Characterisation of novel lung cancer cell lines for immuno-inhibitory markers

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Introduction
The full power of immune system, leads to the elimination of cancerous tumour cells and prevents the development of malignancy. Tumour cells express immunogenic peptides, due to mutation which are recognised as foreign by T-cell and B-cells. However cancer cells can develop mechanisms to escape immune elimination (Hanahan & Weinberg 2011) such as HLA down regulation which can limit peptide expression and decrease immunogenicity and upregulation of PD-L1 which inhibit the action of T-cells, B-cells and macrophages.

Hypothesis
It was hypothesised PD-L1 and HLA-1 are upregulated in lung cancer cell lines (H838, H838-EGFR, A549, A549-ALK, NCI 1650, HCC 827, TWIT & JACKET) and can be modulated by IFN-γ

Aims
The aim of this study was to quantify the percent expression of PD-L1 and HLA-1 in lung cancer cell lines in the presence and absence of IFN-γ.

Methods
Materials
Media used: DMEM (Gibco) supplemented with 10% fetal calf serum and 1% Penicillin-streptomycin. RPMI (Gibco) supplemented with 10% fetal calf serum and 1% Penicillin-streptomycin. 50:50 mix of the WIT-P medium with 5% T (Cellaria), Renaissance medium (RETM) (Cellaria) with 4% HyClone serum and 3% RETM supplement. Antibodies: APC anti-human CD274 (BD-H7, PD-L1) antibody (Biologend), APC Mouse IgG2B, κ Isotype Control Antibody (Biologend), FITC Mouse Anti-Human HLA-ABC (BD bioscience), FITC Mouse IgG1, κ Isotype Control (BD bioscience). Recombinant Human IFN-γ (carrier-free) (Biologend)

Results
PD-L1 characterisation in lung cancer cell lines

HLA-1 characterisation in lung cancer cell lines continued

Conclusion & future work
- IFN-γ increases PD-L1 expression
- Treat all cell lines with IFN-γ with repeats
- Assess the effect of IFN-γ on cell viability for all cell lines
- Treat cell lines with a combination of IFN-γ and TNF-α

References