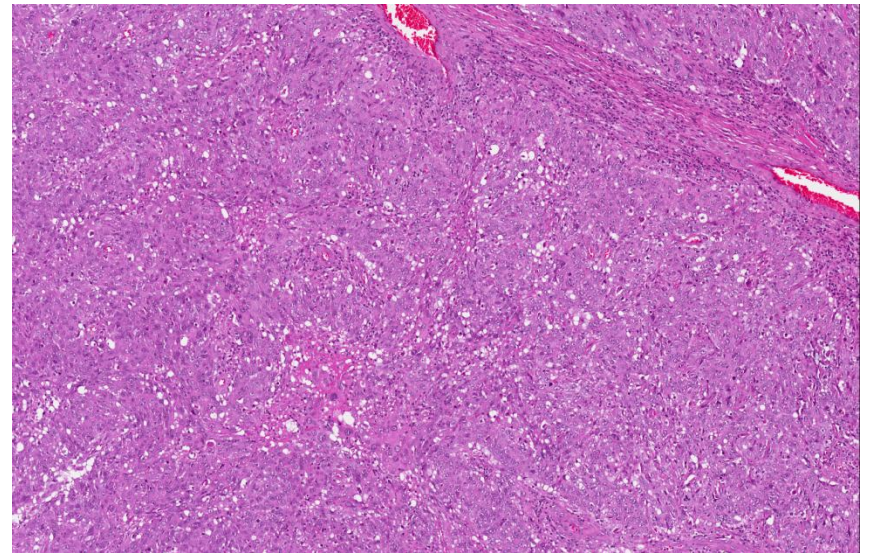
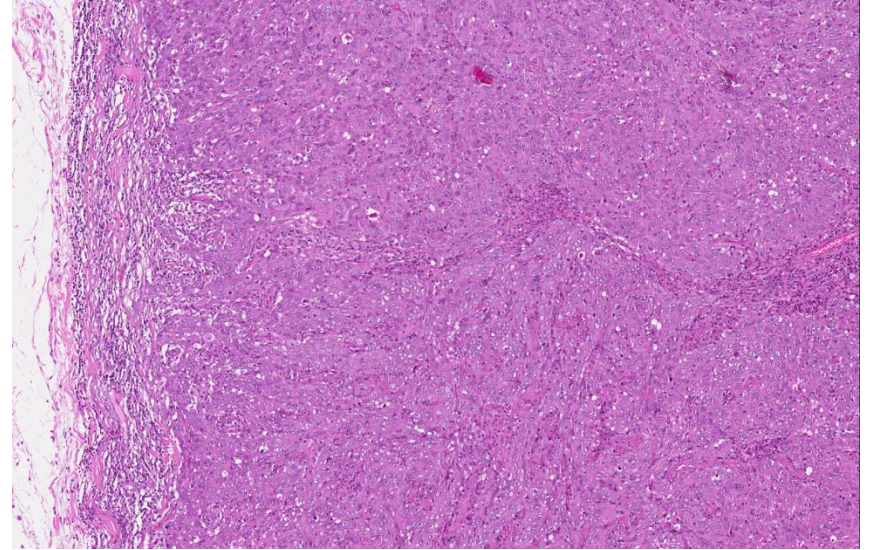
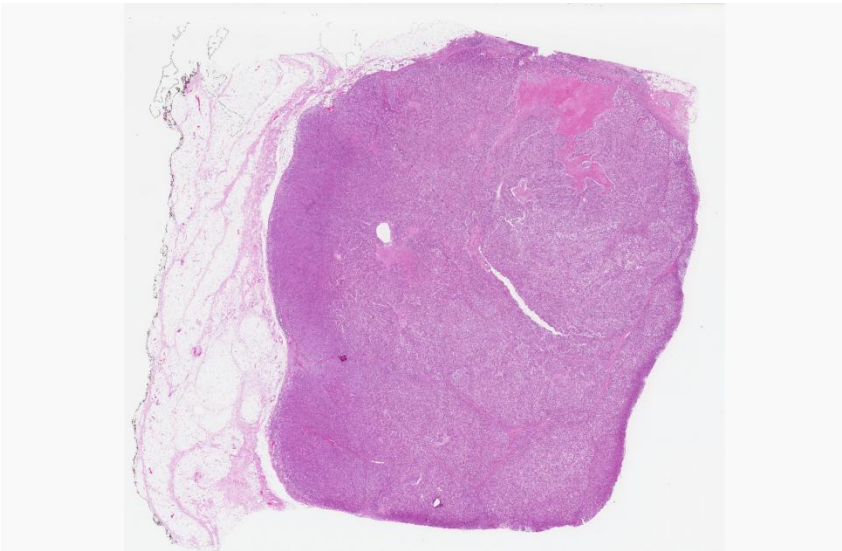


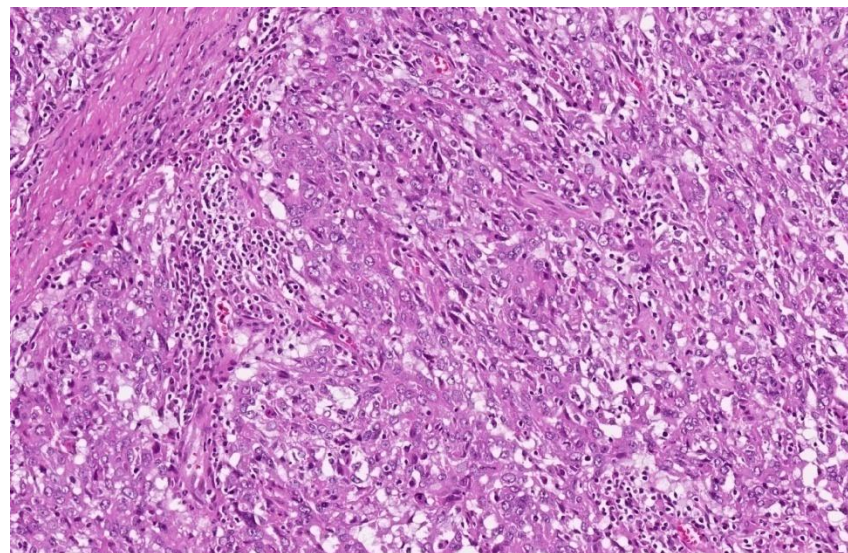
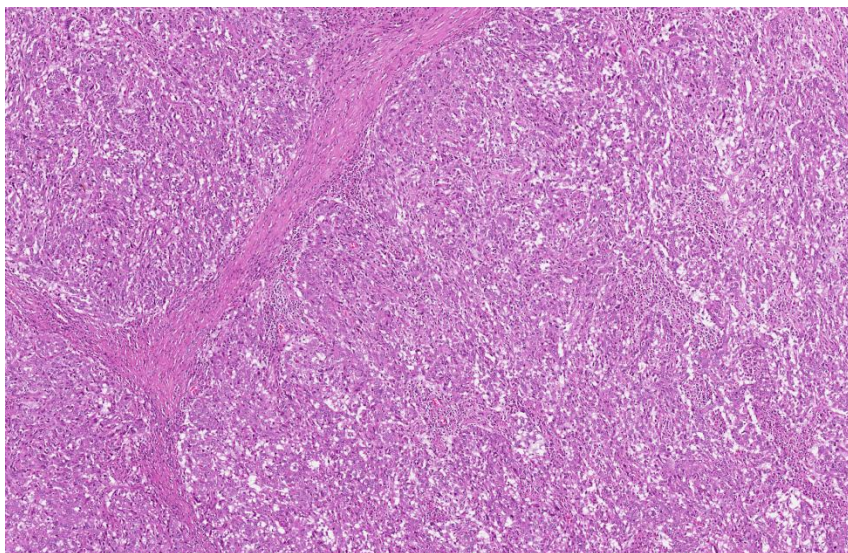
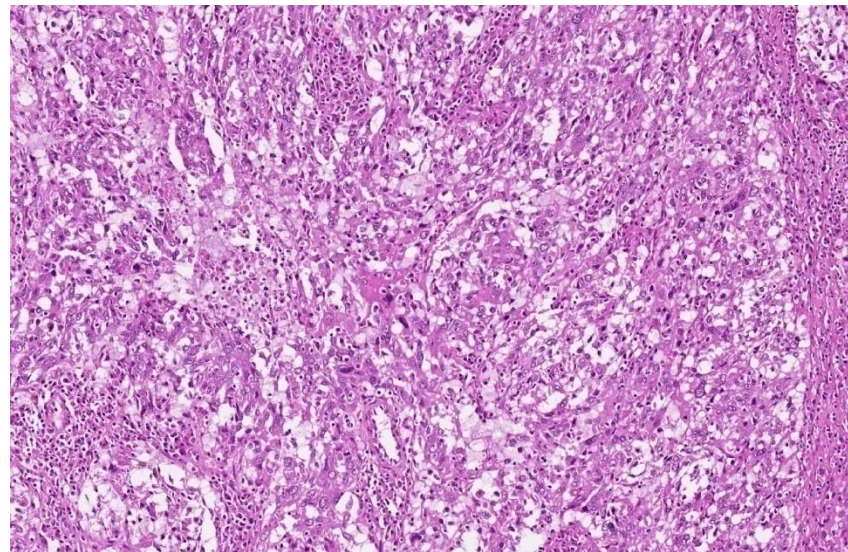
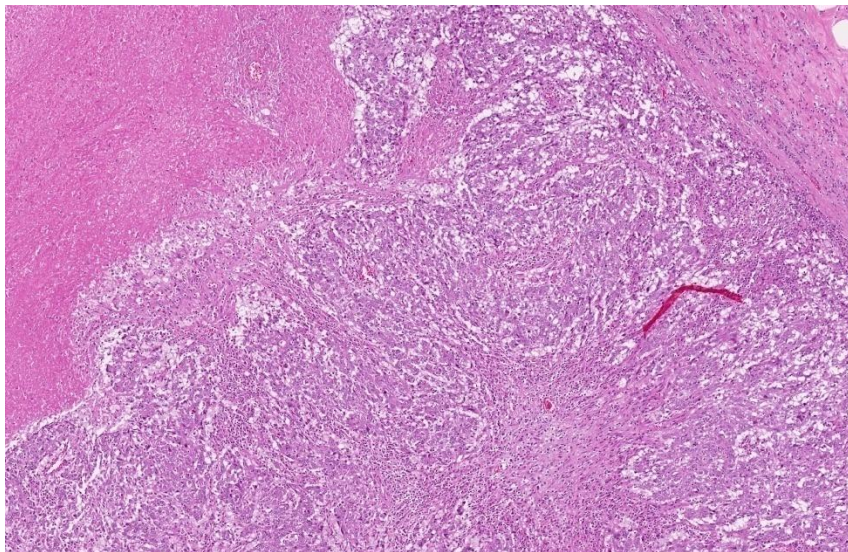
Set D.6

- 63 year old Chinese female underwent a right mastectomy following a trucut core biopsy of a right breast mass.

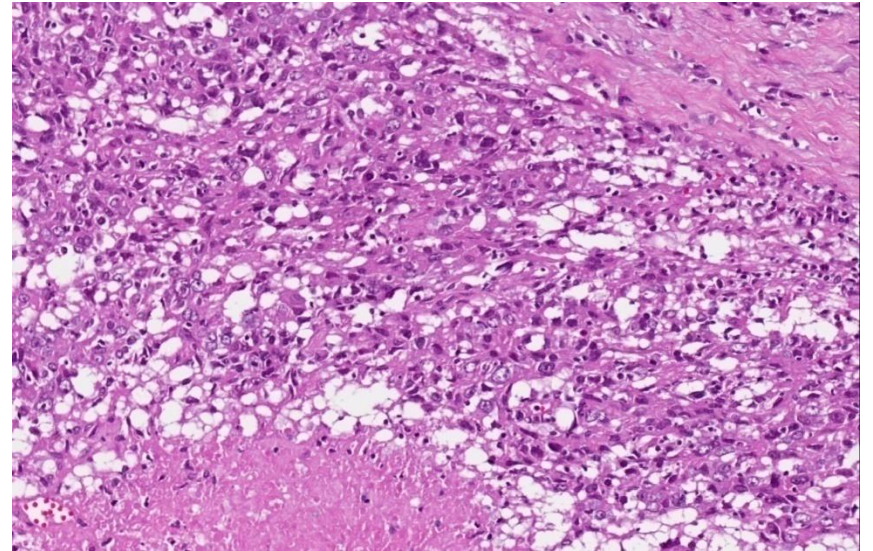
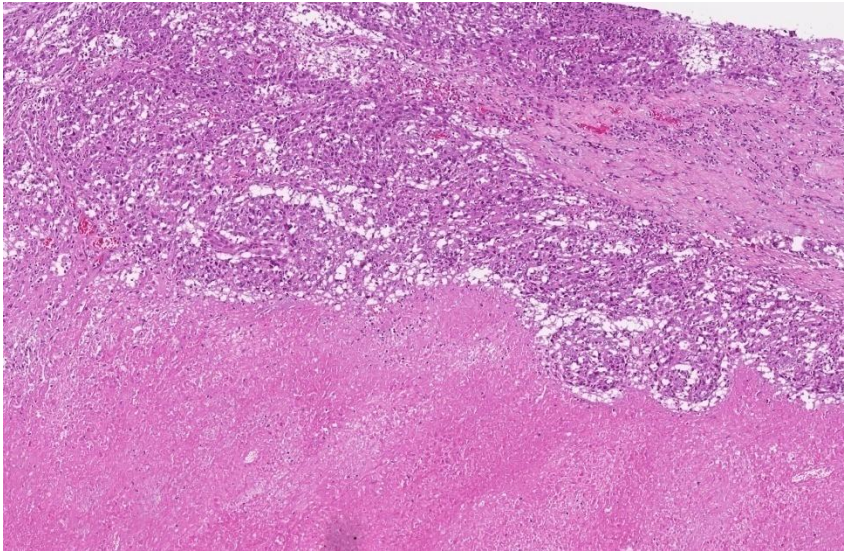
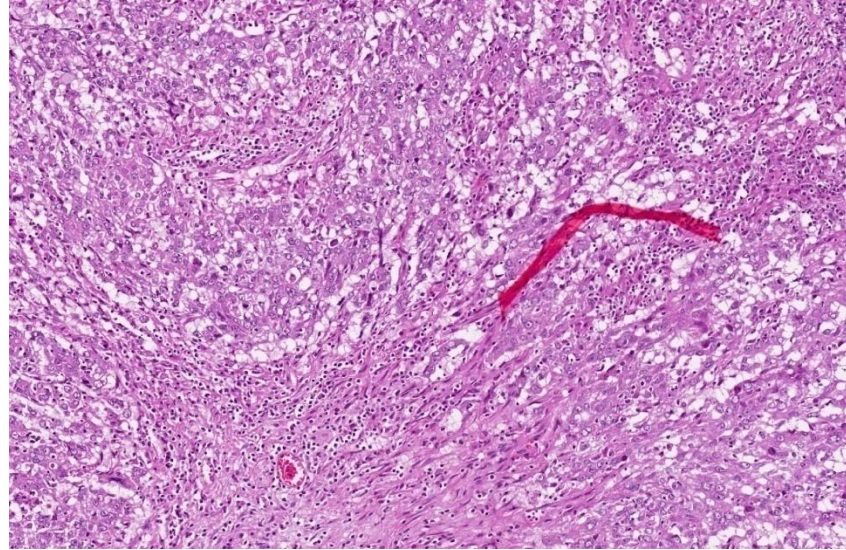
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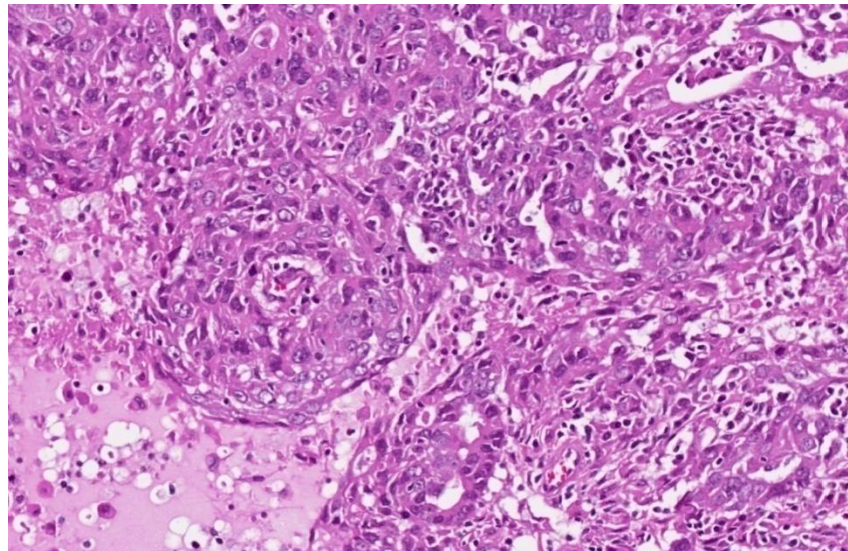
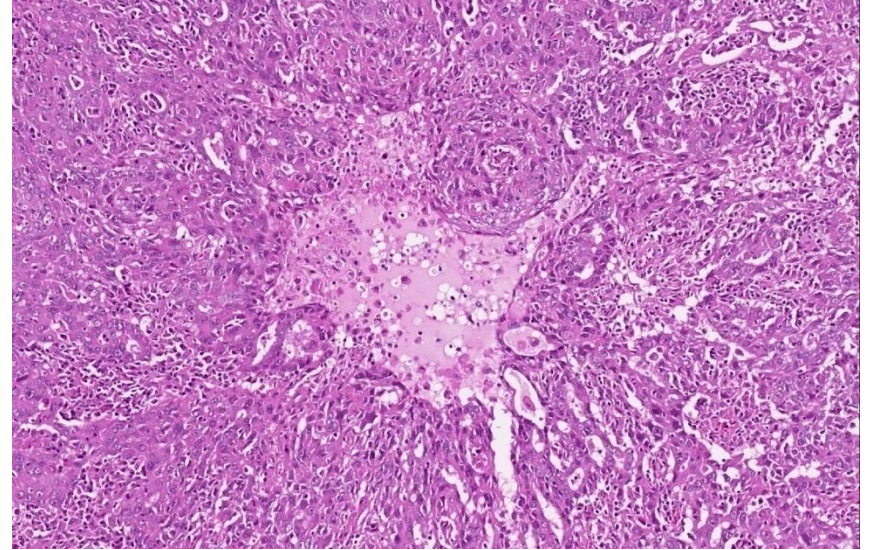
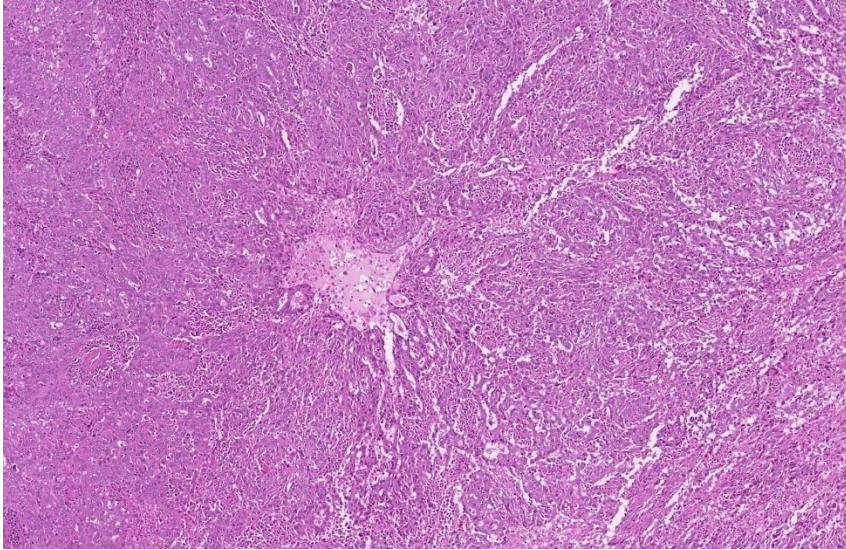
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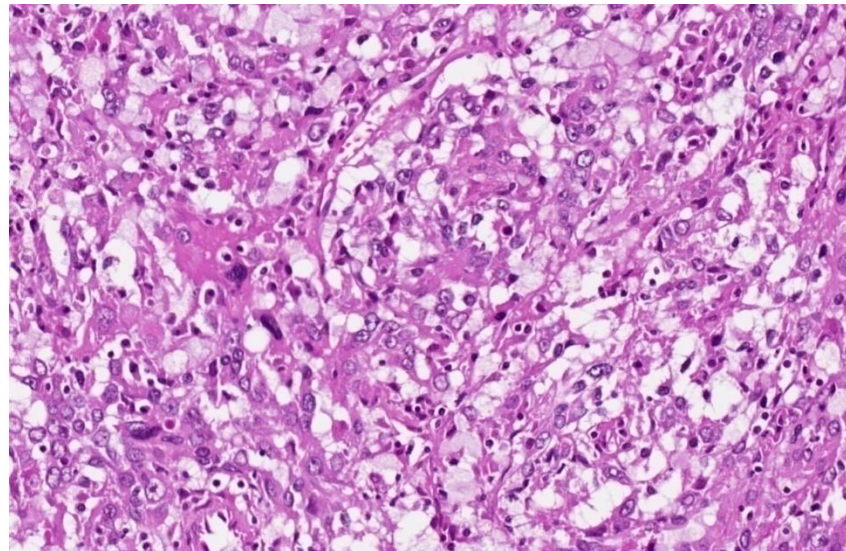
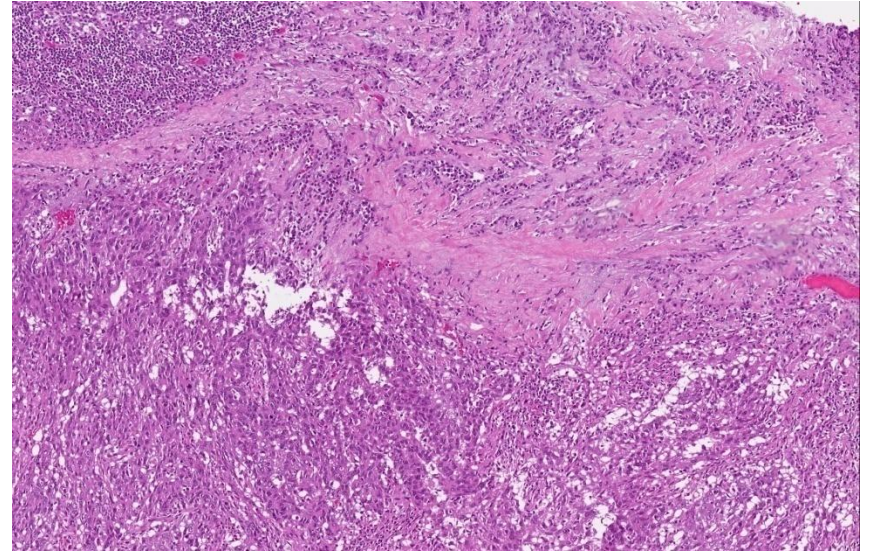
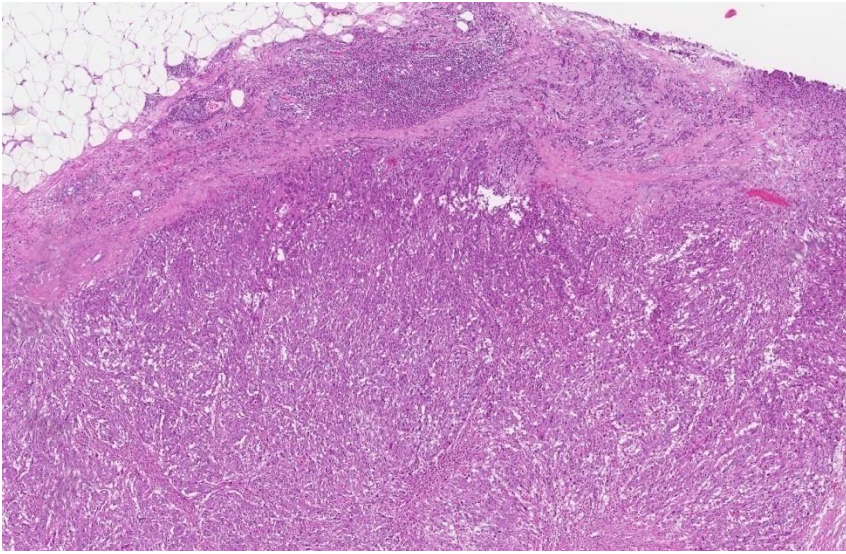
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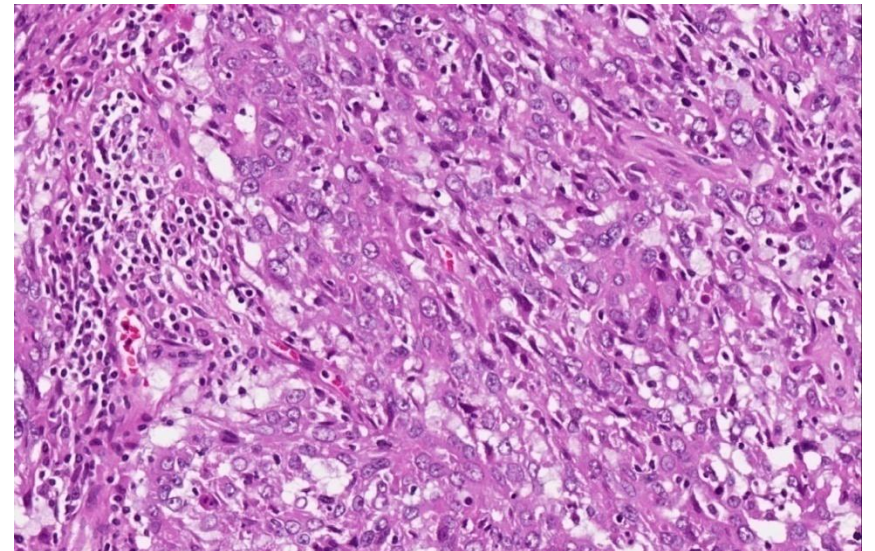
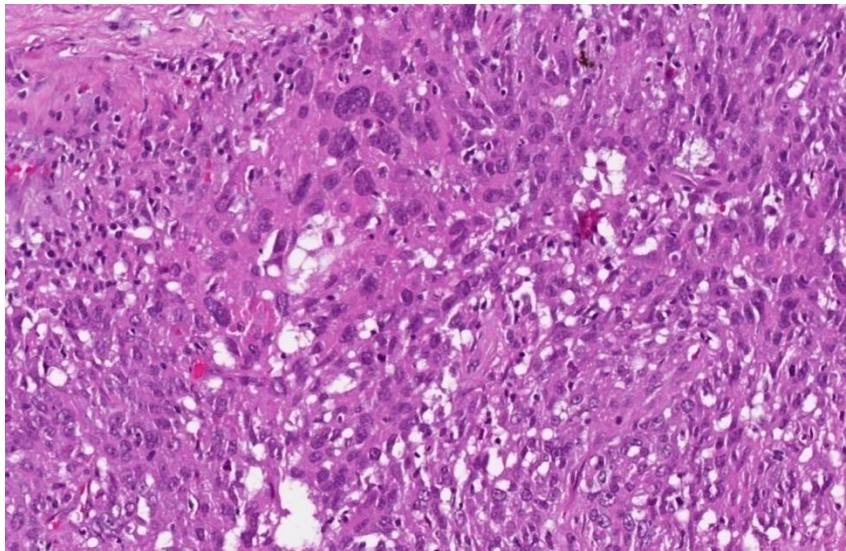
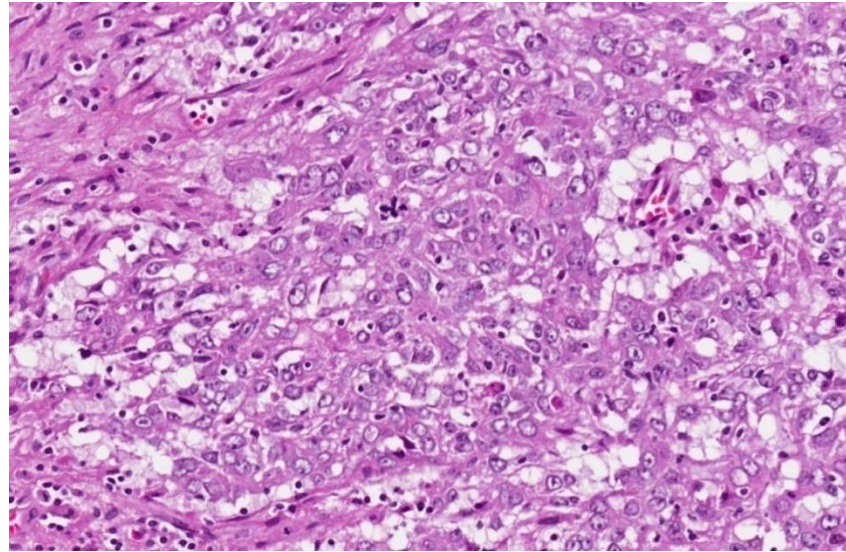
Set D.6



Set D.6

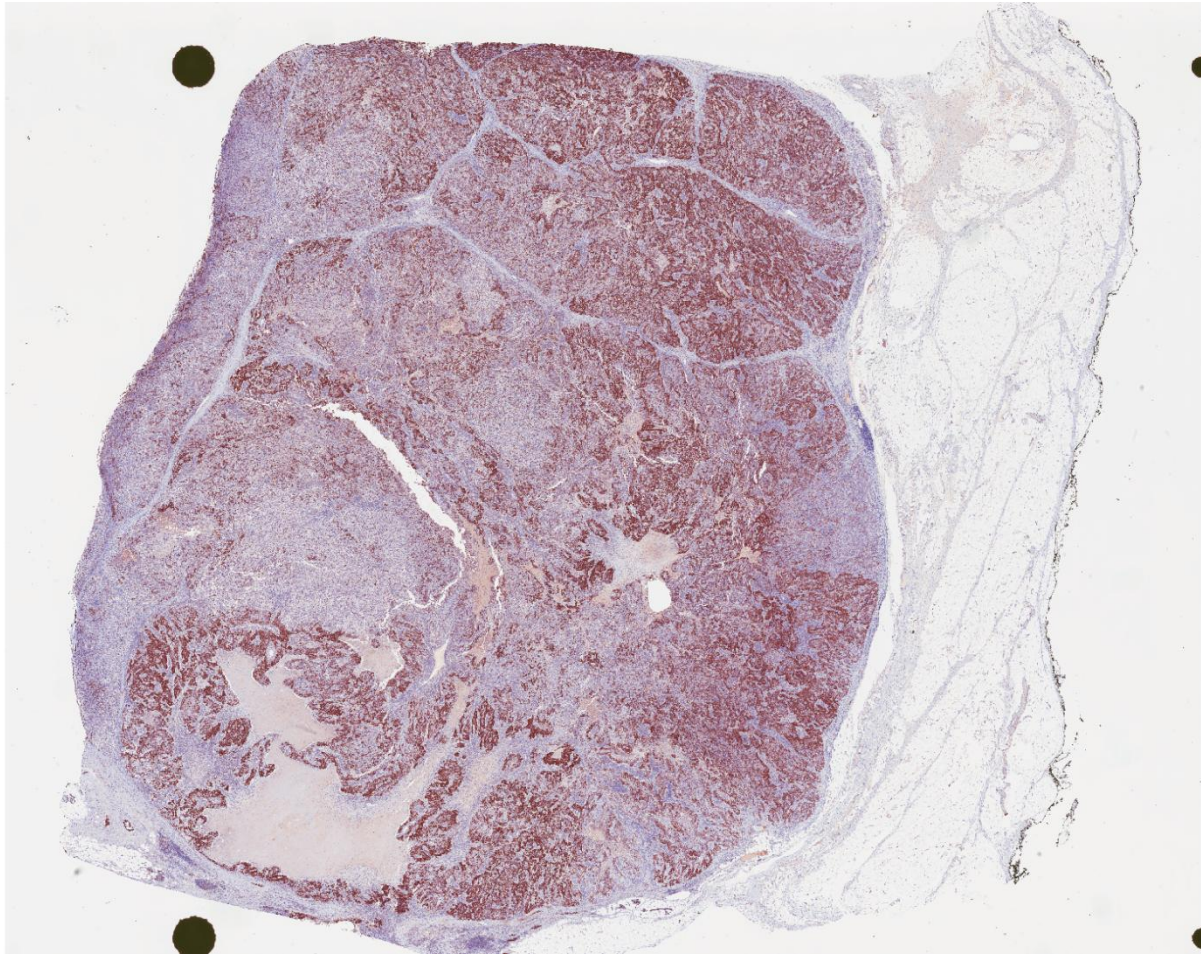


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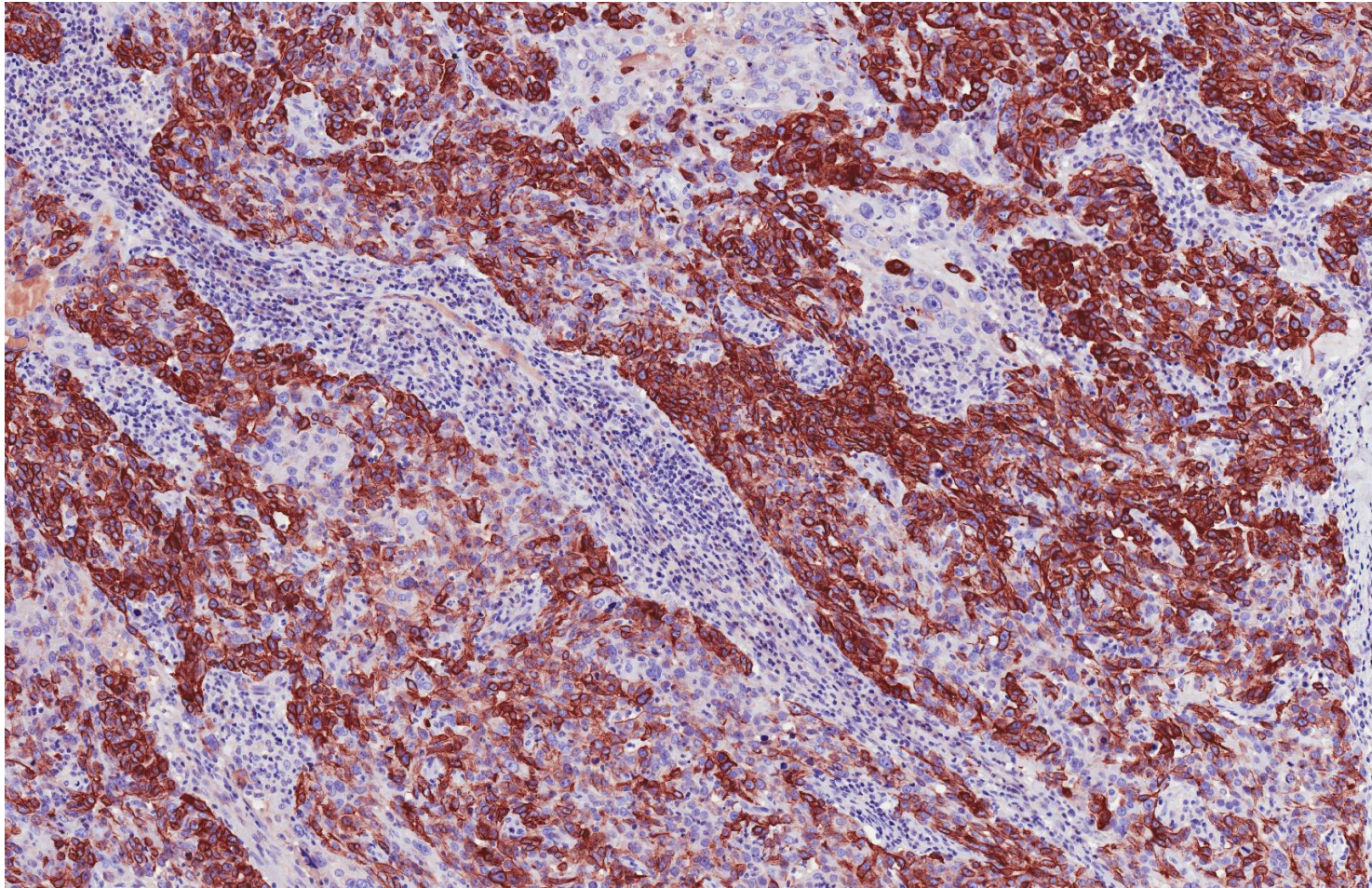


- Infiltrative ductal carcinoma, grade 3.
- ER negative, PR negative, cerbB2 negative (triple negative).

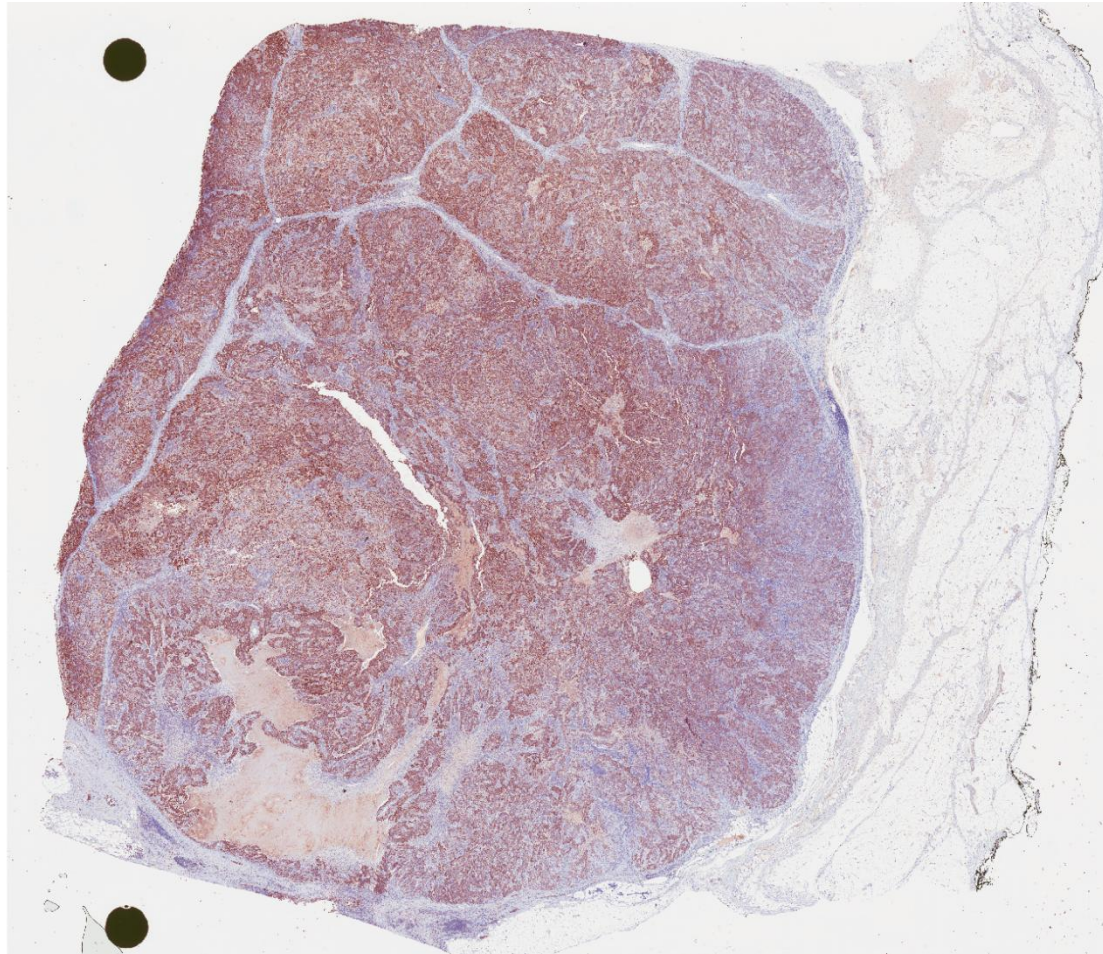
CK14



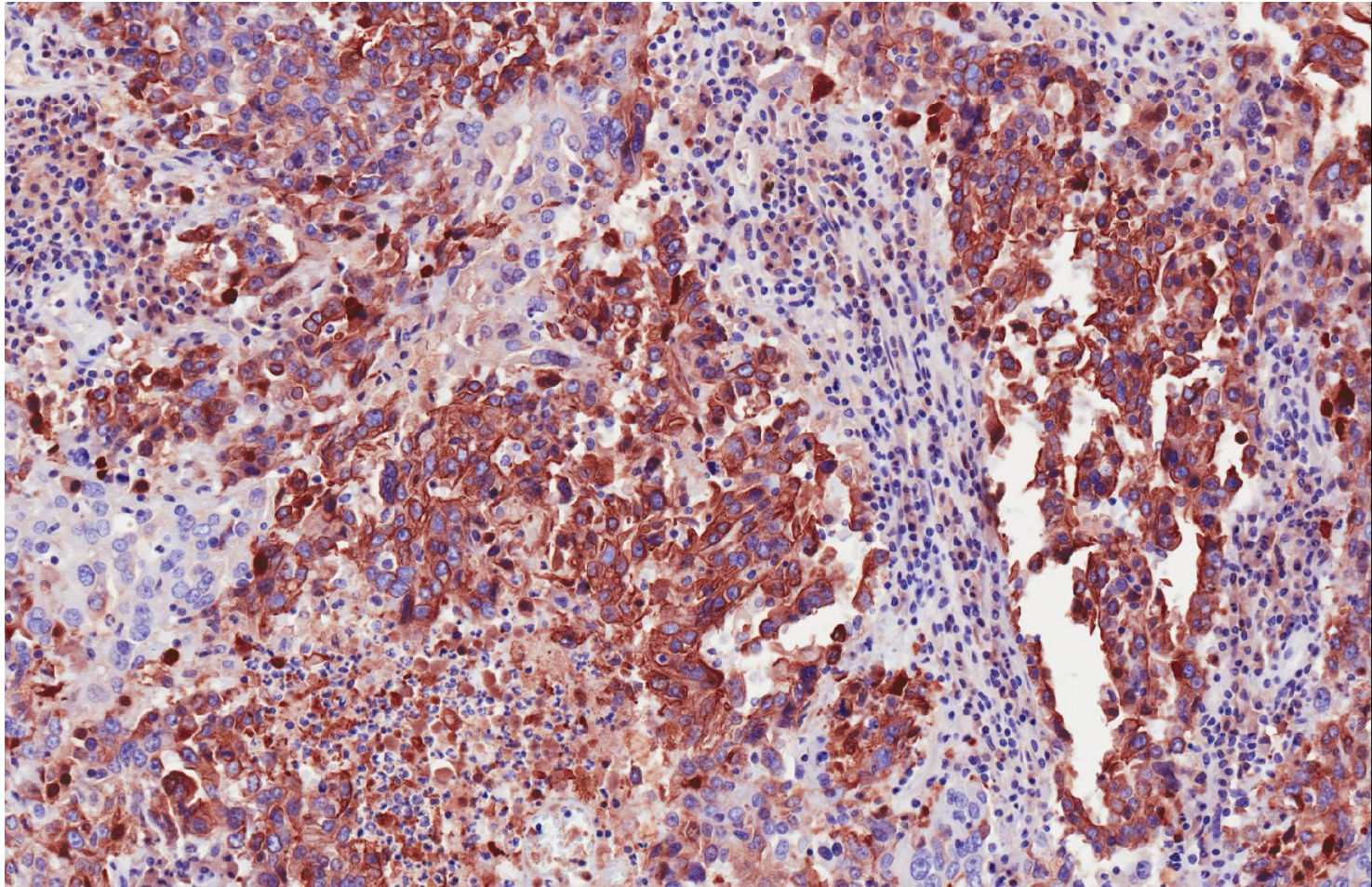
CK14



34 β E12



34βE12



- Triple negative breast cancer.
- Basal-like features with positive expression of CK14 and 34 β E12.
- EGFR negative.

Triple negative breast cancer

- Accounts for 10% to 17% of all breast cancers.
- High histological grade.
- Distinctive metastatic patterns.
- Poor prognosis.
- Limited therapeutic options.

Triple negative breast cancer

- Molecular classification of breast cancers:
 - Luminal A.
 - Luminal B.
 - Normal breast-like.
 - Human epidermal growth factor receptor 2 (HER2).
 - Basal-like.

(Perou et al. Nature 2000; 406: 747-752)

Triple negative breast cancers segregated with the basal-like tumours.

Triple negative breast cancer

- Not synonymous with basal-like breast cancer.
- Basal-like breast cancers are characterised by expression of basal markers:
 - CK5/6, CK14, CK17, 34 β E12, as well as EGFR, p63, CD117.
- 56% to 84% of triple negative breast cancers express basal markers.
- 15% to 45% of basal-like breast cancers express either ER, PR or cerbB2.

Triple negative breast cancer: Epidemiology

- Most common in women of African descent with a rate of 20.8% to 46.6% .
- Caucasian women – 10.4% to 21.8%.
- Asia:
 - Japanese women – 14% to 15.5%.
 - Korean women – 19.9%.
 - Chinese women – 18.6%.
 - Singapore women – 11%.

Triple negative breast cancer: reasons for divergent rates

- Different populations and study cohorts.
- Different definitions for ER, PR, cerbB2 negativity.
- Different laboratory techniques and antibodies.
- Different platforms for assessing cerbB2.

Triple negative breast cancer: Clinical features

- Younger women.
- Mean/median age at 53-54 years vs 57-60 years for non-triple negative cases.
- Korean (47 years), African women (45 years).
- Chinese, Japanese and Singapore women (50-54 years).

Triple negative breast cancer: Pathological features

- Larger tumour size.
- Higher rate of node positivity.
- Higher rate of distant metastases:
 - Visceral metastases to brain and lung.
- Shorter disease free and overall survival:
 - Recurrence between 1 to 3 years after diagnosis.
 - Death in the first 5 years after diagnosis.

Triple negative breast cancer: Pathological features

- Microscopic features:
 - Pushing invasion.
 - Central necrosis.
 - Conspicuous lymphocytic infiltrates.
 - High mitotic rates.
 - Syncytial growth pattern.
- ▶ Histologic subtypes:
 - » Infiltrative ductal carcinoma, NOS.
 - » Metaplastic carcinoma.
 - » Medullary carcinoma.

Triple negative breast cancer: relationship with BRCA1

- BRCA1 is a tumour suppressor gene.
- Women with germline mutations of BRCA1 are at increased risk for breast and ovarian cancer.
- > 80% of breast cancers with germline BRCA1 mutations are triple negative.
- Majority of these are also basal-like.

Triple negative breast cancer: SGH data

- Predominantly postmenopausal.
- Adverse histological characteristics.
- 84% basal-like based on immunohistochemical tripanel CK14, EGFR, 34βE12.

Thike AA et al. Mod Pathol 2010 Jan;23(1):123-33.

Triple negative breast cancer: SGH data – correlation with follow-up

- Follow-up ranged from 1 to 185 months (mean 84, median 88 months).
- Recurrences occurred in 20%.
- Deaths in 24% of women:
 - *Most deaths occurred within 3 years after diagnosis.*
- Recurrences:
 - *Local disease recrudescence (20%).*
 - *Distant metastases (49%).*
 - *Both local recurrence and distant metastases (6%).*
 - *Contralateral breast cancer occurred in 25%.*
 - *67% of recurrences within 3 years after diagnosis.*

Thike AA et al. Am J Surg Pathol. 2010 Jul;34(7):956-64.

Learning points

- Light microscopic characteristics of triple negative and basal-like breast cancers.
- Association between triple negativity and basal-like features.
- Understanding that triple negative breast cancers are not synonymous with basal-like breast cancers.
- Basal-like breast cancers are a heterogeneous group of tumours defined by the expression of basal markers.
- Awareness of current management challenges for this group of tumours.