



Professor George G CHEN Research Laboratory

Projects for Postgraduate Students

Research Topic 1: Sex hormones and human cancers

Sex hormones have a great impact on some human cancers, causing male- or femalepredominant cancers. My group is interested in the role of female hormones, especially estrogen and its receptors, in cancers, particularly hepatocellular carcinoma (HCC), thyroid cancer and lung cancer. HCC occurs much more frequently in males while thyroid cancer is predominantly in females. Our lab has examined how estrogen and its receptors contribute to the development of these cancers and their potential significance in management of the cancers (please refer to below publications for details). Our study is currently continuing in this interesting field, especially the metabolism of estrogen and the isoforms of estrogen receptor alpha and beta.

Research Topic 2: Smoking in development of non-small cell lung cancer (NSCLC)

Cigarette smoking is a well-known causing factor for NSCLC. However, its tumorigenic effect is not completely known. Our study in this area is focused on the impact of smoking carcinogens on thromboxane, peroxisome proliferator- γ activated receptor gamma (PPARg), 15-lipoxygenases and its metabolites. Studies have generated a series of publications (please refer to below publications for details) and identified some useful biomarkers that may have diagnostic and therapeutic potentials. Recently we have extended this area to include the role of polluted air (PM2.5) in the development of lung cancer as the lung-tumorigenic pathway of PM2.5 appears to be similar to one used by cigarette smoking carcinogens in many aspects.

Research Topic 3: Foxp3 in human cancer cells

Foxp3 is a classical marker of regulatory T cells, however, its expression is not limited to lymphocytes. We have found that Foxp3 is also expressed in lung, liver and thyroid cancer cells (please refer to below publications for details). It turns out that Foxp3 can interact with multiple molecules that have roles in either cancer development or treatment. We are expecting some more important data from this area.

Research Topic 4: ZBP-89 in hepatocellular carcinoma (HCC)

ZBP-89, a Kruppel-type zinc-finger transcription factor, binds to gene promoter GC-rich sequence to activate or suppress gene transcription which is closely related to cell growth and cell death. Our lab has studied ZBP-89 in HCC since 2002 and the study leads to a number of publications (please refer to below publications for details). Currently we are interested in the role of ZBP-89 in liver cancer stem cells.





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Publications (selected from 212, *author for correspondence)

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