Cell Signal. 2017 Oct;38:146-158. doi: 10.1016/j.cellsig.2017.07.005. Epub 2017 Jul 11.

Horizontal transfer of miR-106a/b from cisplatin resistant hepatocarcinoma cells can alter the sensitivity of cervical cancer cells to cisplatin

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PMID: 28709644 DOI: 10.1016/j.cellsig.2017.07.005

Abstract

Recent studies indicate that horizontal transfer of genetic material can act as a communication tool between heterogenous populations of tumour cells, thus altering the chemosensitivity of tumour cells. The present study was designed to check whether the horizontal transfer of miRNAs released by cisplatin resistant (Cp-r) Hepatocarcinoma cells can alter the sensitivity of cervical cancer cells. For this exosomes secreted by cisplatin resistant and cisplatin sensitive HepG2 cells (EXres and EXsen) were isolated and characterised. Cytotoxicity analysis showed that EXres can make Hela cells resistant to cisplatin. Analysis of miR-106a/b levels in EXres and EXsen showed that their levels vary. Mechanistic studies showed that miR-106a/b play an important role in EXsen and EXres mediated change in chemosensitivity of Hela cells to cisplatin. Further SIRT1 was identified as a major target of miR-106a/b using in silico tools and this was proved by experimentation. Also the effect of miR-106a/b in chemosensitivity was seen to be dependent on regulation of SIRT1 by miR-106a/b. In brief, this study brings into light, the SIRT1 dependent mechanism of miR-106a/b mediated regulation of chemosensitivity upon the horizontal transfer from one cell type to another.

Keywords: Cisplatin resistance; Exosomes; SIRT1; miR-106a/b.

Related information

GEO Profiles
Gene
Gene (GeneRIF)
MedGen
Nucleotide (RefSeq)
Nucleotide (RefSeq)
PubChem Compound (MeSH Keyword)
Taxonomy via GenBank