

## THE STRUCTURE AND FUNCTION OF GAP JUNCTIONS. THEIR IMPORTANCE IN CANCEROGENESIS

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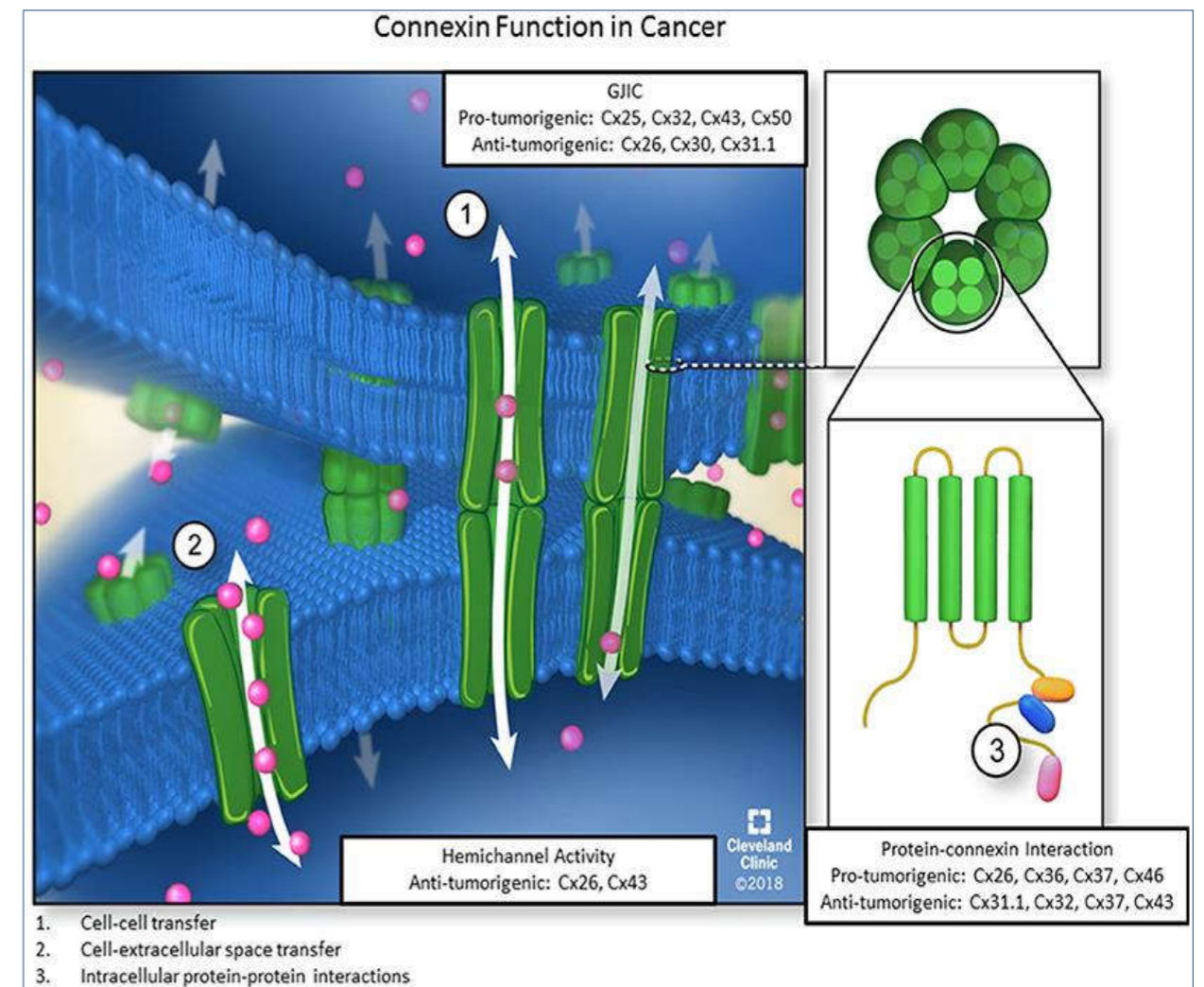
**Introduction:** Gap junctions connect the cytoplasm of two neighboring cells. Pannexins and connexins produce gap junctions, and allow the flow of ions, small metabolites between cells. The absence of gap junctions between tumor cells is linked to the initiation and progression of cancer.

**Keywords:** gap junctions, intercellular channels, connexin, cancer, metastasis.

**Purpose:** To highlight the functions of gap junctions in cancerogenesis and to understand better the role of gap junctions in cancer development.

**Material and methods:** We searched PubMed, NCBI, Research Gate, frontiersin, Science Direct, and Oxford Academic for all relevant material published until May 31, 2022.

**Results:** Gap junctions are typically downregulated in cancer cells, and numerous lines of evidence show that loss of gap junctional intercellular communication is a key stage in carcinogenesis. Retrieving the intercellular communication has shown to reduce cancer growth and induce normal and controlled cell growth. Determining the mechanisms involved in connexin downregulation during carcinogenesis will be an important step in prevention and therapy of cancer. According to the connexin under examination, connexin expression was either up- or downregulated in relation to the cancer's histological subtype. Poor survival was linked with nuclear localization of Cx43.



### Conclusions:

- Connexins plays an important role in inhibition of carcinogenesis and regulation of cell growth.
- The downregulation of connexin increased cancer formation and intensified metastasis, while overexpression suppressed tumor formation and metastasis.