

The Role of Pathology in Patient Diagnosis and Future Therapy

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What is Pathology?

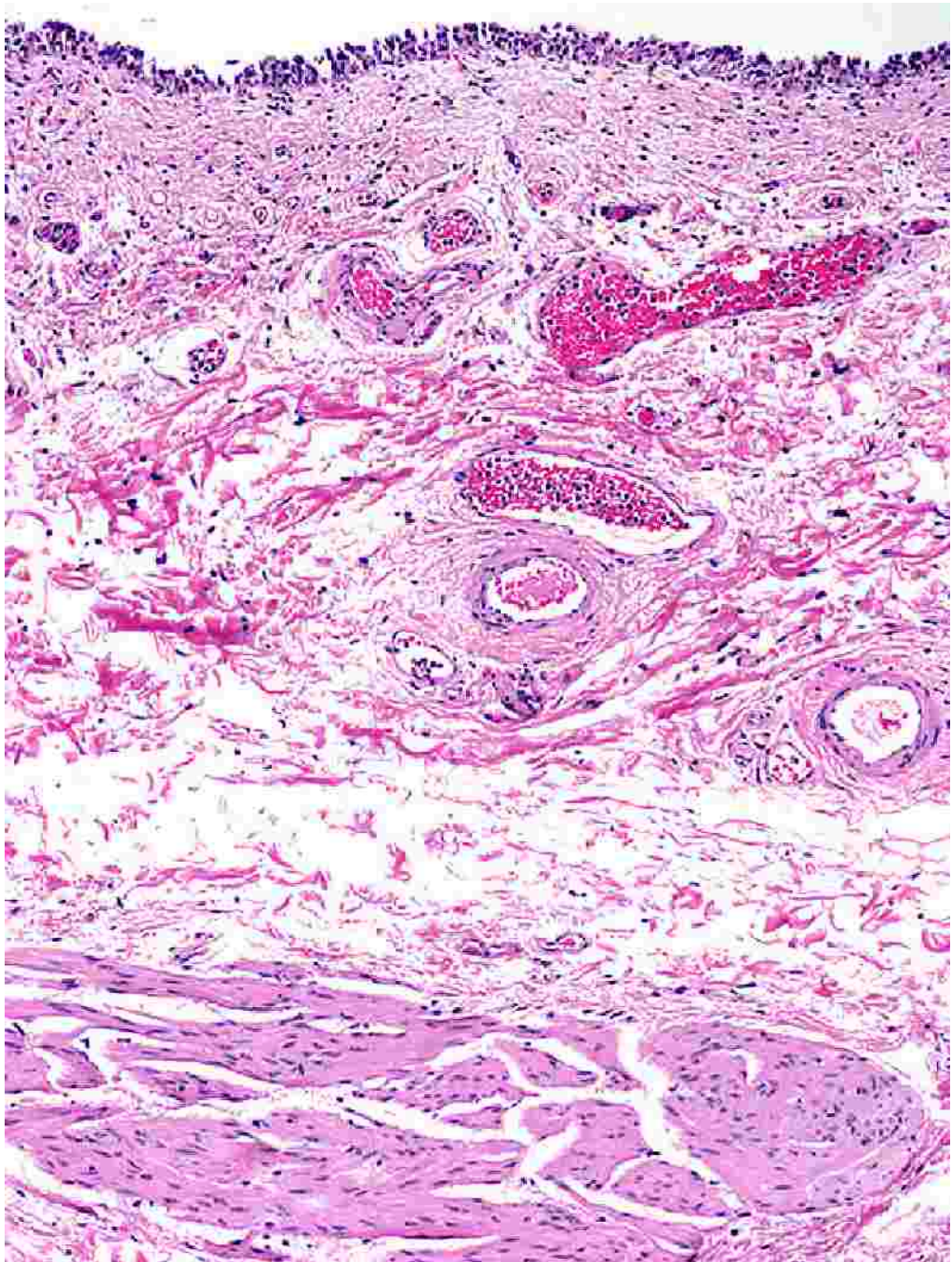
Biopsy



Clinical information

Molecular analysis

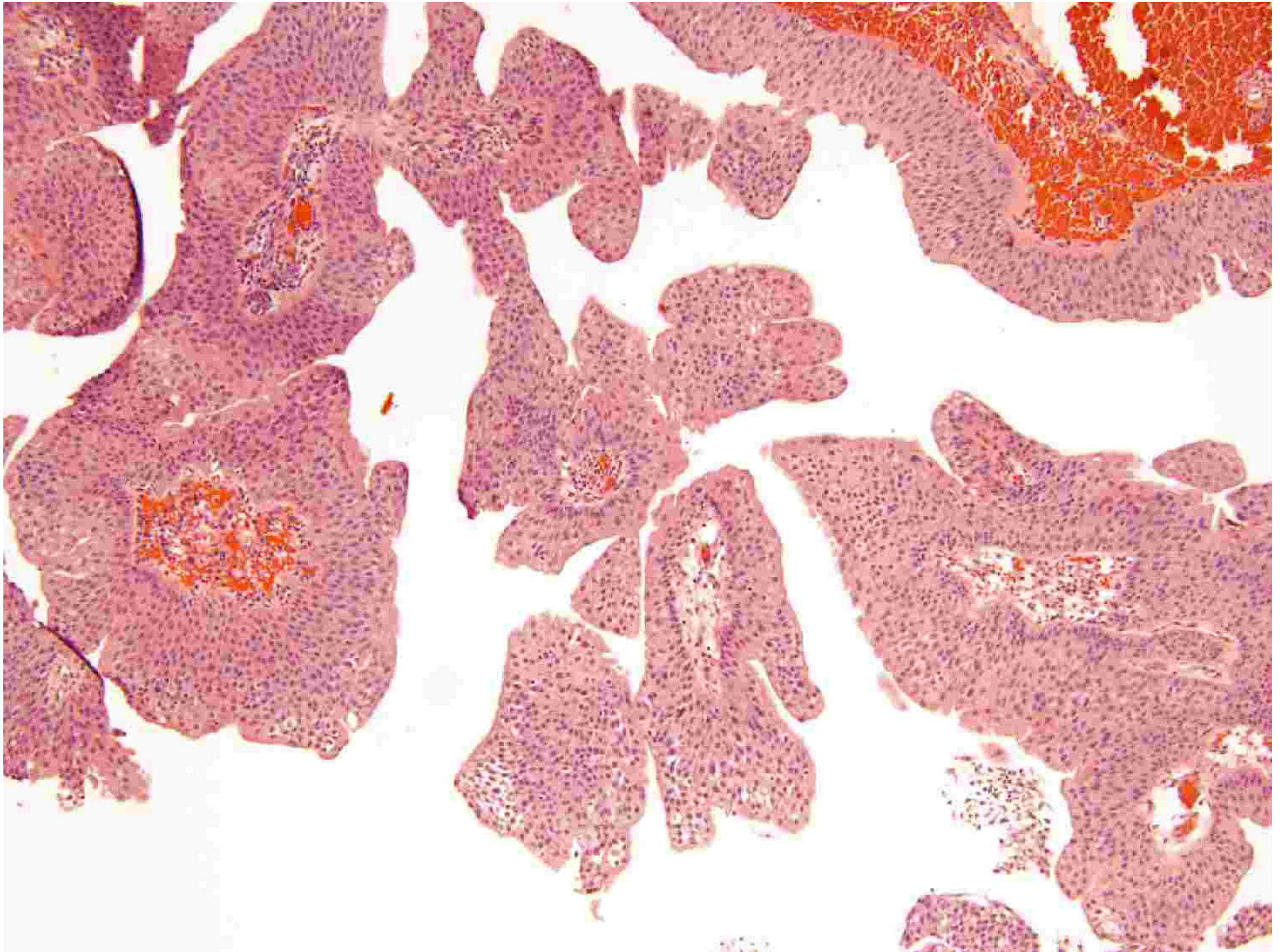




← Surface urothelium

← Lamina propria

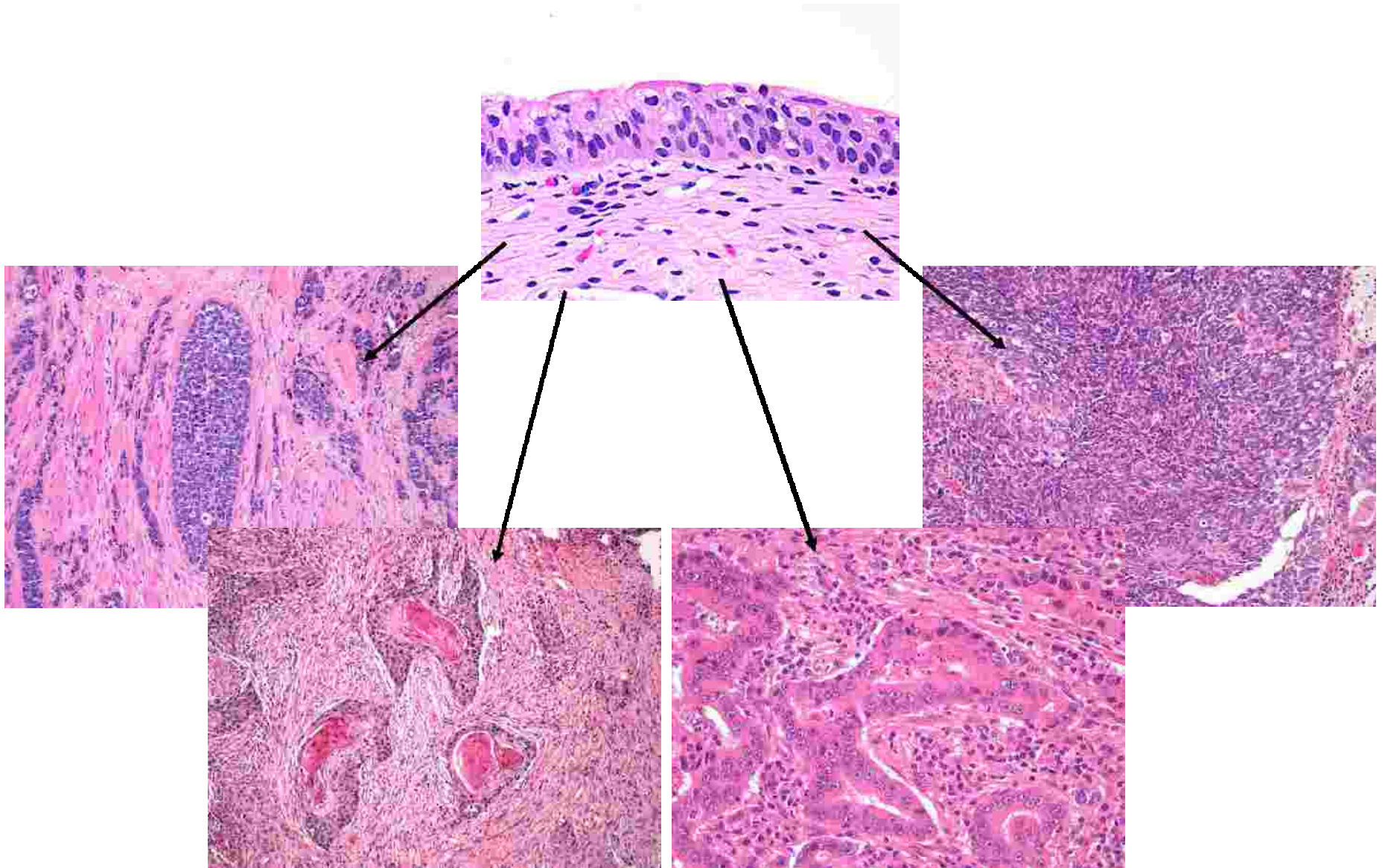
← Muscularis propria/
Detrusor muscle



Is it Always an Obvious Diagnosis?

- Specimens may be variable in appearance
 - Fixation changes, small biopsies, cautery
- Skill level and experience of the pathologist is critical
- Emerging definitions based on clinical outcomes and molecular studies
 - 1998 changed from Grade 1/2/3 to low/high grade

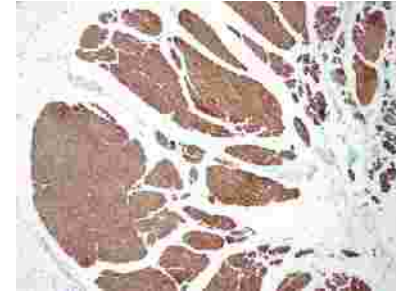
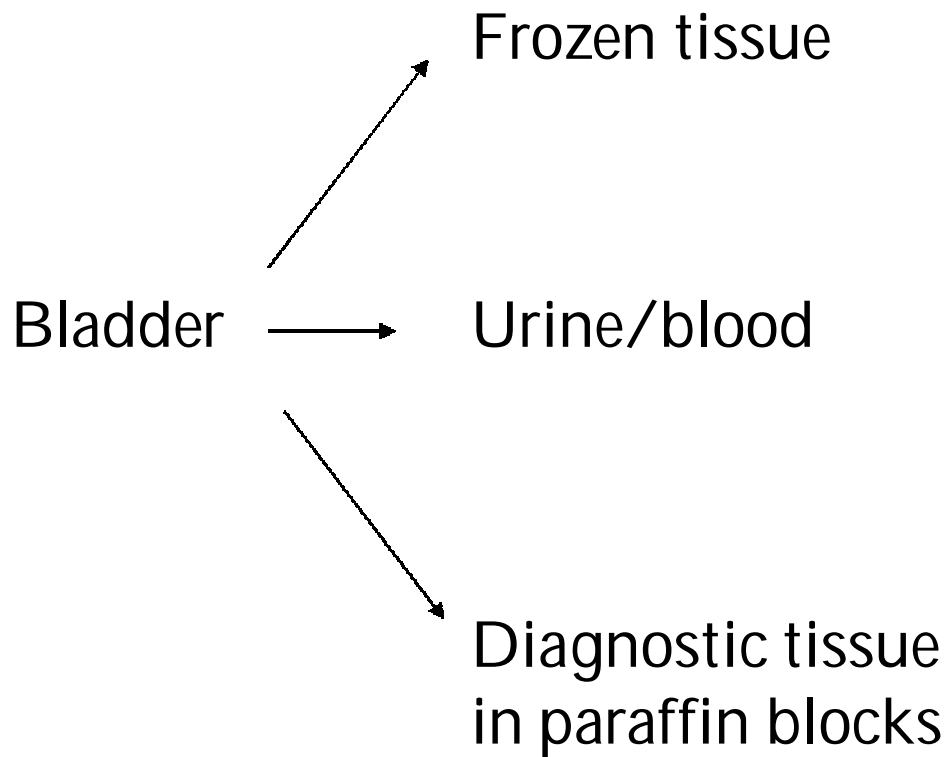
How Significant is the Diagnosis?



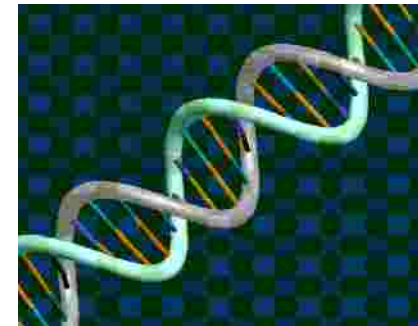
The Role of Pathologists in Research

- Discovery of new markers to aid in diagnosis
 - Urine, blood, tissue
 - CD44, CK20, p53 to diagnosis flat CIS versus reactive
- Discovery of new prognostic markers
 - p53, FGFR3 mutations
- Discovery of new treatment targets
 - Clinical trial correlations
 - mTOR pathway

How is Tissue Used for Research?

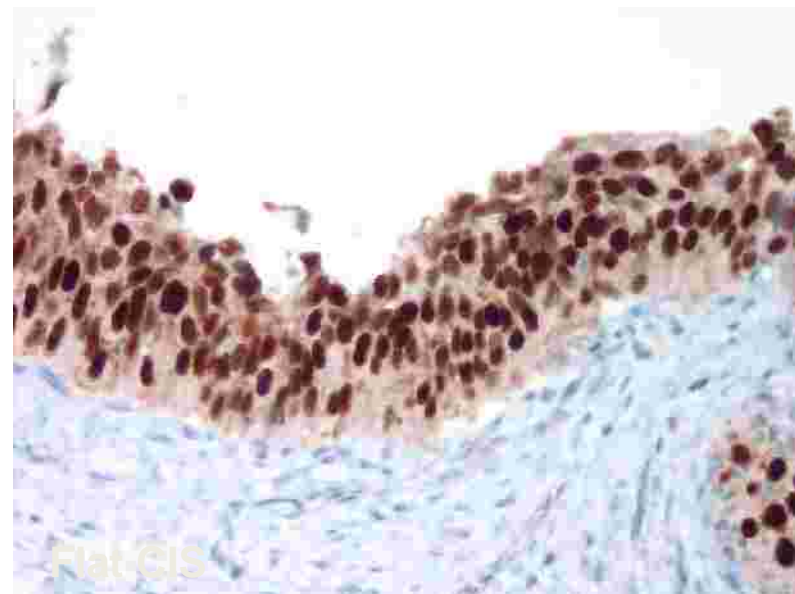
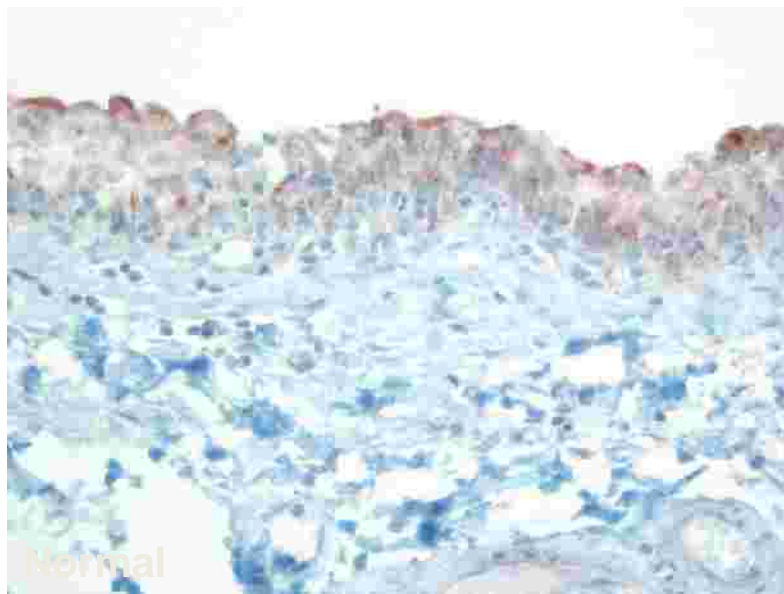
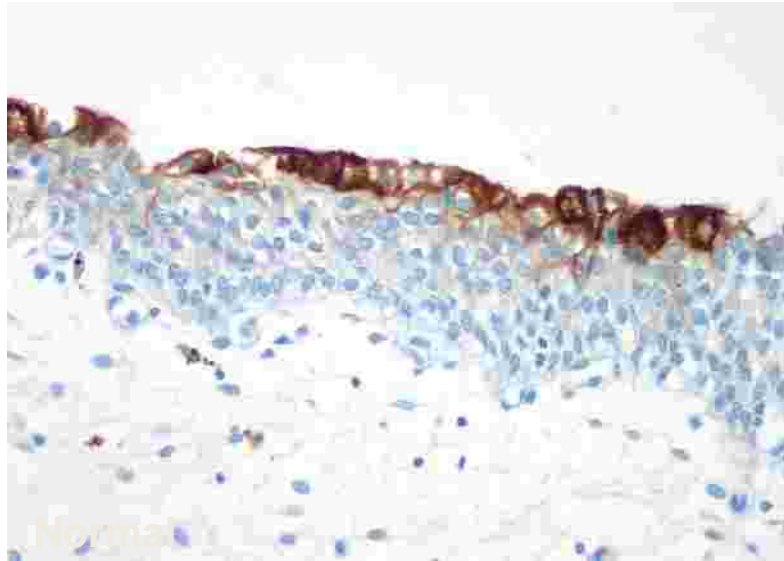


Immunohistochemistry

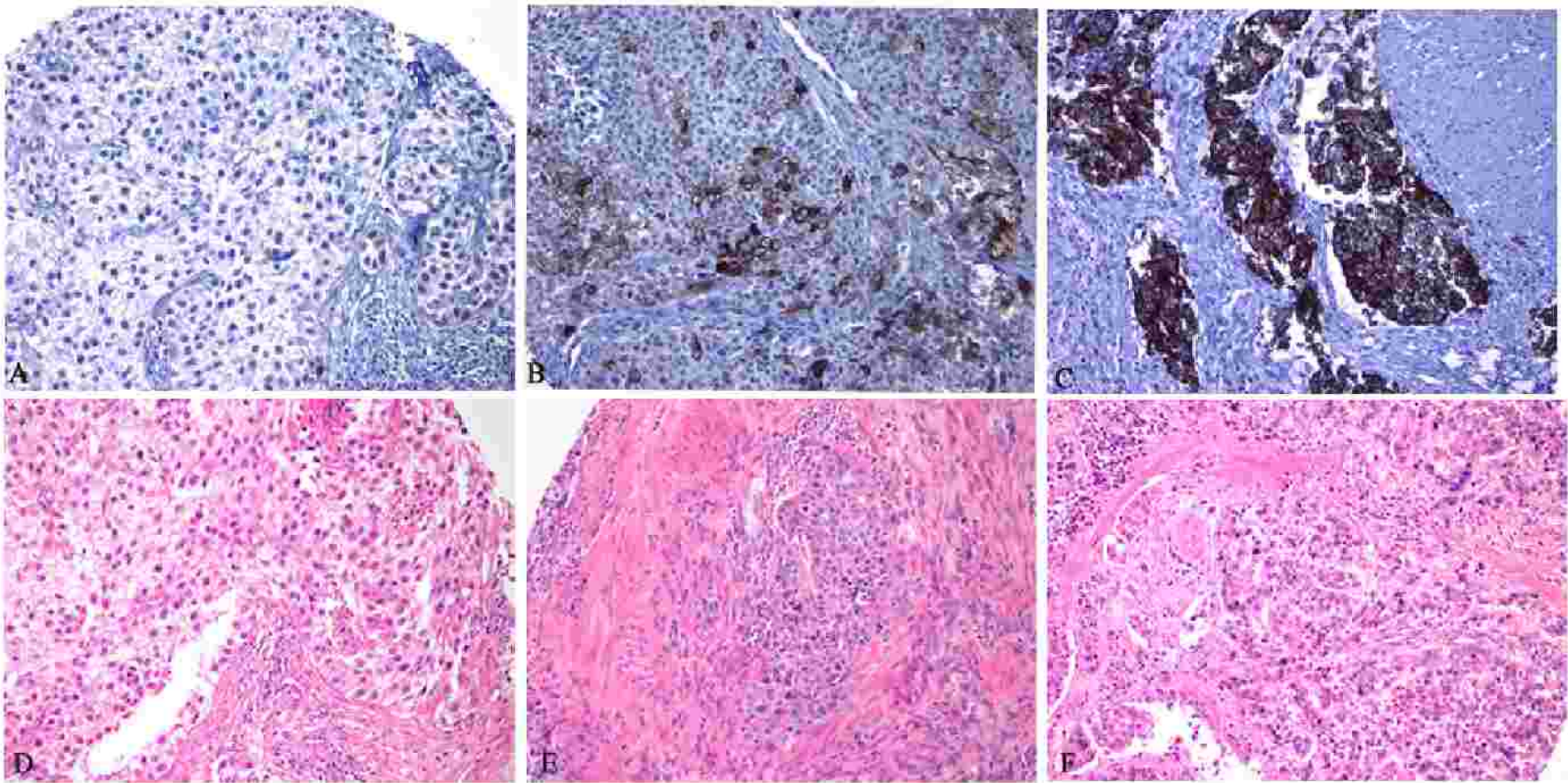


DNA, RNA, protein

New Diagnostic Markers



New Therapeutic Markers



Take Home Points

- Pathologists are medical professionals that provide a tissue, cytology or molecular diagnosis, as well as run the medical laboratory within the hospital
- Pathologists work closely with clinical specialists to provide the correct diagnosis for patient care
- Always ask if the pathology report is unclear or difficult to understand
- Many pathologists perform tissue-based and/or molecular research to identify new cellular markers in disease diagnosis or treatment