グローバル COE 特別セミナー

生物化学専攻セミナー

日時：平成 23 年 12 月 26 日（月） 17:00～18:00

場所：理学部 3 号館 3 階 327 号室

講師：Dr. Jon Pierce-Shimomura
Assistant Professor,
Section of Neurobiology,
University of Texas at Austin

演題：Studying mechanism and medicine in Alzheimer's disease using *C. elegans*

要旨：

Alzheimer disease (AD) is the most common neurodegenerative disease and is characterized by selective degeneration of cholinergic neurons that leads to dementia. Currently, there is no effective treatment to prevent the progressive pattern of degeneration. A hallmark feature of AD is the presence of extracellular amyloid plaques composed of peptide fragments cleaved from the amyloid precursor protein (APP) including variants of Aß. In some cases, including Down syndrome, AD is caused by and additional wild-type copy of APP. To study APP-induced neurodegeneration, we have developed a simple new model with the powerful nematode *C. elegans*. We found that select cholinergic neurons degenerated in middle-aged adults (5-days old) with pan-neuronal expression of a single wild-type copy of human *APP*, the worm ortholog *apl-1*, or their conserved intracellular portion. Moreover, we discovered that a new anti-apoptotic compound prevented neurodegeneration by acting upstream of the pro-apoptotic gene *egl-1*. Neural function persisted despite selective accumulation of *APP* in these neurons. We have also found that serotonergic signaling can modify APP-induced neurodegeneration. Our results hold promise that *C. elegans* may be used to rapidly discover medicines relevant to human AD and understand their *in vivo* mechanisms of action.

jonps@mail.utexas.edu
Website: http://www.utexas.edu/research/wcaar/jps/

世話人：東京大学大学院理学系研究科生物化学専攻　飯野雄一　（5841-8293）