

The pathologist in the sample to data pathway

Dr Alastair Ironside



Pathologist

- Medically qualified doctors
- Work at the interface of the clinic and the lab
- Examine tissue and cell samples to diagnose disease
- Skills in tissue handling and analysis useful for translational research

Tissue specimen pathway

- Diagnostic pathway
- Research pathway

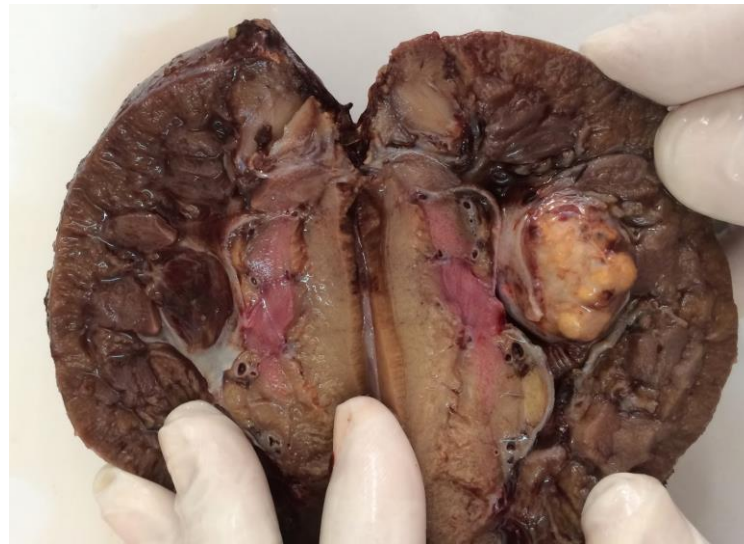
Types of Samples



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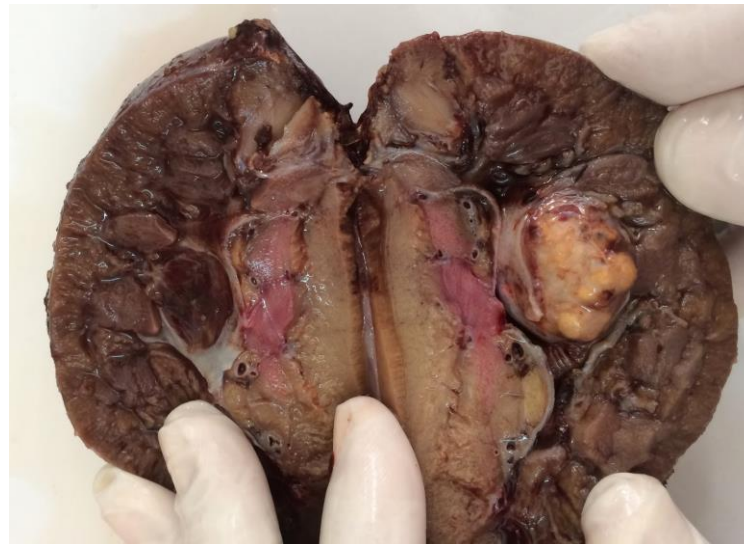
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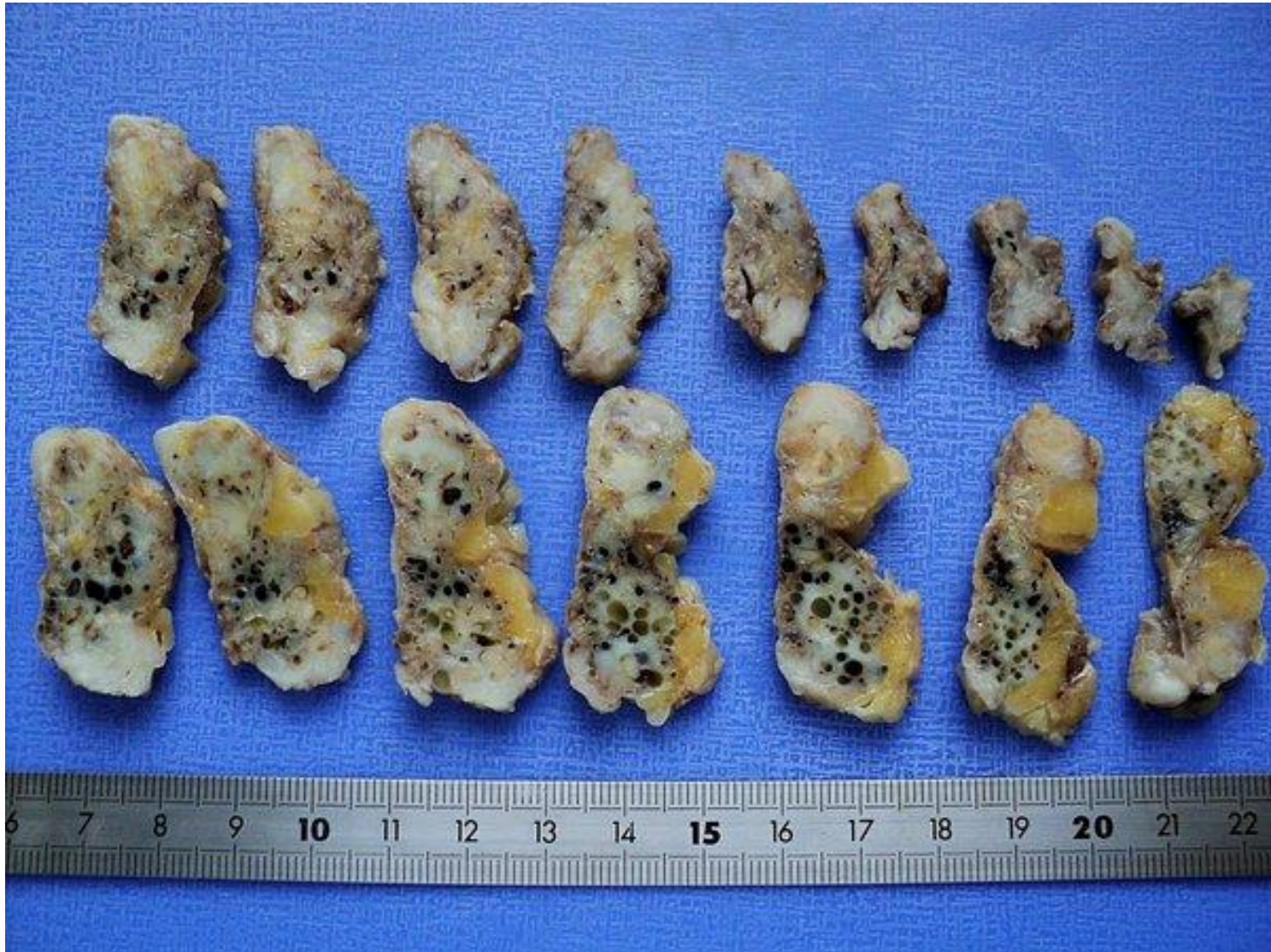


- Tissue samples are fixed in formalin to preserve architecture and prevent degradation

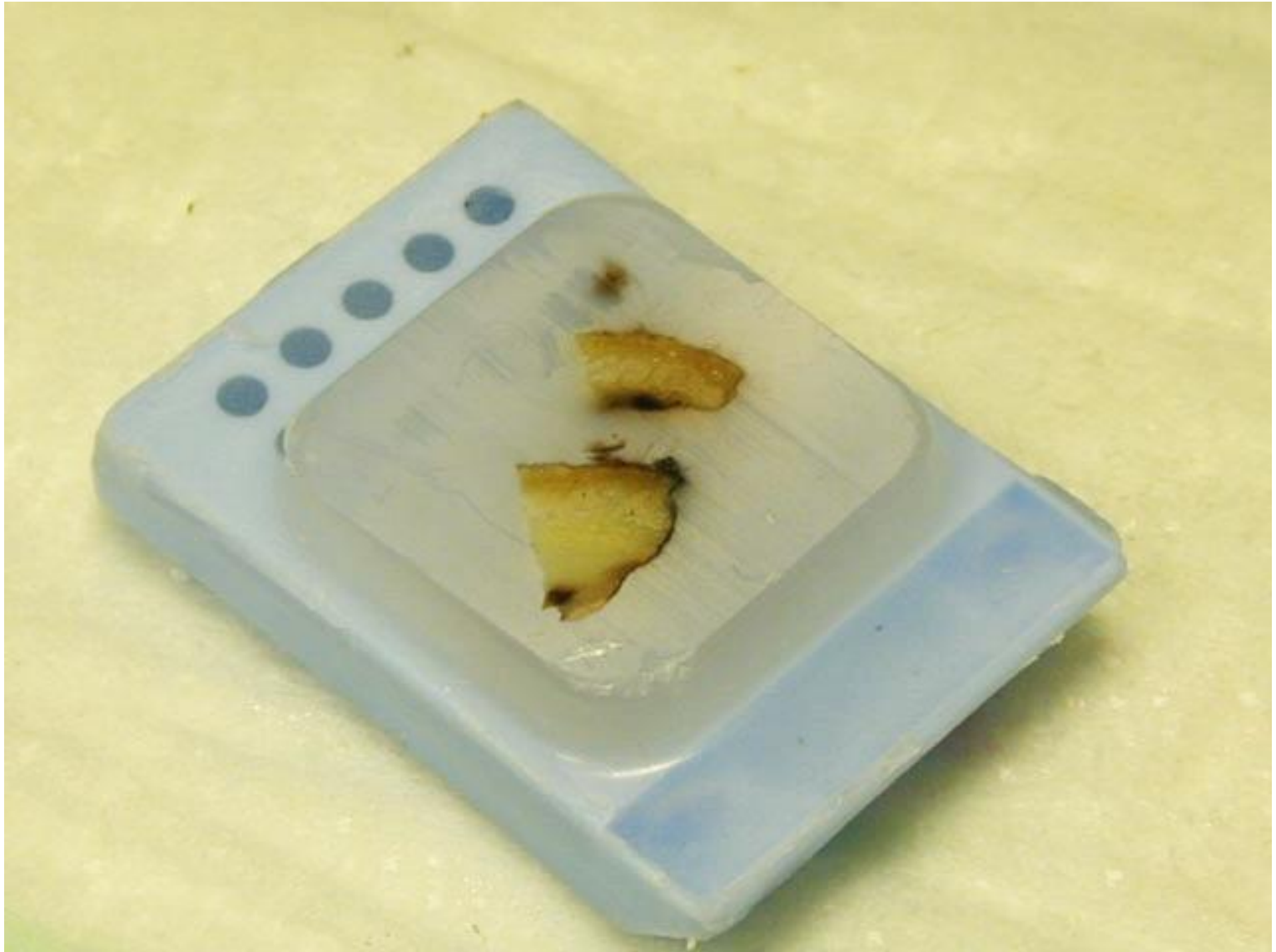
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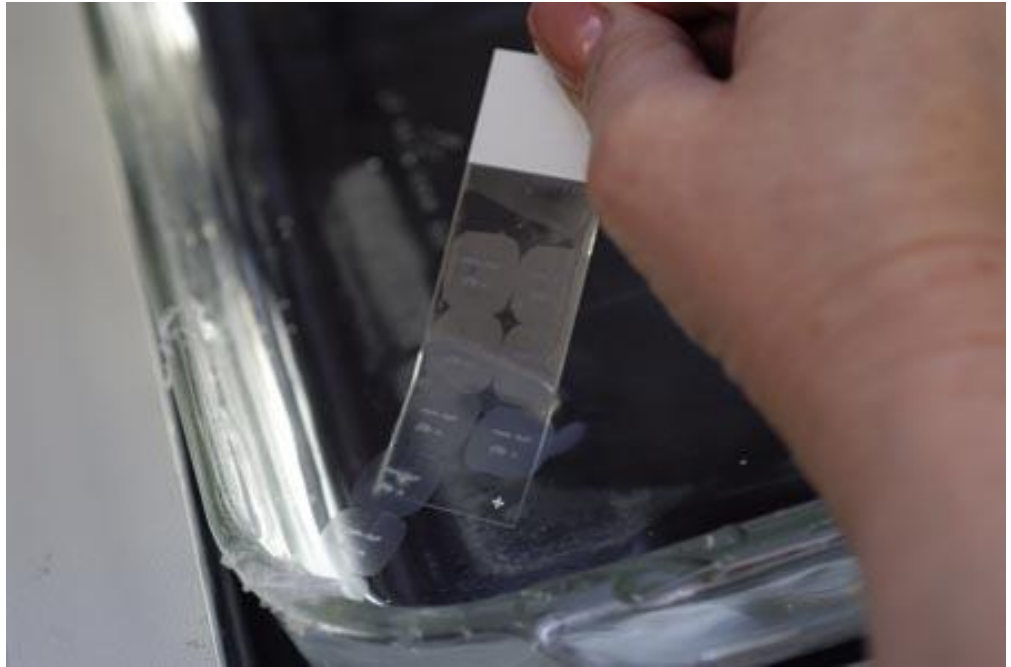
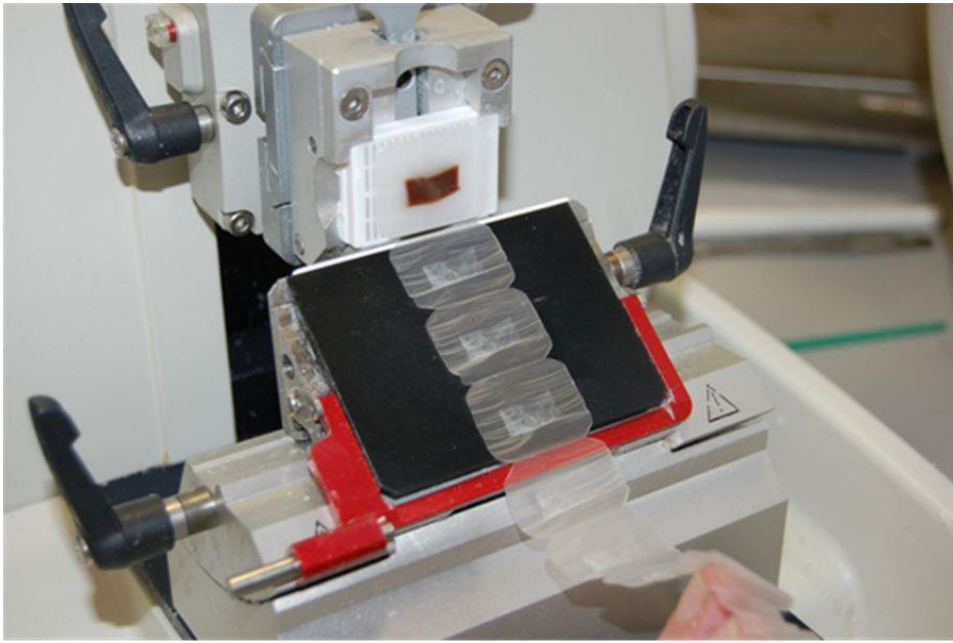


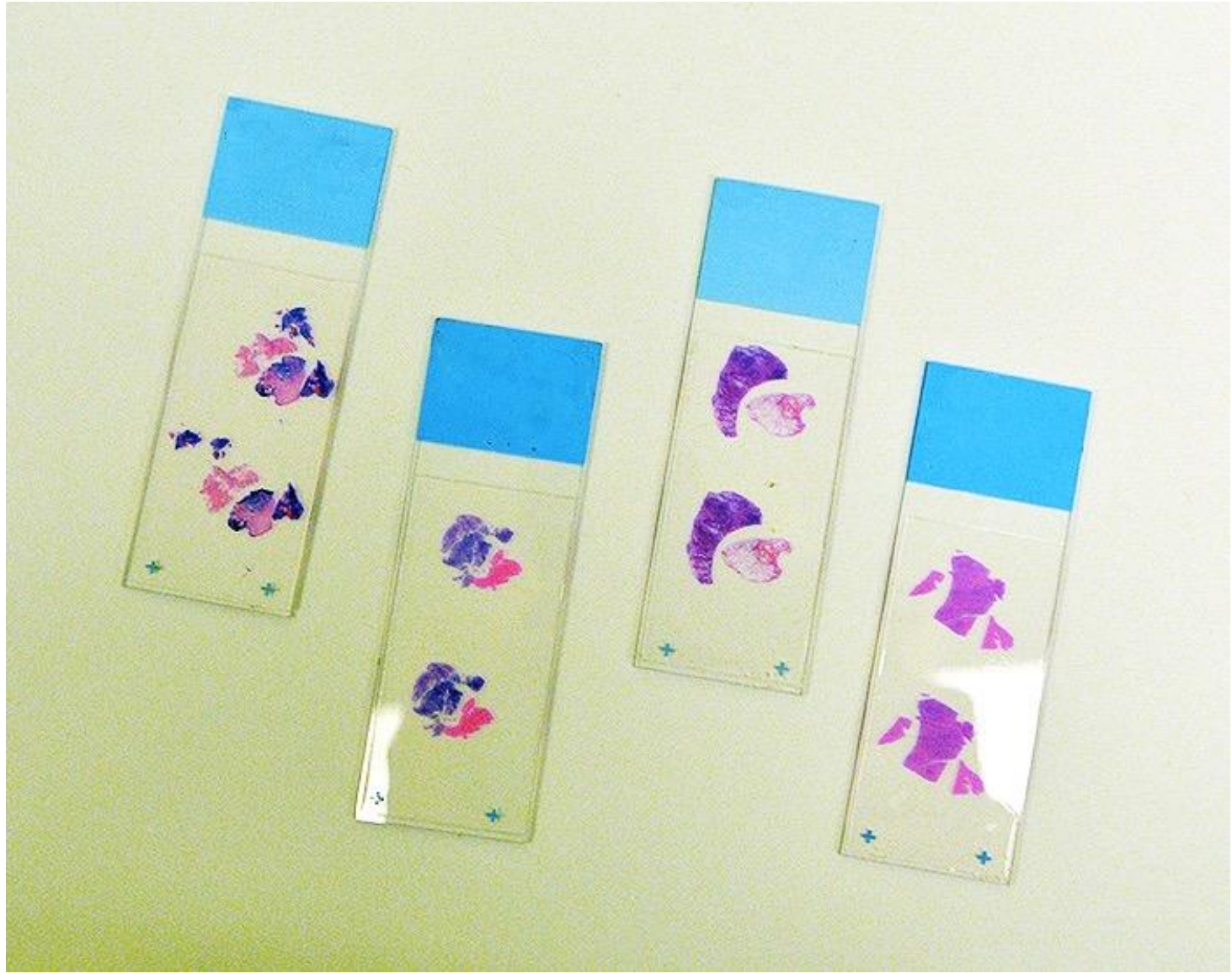
How is the sample examined?

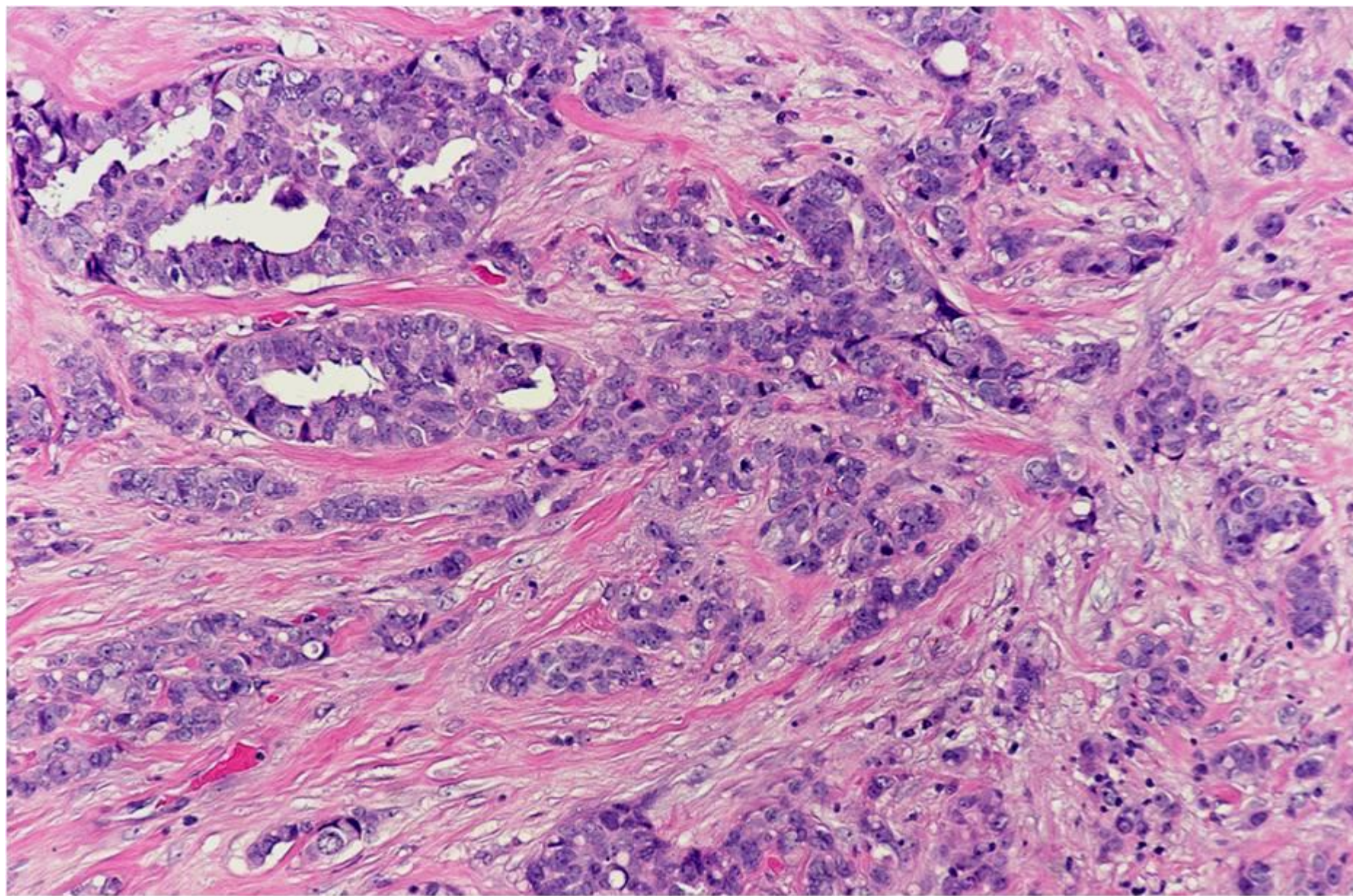






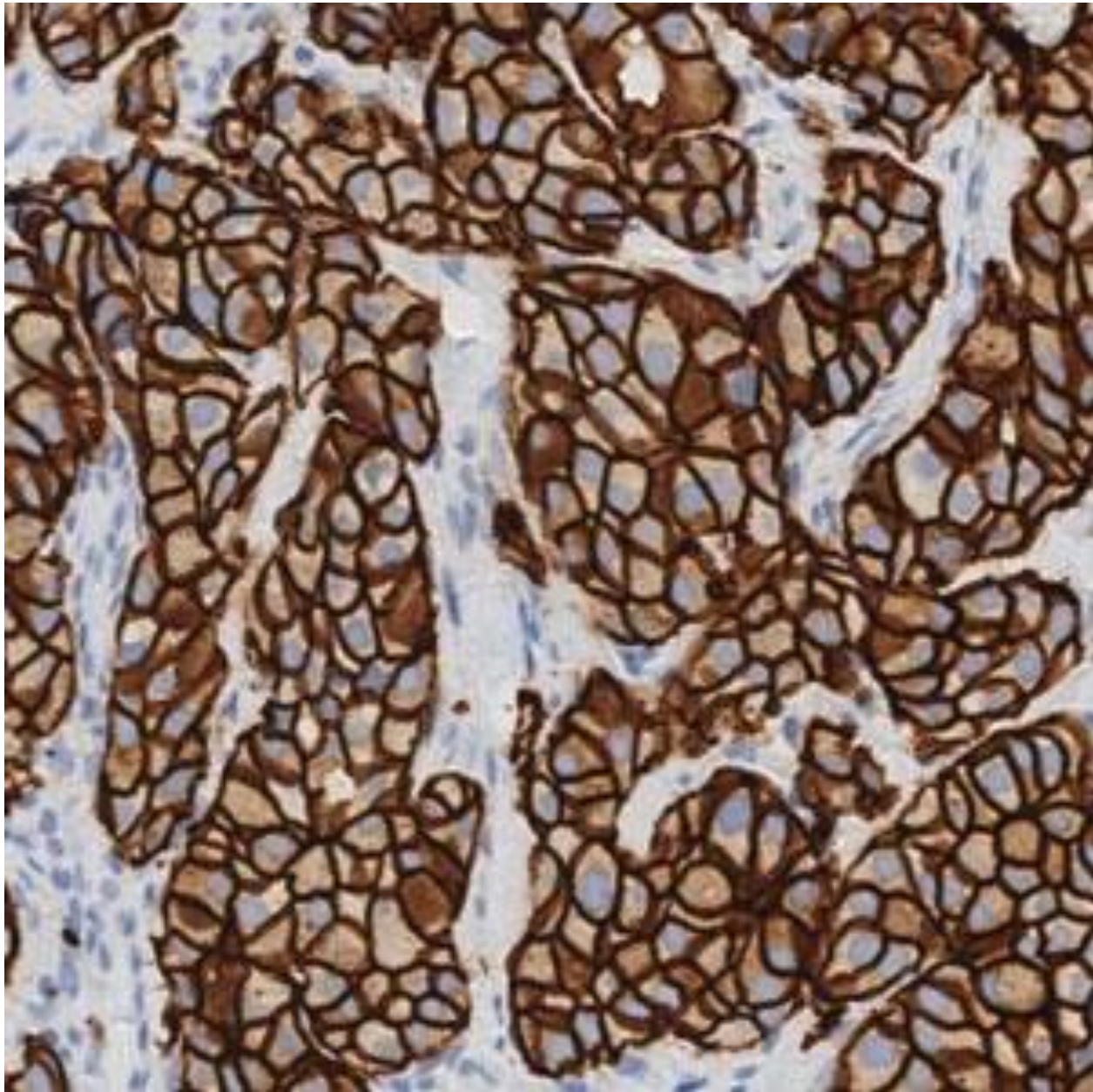






Data generated from examination of tissue samples

- Pathology report
 - Diagnosis
 - Prognostic factors
 - GRADE – How aggressive is the tumour?
 - STAGING – How far has the tumour spread?
 - EXCISION – Has all the tumour been removed?
 - Biomarkers
 - Presence of a genetic mutation
 - Detection of a protein



Tissue samples in pathology archives

- Stored for many years
- May never be used again unless consent for research obtained
- Often only a very small amount of the tissue sample used for diagnosis

Pathologists in tissue research

- Advise on the most appropriate tissue type and handling/ storage method for a particular research question
 - DNA/ RNA
 - Protein expression
- Select fresh tissue samples for research that will **not compromise diagnosis**



- Requires coordination between surgical/ tissue collection/ pathology teams
- Deviation from the standard diagnostic tissue sample pathway

Pathologists in tissue research

- Ensure samples are taken of the correct tissue type
 - Tumour samples
 - Non tumour control tissue
- Screen samples for quality prior to analysis
 - Tumour cellularity

Pathologists in tissue research

- Biomarker interpretation
 - Expression in a specific cell type
 - Clinical context

Pathologists in tissue research

- Ensure data obtained from samples is of the highest quality



- Increase pathologist involvement in research
- Maximise opportunities for tissue based research within the NHS and academic centres
- Drive progress in translational research.

<http://cmpath.ncri.org.uk>