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# 31/MAY

## 2019 (Fri) 10:00~

場所：総合研究棟 | 6階会議室

### 1) Developmental neurobehavioral toxicity by non-coplanar PCB and PBDE in zebrafish

ゼブラフィッシュにおけるPCBおよびPBDEによる発達行動神経毒性

### 2) Cytochrome P450 in cat : structure, expression, enzymatic activity and polymorphism

ネコのシトクロムP450：構造、発現、酵素活性および多型

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Contamination with polychlorinated biphenyls (PCBs) and polybrominated diphenyl ethers (PBDEs) in the environment is still a major concern due to their persistent bioaccumulative toxicity that can disturb neurobehavioral functions especially by perinatal exposure. We studied developmental neurobehavioral toxicity by a non-coplanar PCB-dominant mixture (Aroclor 1254: ncPCB) and that of PBDE (BDE-47), using zebrafish embryos *in vivo*. Both organohalogens (OHs) increased tail shaking and rotation of embryos in a concentration-dependent manner. Chemical inhibition, knock-down and knock-out of tyrosinase, a rate limiting enzyme for melanin synthesis all inhibited OHs-induced hyperactivity. Chemical inhibition and gene knock-down of tyrosine hydroxylase and VMAT2 also induced hyperactivities. Hyperactivities induced by these treatments were all inhibited by supplementation of L-tyrosine and L-dopa, precursors of dopamine synthesis. Both ncPCB and PBDE decreased dopamine contents and increased the DOPAC/dopamine ratio in whole embryos. The results suggest that functional inhibition of dopaminergic neurons is involved in hyperactivities by OHs. Modulation of swapping of substrate between dopamine synthesis and melanin synthesis could affect neurobehavioral function in development due to incomplete blood brain barrier. Possible delayed effects of OHs in adult stage are also concerned. Our data on cytochrome P450 (CYP) isoform in cat will be also introduced, especially for structure, expression, enzymatic activity and polymorphism.