

P005 Development of phage derived scFv:porphyrin conjugates for use in photodynamic therapy of cancer
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Photodynamic therapy has become a useful tool in oncology but is limited by side-effects caused by a lack of targeting of the photosensitiser. This problem can be circumvented by the conjugation of photosensitisers, such as porphyrins, to tumour specific monoclonal antibodies or alternatively to single chain (sc) Fv fragments which retain the same binding specificity but are more efficient at penetrating tumour masses due to their smaller size. A panel of scFv antibodies were previously isolated from the Nissim library after panning against colorectal cell lines. LAG3 was selected for expression and purification on the basis of good binding by flow cytometry and efficient expression of soluble scFv fragments. The LAG3 scFv was conjugated to 5 isothiocyanate porphyrins at different molar ratios. Flow cytometric analysis showed that most of the scFv conjugates maintained the binding ability of the parent scFv across a range of loading ratios. *In vitro* cytotoxicity assays against colorectal cell lines gave promising results for the killing ability of these immunoconjugates, suggesting that scFv:porphyrin conjugates show promise for use as an antibody-targeted photodynamic strategy.