# Interpretative criteria for florfenicol susceptibility in *Escherichia coli* of animal origin

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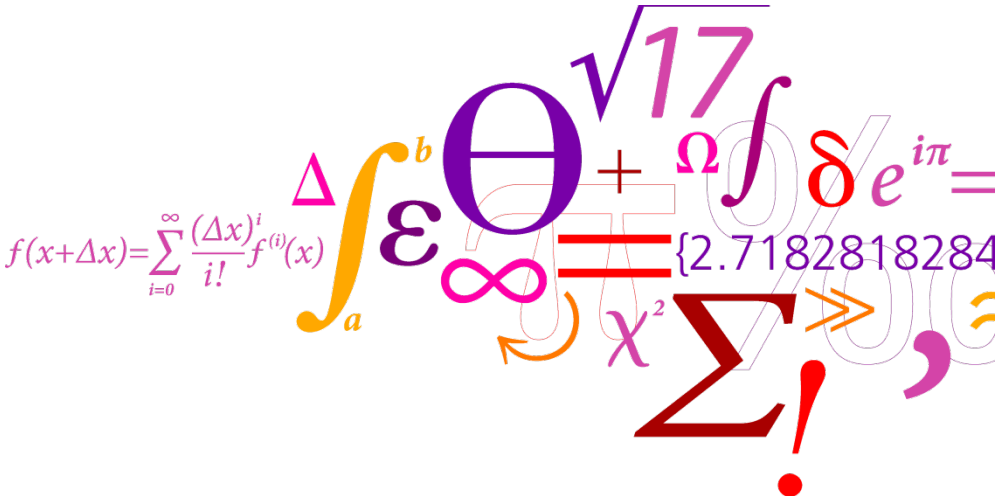
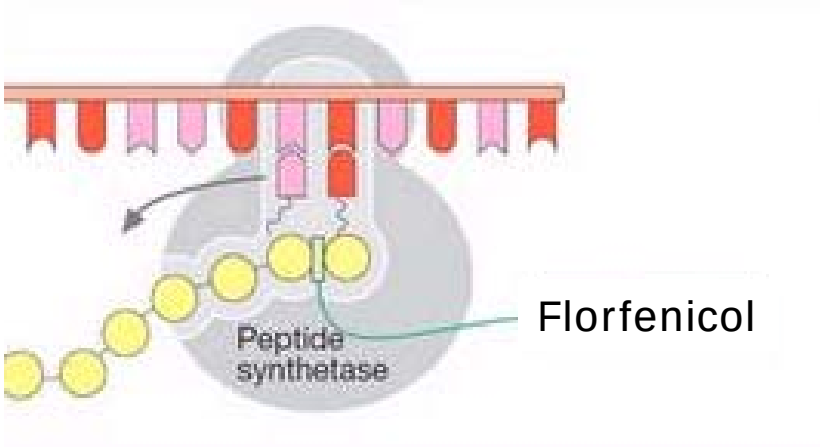


DTU Food
National Food Institute

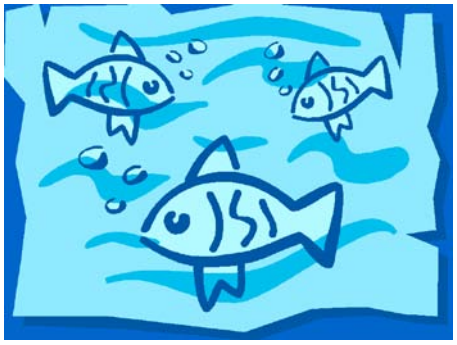
# Florfenicol

- Fluorinated chloramphenicol derivative, less toxic than the parent compound

- Bacteriostatic; it acts by inhibiting bacterial protein biosynthesis (through reversible binding at the 50S ribosomal subunit)



# Florfenicol



*Edwardsiella ictaluri*

*Aeromonas salmonicida*

*Flavobacterium psychrophilum*

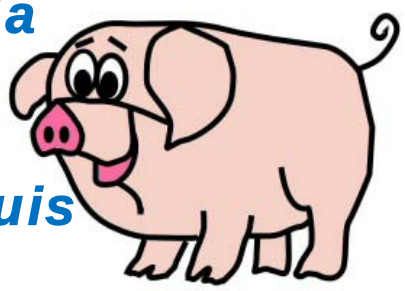
*Actinobacillus pleuropneumoniae*

*Bordetella bronchiseptica*

*Pasteurella multocida*

*Streptococcus suis*

*Salmonella cholerasuis*



***E. coli***

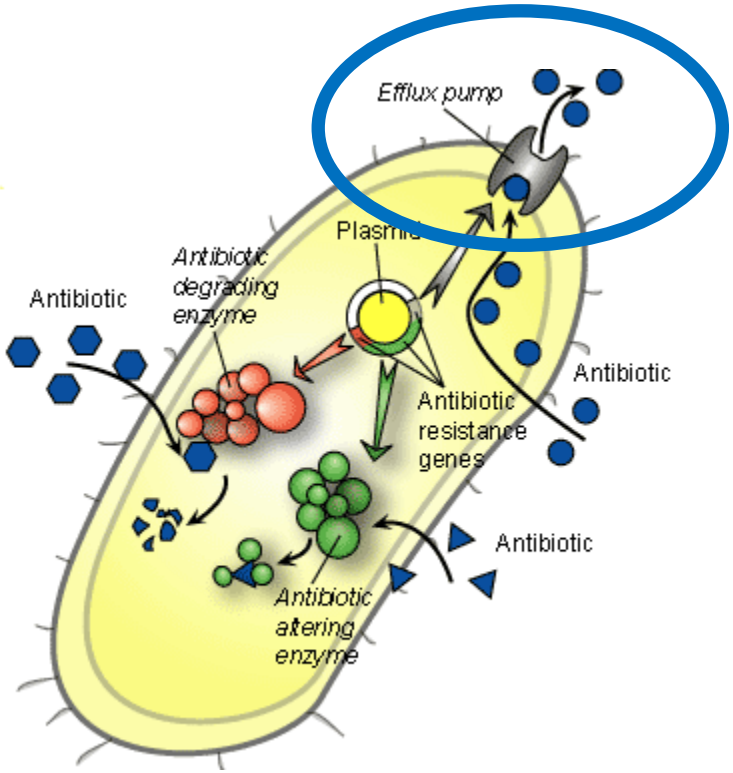
*Mannheimia haemolytica*

*Pasteurella multocida*

*Histophilus somni*

***E. coli***

# Mechanisms of florfenicol resistance in *E. coli*




- Specific exporters coded by:
  - –*floR*
  - –*cmlA*-like?
- Multidrug transporters:
  - –AcrAB-TolC
- Located on chromosome and/or <u>mobile genetic elements</u>

**FEMS Microbiology Reviews (2004) 28:519-542**

# Correlation genotype-phenotype

- ***floR*:**
  - **MIC 32 mg/L to > 256 mg/L**

JMM (2010) 59:467-471 (cattle)

AAC (2004) 48:4047-4049 (cattle)

JAC (2004) 53:58-64 (pigs)

AAC (2000) 44:421-424 (chickens)

  - **MIC 16 mg/L to > 256 mg/L**

JCM (2000) 38:4593-4598 (cattle)

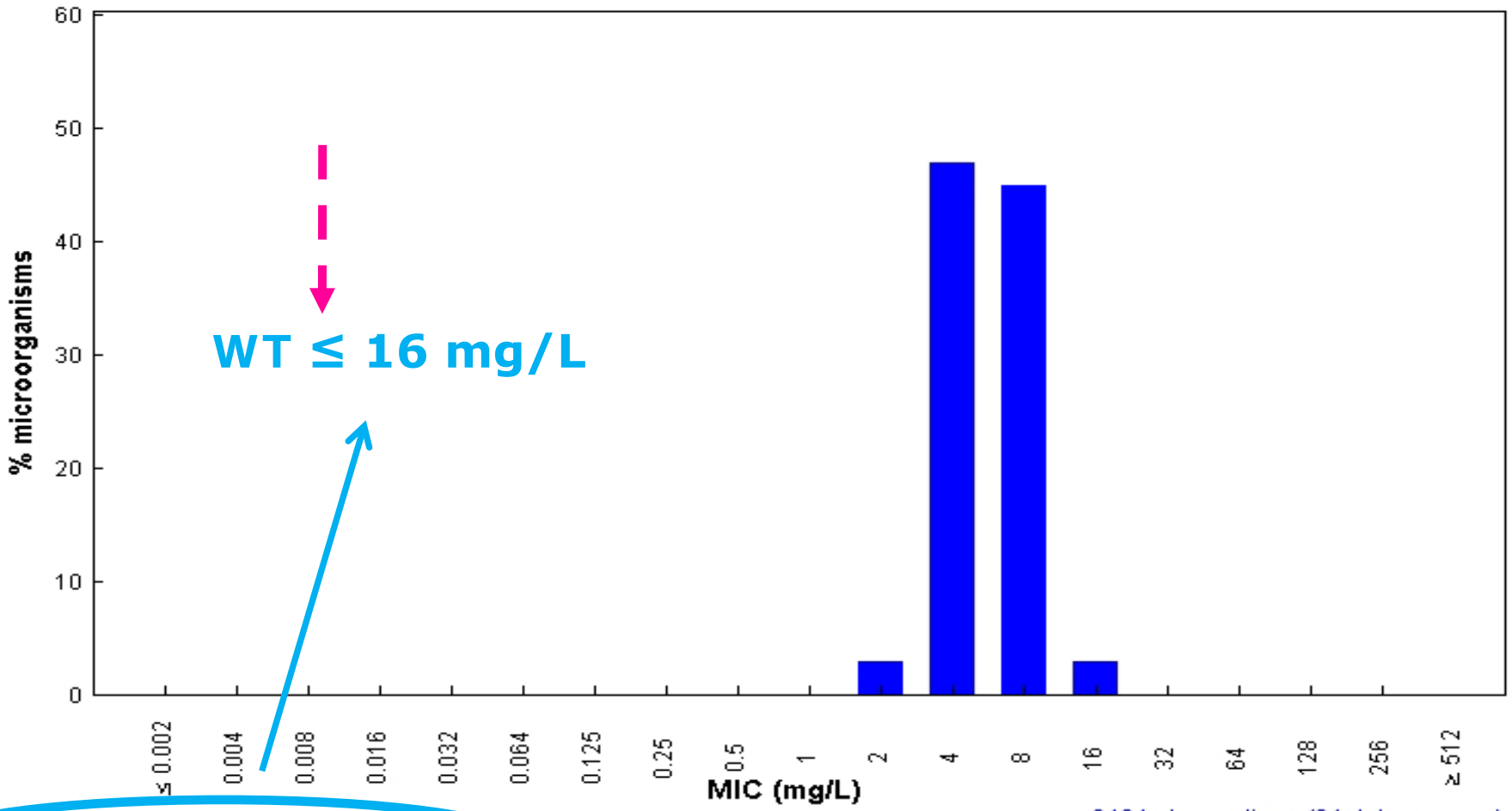
- *cmlA*-like:
  - MIC ≤ 8 mg/L to 64 mg/L
- AcrAB-TolC:
  - MIC 4 mg/L
  - If overproduced → MIC 32 mg/L

# EUCAST

**Florfenicol / Escherichia coli**

**EUCAST MIC Distribution - Reference Database 2011-03-18**

MIC distributions include collated data from multiple sources, geographical areas and time periods and can never be used to infer rates of resistance




MIC

Epidemiological cut-off: WT ≤ 16 mg/L

9464 observations (34 data sources)

Clinical breakpoints: S ≤ - mg/L, R > - mg/L

European Union Reference Laboratory Antimicrobial Resistance

# Thank you for your attention!