Molecular regulatory roles of long non-coding RNA HOTTIP: An overview in gastrointestinal cancers

ABSTRACT

Gastrointestinal (GI) cancers presented an alarmingly high number of new cancer cases worldwide and are highly characterised by poor prognosis. The poor overall survival is mainly due to late detection and emerging challenges in treatment, particularly chemoresistance. Thus, the identification of novel molecular targets in GI cancer is highly regarded as the main focus. Recently, long non-coding RNAs (lncRNAs) have been discovered as potential novel molecular targets for combating cancer, as they are highly associated with carcinogenesis and have a great impact on cancer progression. Amongst lncRNAs, HOTTIP has demonstrated a prominent oncogenic regulation in cancer progression, particularly in GI cancers, including oesophageal cancer, gastric cancer, hepatocellular carcinoma, pancreatic cancer, and colorectal cancer. This review aimed to present a focused update on the regulatory roles of HOTTIP in GI cancer progression and chemoresistance, as well as deciphering the associated molecular mechanisms underlying their impact on cancer phenotypes and chemoresistance and the key molecules involved. It has been reported that it regulates the expression of various genes and proteins in GI cancers that impact cellular functions, including proliferation, adhesion, migration and invasion, apoptosis, chemosensitivity, and tumour differentiation. Furthermore, HOTTIP was also discovered to have a higher diagnostic value as compared to existing diagnostic biomarkers. Overall, HOTTIP has presented itself as a novel therapeutic target and potential diagnostic biomarker in the development of GI cancer treatment.