

P003 Characterisation of the uptake of octaarginine in different cell types in the absence or presence of the cholesterol sequestering agent methyl- β -cyclodextrin

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Establishing the mechanism by which cell-penetrating peptides such as oligoarginine, and HIV-TAT gain access to the interior of cells is fundamental to their utilisation as drug-delivery vectors. Current research provides evidence supporting a role for both endocytosis and direct plasma membrane translocation. Here we have compared the uptake and distribution of a fluorescent-octaarginine peptide when incubated at different temperatures and concentrations with three leukaemia cell lines, KG1, KG1a and K562. At 4°C the peptide diffusely labels throughout the cytosol, the extent of which is highly cell-type dependent. At 37°C the pattern of labelling changes to vesicular; but in all cells studied, cytosolic labelling is enhanced at concentrations exceeding 5 μ M. Our previous studies showed depletion of plasma membrane cholesterol caused an influx of octaarginine into the cytoplasm of cells incubated with the peptide at 37°C [1], and we now extend this further to studies in a number of different adherent and non-adherent cell lines.

[1] Fretz, M.M., et al Biochem. J. 2007 - In Press.