



# 第 313 回 つくば分子生命科学セミナー

TSUKUBA MOLECULAR LIFE SCIENCE SEMINAR

演題 : **Jekyll & Hyde: Topoisomerases  
in cancer development and therapeutics**

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会場 : 医学学群棟 4 階 4 A 4 1 1 室

要旨 : The need for DNA topoisomerase was recognized, before its discovery, when the double-helical nature of DNA was determined. Topoisomerase alters the DNA supercoiling by transiently cutting and rejoining one or both strands of DNA, thereby participating in all processes of DNA metabolism. In contrast, due to its delicate act on DNA, both type I and II topoisomerases have been identified as excellent targets for anti-bacterial as well as anti-cancer therapy.

Recently, our group has identified novel functions of human topoisomerase IIbeta (hTOP2 $\beta$ ) and IIIalpha (hTOP3 $\alpha$ ) during tumorigenesis. Specifically, TOP2 $\beta$  contributes to therapy-related secondary malignancies possibly through its mutagenic ability. Moreover, we have demonstrated the potential roles of topoisomerases in telomere maintenance. Most surprisingly, our results have revealed that hTOP3 $\alpha$  exhibits its tumor-suppressive activity in a p53- and p21-dependent manner. Furthermore, several of these findings have been promptly translated into discoveries of sensitivity/resistance determinants and rationale design for topoisomerase-targeting drugs.

連絡先 : 人間総合科学研究科 入江 賢児 (内線 3066)

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