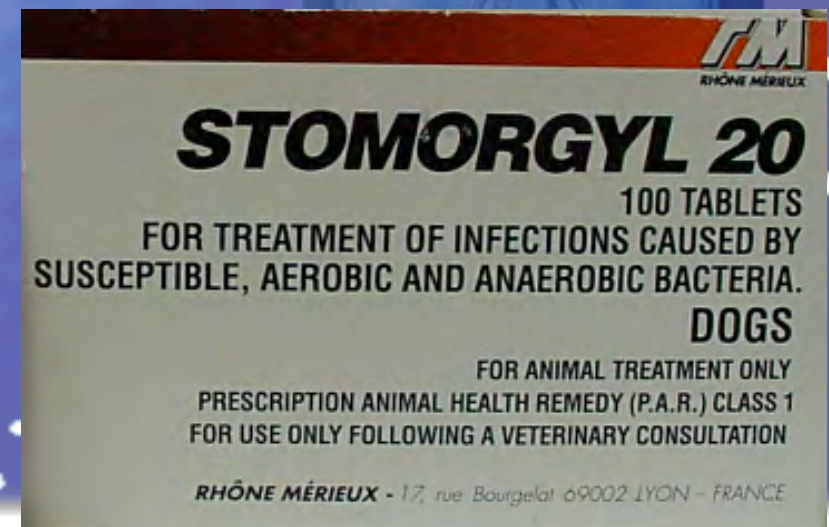
ANTIMICROBIALS

MACROLIDES

♦ tilmicosin*

♦ *toxic to humans

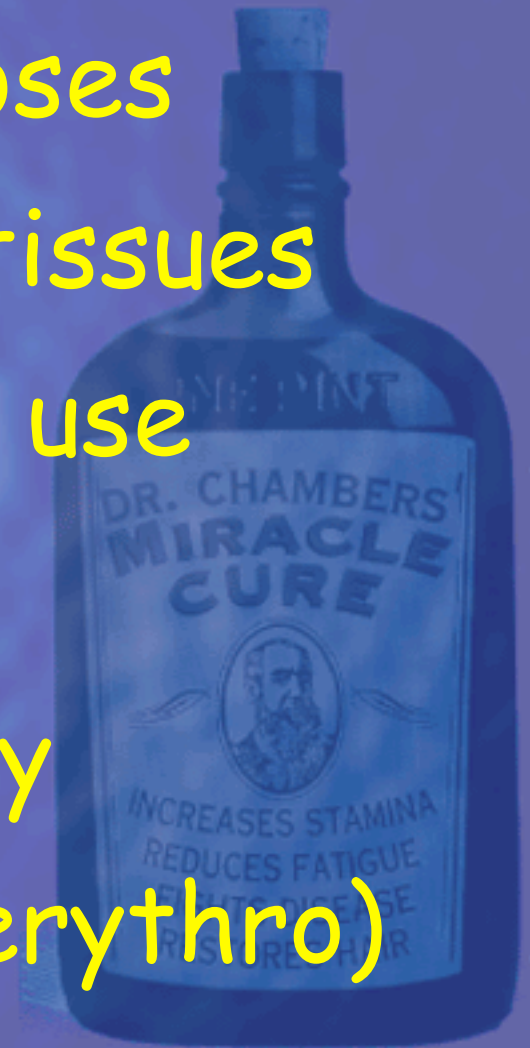
♦ spiramycin



ANTIMICROBIALS

MACROLIDES

- ◆ Bacteriostatic at usual doses
- ◆ Distributes well to most tissues
- ◆ Food interferes with oral use
- ◆ Liver metabolism
- ◆ Biliary excretion - primary
- ◆ Increased GIT motility (erythro)



ANTIMICROBIALS

MACROLIDES - Toxicity

- ◆ Muscle paralysis with anaesthetics
- ◆ FATAL DIARRHOEA!!
 - ◆ Horses and small mammals
- ◆ Cardiac effects
 - ◆ Horses, pig and primates
- ◆ IM injections are painful



ANTIMICROBIALS

Macrolides and Lincosamides

Narrow spectrum Gram +

BUT ALSO:

Pasteurella

Bacteroides

Mycoplasma

Rickettsia



ANTIMICROBIALS

MACROLIDES - USES

- ◆ Small animal:
 - ◆ Campylobacter infections
 - ◆ Staphylococcus alternative
 - ◆ Mycoplasma pneumonia
- ◆ Tend to cause GI upset - erythromycin



ANTIMICROBIALS

MACROLIDES - USES

- ◆ Foals - Rhodococcus infections
- ◆ Large animal:
 - ◆ Pneumonia
 - ◆ Footrot
 - ◆ Mastitis
- ◆ Where bacteria are resistant to other antibiotics



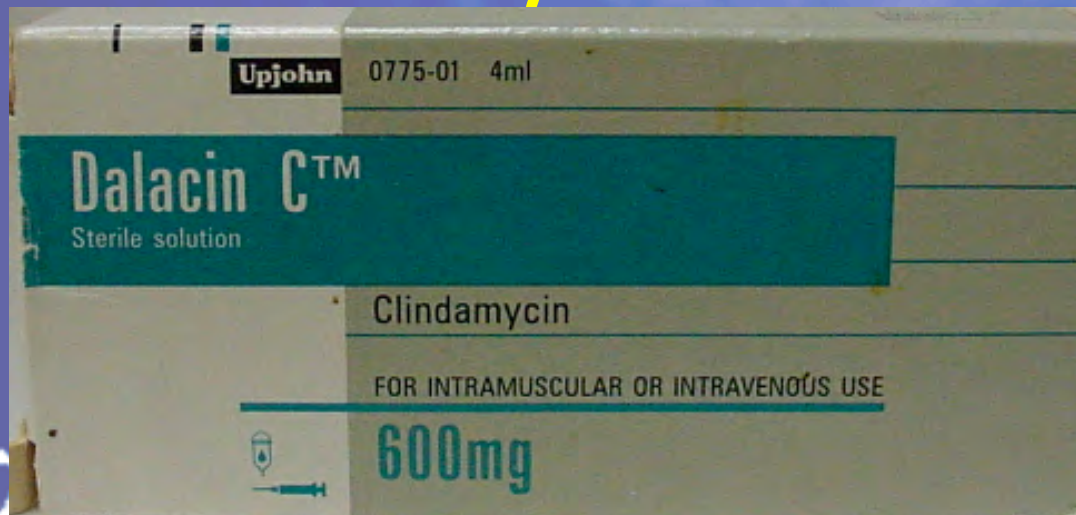
ANTIMICROBIALS

LINCOSAMIDES

Bacterostatic

◆ Clindamycin

◆ Lincomycin



ANTIMICROBIALS

Lincosamides

Toxicity

Reactions at injection sites

GIT upset (do not use in horses or small mammals)



ANTIMICROBIALS

Lincosamides

Pharmacokinetics:

Basic drugs

Poor bioavailability (PO)

Good distribution

Enterohepatic circulation



ANTIMICROBIALS

LINCOSAMIDES

- ◆ Biotransformed by liver
- ◆ Half life is increased by liver and/or kidney disease



ANTIMICROBIALS

LINCOSAMIDES

- ◆ Excellent penetration into abscesses
- ◆ Upper respiratory tract infections
- ◆ Osteomyelitis
- ◆ Deep pyodermas



ANTIMICROBIALS

Macrolides and Lincosamides

USES:

Pyodermas

Pasteurellosis

Respiratory infections in pigs

Osteomyelitis

Clindamycin - toxoplasmosis



ANTIMICROBIALS

Tetracyclines, Chloramphenicol,
Macrolides and Lincosamides

SUMMARY

Spectrum of Activity

Adverse reactions/toxicity

Uses



