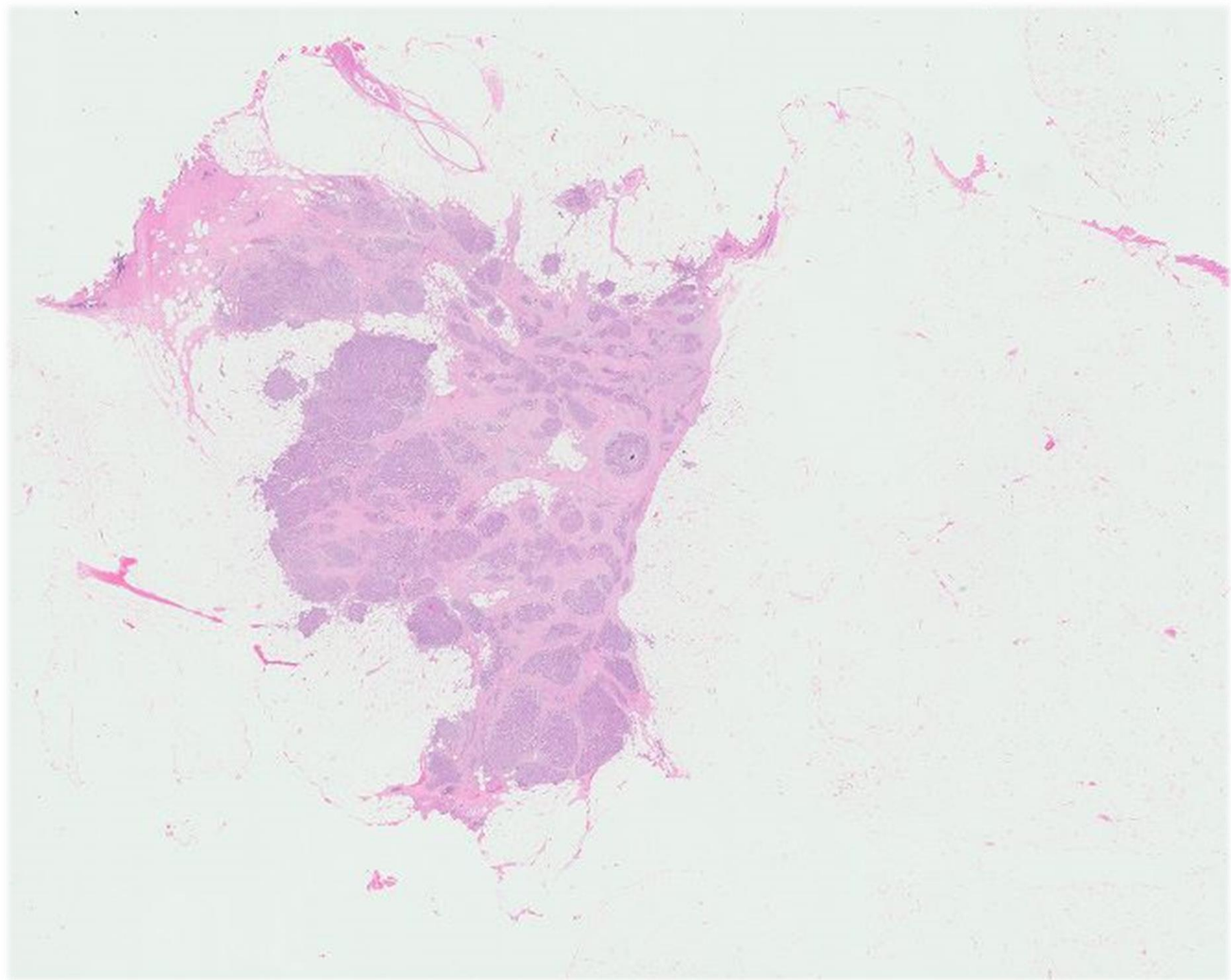
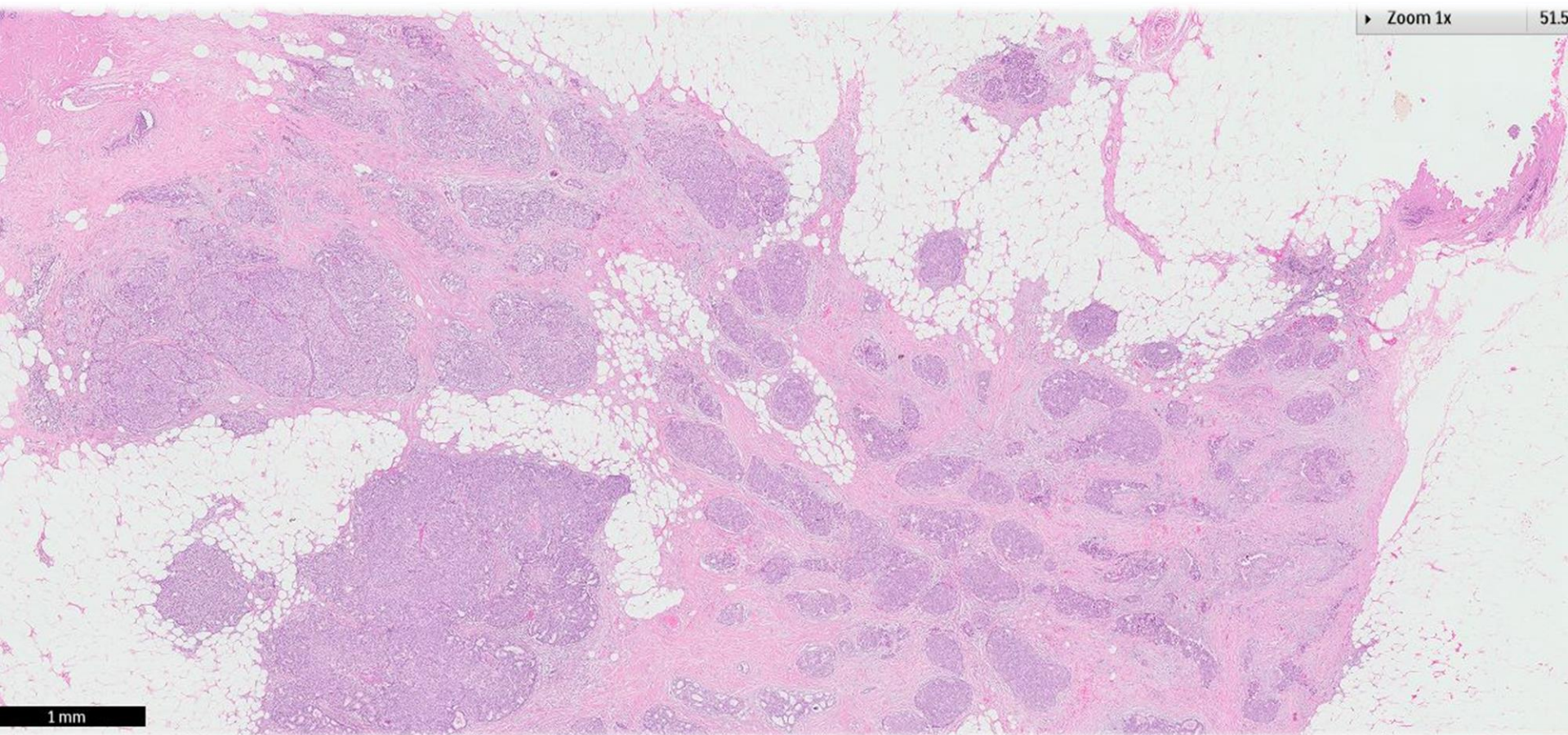


# Case 3

52 year old Chinese lady underwent a mastectomy for a left breast tumour.



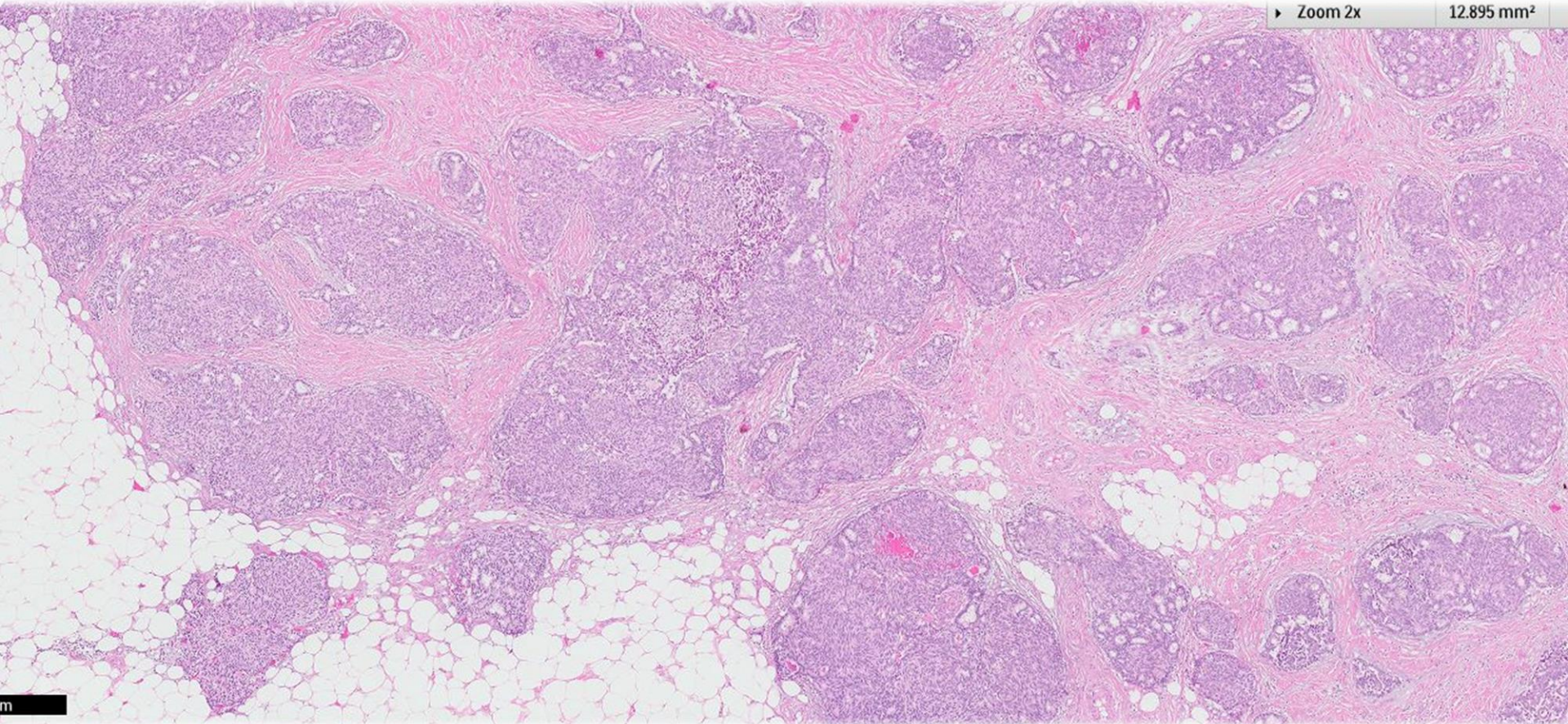




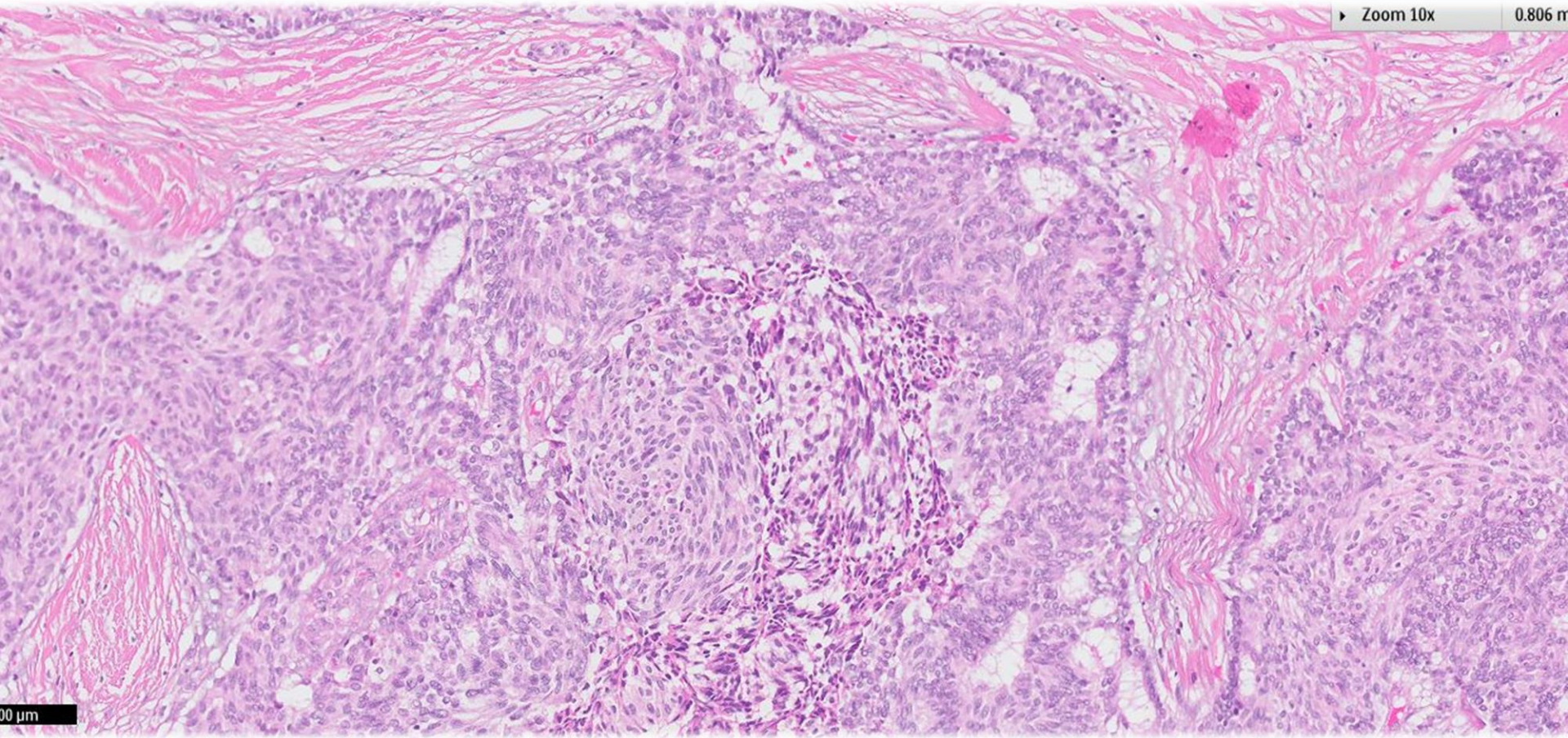
1 mm

▶ Zoom 2x

12.895 mm<sup>2</sup>

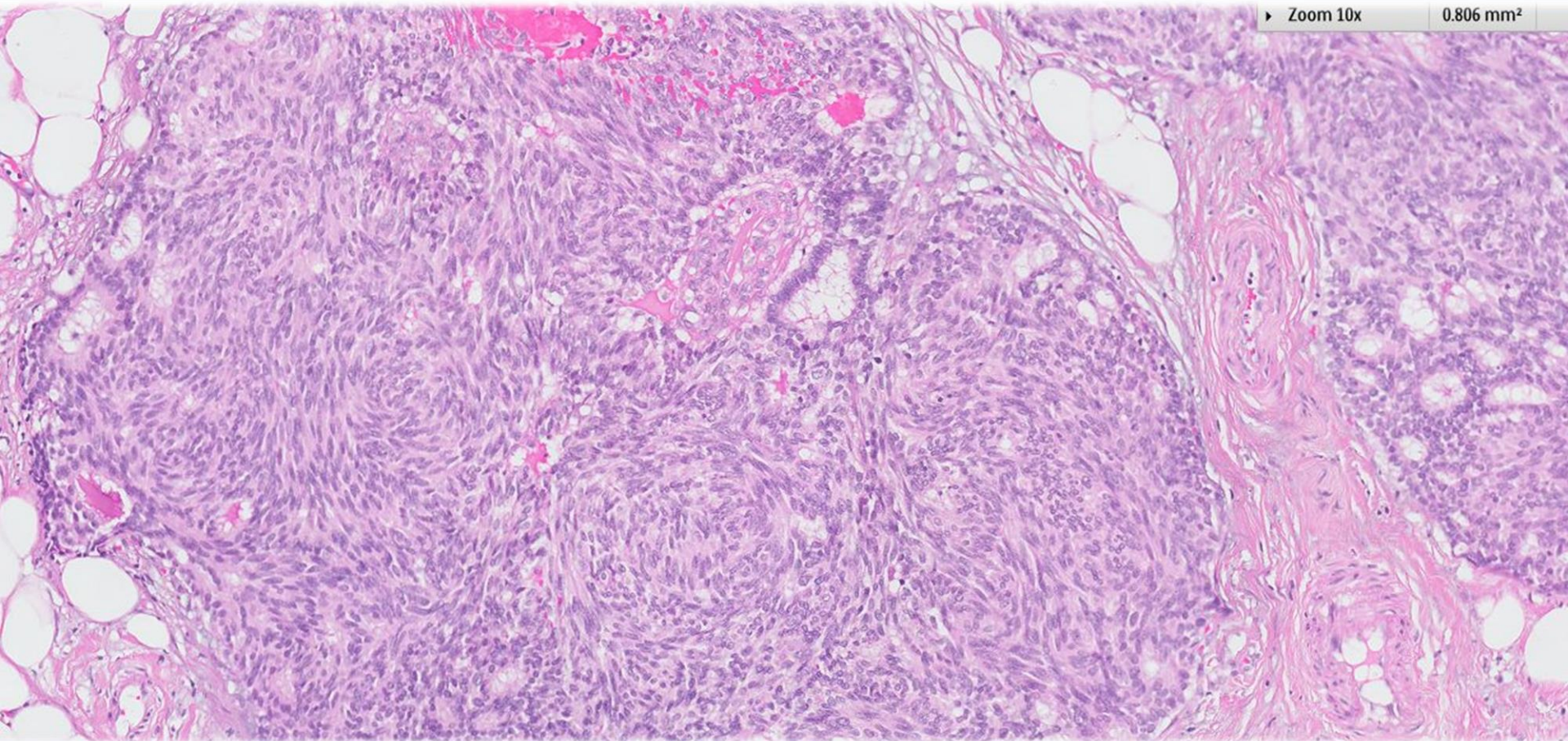


m



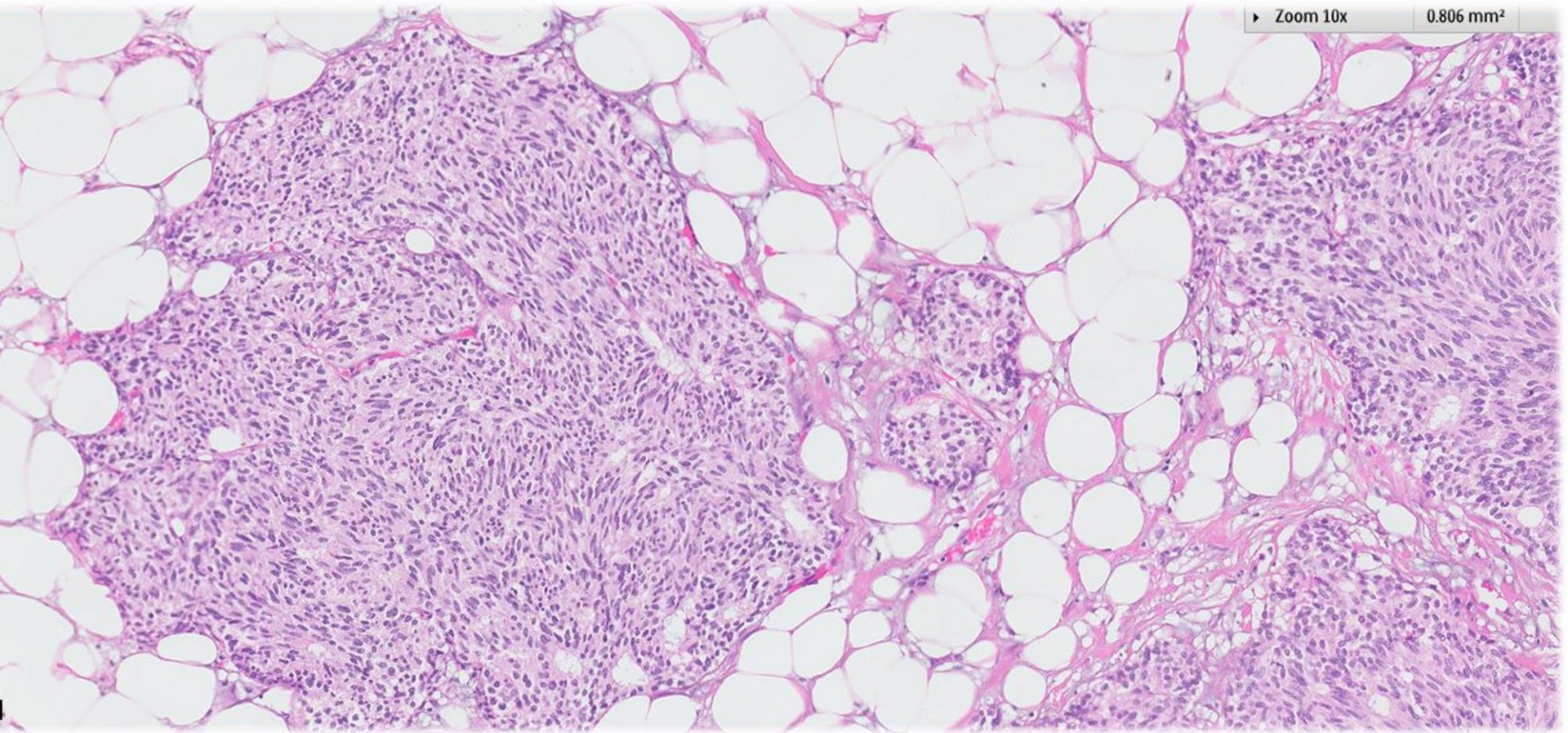
▶ Zoom 10x

0.806 mm<sup>2</sup>



▶ Zoom 10x

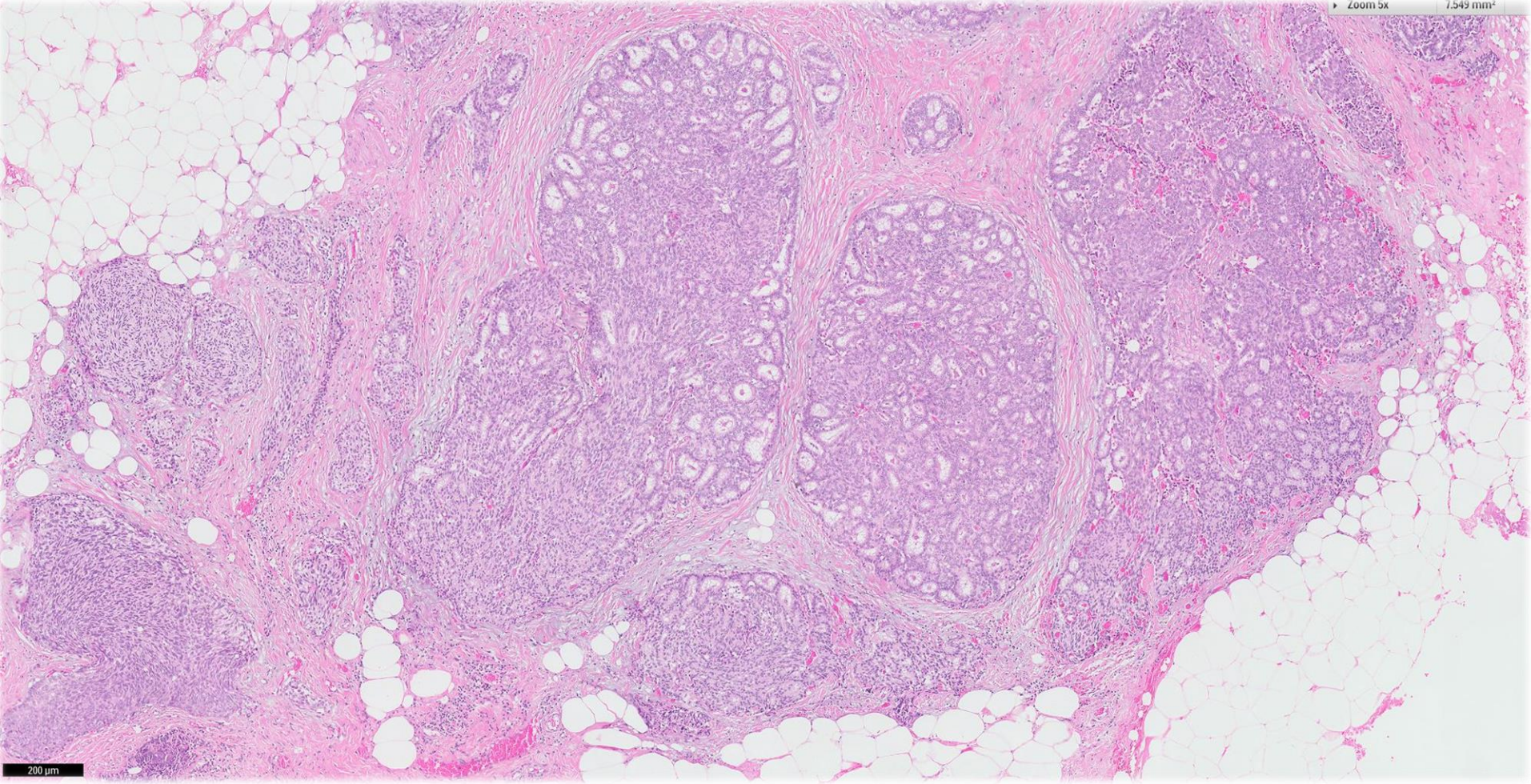
0.806 mm<sup>2</sup>

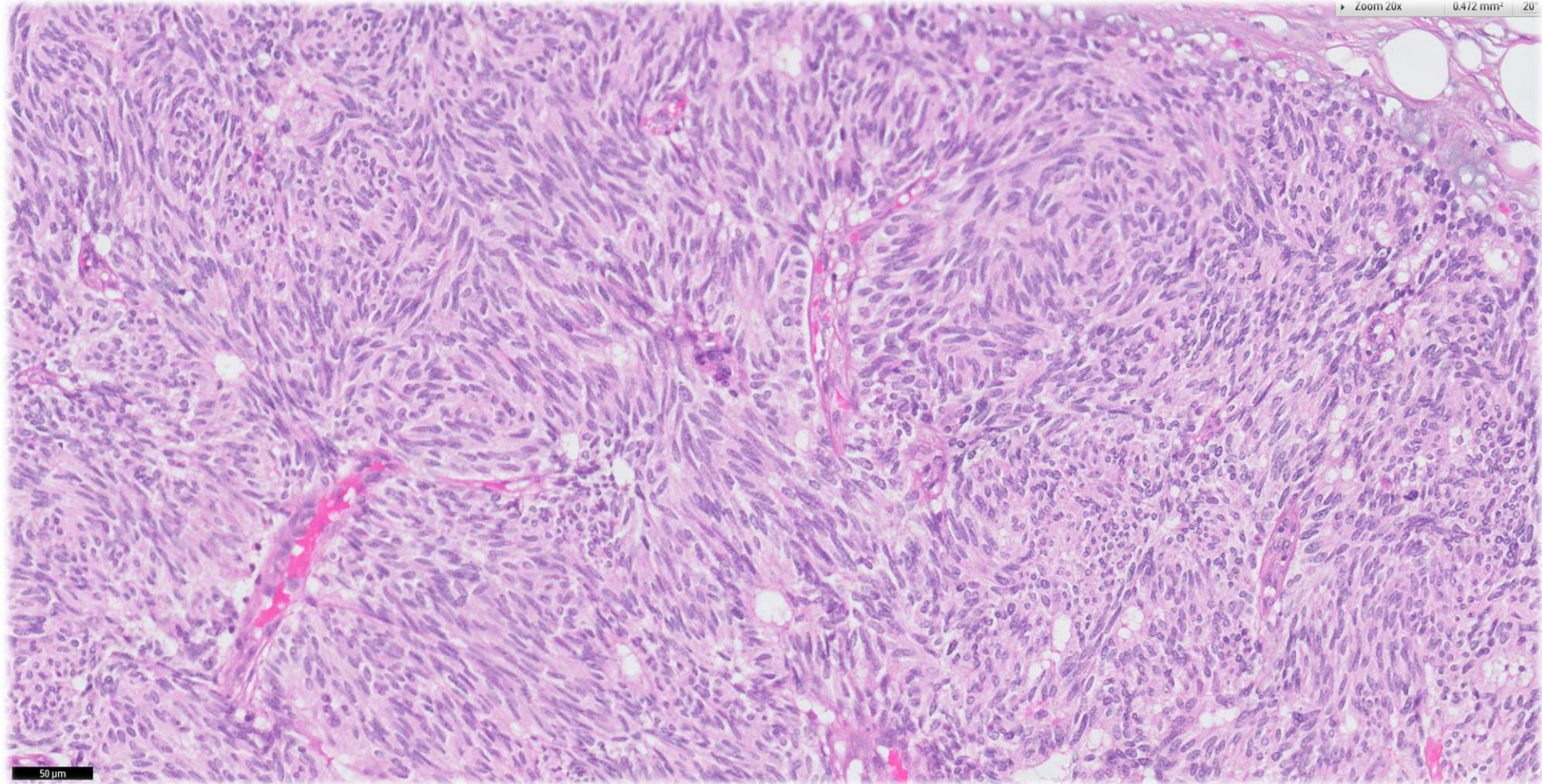


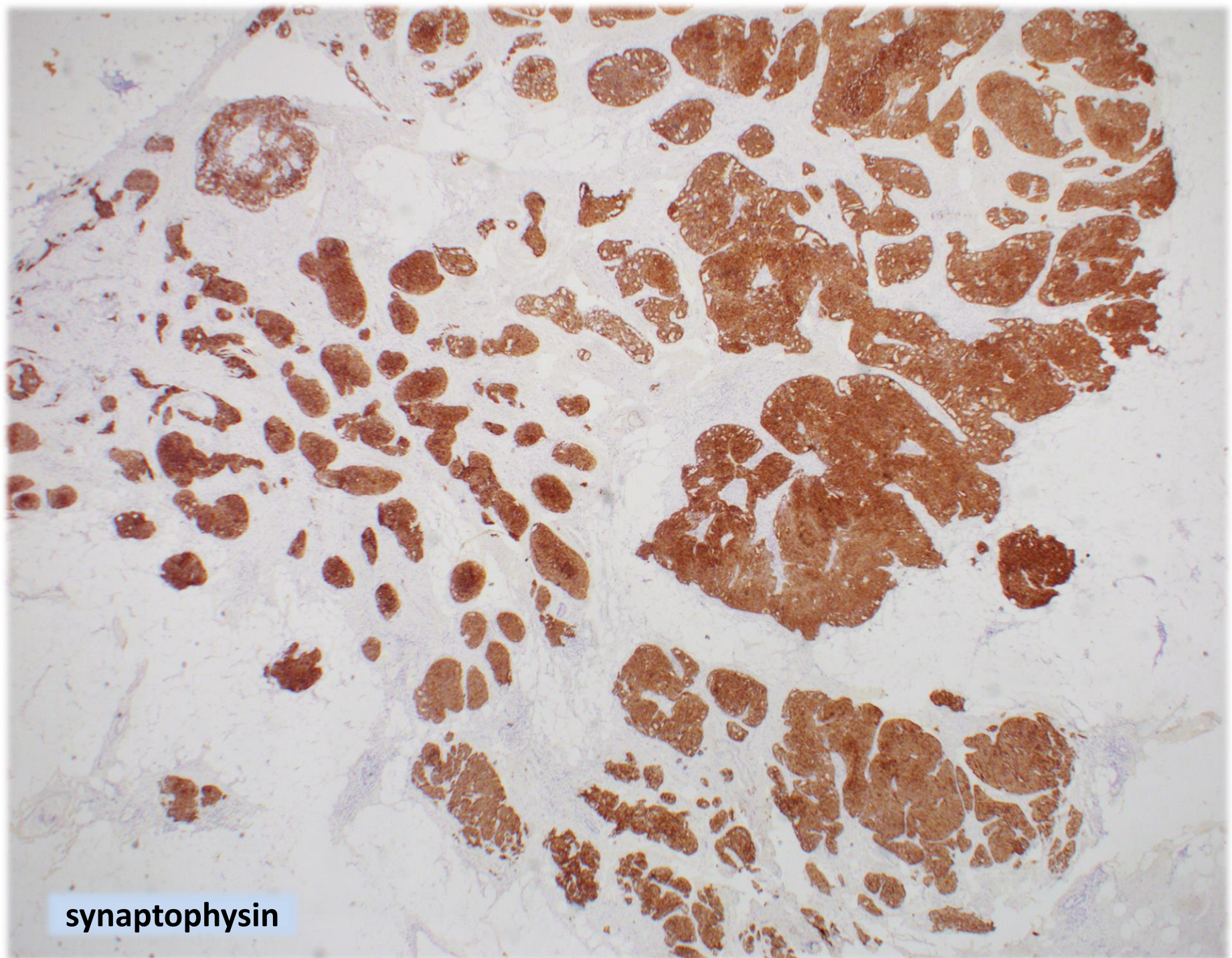


*Orchid Garden*  
*Singapore Botanic Gardens*

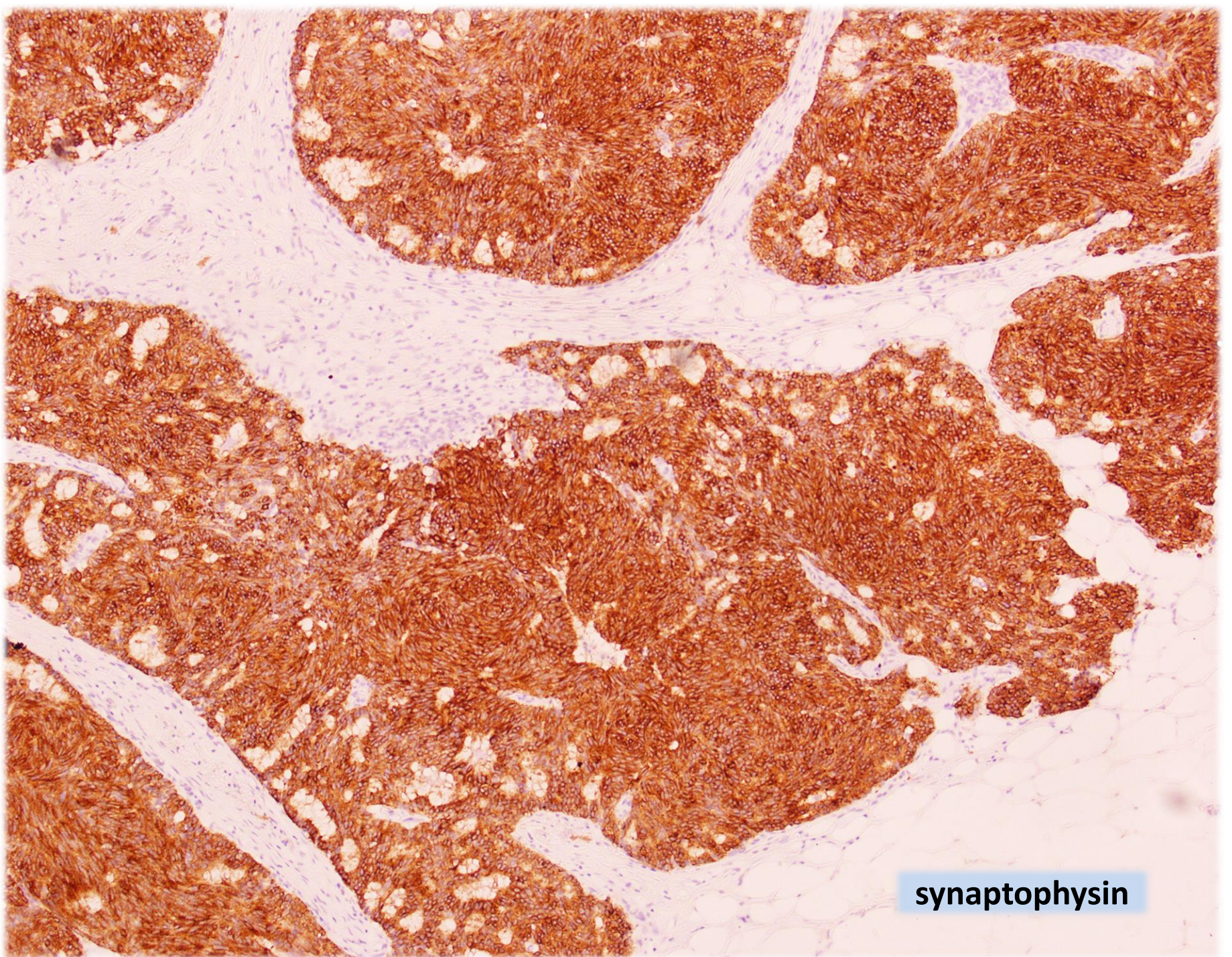




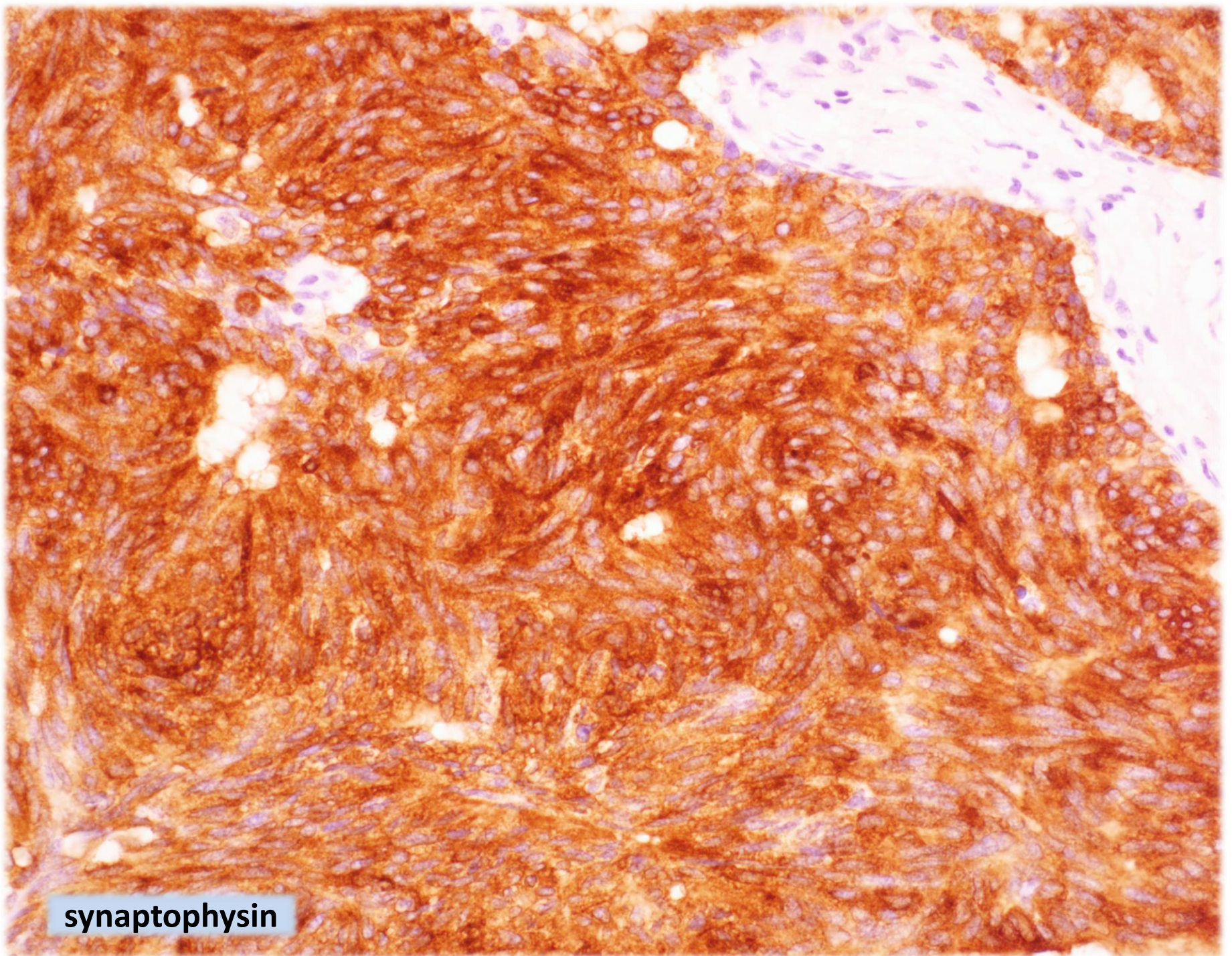




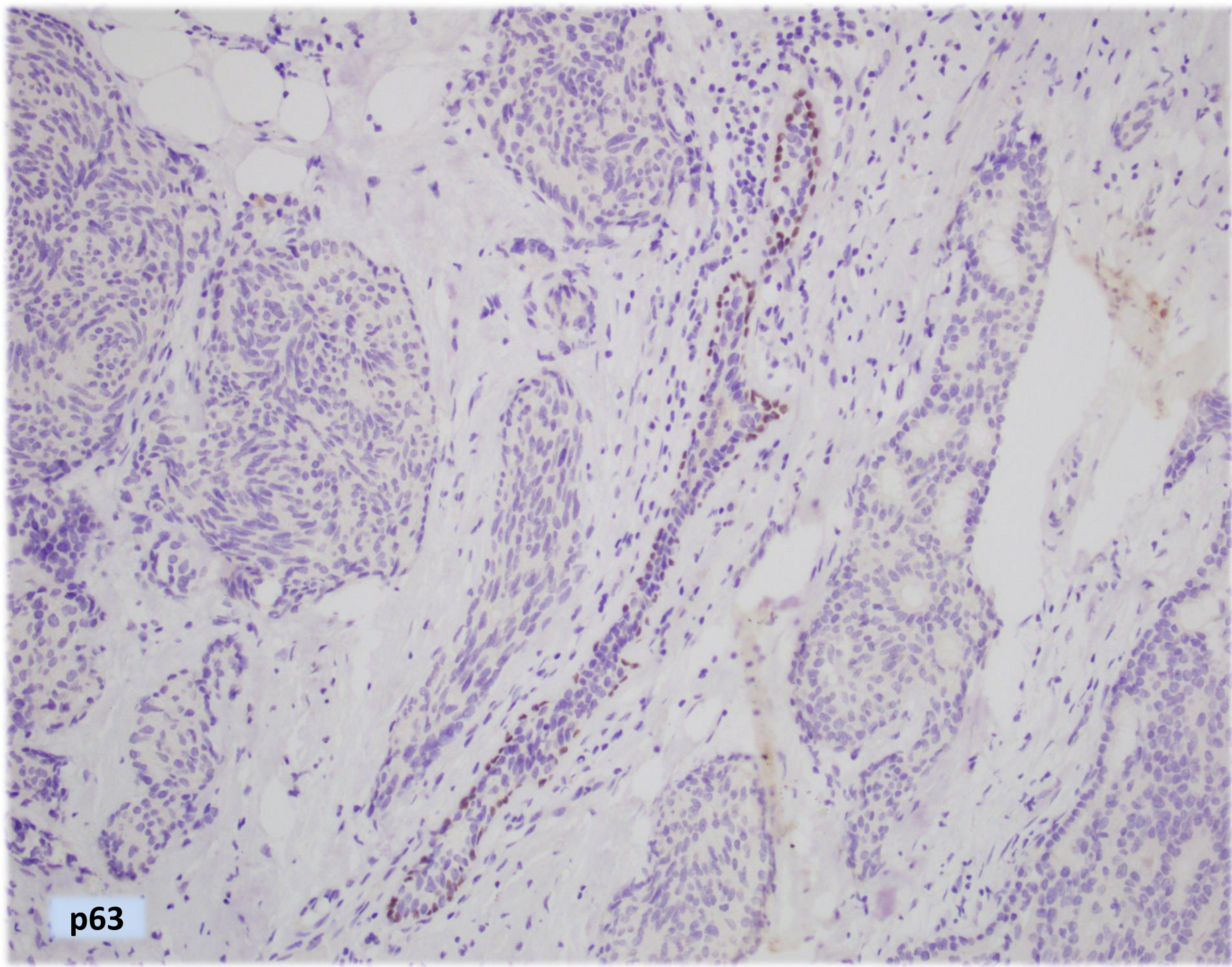
**synaptophysin**



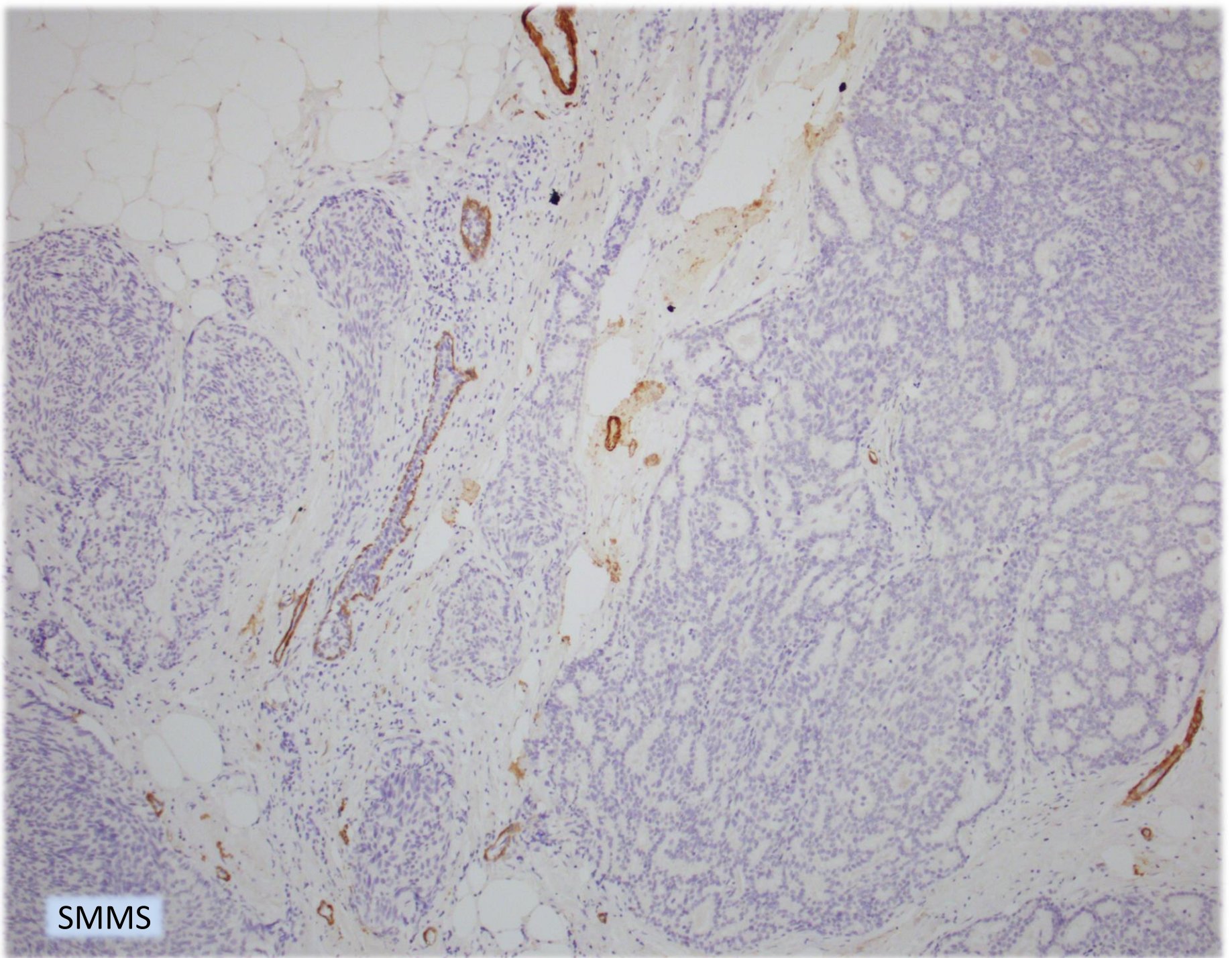
**synaptophysin**



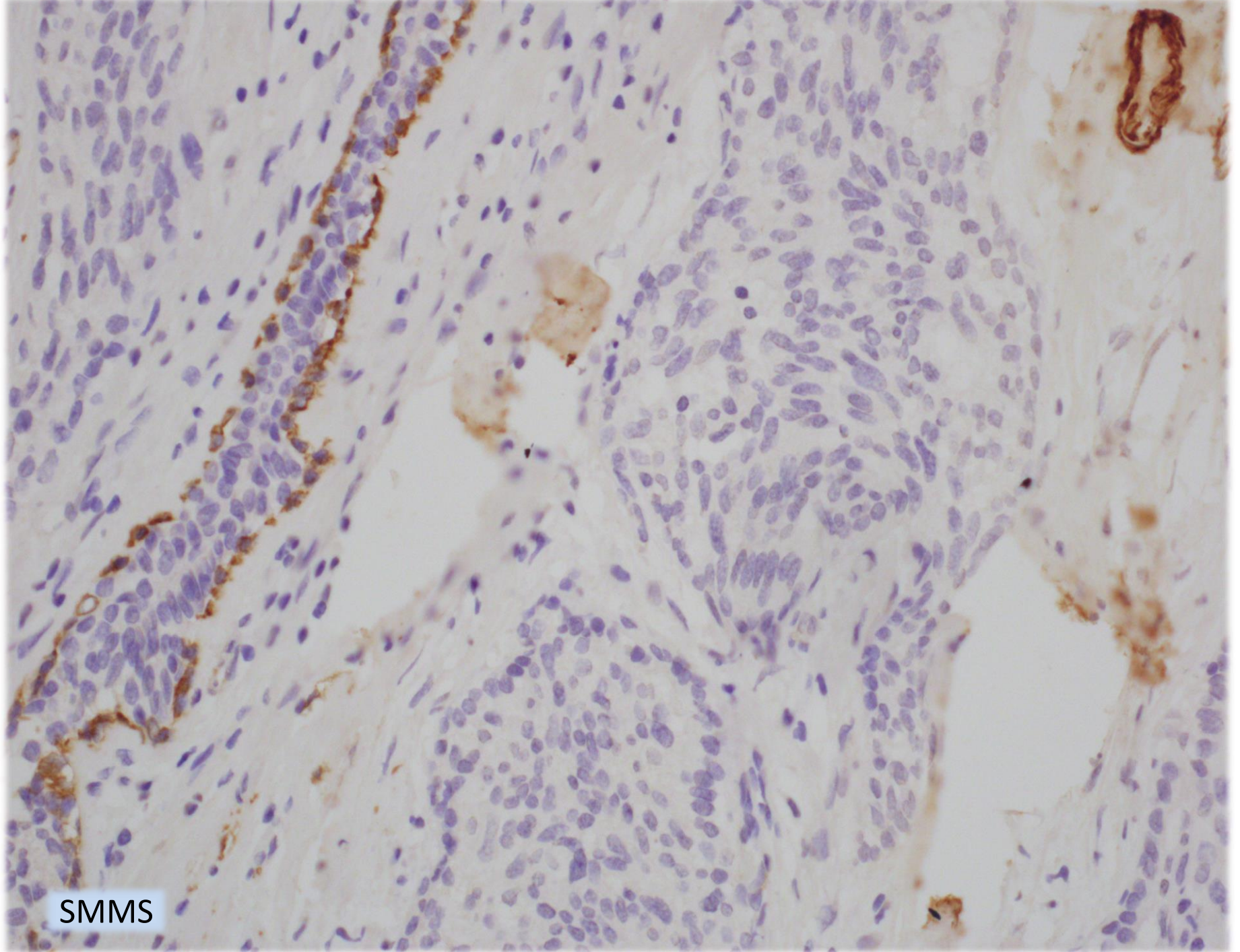
synaptophysin



p63



SMMS



SMMS



# Diagnosis

- Invasive neuroendocrine carcinoma with spindle cells and focal solid-papillary features, grade 1, 14mm
- ER positive, PR positive
- cerbB2 negative



# Invasive breast carcinoma with neuroendocrine differentiation

- Neuroendocrine differentiation is reported in between 4-30% of breast carcinomas.
- Special type breast cancers with neuroendocrine differentiation ~
  - Hypercellular mucinous carcinoma (Capella B)
  - Solid-papillary carcinoma

# Carcinomas with neuroendocrine differentiation (WHO 2012)

- Breast carcinomas with morphological features similar to those of neuroendocrine tumours of the GIT & lung.
- Express neuroendocrine markers to some degree.
  - *Neuroendocrine tumour, well-differentiated.*
  - *Neuroendocrine carcinoma, poorly differentiated (small cell carcinoma).*
  - *Invasive breast carcinoma with neuroendocrine differentiation.*

# *Comparison between 'old' & 'new'*

- Neuroendocrine tumours (2003)

- Expression of NE markers in > 50% of the cell population.
- Excluded are NST carcinoma with focal NE differentiation.

- Neuroendocrine tumours (2012)

- Up to 30% of invasive cancer NST and special types show NE differentiation on histochemistry and IHC.
- No specific threshold for NE differentiation.

# Classification of neuroendocrine tumours of the breast

## 2003

- Solid neuroendocrine carcinoma, described as originating from solid papillary carcinoma
- Small cell/oat cell carcinoma, morphologically resembling lung counterpart
- Large cell neuroendocrine carcinoma, similar to lung
- Metastatic carcinoid

## 2012

- NE tumour, well differentiated
- NE carcinoma, poorly differentiated/small cell carcinoma
- Invasive carcinoma with NE differentiation

# Carcinomas with neuroendocrine features:

## *implications of 'new' 2012 classification*

- Harmonises classification of neuroendocrine tumours in the breast with those described in GIT and lung.
- Simplifies the categories.
- Removes arbitrary threshold for neuroendocrine expression in invasive breast cancers.
- Removes 'solid neuroendocrine carcinoma', recognising its place with solid-papillary carcinoma.

# Role of neuroendocrine differentiation

- Controversial.
- Some authors report no impact on prognosis.

*Bogina G et al. Histopathology. 2015 Jun 26*

- Others indicate poorer prognosis.

*Wang J et al. BMC Cancer. 2014 Mar 4;14:147.*

*Kwon SY et al. Histopathology. 2014 Apr;64(5):647-59.*

*Watrowski R. Anticancer Res. 2012 Nov;32(11):5079-82.*

