GLI3: A Mediator of Genetic Diseases, Development and Cancer

Stephan J. Matissek
Sherine F Elsawa

Video Byte

Keywords: GLI, GLI3, Hedgehog signaling, development, cancer, genetic disease, Cell Communication and Signaling

Posted Date: June 23rd, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-37681/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Abstract

Gene regulation plays a critical role in human development and disease, including cancer. Genes are regulated by a family of proteins called transcription factors. One such molecule is GLI3, a member of the "Hedgehog" signaling pathway. GLI3 can switch genes ON (such as in development and cancer) and switches gene expression OFF in Hedgehog signaling. This central molecule is important for tissue development in the brain and lungs and for the development and activation of immune cells such as B, T and NK cells. GLI3 is upregulated in many cancers, promoting growth, angiogenesis, and tumor cell proliferation and migration, but interestingly, in certain cancers, GLI3 has an anti-tumor role. and its pro-cancerous role can be modulated by GLI3-targeting microRNA. Understanding GLI3-mediated signaling will clarify its roles in disease, development, and cancer, laying the foundation to target this critical molecule in immune and cancer therapies.