論 文 要 旨

LncRNA BCYRN1 as a Potential Therapeutic Target and Diagnostic Marker in Serum Exosomes in Bladder Cancer

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Bladder cancer (BC) is a common genitourinary malignancy that exhibits silent morbidity and high mortality rates because of a lack of diagnostic markers and limited effective treatments. Here, we evaluated the role of the lncRNA brain cytoplasmic RNA 1 (*BCYRN1*) in BC. We performed loss-of-function assays to examine the effects of *BCYRN1* downregulation in T24 and BOY BC cells. We found that *BCYRN1* downregulation significantly inhibited the proliferation, migration, invasion, and three-dimensional spheroid formation ability and induced apoptosis in BC cells. Additionally, gene set enrichment analysis (GSEA) using RNA sequences from tumor fractions showed that *BCYRN1* downregulation decreased the expression of mRNAs associated with the cell cycle. These findings were supported by observations of G2/M arrest in flow cytometry assays. Finally, we examined the expression of serum exosomal *BCYRN1* as a biomarker. Clinically, *BCYRN1* expression in serum exosomes from patients with BC (n = 31) was significantly higher than that in healthy donors (n = 19; mean difference: 4.1-fold higher, p < 0.01). Moreover, in patients who had undergone complete resection of BC, serum exosomal *BCYRN1* levels were significantly decreased (n = 8). Thus, serum exosomal *BCYRN1* may be a promising diagnostic marker and therapeutic target in patients with BC.