

LncRNAs, MALAT1 and Inc-DC as potential biomarkers for multiple sclerosis diagnosis

Abstract

Long non-coding RNAs (lncRNAs) play an important role in gene regulation and show greater tissue specificity and complexity of biological functions. There is on-going research in their contribution in autoimmune diseases like multiple sclerosis (MS). Our study aimed at the evaluation of serum levels of lncRNAs, MALAT1 and Inc-DC in MS patients and the investigation of the association between these lncRNAs and the disease activity. Serum from 45 MS patients and 45 healthy controls was separated. MALAT1 and Inc-DC expression levels were assayed by qRT-PCR. MALAT1 and Inc-DC were significantly increased in MS patients ($P=0.004$ and $P=0.006$, respectively) in comparison with controls. There was a significant increase in expression of MALAT1 in secondary progressive MS (SPMS) subgroup compared with controls ($P<0.0001$); however, significant elevation of Inc-DC was demonstrated in relapsing remitting MS (RRMS) subtype ($P=0.003$) compared with normal controls. A positive association between the expression levels of MALAT1 and Inc-DC ($r = 0.513$, $P < 0.0001$) in MS patients was detected. Moreover, positive correlation was observed between MALAT1 and Inc-DC in RRMS ($r = 0.569$, $P = 0.001$). Serum levels of MALAT1 and Inc-DC may serve as potential novel molecular biomarkers for MS diagnosis and may provide a new direction for its treatment.