

The central role of let-7 microRNA in the genetic regulation of various gastrointestinal cancers

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Abstract

MicroRNAs are non-coding RNA molecules, inhibiting or abrogating the translation process of their mRNA target. Let-7 is the prototypical microRNA family. Thirteen precursor transcripts are processed and generate ten mature let-7 members. Nevertheless, mature and precursor let-7 molecules are produced in distinct rates throughout carcinogenesis process. This differentiated expression may contribute in the genetic regulation of many cancers, including gastrointestinal ones. The mission of let-7 in the gastrointestinal tract and in both liver/pancreas is to promote differentiation and to depress stemness. Although scarce reports imply its oncogenicity, let-7 is widely considered a tumor-suppressor gene, as it downregulates every single hallmark of cancer. Let-7 targets a plentitude of crucial oncogenes (K-ras, c-myc) and in a lesser degree, tumor-suppressor genes or tumor-suppressive pathways (p53, Wnt/APC). K-ras oncogene, the most prevalent oncogenic driver mutation in colorectal and pancreatic cancer, is the dominant target of let-7. The interplay between let-7 and its effectors is complex, as approximately all let-7 targets behave as its reciprocal regulators, mainly negative. Moreover, let-7 is autoregulated (positively or negatively), and it depends its effect either on other miRNAs or on dietary compounds. Despite the well-documented pathogenetic, prognostic, predictive, diagnostic and therapeutic role of let-7 in colorectal cancer, recent research has documented its crucial role in the epigenetic regulation of other gastrointestinal cancers as well, as those of pancreas, liver, stomach and esophagus. The aim of this e-poster presentation is to outline the current data regarding the role of let-7 in the tumor-suppressive circuits of several gastrointestinal tumorigenesis processes.

Biography

Nikolaos G Margetis graduated from University of Patras (Greece) in 1995. He has specialized in Gastroenterology since 2005 and Specialist in EUS since 2006. Since July 2017 he holds a PhD Degree from Medical School of National and Kapodistrian University of Athens, Greece. He has been a Consultant in three Great Hospitals of Athens. He was a Member of SOS DOCTORS of Athens for six years. Since 2013 he is a Member of Athens University (belongs to the Molecular Carcinogenesis Group and teaches the undergraduate and postgraduate students of the Medical and the Nursing Schools). He has 10 publications in reputed international medical journals, 30 publications in greek medical journals and has contributed in 2 Greek Medical textbooks' writing. He is the Editorial Board Member in 4 and Reviewer in 3 international medical journals with authority. He was awarded for his work in two congresses and in many hands-on courses. He organized the 1st Greek Congress "Georgios Papanicolaou-The prevention of cancer".

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