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| **The Prince Charles Hospital Lung Bank contributes to Sherlock international lung cancer research.**  |
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| **Introduction/Aim:** The Prince Charles Hospital (TPCH) University of QLD Thoracic Research Centre (UQTRC) Lung Bank is a Biorepository of lung cancer and associated biospecimens donated by participants undergoing treatment for lung disease and lung cancer. The Lung bank enables collaborative research projects aimed to improve outcomes for patients with lung disease. The National Cancer Institute (NCI) Sherlock-Lung: Tracing Lung Cancer Mutational Processes in Never Smokers study aims to trace lung cancer aetiology in never smokers by analysing genomic data in tumour and surrounding lung tissue, to which we have the privilege of contributing bio-samples.**Methods:** The study will include 2,000 never-smoking lung cancer patients, a subset (n=~300) with “special exposures,” such as indoor and outdoor air pollution, radon, asbestos, previous lung diseases. Whole genome sequencing, whole transcriptome, genome-wide methylation, and microbiome data will be analysed. Eligible TPCH UQTRC Lung Bank cases were selected, providing Fresh Frozen tumour tissue from surgery, H&E slides, Pathological and Radiological Data; Epidemiological Data (demographics, medical and lung health history, personal/family cancer history, smoking, occupational and environmental exposures); Clinical Data (pathological histology, stage, grade, local recurrences, metastases, survival, and treatment).**Results:**From a Lung Bank of 1567 resected lung lesions, we identified 103 eligible primary lung cancer cases to contribute to the Sherlock Study.

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|  | Never smoker cancers | Cancers in people who smoked | Total |
| Lung Bank contribution to Sherlock Study | 51 | 52 | 103 |
| Adenocarcinoma | 40 | 51 | 91 |
| Other (Squamous cell carcinoma, large cell) | 11 | 1 | 12 |
| Male | 15 | 35 | 50 |
| Female | 36 | 17 | 53 |
| TNM stage - I | 27 | 20 | 47 |
| TNM stage - II | 14 | 15 | 29 |
| TNM stage - III/IV | 10 | 17 | 27 |

**Conclusion:** The donation of routinely resected lung tissue from Participants in the UQTRC/TPCH Lung Bank enables collaboration and contribution to international high impact genomic studies in a unique subset of lung cancers not due to tobacco smoke, where there is a striking paucity of aetiological causes, without which effective prevention and early detection strategies are not possible. Cancer tissue banking is a valuable research resource and is only feasible with multidisciplinary contributions from expert clinicians, pathologists and research staff that is sustainable and scalable.**Grant Support:** TPCH Foundation, multiple funding bodies over years |