



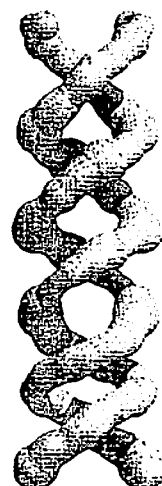
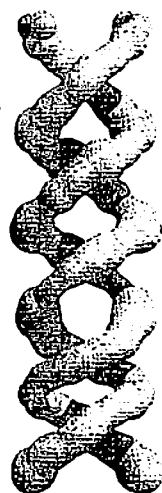
20th IUBMB International Congress of Biochemistry and Molecular Biology and 11th FAOBMB Congress



in conjunction with
79th Annual Meeting of the Japanese Biochemical Society
and
29th Annual Meeting of the Molecular Biology Society of Japan

"Life: Molecular Integration & Biological Diversity"

●
ABSTRACTS



[Gregor Johann MENDEL] by Kiyoshi FUKUSHIMA



June 18-23 2006 Kyoto Japan

3P-A-298 Behavioral effects of radiation exposure on food-NaCl associative learning of *Caenorhabditis elegans*

¹Tetsuya Sakashita, ²Daisuke D. Ikeda, ^{1,2,4}Nobuyuki Hamada, ¹Michiyo Suzuki, ¹Toshio Tsuji, ¹Seiichi Wada, ¹Tomoo Funayama, ^{1,2}Yasuhiko Kobayashi (¹Microbeam Radiat. Biol. Gr., JAEA, ²Mol. Genet. Res. Lab., Univ. of Tokyo, ³Dept. Quantum Biol. Gunma Univ. Grad. Sch. Med., ⁴21st Century COE, Gunma Univ., ⁵Biol. Sys. Eng. Lab., Hiroshima Univ.)

sakashita.tetsuya@jaea.go.jp

Radiotherapy is a promising modality to treat cancers but has been known to cause the cognitive dysfunction in some patients. At present, it has been thought that the suppression of neurogenesis by ionizing irradiation impairs learning and memory. However, it remains unclear how radiation exposure affects a neuron network, except for a newborn neuron. Of particular interest is the radiobiological relationship between a neuron network and the function in irradiated animals. The simple neuron network and behavior of *C. elegans* are very attractive for analyses of a network-function relationship. Here we report how food-NaCl associative learning is affected by radiation exposure. Wild-type *C. elegans* strain was used for all experiments. The animals were irradiated with 0-300 Gy of gamma-rays. Irradiation did not affect chemotaxis toward NaCl, indicating that sensing and signaling in chemotaxis are maintained in irradiated animals. It has been reported that chemotaxis was decreased by the association of starvation with chemical stimulation of NaCl. Chemotaxis of animals irradiated during the food-starved conditioning with NaCl was decreased than that of non-irradiated control and temporarily stopped. At several hours after irradiation, the decrease of chemotaxis in irradiated animals was observed again. These results suggest that irradiation perturbed and temporarily stopped a part of neuron network related to associative learning, but not that to chemo-attraction to NaCl.