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Unraveling the full role of P-glycoprotein in multidrug resistant cancers

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Multidrug resistance (MDR) is often responsible for treatment failure in cancer patients. One of the main reasons for the MDR phenotype of cancer cells is an overexpression of drug-efflux pumps such as P-glycoprotein (P-gp). Recently, my research group, together with international collaborators, compared MDR cells with their drug-sensitive counterparts and verified that MDR cells present metabolic alterations which may be further explored as molecular targets to counteract the MDR phenotype. In addition, my group observed that P-gp may be horizontally transferred by extracellular vesicles (EVs), between MDR and drug-sensitive cells, confirming results from other researchers and indicating that this protein has a stronger influence in the MDR phenotype of tumor cells than had been initially realized. Interestingly, we and collaborators had recently found that the EVs released by MDR cells are enriched in microvesicle-like EVs. However, the work indicates that drug-resistant cells without overexpression of P-gp do not present this enrichment. Thus, we are currently verifying if P-gp could be involved in the release of microvesicles by MDR cells.

Biography

M Helena Vasconcelos is an Assistant Professor at FFUP (Faculty of Pharmacy, University of Porto) and Group Leader of the Cancer Drug Resistance Group at i3S/IPATIMUP. She has done her First degree in Pharmaceutical Sciences (1991) from FFUP in Portugal, MSc (1992) and PhD (1996) from the University of Aberdeen in Scotland. Her current research focuses on the identification and validation of biomarkers and therapeutic targets to overcome drug resistance in cancer and on the activity of small molecules to counteract drug resistance. She has published more than 85 papers published in international journals and with an h-index of 23.

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