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Biochemical and biomedical technologies that maximize the progress in cancer science

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Experimental techniques in basic research have been dramatically developed and incessantly been upgraded. Authors have extensively studied about isolation of bioactive compounds from natural products and identification of their biological targets using the T7 phage display technology. These studies contribute to our understanding the molecular basis underlying the mechanisms of action for the bioactive compounds as well as generating new chemotherapeutics for clinical applications, so called "molecular target drugs" like greevec. Among the number of compounds with unique structures and bioactivities, sulfoquinovosylacylglycerol (SQAG), a sulfoglycolipid from sea algae, has been discovered to be a strong anti-angiogenic radiosensitizer on tumor radiotherapy. In an effort to our collaboration work with several research groups over the past decade, CG-0321 has been generated to be a promising lead compound of SQAG for clinical practice and almost completed the preclinical evaluations on 2013. Furthermore, in our recent *in vivo* live imaging studies at Radiation Biology Branch/NCI/NIH, we have found CG-0321 modulates the biophysical conditions on tumor microenvironment, which may strikingly result in a radiosensitization. Here, we will present our recent achievement of SQAG work as a contribution to cancer therapy, with introducing the state-of-the-art biochemical and biomedical technologies used in our studies. We also discuss about the paradigm shift on drug targeting for development of new cancer chemotherapeutics, caused by the advancement of technology.

Biography

Fumio Sugawara has finished his PhD from Tohoku University in 1979 and was a Researcher at RIKEN. Then he was promoted by Tokyo University of Science in 1996. Since then he has published more than 200 papers in Chemistry and Biology research.

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