NIHR Cambridge Biomedical Research Centre

We work with Innovate UK

'PAXgene Tissue' – A novel Alternative to Formalin Fixation for Diagnostic Pathology

Southwood M, Rassl D and the STRATFix Consortium

Background

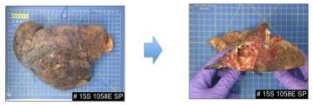
The STRATfix project is an InnovateUK funded project between University College London, seven NHS Trusts and Qiagen – a leading manufacturer of molecular diagnostic reagents

Most diagnostic pathology laboratories rely on formalin for the fixation of tissue samples sent for histopathological examination.

Whilst adequate for most existing pathological tests, formalin fixation is detrimental to DNA/RNA quality and carries with it significant health and safety considerations.

Aalternatives that enable a wider and more-in depth range of diagnostic genetic tests such as next generation sequencing are now required

Method



Duplicate samples of lung tumour and background lung from n=15 informed and consenting individuals with either lung adenocarcinoma or squamous cell carcinoma have been collected from patients undergoing surgery at our centre

Sample fixed in **PAXgene tissue** for 12-24 hours and placed into freezer until formalin free processing

Sample fixed in formalin for 12-24hours and processed using traditional formalin-based processing

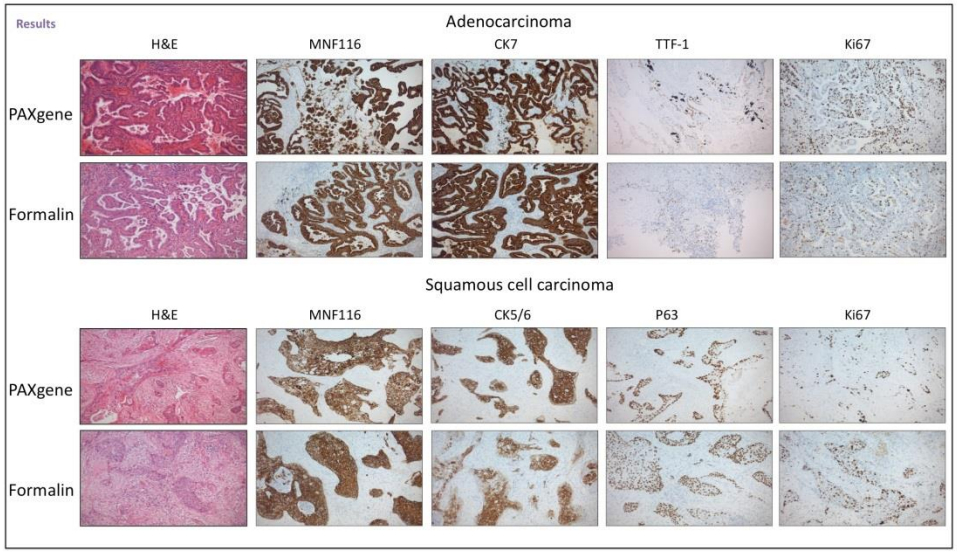
Blocks were embedded in paraffin-wax and slides produced following standard laboratory practices

Haematoxylin and Eosin, Elastic van Gieson tinctorial stains were performed

Immunohistochemistry for Cytokeratin (CK) 7, CK5/6, MNF116, TTF-1, P63 and the proliferation marker Ki67 were performed

Slides were blinded and examined by a pathologist experience with the histopathology of lung cancer

Results



Conclusion

PAXgene-fixed samples are adequate for histopathological diagnosis and suitable for tests currently used in the diagnosis of lung cancer. Previous studies have indicated that PAXgene is better for DNA and RNA preservation. This should now be evaluated in a routine diagnostic setting.

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Papworth Hospital NHS NHS Foundation Trust

British Thoracic Oncology Group

POSTER CERTIFICATE

This is to certify that

M.Southwood

Submitted a poster to BTOG 2016, this was accepted and published in supplement to *Lung Cancer* (Volume 91, Supplement 1, January 2016, ISSN 0169-5002) and was also awarded 1 of 10 Runner-Up Poster Prizes

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Signed BTOG Chair