Polymorphism of thymidylate synthase gene in human gastrointestinal carcinoma cells and its regulational role in protein expression

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	キーワード (Ja):
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	作成者: Omura, Kenji
	メールアドレス:
	所属:
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## 2000 Fiscal Year Final Research Report Summary

Polymorphism of thymidylate synthase gene in human gastrointestinal carcinoma cells and its regulational role in protein expression

carcinoma	cells and	its regulati	onal role in	protein expres	ssion
Research Project					

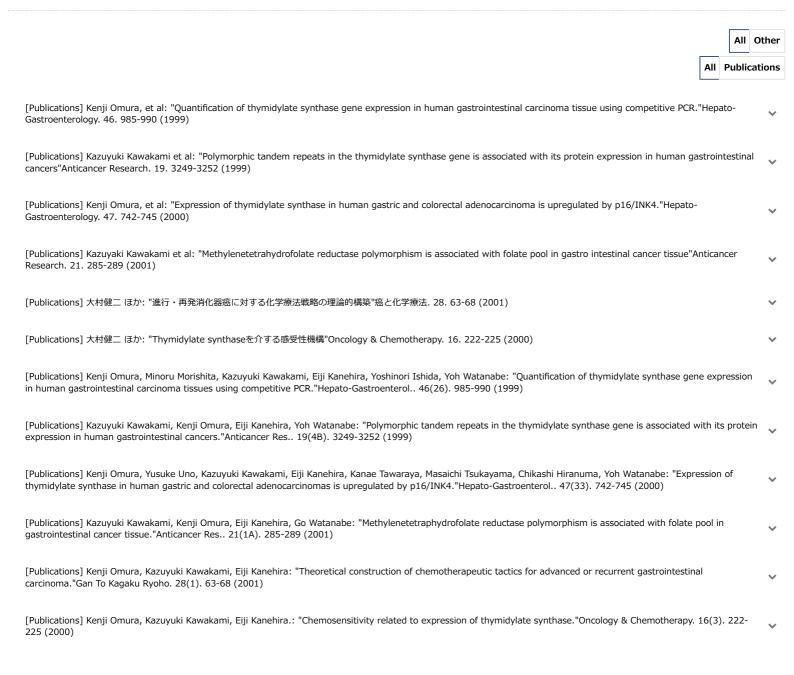
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Kanazawa University
Principal Investigator
OMURA Kenji Dept.of Surg (1).Kanazawa Univ. Associate Professor, 医学部・附属病院, 講師 (30194301)
Co-Investigator(Kenkyū-buntansha)
KAWAKAMI Kazuyuki Dept.of Surg (1). Kanazawa Univ. Research Assistant, 医学部・附属病院, 助手 (00293358) KANEHIRA Eiji Dept.of Surg (1). Kanazawa Univ. Research Assistant, 医学部・附属病院, 助手 (10251951)
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## **Research Abstract**

We performed cloning of thymidylate synthase (TS) genes with various tandem repeat sequence (2, 3, 4, 5 and 6 repeats) in the 5' untranslated region (5'UTR). Furthermore, we observed translational activity of each genotype TS mRNA with or without complementary reverse sequence in the upstream of the repeat sequence by reticulocyte lysate translation assay. The translational activity of full-length TS mRNAs, which included both of the tandem repeat sequence and complementary reverse sequence, were quirw lowirrespective of the number of the repeat sequence. However, obvious elevation of translational activity was observed when the number of the

repeat sequence was increased. Translational activity increased markedly in the TS mRNAs without the complementary reverse sequence compared with the full-length TS mRNAs. The elevation of translational activity with increment of number of the repeat sequence disappeared in the TS mRNAs without the complementary reverse sequence. Capped TS mRNAs, both with and without complementary reverse sequence, showed increase of its translational activity. The products of reticulocyte lysate translation assay were confirmed as TS protein by Western blotting using polyclonal TS anti-body. The stem-loop structure, formed by repear sequence and complementary reverse sequence, should inhibitively control the translational activity of TS mRNA. Further, some protein supposed to bind the stem-loop structure and regulate its inhibitory action. Further studies are required to look for the protein which binds to the stem-loop structure formed in 5'UTR of TS mRNA and its influence on the translational activity of TS mRNA.

## Research Products (12 results)



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