

## **ACTA Project Grant**

### **2012 Round 2**

#### **Successful Applicant**

Dr Ben Shelley

*Clinical Research Fellow, University of Glasgow*

#### **Title**

The Pulmonary Vascular / Right Ventricular Response to Lung Resection

#### **Amount**

£26,932

#### **Scientific Abstract**

Lung cancer is the second most common cancer in the UK. In suitable cases the best chance of cure is surgical resection. Studies suggest that lung resection is associated with right ventricular (RV) dysfunction, predisposing to complications and post-operative dyspnoea. Studies of RV function following lung resection have been hampered by the limitations of the techniques used. In addition the mechanism of RV dysfunction has remained elusive.

In this prospective observational study the RV response to lung resection will be characterised by sequential assessment of right ventricular ejection fraction (RVEF) measured using cardiovascular magnetic resonance (CMR). CMR is non-invasive, involves no ionising radiation and due to its high spatial resolution is the gold standard for assessing RV volumes. Comprehensive CMR and echocardiographic assessment of the pulmonary vascular - RV axis will allow us to interpret peri-operative changes in RVEF in the context of RV contractility and loading indices. In addition, contemporaneous blood samples will be taken for measurement of biomarkers of myocardial and endothelial dysfunction and systemic inflammation.

With increased understanding of the mechanisms involved, it may be possible to prevent RV dysfunction; reducing complication rates, hospital stay and costs and ameliorating long term dyspnoea.