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Ayman M. Noreddin

Editor-in-Chief of Journal of Pharmaceutical Care & Health Systems

Research Interests

- Pharmacoklinetic/Pharmacodynamic modeling of anti-infective and anti-cancer therapy
- Clinical simulation and Monte Carlo analysis
- Bacterial resistance in biofilm studies
- Cancer epigenetic studies
- Minority health care studies

Recent Publications

Ahmed GF, Elkhatib WF, and Noreddin AM. Inhibition of adhesion and invasion of Pseudomonas aeruginosa PAO1 to A549 lung epithelial cells by some natural extracts. Journal of Infection and Public Health. (In press)

Zhanel GG, Yachison C, Nichol K, Adam H, Noreddin AM, Hoban DJ, Karlowsky JA Assessment of the activity of ceftaroline against clinical isolates of penicillin-intermediate and penicillin-resistant Streptococcus pneumoniae with elevated MICs of ceftaroline using an in vitro pharmacodynamic model. J Antimicrob Chemother.67(7):1706-11, 2012

Noreddin AM, Elkhatib WF, Cunnion KG and Ghanel GG. Cumulative clinical experience from over a decade of use of levofloxacin in community acquired pneumonia; critical appraisal and role in therapy", Drug, Healthcare and Patient Safety.3:59–68,2011.

Salem A., Noreddin E., Zhanel G, Noreddin A. Comparative pharmacodynamics of ceftobiprole, daptomycin, linezolid, telavancin, tigecycline, and vancomycin in the treatment of methicillin resistant staphylococcus aureus: a monte carlo simulation Analysis. J Vaccines Vaccin. 2:5,2011

Zhanel GG, Rossnagel E, Nichol K, Cox L, Karlowsky JA, Zelenitsky S, Noreddin AM, Hoban DJ. Ceftaroline pharmacodynamic activity versus community-associated and healthcare-associated methicillin-resistant Staphylococcus aureus, heteroresistant vancomycin-intermediate S. aureus, vancomycin-intermediate S. aureus and vancomycinresistant S. aureus using an in vitro model.J Antimicrob Chemother.66(6):1301-5,2011.

Pharmacokinetics

Pharmacokinetics, sometimes described as what the body does to a drug, refers to the movement of drug into, through, and out of the body.—the time course of its absorption

PHARMACOKINETICS

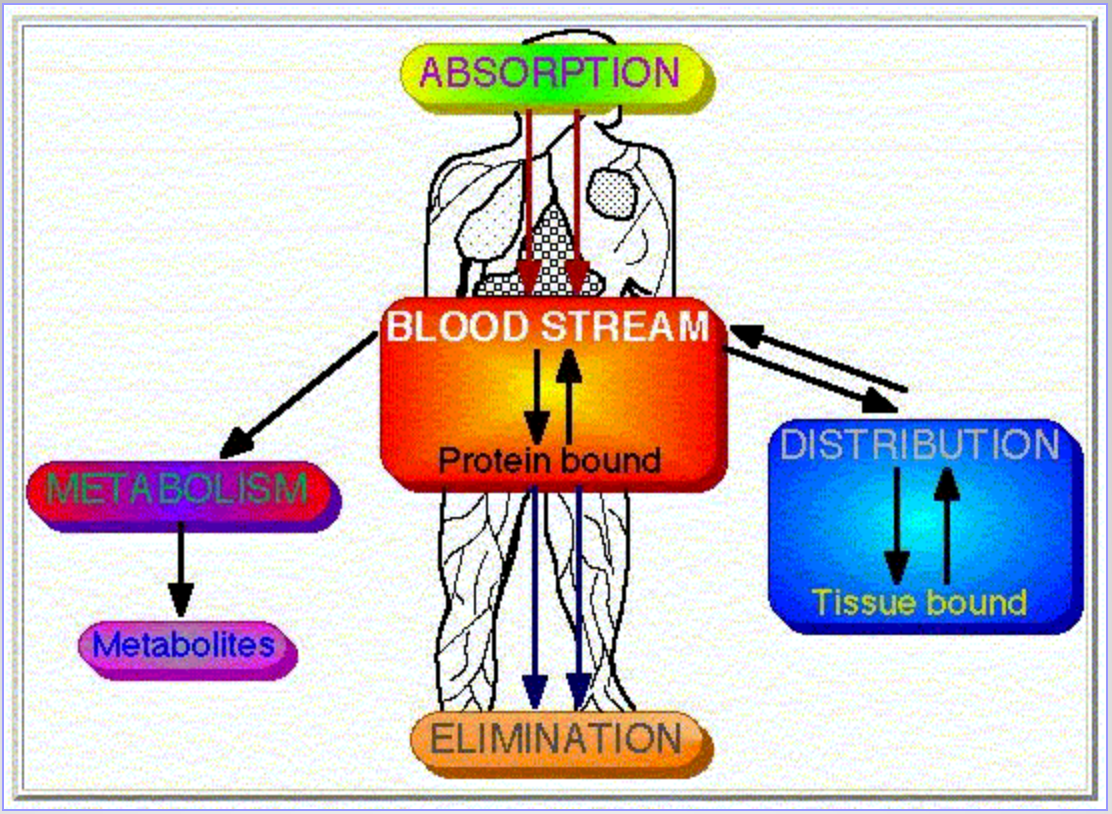
“What the body does to the drug”

Pharmacokinetics (PK)

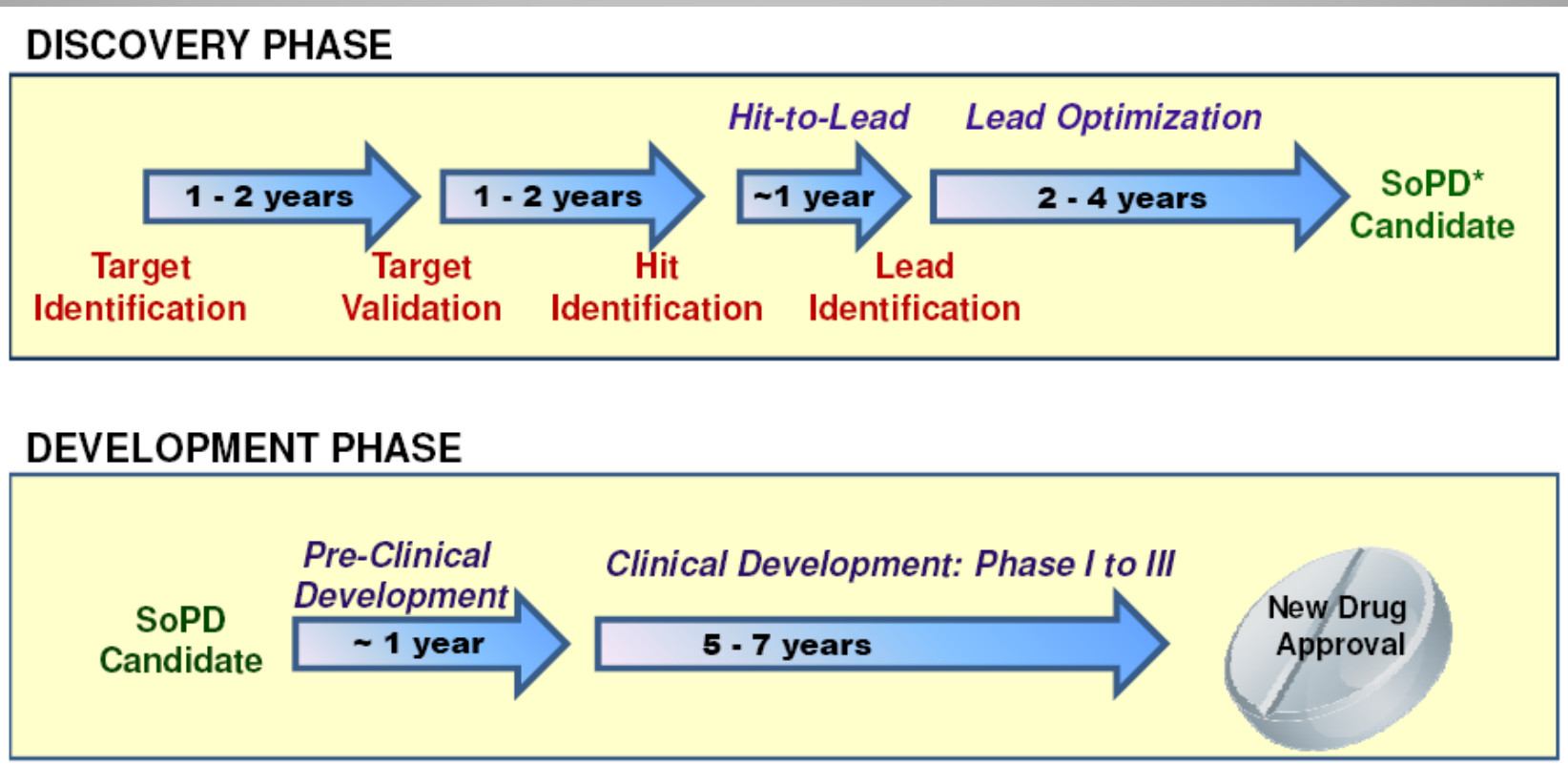
- The study of the ***disposition*** of a drug
- The disposition of a drug includes the processes of ***ADME***
  - **A**bsorption
  - **D**istribution
  - **M**etabolism
  - **E**xcretion

  } Elimination
  - **T**oxicity

ADMET


ABSORPTION
BLOOD STREAM
Protein bound
METABOLISM
Metabolites
DISTRIBUTION
Tissue bound
ELIMINATION

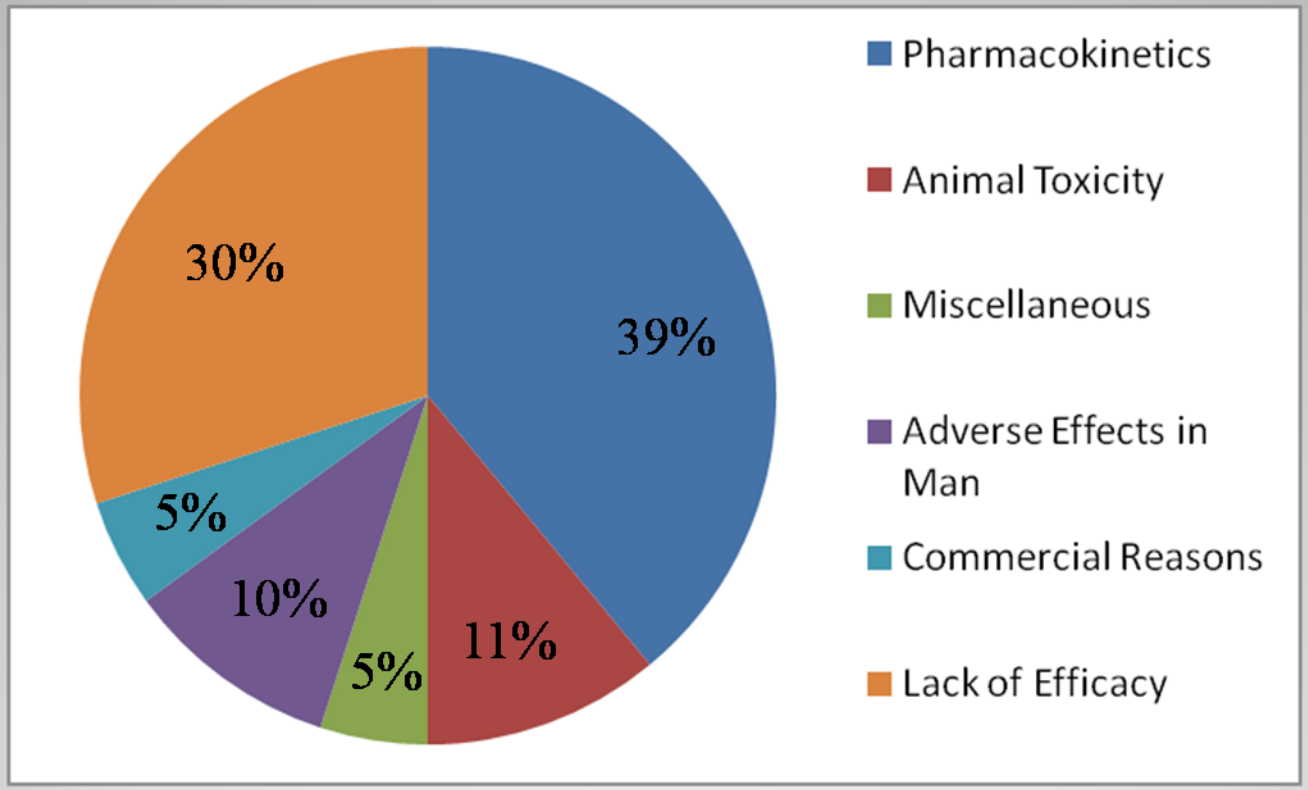
DRUG R&D



Drug discovery and development

- **10-15 years to develop a new medicine**
- **Likelihood of success: 10%**
- **Cost $800 million – 1 billion dollars (US)**

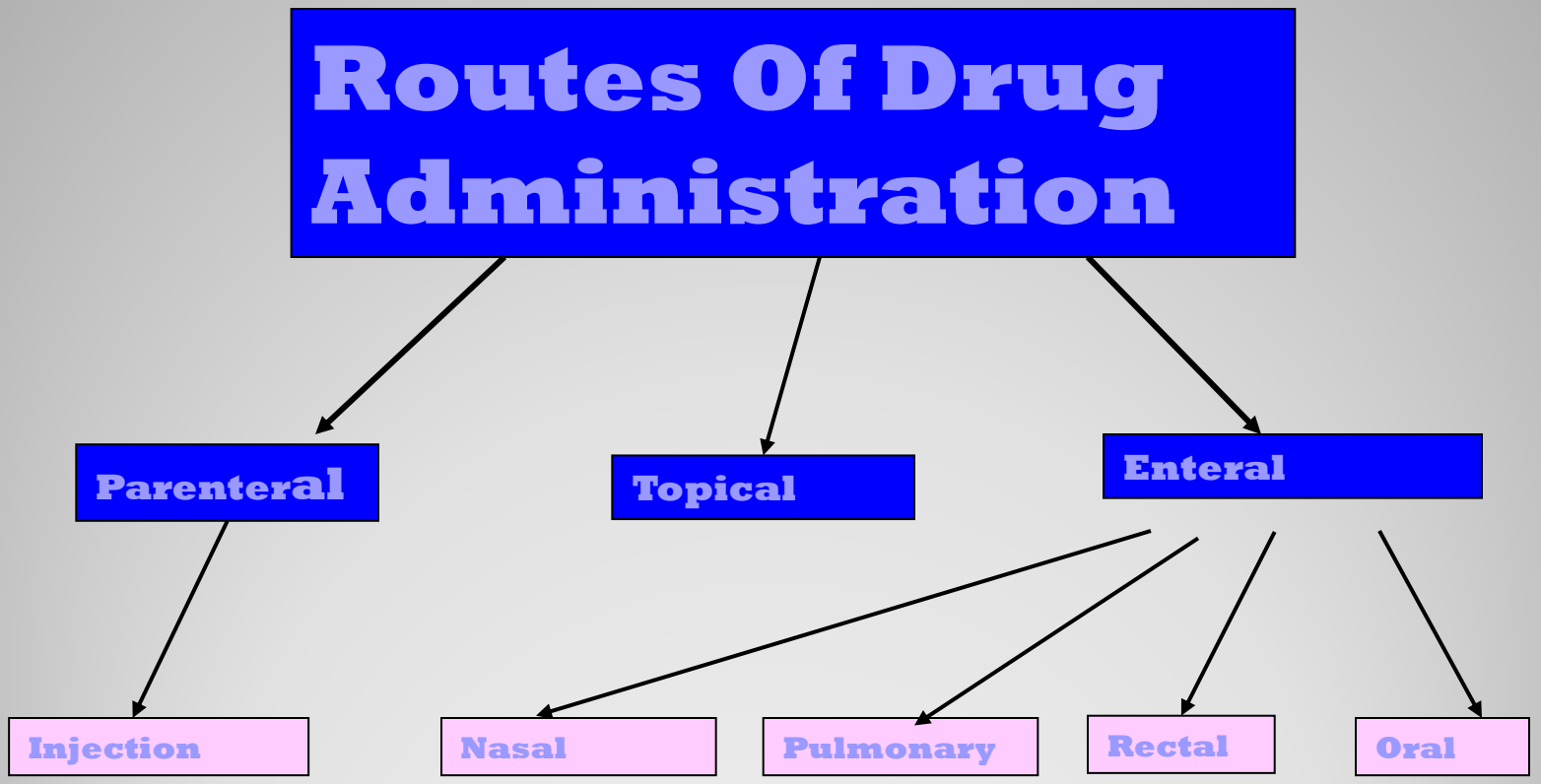
Why drugs fail



Importance of PK studies

- Patients may suffer:
  - Toxic drugs may accumulate
  - Useful drugs may have no benefit because doses are too small to establish therapy
  - A drug can be rapidly metabolized.

Routes Of Administration



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Approved By

E-signature: Ayman Noreddin