

THE EDUCATION UNIVERSITY OF HONG KONG
FACULTY OF LIBERAL ARTS AND SOCIAL SCIENCES

Research Output/Impact/Knowledge Transfer Prize
for the Dean's Research Fund 2019/20

Brief Introduction of Awardee's
Research/KT Publication/Study/Output and Future Research/KT Development

Awardee (Dept): Dr Lam Chung Wah James, Assistant Professor (SES)
Publication Title/KT project: Environmental Science - Toxicity assessment of
perfluorbutanesulfonate using fish model

A. *Briefly introduce your research/KT publication/study/output for which you have received the prize.*

Perfluorobutanesulfonate (PFBS) is regarded as the substitute for the banned man-made chemical called perfluorooctanesulfonic acid. In this study, accumulation and toxicity of perfluorobutanesulfonate (PFBS) were examined by using a fish model namely marine medaka (*Oryzias melastigma*). The present study showed that life-cycle exposure to environmentally realistic concentrations of PFBS caused significant disruption of the thyroidal axis in F0 marine medaka. This study provided the first molecular evidence about the multigenerational endocrine disrupting activity of PFBS on the thyroid of aquatic organisms. These results have been published in *Environmental Science & Technology* (ES&T) which is a biweekly peer-reviewed scientific journal published since 1967 by the American Chemical Society. It is one of the world-leading environmental science journals. It covers research in environmental science and environmental technology, including environmental policy. We believe that our study has made a contribution to the field of environmental health and toxicology, and also attracted wide scientific interest because this study provided the first evidence on thyroid endocrine disrupting effect of PFBS and its underlying mechanisms in marine medaka. In the past, PFBS was considered to be low toxicity to the living organisms. Considering the low levels and life-cycle exposure, current results clearly point to the ecological relevance to the hazardous effects of PFBS in aquatic system.

B. How you used/will use your prize and perhaps its usefulness to your research/KT development?

The funding will be used for developing new and versatile analytical and bioanalytical method for investigation of other emerging contaminants.

C. Expected research/KT outcomes/outputs/impacts arising from this prize.

New results regarding the emerging contaminants in the environment such as marine ecosystem, and corresponding publication will be arising from the funding support.