35th RAP Seminar

The 35th Seminar on RIKEN Center for Advanced Photonics

Language: Japanese

Date: **July 15 (Fri) 15:30 - 16:30, 2016**

Location: **RIKEN Sendai Campus, 1F Seminar Room**

(理研　仙台地区　１階セミナー室)

Wako Campus**: Cooperation Center, 3F, W319, TV relay**

(和光：　研究交流棟3階会議室,W319 (TV会議))

Title: **Early Exposure and Late Effects on CNS ---Neurobehavioral toxicity at adult period induced by pesticide exposure at juvenile period---**

化学物質の早期暴露による遅発中枢影響

-- 幼若期における農薬暴露による成熟後の行動異常 --

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Central nervous system (CNS) is formed under the genetic information and fine-tuned by the proper neural signals at each developmental phase. The proper neuronal activities are used for the formulation and the maturation of the neural networks. In this context, the brain dysfunction or morphological defect associated with the behavioral abnormality in the adult phase can be caused by the exogenous disturbance, including chemicals, of neural signals during critical periods of brain development.

Here, we indicate about the behavioral changes as the late-effects on CNS induced by early exposure to pesticides using male C57BL/6 mice. Mice were subject to the test battery at the age of 12-13 weeks, and the chemical exposure was performed, orally, at the age of 2 weeks (juvenile exposure, oral gavage) or, for comparison, at the age of 11 weeks (adult exposure, oral gavage).

The impairment of learning and memory at the age of 12 weeks was induced by the single oral administration of acetamiprid and imidacloprid (neonicotinoid insecticides) at 2 weeks of age. Immunohistochemical analysis on brain of 12 w mice revealed reduction in neurogenesis activities in hippocampus as a persistent alteration. These findings were considered to link with the behavioral impairments.