Triglyceride biosynthesis

D'Eustachio, P., Gillespie, ME., Gopinathrao, G., Jassal, B.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of Creative Commons Attribution 4.0 International (CC BY 4.0) License. For more information see our license.

This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the Reactome Textbook.

27/10/2022
Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references


Reactome database release: 82

This document contains 1 pathway and 7 reactions (see Table of Contents)
**Triglyceride biosynthesis**

**Stable identifier:** R-HSA-75109

**Compartments:** cytosol, endoplasmic reticulum membrane

The overall process of triglyceride (triacylglycerol) biosynthesis consists of four biochemical pathways: fatty acyl-CoA biosynthesis, conversion of fatty acyl-CoA to phosphatidic acid, conversion of phosphatidic acid to diacylglycerol, and conversion of diacylglycerol to triacylglycerol.

**Literature references**


**Editions**

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
<th>Authors/Editors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-02-03</td>
<td>Reviewed</td>
<td>Jassal, B., Gillespie, ME., Gopinathrao, G., D'Eustachio, P.</td>
</tr>
<tr>
<td>2022-08-23</td>
<td>Authored, Edited</td>
<td>Gopinathrao, G.</td>
</tr>
</tbody>
</table>
AGMO cleaves alkylglycerol into fatty aldehyde and glycerol

**Location:** Triglyceride biosynthesis

**Stable identifier:** R-HSA-5696119

**Type:** transition

**Compartments:** endoplasmic reticulum membrane, endoplasmic reticulum lumen

Ether lipids (alkylglycerols, glyceryl ethers) are essential components of brain membranes, protect the eye from cataract, mediate signalling processes and are required for spermatogenesis. Alkylglycerol monooxygenase (AGMO) is a tetrahydrobiopterin-dependent protein and is the only enzyme known to cleave the ether bond of alkylglycerols and lyso-alkylglycerol phospholipids into fatty aldehydes and glycerol derivatives (Watschinger et al. 2010).

**Literature references**


**Editions**

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015-05-27</td>
<td>Authored, Edited</td>
<td>Jassal, B.</td>
</tr>
<tr>
<td>2015-06-26</td>
<td>Reviewed</td>
<td>D'Eustachio, P.</td>
</tr>
</tbody>
</table>
Conversion of Glycerol to Glycerol-3-phosphate

Location: Triglyceride biosynthesis

Stable identifier: R-HSA-75887

Type: transition

Compartments: cytosol