
The following molecules are all drugs approved in 2015 and their synthetic routes can be found in *J. Med. Chem. 2017, 60*, 6480–6515. Instead of looking up the answers, however, propose your own routes to the four molecules shown below. I have given a few of the fragments used in the process route (but not necessarily all of them); feel free to use these fragments or make up your own (as long as they’re process-friendly!). Additionally, mechanisms and names of reactions are always welcome.

**Ozenoxacin** is a quinolone antibiotic approved for the treatment of skin infections. It is potent against a number of different classes of bacteria; its mechanism of action involves binding to DNA gyrase or DNA topoisomerase IV, triggering bacterial apoptosis.

**Sacubitril** is a prodrug marketed for the treatment of chronic heart failure. It is a first-in-class dual angiotensin receptor blocker and neprilysin inhibitor. Bonus question: what is the active metabolite that actually inhibits neprilysin, thus preventing endogenous natriuretic peptide degradation?
Selexipag is a non-prostanoid prostaglandin I2 (PGI-2) receptor agonist marketed for the oral treatment of pulmonary arterial hypertension. It is also a prodrug and the active metabolite is a carboxylic acid instead of the sulfonamide. Bonus question: why might the N-methylsulfonamide group be chosen over other more conventional hydrolysable carboxylic acid equivalents?

Rolapitant Hydrochloride is approved for the prevention of delayed chemotherapy-induced nausea and vomiting in combination with other antiemetic agents. It is a highly selective NK-1 receptor antagonist with >1000-fold selectivity for NK-1 compared to other human NK receptors and has shown remarkable performance relative to other antiemetics.