New CPIC Guideline: CYP2C9 and Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

The CPIC Guideline for *CYP2C9* and Nonsteroidal Anti-inflammatory Drugs (NSAIDs) is now published in *Clinical Pharmacology and Therapeutics*. The accepted article can be accessed on the PharmGKB pages for a number of NSAIDs drugs, *CYP2C9*, and on the CPIC website.

Nonsteroidal Anti-inflammatory Drugs (NSAIDs) are among the most commonly prescribed drugs to treat pain and inflammation. The main therapeutic effect of NSAIDs occurs via inhibition of prostaglandin biosynthesis mediated by the cyclooxygenases (COXs). Most NSAIDs are reversible inhibitors of both the COX-1 and COX-2 isoforms. Celecoxib, meloxicam, and diclofenac are selective inhibitors of COX-2. Hepatic metabolism by cytochrome P450 isoforms CYP2C9, 1A2, and 3A4, and renal excretion are the principal routes of clearance of the majority of NSAIDs. Genetic variants in *CYP2C9* (eg. *CYP2C9*2* and **3*), along with other genetics and clinical factors, have been shown to affect systemic plasma concentrations of NSAIDs and potentially safety. Patients with *CYP2C9* decreased or no function alleles may have elevated exposure and at increased risk for adverse effects.

The CPIC guideline summarizes evidence from the literature and provides therapeutic recommendations for a number of NSAIDs (celecoxib, flurbiprofen, ibuprofen, lornoxicam, meloxicam, piroxicam and tenoxicam) based on *CYP2C9* genotype. For therapeutic recommendations and further details, please refer to the CPIC Guideline for *CYP2C9* and Nonsteroidal Anti-inflammatory Drugs (NSAIDs).