1. No.
   2020G008

2. Title
   Studies on Antimetastatic Effects of Ingredients in Cigarette Smoke Formed Adducts with an Antioxidant Glutathione

3. Period
   2020-2022

4. Summary
   In this study, we tried to compare the growth inhibitory effects of Ethyl vinyl ketone (EVK), *trans*-2-Pentenal (t-2P), 2-Cyclopenten-1-one (2CP), and 3-Methyl-2-butenal (3M2B), the ingredients in nicotine- and tar-removed cigarette smoke extract (CSE), reacted with glutathione (GSH) using mouse melanoma B16-BL6 cells and mouse carcinoma Colon-26 cells. As a result, the order of efficacy against the growth curve of tumor cells was EVK>t-2P>2CP>3M2B. Notably, EVK and t-2P showed stronger inhibition of cell proliferation than 2CP and 3M2B, in addition, their effects were selective for cancer cells instead of normal cells. They also inhibited migration and invasion ability and enhanced adhesion ability of tumor cell as indices of metastatic potential. Furthermore, the proliferative inhibitory effect of EVK and t-2P were partially blocked by N-acetyl cysteine (NAC) treatment, indicated that oxidative stress may involve in the mechanism for the action of EVK and t-2P. In conclusion, EVK and t-2P might be candidates as seeds for antimetastatic drugs.