

# Inhibition of miR-92b suppresses nonsmall cell lung cancer cells growth and motility by targeting RECK

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**Abstract** microRNAs play critical roles in the progression and metastasis of nonsmall cell lung cancer (NSCLC). miR-92b acts as an oncogene in some malignancies; however, its role in NSCLC remains poorly understood. Here, we found that miR-92b was significantly increased in human NSCLC tissues and cell lines. Inhibition of miR-92b remarkably suppressed cell proliferation, migration, and invasion of NSCLC cells. Reversion-inducing-cysteine-rich protein with kazal motifs (RECK) was identified to be a target of miR-92b. Expression of miR-92b was negatively correlated with RECK in NSCLC tissues. Collectively, miR-92b might promote NSCLC cell growth and motility partially by inhibiting RECK.

**Keywords** miR-92 · Nonsmall cell lung cancer · Growth · Migration · Invasion

## Introduction

Lung cancer is one of the most common causes of cancer-related mortality worldwide, and metastasis is the main cause of death in lung cancer. Nonsmall cell lung cancer

(NSCLC) accounts for over 80 % of all lung cancer cases [1]. The majority of patients are diagnosed at an advanced stage, and the prognosis of NSCLC remains very poor, with a 5-year survival of 11 %, despite there have been some advances in the treatment of NSCLC in recent decades [2]. Therefore, it is of great significance to understand the molecular mechanisms involved in NSCLC carcinogenesis, identify diagnostic, and prognostic biomarkers, and develop effective treatment for NSCLC.

microRNAs (miRNAs) are a class of small (approximately 20–25 nucleotides), noncoding RNAs which negatively regulate gene expression posttranscriptionally. miRNAs suppress protein translation or trigger target mRNAs degradation through binding to a complementary sequence within the 3'-untranslated regions of target mRNAs [3, 4]. An individual miRNA can modulate the expression of multiple genes containing target binding sites for interaction with miRNAs, and an individual mRNA can be regulated by multiple miRNAs [5]. Recent studies have revealed that miRNAs were involved in a variety of biological processes, including cell proliferation, development, differentiation, and metabolism [6]. Thus, the aberrant alteration of miRNA expression might be involved in carcinogenesis and disease progression. Emerging evidence shows that aberrantly expressed miRNAs might serve as oncogenes or tumor-suppressor genes in NSCLC [7–9]. miR-92b has been found to be upregulated and act as oncogenes in several tumors, including ovarian epithelial carcinoma, colon cancer, neuroblastoma [10–12]. Recently, miR-92b has been reported to be elevated in NSCLC [13, 14]; however, the detailed role of miR-92b in NSCLC remains poorly understood.

Herein, we studied the effects of miR-92b on cell proliferation, colony formation, migration, and invasion in NSCLC cells. Reversion-inducing-cysteine-rich protein

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