

**P032** Characterization of a novel cytotoxic cell-penetrating peptide derived from the p14ARF protein

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The tumour suppressor p14ARF is widely deregulated in many types of cancers and is believed to function as a failsafe mechanism, inhibiting proliferation and inducing apoptosis as a cellular response to a high oncogene load. We have found that a 22 amino acid long peptide derived from the N-terminal part of p14ARF, denoted ARF(1-22), which has previously been shown to mimic the function of p14ARF, has cell penetrating properties. This peptide is internalized to the same extent as the broadly studied cell penetrating peptide TP10 and dose-dependently decreases proliferation in MCF-7 and MDA MB 231 cells. Uptake of the ARF(1-22) peptide is associated with low membrane disturbance, measured by deoxyglucose and LDH leakage, compared to its scrambled peptide. Also, annexin binding reveals that ARF(1-22) induces apoptosis in MCF-7 and MDA MB 231 cells, while the scrambled peptide sequence has no effect. To our knowledge, this is the first time a CPP has been designed from a protein, having pro-apoptotic activity.