

Endocannabinoid turnover in GtoPdb v.2026.1

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Abstract

The principle endocannabinoids are 2-acylglycerol esters, such as [2-arachidonoylglycerol](#) (2-AG), and *N*-acylethanolamines, such as [anandamide](#) (*N*-arachidonylethanolamine, AEA). The glycerol esters and ethanolamides are synthesised and hydrolysed by parallel, independent pathways. Mechanisms for release and re-uptake of endocannabinoids are unclear, although potent and selective inhibitors of facilitated diffusion of endocannabinoids across cell membranes have been developed [32]. [FABP5 \(Q01469\)](#) has been suggested to act as a canonical intracellular endocannabinoid transporter *in vivo* [19]. For the generation of [2-arachidonoylglycerol](#), the key enzyme involved is diacylglycerol lipase (DAGL), whilst several routes for [anandamide](#) synthesis have been described, the best characterized of which involves *N*-acylphosphatidylethanolamine-phospholipase D (NAPE-PLD, [80]). A transacylation enzyme which forms *N*-acylphosphatidylethanolamines has been identified as a cytosolic enzyme, [PLA2G4E \(Q3MJ16\)](#) [71]. *In vitro* experiments indicate that the endocannabinoids are also substrates for oxidative metabolism *via* cyclooxygenase, lipoxygenase and cytochrome P450 enzyme activities [6, 26, 82].

Contents

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Database links

Endocannabinoid turnover

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=943>

N-Acylethanolamine turnover

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=273>

Enzymes

[NAPE-PLD\(*N*-Acylphosphatidylethanolamine-phospholipase D\)](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1398>

[FAAH\(Fatty acid amide hydrolase\)](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1400>

FAAH2(Fatty acid amide hydrolase-2)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1401>
NAAA(N-Acylethanolamine acid amidase)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1402>

2-Acylglycerol ester turnover

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=944>

Enzymes

DAGL α (diacylglycerol lipase α)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1396>

DAGL β (diacylglycerol lipase β)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1397>

MAGL(monoacylglycerol lipase)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1399>

ABHD2($\alpha\beta$ -Hydrolase 2)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3147>

ABHD4(abhydrolase domain containing 4, N-acyl phospholipase B)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3334>

ABHD6($\alpha\beta$ -Hydrolase 6)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=2919>

ABHD12($\alpha\beta$ -Hydrolase 12)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=3070>

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