

Questions to be addressed using proof-of-concept software

2. Clinical outcome pathways for drug-disease pairs

We do not understand how all approved drugs work, but for a majority of them we can construct a clinical outcome pathway that explains the molecular pathophysiology of their action. A clinical outcome pathway can be thought of as the efficacy equivalent of an adverse outcome pathway, it explains how a molecular initiating event precipitates a series of key events which manifest as a clinical outcome; it begins with 1) a molecular initiating event physically interacting with 2) a biological target, which affects 3) a biological pathway or series of pathways that are relevant to 4) a particular cell type or tissue that manifest as 5) a clinical phenotype or endpoint which together reflect 6) a disease or condition.

For each of the drug-disease pairs listed below, construct a clinical outcome pathway that best explains how the drug effects its action. Please also provide a confidence for each clinical outcome pathway assertion. Please report “clinical outcome pathway is not understood” in cases where the pathophysiology is not known in the literature and also provide a confidence for this assertion. For each element of a clinical outcome pathway, resolve the relevant entity to an existing dictionary ID/ontology term.

[List of drug/disease pairs]

Bonus points: can you predict which drugs used off-label might help to treat diseases without any marketed products.