CRC is the most common cancer in Taiwan and the third and second leading cancer for male and female respectively. Clinically, about 40–50% of CRC patients who received curative surgery alone ultimately die of metastasis. In patients with stage II-III CRC receiving radical surgery and adjuvant treatment, about 25–50% of patients suffer tumor relapse due to spread of undetectable tumor cells. While clinical and pathological factors used today, such as regional lymph node metastasis and serum carcinoembryonic antigen (CEA) tumor marker, do influence prognosis, these parameters remain insufficient to establish personalized therapy and prognosis for individual patients.

Presence of circulating tumor cells (CTCs) has prognostic impact in several metastatic cancers but its impact in non-metastatic colorectal cancer (CRC) and benign colon diseases has not been clear. In prospective blind studies, we evaluated the relationship between CTC detection and colorectal tumor progression. The CTC count was significantly higher in cancer patients than those of controls and the increase correlated well with neoplasm progression from healthy to advanced stages (regression linear model, P<0.01). CTC detection by the CMx platform has adequate correlation with tumor progression from early to advanced stages of colorectal neoplasm. CTCs are a useful marker to predict the risk of colon mucosa lesion, subsequent liver metastasis and length of disease-free survival.
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Dr. Tsai is a clinician and medical-researcher focused on new oncology biomarkers for better management of cancer. He has served as a member of the Surgical Society, ROC and the Society of Colon and Rectal Surgeons, ROC. In addition to his clinical duties at CGMH, Dr. Tsai has conducted research in circulating tumor cell technologies and profiled pathologically relevant genetic signatures in colorectal cancer. He received his M.D. from the Medical College at National Yang-Ming University and his Ph.D from the University of Tokyo, Japan. Dr. Tsai is the author of numerous peer reviewed publications on onco-biomarkers in colorectal cancer.

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