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#3696 Detection of circulating tumor cell in patients with colorectal cancer and its potential implication. Yuan-jia Chen[1], Hong-Mei Bao[2], Chun-Yu Zhou[1], Xiao-Yan Xing[2], Gioulnar Harvie[2], Elizabeth Vuong[2], Jian-Yu Rao[3], Tony Reid[4], Hui-Zhong Qiu[1], Yi Xiao[1], Hai-Yan Wu[1], Mei Mei[1], Chong-Mei Lu[1], Ping Lin[2], Jia Xu[2]. [1]Peking Union Medical College Hospital, Beijing, China; [2]AVIVA Biosciences Corporation, San Diego, CA; [3]Dept. of Pathology, UCLA Medical Center, Los Angles, CA; [4]Moore Cancer Center UCSD, San Diego, CA.

Background and Objective: Colorectal cancer (CRC) is the 4th leading cause of tumor-related mortality, and is one of the 3 cancers with the most rapidly increasing incidence between 1991 to 2005 in China (Lancet Oncology 2005). Metastasis and recurrence are the primary lethal causes of patients with CRC. There is a lack of indicator which is reliable to predict prognosis of patients with CRC. Detection of disseminated tumor cells which circulate in peripheral blood (i.e. circulating tumor cell, CTC) is of significantly prognostic relevance in breast cancer patients (N. Eng. J. M. 2004). We have developed a negative depletion based technology to efficiently enrich CTC from peripheral blood in patients with pancreatic cancer (AACR annual meeting 2007). The aim of this study is to verify if we could isolate CTC in patients with CRC by the same approach, and if CTC can be identified, the clinical significance of the CTC detection will be analyzed. **Method:** The negative depletion methodology was applied to enrich CTC from 7 ml of peripheral blood taken from each of 19 patients with colorectal tumors as well as 16 healthy donors, followed by immunofluorescence (IF) analysis using anti-CK18 and anti-EGF receptor. To exclude the interference of WBC, all isolated cells were stained by anti-CD45 and visualized in bright field. Fisher exact test and student *t* test were examined for statistic analysis by using SPSS 11.0, $p \leq 0.05$ is considered as significance. **Result:** In this preliminary blind study, no or less than 3 CTC were seen in 15 of 16 healthy donors and in 2 of 3 patients with benign colon adenomas (17/19, 89.5%). One of 16 healthy donors and 1 of 3 patients with benign tumors (2/19, 10.5%) were found ≥3 CTC while in 16 patients with malignant cancer, CTC (≥3) were detected in 9 patients (9/16, 56.3%), $p=0.0088$. Moreover, comparing with CTC numbers found in 13 patients without distant metastasis (5.1±2.6, M±SE), all of 3 patients with distant metastasis were shown more CTC (25, 13 and 8, respectively, 15.3±5.0, $p=0.106$). The CTC numbers were not associated with patients' age, gender, and differentiation, tumor primary location and size. **Conclusion:** We have successfully identified CTC in peripheral blood from patients with CRC by a negative depletion based approach, and the preliminary data showed that the CTC numbers were significantly correlated with tumor aggressiveness. However, more patients as well as healthy controls would be enrolled in our future study, and the follow up of patients will be necessary to value the potential prognostic implication of CTC in patients suffered from CRC.

Citation Format
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