Mol Cell Biochem
DOI 10.1007/s11010-013-1860-y

miR-185 is an independent prognosis factor and suppresses tumor metastasis in gastric cancer

Zhiqin Tan · Hao Jiang · Youhua Wu · Liming Xie · Wenxiang Dai · Hailin Tang · Sanyuan Tang

Received: 23 July 2013 / Accepted: 9 October 2013

Abstract miR-185 has been identified as an important factor in several cancers such as breast cancer, ovarial cancer, and prostate cancer. However, its effect and prognostic value in gastric cancer are still poorly known. In this study, we found that the expression levels of miR-185 were strongly downregulated in gastric cancer and associated with clinical stage and the presence of lymph node metastases. Moreover, miR-185 might independently predict OS and RFS in gastric cancer. We further found that upregulation of miR-185 inhibited the proliferation and metastasis of gastric cancer cells in vitro and in vivo. Taken together, our findings demonstrate that the miR-185 is important for gastric cancer initiation and progression and holds promise as a prognostic biomarker to predict survival and relapse in gastric cancer. It is also a potential therapeutic tool to improve clinical outcomes in the above disease.

Keywords Gastric cancer · miR-185 · Prognostic significance

Z. Tan · H. Jiang · Y. Wu · L. Xie · W. Dai · S. Tang (✉)
Center for Gastric Cancer Research of Human Province, The First Affiliated Hospital, University of South China, 69 Chuanshan Road, Hengyang 421001, People's Republic of China
e-mail: tsy09@126.com

Z. Tan
Department of Gynaecology and Obstetrics, The 169th Hospital of PLA, 369 South Dongfeng Road, Hengyang 421002, People's Republic of China
e-mail: tzq169@163.com

H. Tang (✉)
State Key Laboratory of Oncology in South China, Sun Yat-Sen University Cancer Center, 651 East Dongfeng Road, Guangzhou 510060, People's Republic of China
e-mail: tanghl@sysucc.org.cn

Introduction

Gastric cancer is one of the most common malignancies and is the second leading cause of cancer mortality worldwide [1]. Nearly half of gastric cancer occurs in China with an overall 5-year survival rate of approximately 20 % [2], most of which are diagnosed in advanced stages and thus have lost the opportunity for radical surgery. Lack of early detection and limited treatment options contribute to its bad prognosis. Therefore, the identification of novel mediators of invasion and metastasis, in addition to novel biomarkers of gastric cancer progression, is crucial to improve the patient outcome.

miRNA expression has firmly established that miRNAs regulate various key cellular processes, such as proliferation, apoptosis, differentiation, development [3], and are implicated in human diseases, including cancer [4]. An increasing number of studies have demonstrated that miRNAs can function as oncogenes or tumor suppressors and are often dysregulated in tumors [5]. Accumulating evidence suggests that there are correlations between miRNA expression and clinical recurrence, development of metastases, and/or survival [6]. Due to their tissue- and disease-specific expression patterns and regulatory potentials, miRNAs are being assessed as potential biomarkers for diagnosis and prognosis of human malignancies [7]. miR-185, located on chromosome 22q11.21, is one of the

Published online: 25 October 2013