

Mechanisms for tissue specific expression and cell growth of 12/15-lipoxygenase

メタデータ	言語: jpn 出版者: 公開日: 2021-09-06 キーワード (Ja): キーワード (En): 作成者: Yoshimoto, Tanihiro メールアドレス: 所属:
URL	https://doi.org/10.24517/00064045

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1999 Fiscal Year Final Research Report Summary

Mechanisms for tissue specific expression and cell growth of 12/15-lipoxygenase

Research Project

Project/Area Number

10670134

Research Category

Grant-in-Aid for Scientific Research (C)

Allocation Type

Single-year Grants

Section

一般

Research Field

Pathological medical chemistry

Research Institution

Kanazawa University

Principal Investigator

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Project Period (FY)

1998 – 1999

Keywords

12-Lipoxygenase / Athelosclerosis / Low density lipoprotein (LDL) / Oxidized LDL / Scavenger receptor / Macrophage

Research Abstract

Lipoxygenase (LOX) incorporates a molecular oxygen into a specific carbon atom of unsaturated fatty acids. There are 5-, 8-, 12- and 15-LOXs in mammalian tissues according to the oxygenation site of arachidonic acid. Based upon the primary structures deduced from their cDNAs and enzymological properties, they are principally classified into 5-LOX and 12/15-LOX subfamilies. The 5-LOX catalyzes the first step in the generation of leukotrienes which have potent biological activities in the immediate hypersensitivity and allergy. There are number of isoforms of 12/15-LOXs : leukocyte, platelet and epidermis. Although the 12/15-LOXs have been shown to play roles in several systems such as atherosclerosis and neurotransmission, their pathophysiological functions are still subjects of investigation and discussion. There are a body of circumstantial evidences for a role of LOX in oxidative modification of low density lipoprotein (LDL). The aim of this study was to investigate the role of intrac …▼ More

Research Products (10 results)

AllOther

AllPublications

[Publications] T. Sakashita, et al.: "Essential involvement of 12-lipoxygenase in regiospecific and stereospecific oxidation of low density lipoprotein by macrophages"Eru. J. Biochem.. 265. 825-831 (1999)

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[Publications] Y. Ozaki, et al.: "An anti-platelet agent, OPC-29030, inhibits translocation of 12-lipoxygenase and 12-hydroxyeicosatetraenoic acid production in human platelets"Br. J. Pharmacol.. 128. 1699-1704 (1999)

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[Publications] Y. Takahashi, et al.: "12-Lipoxygenase overexpression in rodent NG108-15 cells enhances membrane excitability by inhibiting M-type K⁺ channels"J. Physiol. (London). 521. 567-574 (1999)

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[Publications] Y. Takahashi, et al.: "Activation of matrix metalloproteinase-2 in human breast cancer cells overexpressing cyclooxygenase-1 or -2"FEBS Lett.. 460. 145-148 (1999)

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[Publications] T. Kinoshita, et al.: "Growth stimulation and induction of epidermal growth factor receptor by overexpression of cyclooxygenases 1 and 2 in human colon carcinoma cells"Biochem. Biophys. Acta.. 1438. 120-130 (1999)

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[Publications] T. Sakashita, et al.: "Essential involvement of 12-lipoxygenase in regiospecific and stereospecific oxidation of flow density lipoprotein by macrophages"Eur. J. Biochem.. 265. 825-831 (1999)

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[Publications] Y. Ozeki, et al.: "An anti-platelet agent, OPC-29030, inhibits translocation of 12-lipoxygenase and 12-hydroxyeicosatetraenoic acid production in human platelets"Br. J. Pharmacol.. 128. 1699-1704 (1999)

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URL: https://aken.nii.ac.jp/report/KAKENHI-PROJECT-10670134/106701341999kenkyu_seika_hokoku_

Published: 2001-10-22