

Washington State University, Mealey KL., *Compendium*, January 2002; 24 (1): 10-22.

## Clinically Significant Veterinary Drug Interactions

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Compiled by Katie Barnes, March 2002

Incidence of drug interactions in animals is *not* known, but it is believed to be less than humans due to:

- Pets receiving fewer drugs (especially meds that are associated with fewer severe DIs) than humans,
- The DIs are simply *not* recognized.

<b>Cytochrome P450 Substrates Commonly Used in Small Animals</b>	
• Benzodiazepines	• Phenothiazines
• Cyclosporine	• Theophylline
• Digoxin	• Tricyclic Antidepressants
• Omeprazole	• Vincristine

<b>Object Drug</b>	<b>Precipitant Drug</b>	<b>Mechanism</b>
• B antagonists (atenolol, etc.)	Phenobarbital	Increased metabolism of B ant
• Cyclosporine	Ketoconazole	Decreased met of cyclosporine
• Diazepam	Cimetidine	Decreased met of diazepam
• Digoxin	Ketoconazole	Decreased met of dig
• Doxycycline	Phenobarbital	Increased met of doxy
• Fluoroquinolones	Sucralfate, PO <sub>4</sub> binders	Decreased po abs of quinolones
• Keto/Itraconazole	Omeprazole, H <sub>2</sub> -Antags	Decreased po abs of -azoles
• Methotrexate	NSAIDs	Displacement of MTX
• Theophylline	Cimetidine	Decreased met of theophylline
	Fluoroquinolones	Decreased met of theophylline
	Phenobarbital	Increased met of theophylline
• TCAs	Ketoconazole	Decreased met of TCAs

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### **P450 Inducers:**

- *Ex: Phenobarbital*- can **induce** its **own** metabolism, requiring increase in dose after several weeks; varying increases clearance of **doxycycline, chloramphenicol, theophylline, B-Antagonists**.
- Increase drug clearance, decreasing serum levels.
- **Slow**- Requires at least several days of treatment since requires enzyme production.

### **P450 Inhibitors:**

- *Ex: Cimetidine, chloramphenicol*.
- Decrease drug clearance, increasing serum levels.
- **Immediate** effects.

### **Prodrugs:**

- *Ex: Cyclophosphamide, azathioprine, enalapril*, etc.
- Concurrent use with P450 **inducers** may increase active drug concentrations and toxicity.