Insights: Publications

Human placental trophoblasts confer viral resistance to recipient cells

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Placental trophoblasts form the interface between the fetal and maternal environments and serve to limit the maternal fetal spread of viruses. Here we show that cultured primary human placental trophoblasts are highly resistant to infection by a number of viruses and, importantly, confer this resistance to nonplacental recipient cells by exosome-mediated delivery of speci?c micro-RNAs (miRNAs). We show that miRNA members of the chromo-some 19 miRNA cluster, which are almost exclusively expressed in the human placenta, are packaged within trophoblast-derived exosomes and attenuate viral replication in recipient cells by the induction of autophagy. Together, our ?ndings identify an unprecedented paracrine and/or systemic function of placental tropho-blasts that uses exosome-mediated transfer of a unique set of placental-speci?c effector miRNAs to directly communicate with placental or maternal target cells and regulate their immunity to viral infections.

Related People



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