Genomic DNA isolated from extracellular vesicles derived from Glioblastoma cells could improve tumor diagnosis and follow-up of patients

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Resumen

Glioblastoma multiforme (GBM) is the most common (15% of all brain tumors) and aggressive primary brain tumour. It is classified by the World Health Organization as a type IV glioma, and the average of survival is 15 months after treatment (surgery and quimio-radio therapy). Although great amounts of molecular advances have been made, their translation to the clinic is unfortunately limited. It is known that CICs from GBM produce different types of extracellular vesicles (EVs), which are assorted in apoptotic bodies (1-4µ), shedding microvesicles (200-1000nm) and exosomes (around 60-200nm). The formation and shedding of these EVs have an enormous importance in the intercellular communication. Indeed, it has effects on tumour progression such as metastasis, angiogenesis and hampers immune response. EVs have been shown to carry proteins, different types of RNA (mRNA, miRNA, ncRNA), and some species of DNA, as well as two oncogene sequences (c-Myc and H-ras) and mtDNA. Recent findings from our group show that different type of EVs incorporate in their cargo gDNA sequences from different type of oncogenes, all of them related to the biology of GBM. These sequences, together with RNA sequences, proteins and different type of metabolites, represent a novel approach to improve brain tumour diagnostic, treatment and follow up of patients.

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