**Supplement 1 – Study Eligibility Criteria (Fielding D. et al., First human use of a new robotic-assisted fiber optic sensing navigation system for small peripheral pulmonary nodules)**

**Inclusion Criteria:**

* Patients suitable for surgery or intervention, aged 18 years - 80 years
* Pulmonary nodule(s) (PN) due to suspected lung cancer or metastatic disease or nodule(s) of unknown etiology that require further diagnostic evaluation
* One or more soft tissue dominant pulmonary nodules of ≥ 10mm and ≤30 mm in largest dimension on axial plane
* Nodule completely surrounded by at least 5 mm lung parenchyma, does not touch the hilum or mediastinum, is not associated with adenopathy, atelectasis, or pleural effusion, and the proximal nodule margin (leading edge facing the bronchus & catheter) is more than 1.5 cm distant to the visceral pleura
* Patients with a moderate to high risk of lung cancer based on clinical, demographic and radiologic information using risk prediction algorithms (as described in the review article of Lam and Tammemagi)
* PN accessible bronchoscopically on planning CT reconstruction (within 3 cm proximity to PN)
* Patient able to understand and adhere to study requirements
* Patient able to provide and sign informed consent
* Patient not legally incapacitated

**Exclusion Criteria:**

* An inability to tolerate bronchoscopy under endotracheal intubation and general anesthesia.
* ASA class > 3
* PN touches the pulmonary hilum or mediastinum, or is associated with adenopathy, lobar atelectasis, or pleural effusion
* Central PN’s located within the first 3 airway generations (segmental airways, B1-10)
* The airway leading to the target lesion arises from an aberrant accessory tracheal bronchus
* Continuous use of anticoagulants (eg, heparin, warfarin) or antiplatelet agents (e.g. Cyclooxygenase Inhibitors (Aspirin), ADP-Receptor inhibitors (Clopidogrel), GP-IIB/IIIA- inhibitors (Abciximac), fish oil, etc) which cannot be discontinued.
* Uncorrectable coagulopathy or bleeding diathesis
* Platelet dysfunction or platelet count <100×10
* History of major bleeding with bronchoscopy
* Pulmonary hypertension with mean Pulmonary Arterial Pressure (PAP) >25 mm
* Moderate-to-severe pulmonary fibrosis
* Severe respiratory insufficiency or hypoxia, moderate-to-severe hypoxemia or any degree of hypercarbia
* One or more bullae >1 cm located in close vicinity (<1cm) of target PN
* Giant bullae within the same lobe of the target PN
* Partial tracheal obstruction or obstruction of the superior vena cava
* Any other severe or life-threatening comorbidity that could increase the risk of bronchoscopic biopsy for example:
  + > Stage 3 heart failure (NY-Heart Failure Classification)
  + Unstable hemodynamic status including
* Uncontrolled dysrhythmias
* History of ventricular arrhythmias
* Uncontrolled Hypertension   
  (Blood Pressure systolic>200mmHg, Blood Pressure diastolic >120mmHg)
* Unstable Angina
* Myocardial infarction within 6 months
  + Severe cachexia, debility and malnutrition
  + Acute Renal or Liver Failure
* Ongoing systemic acute or chronic infection
* Pneumonia or acute bronchitis within 3 month of the procedure
* Lung abscess
* White Blood Cell (WBC) Count <2000 or >20,000
* Recent head injury or increased intracranial pressure
* Exposure to radiation treatment or chemotherapy within 3 months prior to the IROB procedure
* Participation in any other study in last 30 days
* Prior thoracic surgery on the same side of the lung as the PN or pneumonectomy of the contralateral lung
* Patients who are pregnant or lactating
* Patients with known intrapulmonary metastases of extrapulmonary cancer/tumors
* Persons with any kind of dependency on the investigator or employed by the sponsor or investigator
* Persons held in an institution by legal or official order, or part of vulnerable population (i.e. mentally disabled)
* Known allergy, sensitivity or previous allergic reaction to ortho-phthalaldehyde (OPA)