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Cholesterol import and steroidogenesis are biosignatures for gastric cancer progression

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Androgens, estrogens, progesterone and related signals are reported to be involved in the pathology of gastric cancer. However, varied conclusions exist based on serum hormone levels, receptor expressions, and *in vitro* or *in vivo* studies. This report used a web-based gene survival analyzer to evaluate biochemical processes, including cholesterol importing via lipoprotein/receptors (L/R route), steroidogenic enzymes, and steroid receptors, in gastric cancer patients prognosis. The sex hormone receptors (androgen receptor, progesterone receptor, and estrogen receptor ESR1 or ESR2), L/R route (low/high-density lipoprotein receptors, LDLR/LRP6/SR-B1 and lipoprotein lipase, LPL) and steroidogenic enzymes (CYP11A1, HSD3B1, CYP17, HSD17B1, HSD3B1, CYP19A1 and SRD5A1) were associated with 5-year survival of gastric cancer patients. The AR, PR, ESR1 and ESR2 are progression promoters, as are the L/R route LDLR, LRP6, SR-B1 and LPL. It was found that CYP11A1, HSD3B1, CYP17, HSD17B1 and CYP19A1 promote progression, but dihydrotestosterone (DHT) converting enzyme SRD5A1 suppresses progression. Analyzing steroidogenic lipidome with a hazard ratio score algorithm found that CYP19A1 is the progression confounder in surgery, HER2 positive or negative patients. Finally, in the other patient cohort from TCGA, CYP19A1 was expressed higher in the tumor compared to that in normal counterparts, and also promoted progression. This work depicts a route-specific outside-in delivery of cholesterol to promote disease progression, implicating a host-to-tumor macroenvironmental regulation. In addition, this report also described the importance of steroidogenesis biochemical process in disease progression. It is valuable to implement CYP19A1 targeting therapy in gastric cancer patients, working toward unmet medical needs.

Biography

Wen-Lung Ma, is currently working as an assistant Professor at Christian Hospital, Taiwan. He has been recognized as expert in Cancer Pathology, Endocrinology, and Sex Hormone Biology. His research experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflects in his wide range of publications in various national and international journals. His research of interest is in the field Cancer research, Oxidative stress, Antioxidants.

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