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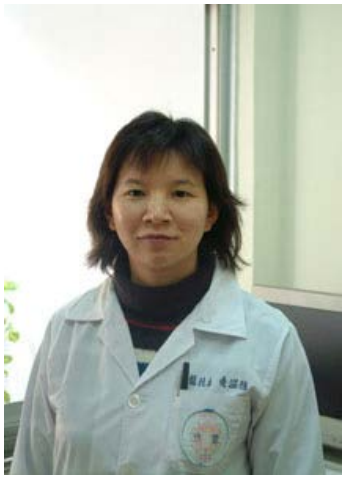

Dr. Huang's laboratory is focused on the molecular carcinogenesis. The research topics include DNA damage, DNA repair, oxidative stress, genomic instability, et al. The types of cancers currently under investigation include breast, liver and lung cancers that are associated with oxidative stress and DNA damage. Dr. Huang was trained with research on DNA repair. In addition to DNA repair pathways, the recent research interests in Huang's lab also focus on development of easy and efficient approaches for screening for high-risk genotypes for oxidative stress-induced carcinogenesis. The types of experiments running in the lab are mainly cellular and molecular. Proteomic approaches such as yeast two-hybrid assays, co-immunoprecipitation, and protein purification are also employed. Dr. Huang currently has two doctoral and three master graduate students, as well as two research assistants. Graduate students who are interested in DNA damage or repair are welcome to join her research team.

Education

Ph. D., Molecular and Cellular Biology, Wayne State University, USA
M.Sc., Molecular and Cellular Biology, Wayne State University, USA
B.Sc., Medical Technology, Yang-Ming University

Research

The ongoing projects in Dr. Huang's lab are:

1. Hepatitis B virus pre-S mutant surface antigens and hepatocellular carcinoma

The HBV infection is a significant factor for incidence of hepatocellular carcinoma (HCC). The chronic HBV carriers often exhibit a specific type of deletion mutation on pre-S region of the HBV surface antigen, which is designated pre-S mutant HBsAg. The pre-S mutant HBsAg is correlated with HCC. We have recently found that such pre-S mutant HBsAg induces higher oxidative DNA damage and oxidative stress in hepatocytes in vitro and in vivo (Carcinogenesis, 2004). The recent progress shows that the pre-S mutant HBsAg also regulates retinoblastoma (RB) phosphorylation and cyclin A transcription. The deep-down mechanism for how the pre-S mutant HBsAg induces step-wise development of HCC will be our focus of study in near future.

2. Regulation of DNA repair pathways for oxidative DNA damage

Human 8-oxoguanine glycosylase 1 (hOGG1) is the most important DNA repair enzyme for oxidative DNA damages. The hybrid two-hybrid assays are in progress to screen for the proteins functionally linked to hOGG1. Based on the findings in this study, we would be able to understand the cellular responses for oxidative stress and seek possible solutions to prevent cells from oxidative damage.