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Cytochrome P450 in GtoPdb v.2023.1

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Abstract

The cytochrome P450 enzyme superfamily (CYP), E.C. 1.14.-.-, are haem-containing monooxygenases with a vast range of both endogenous and exogenous substrates. These include sterols, fatty acids, eicosanoids, fat-soluble vitamins, hormones, pesticides and carcinogens as well as drugs. Listed below are the human enzymes, their relationship with rodent CYP enzyme activities is obscure in that the species orthologue may not metabolise the same substrates. Some of the CYP enzymes located in the liver are particularly important for drug metabolism, both hepatic and extrahepatic CYP enzymes also contribute to patho/physiological processes. Genetic variation of CYP isoforms is widespread and likely underlies a proportion of individual variation in drug disposition. The superfamily has the root symbol CYP, followed by a number to indicate the family, a capital letter for the subfamily with a numeral for the individual enzyme. Some CYP are able to metabolise multiple substrates, others are oligo- or mono- specific. CYP also catalyse diverse oxidation and reduction reactions. These include ring hydroxylation, N-oxidation, sulfoxidation, epoxidation, the dealkylation of N-, S- and O- moieties, desulfation, deamination, as well as reduction of azo, nitro and N-oxide groups.

Contents

This is a citation summary for Cytochrome P450 in the Guide to Pharmacology database (GtoPdb). It exists purely as an adjunct to the database to facilitate the recognition of citations to and from the database by citation analyzers. Readers will almost certainly want to visit the relevant sections of the database which are given here under database links.

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Please note that the database version for the citations given in GtoPdb are to the most recent preceding version in which the family or its subfamilies and targets were substantially changed. The links below are to the current version. If you need to consult the cited version, rather than the most recent version, please contact the GtoPdb curators.

Database links

Cytochrome P450
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=242
- CYP1 family
  https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=261
  - Enzymes

CYP1A1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1318
CYP1A2
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1319
CYP1B1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1320

CYP2 family: drug metabolising subset
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Enzymes

CYP2A6
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1321
CYP2A7
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CYP2A13
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1323
CYP2B6
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CYP2C8
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CYP2C18
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CYP2C19
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1328
CYP2D6
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1329
CYP2E1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1330
CYP2F1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1331
CYP2J2
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1332

CYP2 family: physiological enzymes subset
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=1062

Enzymes

CYP2R1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1333
CYP2S1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1334
CYP2U1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1335
CYP2W1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1336

CYP3 family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=263

Enzymes

CYP3A4
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1337
CYP3A5
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CYP3A7
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CYP3A43
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CYP4 family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=264
Enzymes
CYP4A11
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1341
CYP4A22
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1342
CYP4B1
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CYP4F2
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CYP4F11
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CYP4F12
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CYP4V2
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CYP4X1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1351
CYP4Z1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1352
CYP5, CYP7 and CYP8 families
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=265
Enzymes
Thromboxane-A synthase(CYP5A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1353
Cholesterol 7 alpha-hydroxylase(CYP7A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1354
CYP7B1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1355
Prostacyclin synthase(CYP8A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1356
CYP8B1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1357
CYP11, CYP17, CYP19, CYP20 and CYP21 families
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=266
Enzymes
Cholesterol side-chain cleavage enzyme(CYP11A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1358
Steroid 11β-hydroxylase(CYP11B1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1359
Aldosterone synthase(CYP11B2)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1360
CYP17A1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1361
Aromatase(CYP19A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1362
CYP20A1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1363

Steroid 21-hydroxylase(CYP21A2)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1364
CYP24, CYP26 and CYP27 families
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=267
Enzymes
Vitamin D3 24-hydroxylase(CYP24A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1365
CYP26A1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1366
CYP26B1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1367
CYP26C1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1368
Sterol 27-hydroxylase(CYP27A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1369
25-Hydroxyvitamin D 1-alpha-hydroxylase(CYP27B1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1370
CYP27C1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1371
CYP39, CYP46 and CYP51 families
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=268
Enzymes
CYP39A1
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1372
Cholesterol 24-hydroxylase(CYP46A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1373
Lanosterol 14-α-demethylase(CYP51A1)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1374

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