Title: **Towards elucidating the impact of environmental exposure on epigenome and long-term health risk**

Exposure to environmental chemicals, such as heavy metal and herbicides, has been associated with long-term health risks, including neurodegenerative diseases and various types of cancers. The underlying molecular mechanism conferring the disease risk, however, remains elusive. Our recent work has shown that epigenetic modifications can potentially serve as the basis of molecular memory arising from environmental exposure that subsequently conferring diseases risks. We will discuss our recent work using imaging and NGS analysis to unravel the role of two selected environmental chemicals in inducing persistent changes in epigenome and to the acquisition of neurodegenerative phenotypic features.