SELECTED PUBLICATIONS


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Meet Our Editor-in-Chief

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Dr. Miguel Muñoz is M.D. and Ph.D. (University of Seville, Spain). He has published more than 90 publications in peer-review journals, 7 books, 25 book and encyclopedia chapters and 1 patent. He belongs to the editorial board of the journals Medicine, Letter in Drug Design and Discovery and World Journal of Gastrointestinal Pharmacology and Therapeutics. He is reviewer of 70 peer review journals and has directed more than 40 Ph.D. theses. Currently, Dr. Muñoz is pediatrician in Pediatric Intensive Care and head of the Research Laboratory in Neuropeptides (IBIS), Virgen del Rocio University Hospital of Seville, Spain.

AREA OF INTEREST AND RESEARCH

I have focused my research on the involvement of the peptide substance P (SP) and the neurokinin-1 (NK-1) receptor system in cancer; I have studied the involvement of this system in cancer progression. SP, via the NK-1 receptor, promotes proliferation of tumor cells and induces an anti-apoptotic effect in these cells; SP facilitates the migration of tumor cells for invasion and metastasis; SP promotes angiogenesis and increases the permeability of the blood-brain barrier, facilitating metastasis. SP, after binding to the NK-1 receptor, induces glycogen breakdown, and this has been linked with the Warburg effect in tumor cells. My contribution to this field has been to demonstrate that human tumor samples/cells express SP and the NK-1 receptor. Moreover, tumor cells overexpress NK-1 receptors and expresses isoforms of this receptor (truncated and full length). The glycylated isoform of the NK-1 receptor fixes the receptor to the plasma membrane of tumor cells. SP after binding to NK-1 receptor elicits tumor cell proliferation in all the human cancer cell lines studied (more than 30). I have also studied the antitumor action of NK-1 receptor antagonists (there is more than 300 compounds). These compounds show a heterogeneous chemical composition but share the same stereochemical features. NK-1 receptor antagonists, in a concentration- and time-dependent manner, block the pathophysiological actions mediated by SP. Thus, NK-1 receptor antagonists inhibit the proliferation and migration (preventing invasion and metastasis) of tumor cells; exert and anti-apoptotic effect; they could counteract the Warbur effect; decrease the permeability of the blood-brain barrier (preventing brain metastasis), and inhibit the angiogenesis (acting directly on the NK-1 receptor and indirectly by blocking the vascular endothelial growth factor). In fact, the NK-1 receptor antagonist aprepitant elicits all the previous actions. In human, the safety of aprepitant is high: the IC50 for non-tumor cells is three times higher than that for tumor cells. In a clinical assay (300 mg/day of aprepitant), the drug exerted the same antidepressant action that paroxetine, however the side-effect was similar to placebo. The aim of my researcher is to know in-depth the mechanisms mentioned above by performing new *in vitro* and *in vivo* experiments. The final goal is to develop a clinical trial to test the antitumor action of the drug aprepitant in cancer patients.