# AB071. 136. Characteristics of the tumour microenvironment affect the expression of inhibitory immune checkpoints on T-cells and oesophageal adenocarcinoma cells

**Maria Davern[1], Noel Donlon[1], Andrew Shephard[1], Jamie MacDonald[4], Emma Foley[2], John Reynolds[2], Stephen Maher[3], Melissa Conroy[1], Margaret Dunne[2], Joanne Lysaght[1]**

[1]Cancer Immunology and Immunotherapy Research Group, Department of Surgery, Trinity Translational Medical Institute, St. James's Hospital, Dublin, Ireland; [2]Department of Surgery, Trinity College Dublin, St. James's Hospital, Dublin, Ireland; [3]Cancer Chemoradiation Research Group, Department of Surgery, Trinity Translational Medical Institute, St. James's Hospital, Dublin, Ireland; [4]IMED Oncology, Astrazeneca, Cambridge, UK

**Background:** This novel study examines the effect of well-known characteristics of the tumour microenvironment including hypoxia and nutrient deprivation on the expression of inhibitory immune checkpoints (IC) on oesophageal adenocarcinoma (OAC) cells to identify potential ICs that could be targeted in OAC as more than two-thirds of patients don't benefit from chemoradiotherapy (CRT). Importantly the effect of hypoxia and nutrient deprivation on IC expression on T-cells is also examined. Understanding the effect of the tumour microenvironment on IC expression is essential for rationally incorporating immune checkpoint inhibitors (ICIs) into current standards of neoadjuvant care for OAC patients.

**Methods:** The expression of ICs on activated T-cells and OAC cells cultured separately under conditions of severe hypoxia/normoxia +/– nutrient deprivation (glucose deprivation or glutamine deprivation) was determined by flow cytometry.

**Results:** Severe hypoxia and glucose deprivation increased the surface expression of PD-1 on OAC cells and decreased the surface expression of PD-1 on live activated T-cells.

**Conclusions:** The increased expression of PD-1 on OAC cells under severe hypoxic glucose deprived conditions suggests that PD-1 may confer OAC cells with a survival advantage potentially via immune evasion. Therapeutic targeting of PD-1 in OAC may reduce the survival of OAC cells and certainly warrants further investigation. This data offers a starting point for understanding changes in IC expression in the OAC tumour microenvironment which could help guide the appropriate selection of ICIs with current standards of care to identify the best combination regimen for OAC patients.

**Keywords:** Immune checkpoints; oesophageal adenocarcinoma; hypoxia

doi: 10.21037/map.2019.AB071

**Cite this abstract as:** Davern M, Donlon N, Shephard A, MacDonald J, Foley E, Reynolds J, Maher S, Conroy M, Dunne M, Lysaght J. Characteristics of the tumour microenvironment affect the expression of inhibitory immune checkpoints on T-cells and oesophageal adenocarcinoma cells. Mesentery Peritoneum 2019;3:AB071.