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Author	菅田, 節朗(Sugata, Setsuro) 河野, 彬(Kono, Akira) 原, 泰寛(Hara, Yasuhiro) 加留部, 善晴(Karube, Yoshiharu) 松島, 美一(Matsushima, Yoshikazu)
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Partial Purification of a Thymidine Phosphorylase from Human Gastric Cancer*

Setsuro SUGATA, Akira KONO**, Yasuhiro HARA**, Yoshiharu KARUBE,*** and Yoshikazu MATSUSHIMA

菅田節朗，河野　彬**，原　泰寛**，加留部善晴***，松島美一

We found that a thymidine phosphorylase (TP) activity is greatly enhanced in human tumors as compared with normal tissues and we assumed that the activity is responsible for the *in vivo* conversion of 5′-deoxy-5-fluorouridine (5′-DFUR) and 1-(tetrahydro-2-furanyl)-5-fluorouracil (Tegfur) to 5-fluorouracil (5-FU). 5′-DFUR and Tegafur are antitumor agents, and their activities are manifested after cleavage to 5-FU, an activated form.

A TP preparation was partially purified from human gastric cancer (poorly differentiated adenocarcinoma). The specific activity of the final preparation represented a 379-fold purification of the 7000 g supernatant of tissue homogenate. The phosphorolytic activities toward thymidine (dThd), 5′-DFUR, and Tegafur remained closely in parallel during the whole purification procedure. The results provide evidence in supprot of the above assumption. The values of *K*m of the TP preparation were 1.68×10^{-4}M, 1.72×10^{-3}M, 1.33×10^{-2}M, and 4.76×10^{-2}M for dThd, 5′-DFUR, Tegafur, and uridine, respectively.

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** 九州がんセンター.

*** 福岡大学薬学部.