1. No.
   2020G003

2. Title
   The reproduction and control of invasion and vessel regeneration in lung cancer with smoking related chemical mediator by use of chollioallantonic membrane assay

3. Period
   2020-2023

4. Summary
   We transplanted lung cancer cell lines and cell line-derived organoids into a CAM to investigate angiogenesis and invasion. They engrafted on the CAM at a rate of 50-83%. A549-OKS cells showed enhanced cell invasion and angiogenesis on the CAM compared to A549-GFP cells, as reported *in vitro*. Next, we found that A549-TIPARP cells promoted angiogenesis on the CAM. RNA-seq identified 203 genes upregulated more than twofold compared to A549-GFP cells. A pathway analysis revealed many upregulated pathways related to the degradation and synthesis of the extracellular matrix in A549-TIPARP cells. A total of 109 genes in the A549-TIPARP-engrafted CAM were upregulated more than 2-fold compared to the A549-GFP-engrafted, and 186 genes were downregulated less than -2-fold. However, 33 and 56 of these genes were common to humans, respectively, and most genes were derived from chicken and had no known detailed role. In conclusion, the CAM assay can evaluate and research invasion and angiogenesis in lung cancer. The elevated expression of TIPARP in lung cancer may induce angiogenesis by remodeling the extracellular matrix.