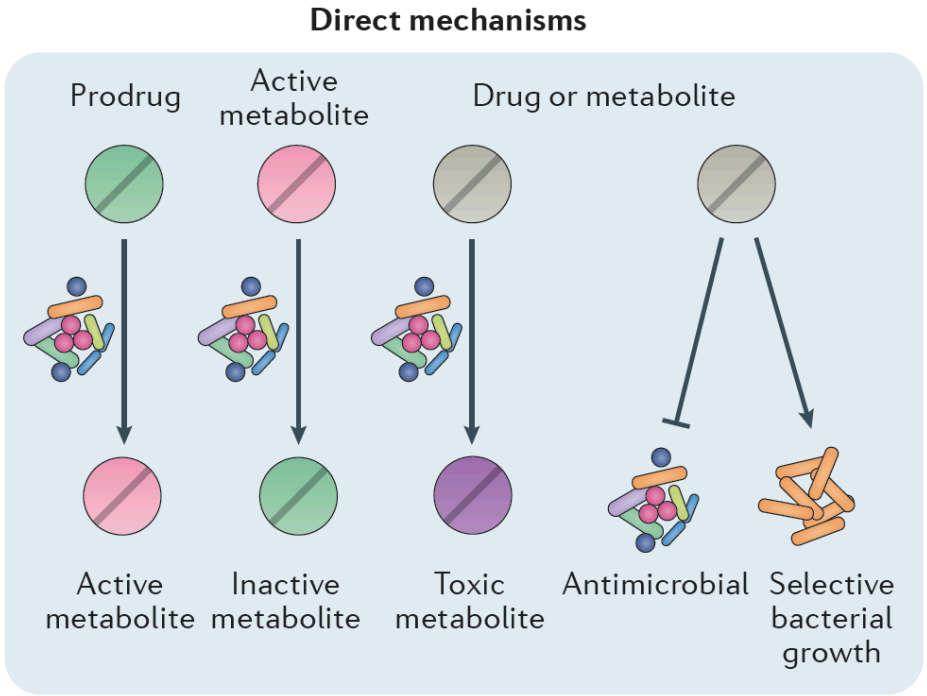
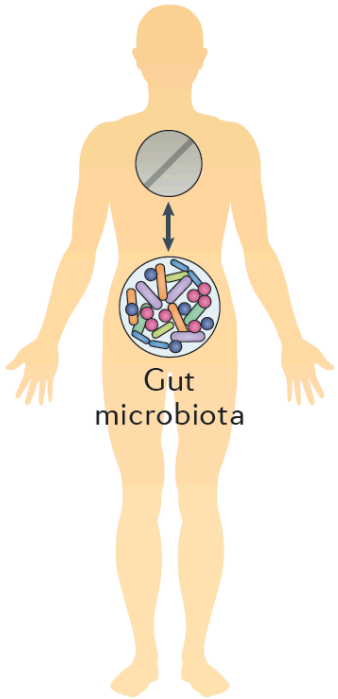
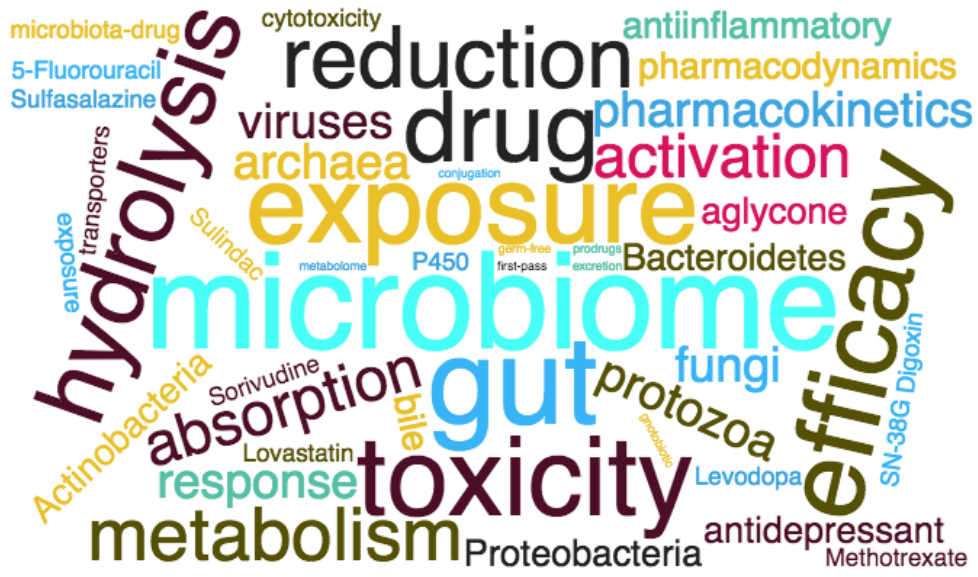
Catching a Glimpse of Gut Microbiome-Drug Interactions: What Clinical Pharmacologists Need to Know

Co-Chairs: Sook Wah Yee, PhD & Eugene Chen, PhD







ASCPT American Society for Clinical Pharmacology & Therapeutics

The microbial pharmacists within us: a metagenomic view of xenobiotic metabolism

Peter Spanogiannopoulos, Elizabeth N. Bess, Rachel N. Carmody and Peter J. Turnbaugh

Is It Time for a Metagenomic Basis of Therapeutics?

Henry J. Haiser and Peter J. Turnbaugh*

Microbiota–drug interactions: Impact on metabolism and efficacy of therapeutics

Ellen M. Wilkinson[a,b,1], Zehra Esra Ilhan[a], Melissa M. Herbst-Kralovetz[a,c,*]

How to Determine the Role of the Microbiome in Drug Disposition

Jordan E. Bisanz, Peter Spanogiannopoulos, Lindsey M. Pieper, Annamarie E. Bustion, and Peter J. Turnbaugh

Drug pharmacomicrobiomics and toxicomicrobiomics: from scattered reports to systematic studies of drug–microbiome interactions

Ramy K. Aziz, Shaimaa M. Hegazy, Reem Yasser, Mariam R. Rizkallah & Marwa T. ElRakaiby

Siri, What Should I Eat?

Reiner Jumpertz von Schwartzenberg[1,2] and Peter J. Turnbaugh[1,*]

Objectives

- Describe the mechanisms by which gut microbes may alter drug absorption and elimination.

- Give at least two examples of bacteroides responsible for modulating drug efficacy and toxicity and two examples of drugs that will alter gut microbiome.

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Take Home Messages

Take Home Messages

- Gut microbiome can activate or inactivate drug. This can be due to variability in composition of the gut microbiome.
  - E.g. irinotecan

- Excipients can inhibit BCRP and OATP2B1 and that can affect drug absorption/bioavailability.
- Gut microbiome can reduce azo compound that can mitigate the inhibitory effect.

- There is no known bioequivalence (BE) study failure that are attributed to gut microbiome interactions.
- Drug developers need to understand gut microbiome interaction to ensure their products pass BE study.