

Primary Culture of Colorectal Cancer Cells from BALB/C Model Mice Induced by Diet High in Fat and 7,12-Dimethylbenz(a)anthracene (DMBA)

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Colorectal cancer as the fourth most deadly cancer is associated with unhealthy lifestyle. The high cost and strictly distributed cell lines have hindered the pace of curing cancer. In previous studies, researchers have found a breakthrough method that is cheaper and faster in inducing cancer using dimethylbenz(a)anthracene(DMBA) and high-fat diet(HFD). The result shows that adenoma was detected in 2 months and carcinoma was found after 10 months as the white bulge-like morphology was appeared in the colon. However, researchers experienced high mice mortality rate (up to 60%) before the carcinoma stage and primary cell culture failures due to contamination and media replacement technique errors, so the further study was conducted to optimize CRC induction and culture method. Mice were given high-fat diet treatment 3 month before DMBA oral induction until the carcinoma was detected in colon. Organs were collected to evaluate the carcinogenesis. The result shows mortality rate of mice is lower (29.7%) than before. The highest body weight was HFD group, while the lowest was DMBA. Hematoxylin-eosin slides of HFD+DMBA treatment shows bulges on colon after 7 months of HFD and 4 month after DMBA induction, displayed of current carcinoma stage is 2.5 times faster. Re-culture continued with developed medium composition (RPMI, FBS-25%, penicillin-streptomycin, EDTA-buffer) after white bumps appeared. Flowcytometry analysis obtained after the cells are completely stable to examine the culture cells. Flowcytometry analysis for HFD+DMBA treatment shows the immune cells response due to cancer, with the highest results of T, NK and macrophage, indicating organ abnormality. Keywords : DMBA, HFD, Primary, Cell, Culture, the bulge, CRC