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## Chemotherapy with anti-cancer drugs specific to acidic nests

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It was found more than 80 years ago that solid cancer nests are acidified, but *in vitro* studies under acidic conditions had not been focused for a long time. We started *in vitro* experiments with mammalian cells under acidic conditions in 1996. After the protocol for culturing cancer cells in acidic medium had been established, the anti-cancer efficacy of four drugs; lovastatin, cantharidin, manumycin A and ionomycin, were found to increase dramatically at acidic pH. In the case of statins, no serious side effects, such as dysfunction of immune system, pain, diarrhea, nausea, and hair loss, have been reported. These results suggest that these drugs are specific to acidic nests with less effects on normal tissues. In addition to these drugs, many other anti-cancer drugs, specific to acidic nests could be exploited in future, because approximately 700 genes were found to express at a higher level under acidic conditions and such genes may be potent targets for anti-cancer drugs specific to acidic nests. On the basis of our data obtained from *in vitro* studies, clinical usages of anti-cancer drugs specific to acidic nests are discussed.

### Biography

Hiroshi Kobayashi received his PhD in Biochemistry from the University of Tokyo in 1974. After his Post-doctoral training at Colorado University Medical Center, he started to study adaptation strategies of microorganisms to acidic environments at Chiba University in 1978. His research was focused on mammalian cell functions under acidic conditions from 1996 at Graduate School of Pharmaceutical Sciences, Chiba University. He retired in March 2012 and is a presently Professor Emeritus at Chiba University after his retirement. He works as an Associate Editor of International Immunopharmacology published by Elsevier BV from 2014.

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