

## Could Gastrointestinal Tumor-Initiating Cells Originate from Cell-Cell Fusion *In Vivo*?

### Abstract

Tumor-initiating cells (TICs) or cancer stem cells (CSCs) are believed to be responsible for gastrointestinal tumor initiation, progression, metastasis, and drug resistance. It is hypothesized that gastrointestinal TICs (giTICs) might originate from cell-cell fusion. Here, we systemically evaluated the evidence that supports or opposes the hypothesis of giTIC generation from cell-cell fusion both *in vitro* and *in vivo*. We reviewed giTICs that are capable of initiating tumors *in vivo* with 5000 or fewer *in vivo* fused cells. Under this

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The **origin** of **cancer stem cells** and **cancer cells** could be tissue (4a, 4c) or bone marrow-derived (4b) **stem cells**. There are two possible origins for tissue progenitor **cells**, referred to as label-retaining **cells** (LRCs) or Lgr5 positive crypt base columnar (CBC) **cells** between Paneth **cells**.

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### Tumor Microenvironment and Cell Fusion

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### Fusion with stem cell makes the hepatocellular carcinoma ...

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The **in vivo** tumorigenicity assay and drug resistance assay also demonstrated that the **fusion** of cancer **cells** with stem **cells** resulted in cancer **cells** that were highly similar to cancer stem **cells**. These results suggested the possibility of incurring risks when some stem **cell** therapies are used for cancer treatment.

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May 28, 2013 - On the other hand, the term "tumor-initiating cells", according to experimental evidence, refers to the ability of these cells to initiate tumors when transplanted in a xenograft model. In this case, it could be incorrectly inferred that the cell that gives rise to the xenograft tumor is the same cell in which the first oncogenic mutation ...

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The in vivo tumorigenicity assay and drug resistance assay also demonstrated that the fusion of cancer cells with stem cells resulted in cancer cells that were highly similar to cancer stem cells. These results suggested the possibility of incurring risks when some stem cell therapies are used for cancer treatment.

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### [Inflammation and Stem Cells in Gastrointestinal Carcinogenesis](#)

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In 1911, Aichel first proposed that the source of aneuploidy could be fusion of tumor-invading leukocytes with cancer cells. Two recent publications elegantly extend previous findings on so-called heterotypic cell fusion (41, 71). Inflammation seems to be a trigger for fusion of myelolymphoid cells with non-hematopoietic cells, including ...

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