



BIOLOGY COLLOQUIUM

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Hosted by A/P Liou Yih Cherng



A translational medicine appraisal of metabolic diseases in zebrafish models

By **Guor Mour Her (何國牟)**

*Professor, Institute of Biopharmaceutical Sciences,
National Yang-Ming University, Taiwan*

Cancer cachexia (CC) is a syndrome characterized by loss of body weight that is due to loss of skeletal muscle and adipose tissue rather than to anorexia. Over the past ten years, we have become greatly interested in two very important niche areas in CC, hepatic and intestinal (HI) cancer and adipogenesis; my research team builds up epigenetics studies using zebrafish as disease models for studying cancer cachexia. To study lipid metabolism in those zebrafish models, it is very likely that establishment of compound super-obesity fish (SOBF) models apply for studying the connection between obesity (lipogenesis) and metabolic diseases. As we successfully established novel and exciting SOBF zebrafish models which exhibit obesity and increased linear growth due to orexigenic behavior and adipocyte hypertrophy. We have also established zebrafish transgenic HI oncogenic systems, HI-specific doxycycline-inducible transgenic system was generated to induce some aggravated oncogenes expression (such as K-rasG12D, SIX1, TYMS, Twis1b, RhGD1, Bmi-1, and oncomiR-21). These transgenic strongly support that those aggravated oncogenes in zebrafish liver and intestine can contribute to anomalous and aggressive proliferation for carcinogenesis (oncogenic way). Finally, as the insights into our zebrafish models for studying lipid metabolism and successful zebrafish HI cancer models, it is very likely that establishment of zebrafish CC models for studying the connection between obesity (lipogenesis) and cancer. Thus, those models will be very useful for lipid-related diseases, including atherosclerosis, obesity, diabetes, hepatic steatosis and cancer cachexia.