

Wnt5a Signaling in Gastric Cancer

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Gastric cancer remains an important health challenge, accounting for a significant number of cancer-related deaths worldwide. Therefore, a deeper understanding of the molecular mechanisms involved in gastric cancer establishment and progression is highly desirable. The Wnt pathway plays a fundamental role in development, homeostasis, and disease, and abnormal Wnt signaling is commonly observed in several cancer types. Wnt5a, a ligand that activates the non-canonical branch of the Wnt pathway, can play a role as a tumor suppressor or by promoting cancer cell invasion and migration, although the molecular mechanisms explaining these roles have not been fully elucidated. Wnt5a is increased in gastric cancer samples; however, most gastric cancer cell lines seem to exhibit little expression of this ligand, thus raising the question about the source of this ligand in vivo. This review summarizes available research about Wnt5a expression and signaling in gastric cancer. In gastric cancer, Wnt5a promotes invasion and migration by modulating integrin adhesion turnover. Disheveled, a scaffolding protein with crucial roles in Wnt signaling, mediates the adhesion-related effects of Wnt5a in gastric cancer cells, and several studies provide growing support for a model whereby Disheveled-interacting proteins mediates Wnt5a signaling to modulate cytoskeleton dynamics. However, Wnt5a might induce other effects in gastric cancer cells, such as cell survival and induction of gene expression. On the other hand, the available evidence suggests that Wnt5a might be expressed by cells residing in the tumor microenvironment, where feedback mechanisms sustaining Wnt5a secretion and signaling might be established. This review analyzes the possible functions of Wnt5a in this pathological context and discusses potential links to mechanosensing and YAP/TAZ signaling. © Copyright © 2020 Astudillo.

adhesion

Disheveled

gastric cancer

invasion

mechanosensing

metastasis

Wnt5a

dishevelled protein

integrin

TAZ protein

tumor protein

unclassified drug

Wnt5a protein

yes associated protein

cell adhesion

cell invasion

cell migration

cell survival

cytoskeleton

gastric cancer cell line

human

mechanotransduction

molecular pathology

nonhuman

protein expression

protein function

protein protein interaction

protein secretion

Review

stomach cancer

stomach carcinogenesis

tumor microenvironment

Wnt signaling