S18-2 Chronic health effects by the manufuctured nanomaterials

◯Akihiko HIROSE[1], Atsuya TAKAGI[1], Tetsuji NISHIMURA[1], Hiroyuki TSUDA[2], Yoshimitsu SAKAMOTO[3], Akio OGATA[3], Dai NAKAE[3], Okio HINO[4], Jun KANNO[1]

[1]Natl. Inst. of Health Sci., [2]Nagoya City Univ. Grad. Sch. of Med., [3]Tokyo Metro. Inst. of Pub. Health, [4]Juntendo Univ. Grad. Sch. of Med.

Manufactured nanomaterials are the most important substances for the nanotechnology. The new physico-chemical properties may lead to biologically beneficial effects and/or adverse effects. However, there are no standardized evaluation methods at present. In order to establish the appropriate evaluation methods for nanomaterials, some domestic and international research activities are ongoing, Recently, our institutes launched the research project on the establishment of health risk assessment methodology of manufactured nanomaterials, consisting of fundamental researches for *in vitro*, *in vivo* and toxicokinetic studies. In the course of the research project, we revealed that the nanomaterials were competent to cause chronic effects by analyzing the intraperitoneal administration studies. These effects included mesothelioma induction by multi walled carbon nanotube including asbestos-like shaped fibers, and atrophic renal disorders by fullerene. These results indicated that the phsyco-chemical properties or toxicity mechanism related with these chronic effects were considered to be different from those properties or mechanism related to acute toxicity. Also investigations of the toxicokinetic properties of nanomaterials after exposure may be important to predict the chronically targeted tissues. Therefore, we will focus on, as an important subject, the molecular-based toxicological characterization of chronic effects by nanomaterials in the current our research project.