

Eicosanoid turnover in GtoPdb v.2025.1

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Abstract

Eicosanoids are 20-carbon fatty acids, where the usual focus is the polyunsaturated analogue [arachidonic acid](#) and its metabolites. Arachidonic acid is thought primarily to derive from [phospholipase A2](#) action on membrane phosphatidylcholine, and may be re-cycled to form phospholipid through conjugation with [coenzyme A](#) and subsequently glycerol derivatives. Oxidative metabolism of arachidonic acid is conducted through three major enzymatic routes: cyclooxygenases; lipoxygenases and cytochrome P450-like epoxigenases, particularly [CYP2J2](#). Isoprostanes are structural analogues of the prostanoids (hence the nomenclature D-, E-, F-isoprostanes and isothromboxanes), which are produced in the presence of elevated free radicals in a non-enzymatic manner, leading to suggestions for their use as biomarkers of oxidative stress. Molecular targets for their action have yet to be defined.

Contents

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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

Eicosanoid turnover

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=243>

Cyclooxygenase

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=269>

Enzymes

COX-1

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1375>

COX-2

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1376>

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Thromboxane-A synthase(CYP5A1)

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Prostacyclin synthase(CYP8A1)

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mPGES1

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mPGES2

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Lipoxygenases

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12S-LOX

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Leukotriene and lipoxin metabolism

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Enzymes

Leukotriene C4 synthase

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γ -Glutamyltransferase

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Dipeptidase 1

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Dipeptidase 2

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Leukotriene A₄ hydrolase

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1395>

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