1-Alkenylglycerophosphocholine 0-acyltransferase

1 Nomenclature

EC number
2.3.1.104

Systematic name
acyl-CoA:1-alkenylglycerophosphocholine O-acyltransferase

Recommended name
1-alkenylglycerophosphocholine O-acyltransferase

Synonyms
acyltransferase, alkenylglycerophosphocholine
Additional information (not identical with EC 2.3.1.121)

CAS registry number
102925-32-6

2 Source Organism

<1> Oryctolagus cuniculus (rabbit [1]) [1]
<2> Cavia porcellus (guinea pig [1,2]) [1, 2]
<3> Sus scrofa [1]
<4> Canis familiaris [1]
<5> Mesocricetus auratus (hamster [1]) [1]

3 Reaction and Specificity

Catalyzed reaction
acyl-CoA + 1-alkenylglycerophosphocholine = CoA + 1-alkenyl-2-acylglycerophosphocholine

Reaction type
acyl group transfer

Natural substrates and products
P CoA + 1-alkenyl-2-arachidonoylglycerophosphocholine
\( \text{P CoA} + 1\text{-alkenyl-2-arachidoylglycerophosphocholine} \)

\( \text{S linoleoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1, 2]) [1, 2]

\( \text{P CoA} + 1\text{-alkenyl-2-linoleoylglycerophosphocholine} \)

\( \text{S oleoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-oleoylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1]) [1]

\( \text{S palmitoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-palmitoylglycerophosphocholine} \)

\( \text{S stearoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-stearoylglycerophosphocholine} \)

**Substrates and products**

\( \text{S acyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) unsaturated acyl-
\( \text{CoA} \) preferred [1, 2]) [1, 2]

\( \text{P CoA} + 1\text{-alkenyl-2-acylglycerophosphocholine} \)

\( \text{S arachidonoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-arachidonoylglycerophosphocholine} \)

\( \text{S arachidoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) poor sub-
\( \text{strate} \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-arachidonoylglycerophosphocholine} \)

\( \text{S linoleoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) best substrate
\( [1, 2] \)) [1, 2]

\( \text{P CoA} + 1\text{-alkenyl-2-linoleoylglycerophosphocholine} \)

\( \text{S oleoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-oleoylglycerophosphocholine} \)

\( \text{S palmitoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) poor sub-
\( \text{strate} \) [1]) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-palmitoylglycerophosphocholine} \)

\( \text{S stearoyl-CoA} + 1\text{-alkenylglycerophosphocholine} \) (Reversibility: ?
\( <2> \) poor substrate
\( [1] \)) [1]

\( \text{P CoA} + 1\text{-alkenyl-2-stearoylglycerophosphocholine} \)

**Inhibitors**

1-acylglycerophosphocholine (Reversibility: ?
\( <2> \) non-competitive [1]) [1, 2]

acyl-CoA (Reversibility: ?
\( <2> \) high concentrations of acyl-CoA derivatives [1]) [1]

detergent (Reversibility: ?
\( <2> \) overview [1]) [1]

**Metals, ions**

\( \text{Ca}^{2+} \) (Reversibility: ?
\( <2> \) 50% activation at 10 mM [1]) [1]

\( \text{Mg}^{2+} \) (Reversibility: ?
\( <2> \) 30% activation at 10 mM [1]) [1]

**Specific activity (U/mg)**

0.000039 <1> [1]

0.00007 <5> [1]