OBITUARY

Professor Toshio Fujita (1929-2017) as a pioneer of medicinal chemistry

Toshihisa Ishikawa¹*, Kohtaro Yuta², Yukio Tada³, Akihiko Konagaya⁴

¹ NGO Personalized Medicine & Healthcare, 7117-1 Tsugoe, Saijo, Ehime, 793-0057, Japan
² In-Silico Data, Inc., 5-19-5, Akitsu, Narasino, Chiba, 275-0025, Japan
³ The Chem-Bio Informatics Society, Shinjyuku business garden 420, nishishinjyuku k-1 building 4F, 7-2-6 Nishishinjyuku, shinjyuku-ku, Tokyo, 160-0023, Japan
⁴ School of Computing, Department of Computer Science, Tokyo Institute of Technology, 4259 Nagatsuda-cho, Midori-ku, Yokohama, kanagawa, 226-6503, Japan

*E-mail: toshihisa.ishikawa.r@gmail.com

(Received November 2; accepted November 8; published online December 4, 2017)

It is with sadness that we announce the passing of Professor Toshio Fujita (Professor Emeritus of Kyoto University since 1992) who was one of the pioneers in medicinal chemistry, in particular, in the field of quantitative structure-activity relationship (QSAR) research. Prof. Fujita died on August 22, 2017 at the age of 88 years old. Actually, he was diagnosed as colon cancer more than ten years ago. Nevertheless, Prof. Fujita was scientifically active and encouraging young scientists. His passing is indeed a huge loss to a numbers of research scientists all over the world.

As many are aware, Prof. Fujita and his colleagues have hitherto made seminal contribution to medical chemistry in drug discovery. Both Prof. Fujita and Prof. Corwin Hansch in USA invented the QSAR equation that provided timeless guidelines as to how to translate differences in chemical structures into those properties that relate to differences in their biological properties [1, 2, 3]. The formulation of QSAR provided six key insights that remain relevant to this day: (i) Usually differences in more than one molecular property are required to understand the basis of differences in the biological properties of molecules. (ii) Hydrophobicity as quantified by the logarithm of the octanol-water partition coefficient (log \( P \)) is key to understanding structure-activity relationships, (iii) There is frequently an optimum log \( P \) associated with a particular biological response. (iv) It is possible to estimate log \( P \) from a chemical structure. (v) A mathematical analysis, multiple regression analysis in their case, is necessary to identify correct relationships between molecular and biological properties. (vi) A digital computer is necessary to explore the possible relationships (Hansch-Fujita Foundation http://www.hanschfujita.org/bio/)
Prof. Toshio Fujita was born on Jan. 26, 1929 in Kyoto, Japan. He graduated from the Department of Agricultural Bioorganic Chemistry at Kyoto University in 1951 and later earned his Ph.D. in the same department in 1962. He completed his postdoctoral at the Department of Chemistry, Pomona College, California in 1963. He completed another postdoctorate at the Department of Chemistry and Chemical Engineering, University of Illinois in 1964. Prof. Fujita instructed and lectured at Kyoto University between 1951 and 1966. He then became an associate professor in the department of Agricultural Chemistry until 1981. The following year, he became professor of Pesticide Chemistry to rename his laboratory Bioregulation Chemistry. Since 1992, he served as Professor Emeritus at Kyoto University. Based on his pioneer work, Prof. Fujita founded the Structure-Activity Relationship study group in 1975, and thereafter the study group evolved to become one of the major sections of the Pharmaceutical Society of Japan in 1994.

The photo picture in this obituary article shows Professor Toshio Fujita (together with Dr. T. Ishikawa) at the 44th Symposium on Structure-Activity Relationship held at Kyoto University on November 16-17, 2016.

References

