Gliomas are the most common primary intracranial tumors of the central nervous system (CNS), accounting for about one third of all brain tumors. Glioblastoma multiforme (GBM) is the aggressive grade IV glioma with survival as low as 2-5% in the second year post-diagnosis, hence necessitating efficient diagnostic markers. More than 50% of the non-small cell lung cancer (NSCLC) brain metastases are solitary lesions, often difficult to differentiate from gliomas by conventional imaging diagnostics. Here, we explored the utility of measuring serum expression levels of Micro-RNAs (miRs) 221, 608 and 504 as biomarkers for differentiating primary GBMs from solitary metastatic lesions of NSCLC. METHODS:

Serum expression level of miRs 221, 608 and 504 were determined in 49 GBM, 27 NSCLC brain metastasis patients, and 30 cancer-free normal controls by real-time PCR using commercially available miR specific primers. Mann-Whitney U test was used to compare the expression of each miR between each group. Receiver operating characteristics (ROC) curve analysis was also carried out to determine the feasibility of using miR expression as differential diagnosis test. RESULTS:

Our results indicated that serum expression of mir-221 was upregulated in GBM as well as in metastatic NSCLC patients. Although both miR-608 and 504 were specifically downregulated only in the GBM patient group, ROC curve analysis showed that only miR-504 serum expression can be utilized as reliable differential diagnosis marker (sensitivity and specificity; 100 and 88.89% respectively). CONCLUSIONS:

Serum expression level of miR-504 is a reliable biomarker to be used for differentiating primary GBM from solitary brain metastasis of NSCLC [1)].

1)
Jin Z, Jin RH, Ma C, Li HS, Xu HY. Serum expression level of miR-504 can differentiate between glioblastoma multiforme and solitary brain metastasis of non-small cell lung carcinoma. J BUON. 2017 Mar-Apr;22(2):474-480. PubMed PMID: 28534372.