# The influence of low-dose EPA and DHA to rat breast carcinogenesis induced by DMBA



# 1997 Fiscal Year Final Research Report Summary

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Research Project

### Project/Area Number

08671345

### Research Category

Grant-in-Aid for Scientific Research (C)

### Allocation Type

Single-year Grants

### Section

一般

### Research Field

General surgery

### Research Institution

Kanazawa University

### Principal Investigator

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### Project Period (FY)

**1996 – 1997**

### Keywords

breast cancer / cancer invasion / cyclooxygenase (COX) / metalloproteinase (MMP)

### Research Abstract

We investigated influence of EPA and DHA to breast carcinogenesis. On the other hand, EPA and DHA are known as inhibitors of cyclooxygenase (COX) : enzyme, which regulated resolution of arachidonic acids. Recently, expressions of COX were reported in the tissue of breast cancer, gastric cancer, and colon cencer. Then, we studied significance of COX expression in breast cancer cell and relation to invasiveness of cancer cells in vitro.

When cancer cells invade to capillary vessles or lymphatics, matrix metalloproteinases (MMPs) which resolve constructive protein of basement membrane and connective tissue are necessary. At present ten and few spices were isolated as MMPs product by ancer cells. MMP-2 and MMP-9 were known as showing enzyme activity resolve gelatin and type IV collagen, and the relation to breast cancer wes reported. However, there was no report that the relation between MMP and COX was evaluated, Therefore, we evaluated the relation between MMP-9 expression and COX using Hs578T,human breast cancer cell line. Hs578T cells showed induction of COX activity by addition of TPA to the culture medium. By Western blot analysis, COX-2 was overexpressed in the Hs578T cells. Gelatin zymography revealed expression of MMP-9 after addition of TPA.MMP-9 expression was reduced by indomethacin (IM) : inhibitor of COX.In conclusion, COX-2 activity plays an important role in expression of MMP-9.

## Research Products (12 results)

All | Other

All | Publications (12 results)

[Publications] 野口 昌邦: "Dietary Fat and Breast Cancer : A contiovertial issue" Breast Cancer. 4-2. 67-75 (1997)

[Publications] 江嵐 充治.野口 昌邦: "In Vitro Effects of eicosanoidsynthesis inhibitors in the presence of linoleic acid on MDA MB-231human breast cancer cells" Breast Cancer Research. 37. 29-37 (1996)

[Publications] 江嵐 充治.野口 昌邦: "Effects of linoleic acid and eicosanoid synthesis inhibitors on the growth and c-myc oncogene expression of human breast cancer cells" International Journal of Oncology. 8. 145-151 (1996)

[Publications] 太田 長義.野口 昌邦: "The effects of high dietary fat and indomethacin on 7,12-dimethylbenz(a)anthracene-induced mammay carcinomas in rats" Oncology Reports. 3. 305-312 (1996)

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[Publications] 野口 昌邦: "Effects of indomethacine with or without linoleic acid on human beast cancer cells in vitro" Prostaglandins Leuko trienes and Essential Fatty Acids. 52. 381-386 (1995)

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[Publications] Noguchi, M.: "Effects of indomethacin with or without linoleic acid on human breast cancer cells in vitro." Prostaglandins Leukotrienes and Essential Fatty Acids. 52. 381-386 (1995)

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