1. No.
   2020G015

2. Title
   Development of Diagnostic Methods for Lung Cancer Using Comprehensive Analysis of Modified Nucleosides

3. Period
   2020-2022

4. Summary

   The purpose is to develop a new disease diagnostic method by modified nucleoside profile using LC-MS/MS. Modified nucleoside preparations and stable isotopes were synthesized in this study. As a result, it was possible to prepare a standard curve for modified nucleosides, which could not be quantified before, and to achieve precise quantification in human plasma.

   The constructed quantitative system was applied to lung cancer patient plasma samples. A logistic regression analysis of the modified nucleoside quantification values showed a superior diagnostic model compared to existing lung cancer biomarkers. In addition, as a result of evaluating COPD patient plasma samples with this quantitative system, four diagnostic biomarker candidates were identified.

   It was suggested that it is possible to search for biomarkers and understand the pathology by using the modified nucleoside simultaneous quantification system constructed in this study. Many studies on the relationships between modified nucleosides and *in vivo* functions and diseases have been conducted, and this quantitative system with high comprehensiveness and high throughput is expected to play an important role in various studies.