

# BREAST TUMOR MAP

ER NEGATIVE (\* at least mostly)

## LEGEND

SMALL GLAND PROLIF  
 PALPABLE MASS  
 NODULAR / LOBULATED  
 PAPILLARY  
 CYSTIC / ENCAPSULATED  
 INFILTRATIVE  
 YOUNG WOMEN  
 OLD WOMEN  
 TRIPLE NEGATIVE

**MICROGLANDULAR ADENOSIS**

**MX** Infiltrative, cellular small gland prolif extending into adjacent adipose. Non lobulocentric. Has PAS+ luminal secretions.

**IHC** S100+, Keratin +

**DDX** Atypical MGA: Multilayered, cytologic atypia

**SYRINGOMA (NIPPLE REGION)**

**MX** **Subareolar** lump, squamoid tad-pole shaped nested tumor infiltrating around normal structures. **Keratin cysts** commonly present

**IHC** POS: p63, CK5/6, p40, Sox10

**DDX** LG Adenosquamous carcinoma, Tubular carcinoma or Nipple adenoma

**NODULAR FASCIITIS**

**MX** Rapidly growing, spindle cell process with zonal loose fascicles, extravasated RBCs, few mitoses. Partially infiltrative

**IHC** POS: SMA  
NEG: Ker, S100, beta-cat, ER/PR

**DDX** Metaplastic carcinoma, fibromatosis  
Malignant phylloides tumor stroma

BENIGN

**ADENOMYOEPITHELIOMA**

**MX** Lobulated, pushing lesions with biphasic luminal and clear myoeps. Can have squamous diff., can be papillary

**IHC** POS: p63, p40, SMA, MYB (v)  
NEG: ER/PR (usu)

**DDX** Papillary lesions. Malignant ductal CA arising

**SECRETORY CARCINOMA**

**MX** Polygonal cells with eosinophilic cytoplasm, microcystic spaces w/ pink colloid-like bubbly secretions

**IHC** POS: panTRK, S100, Sox10, CK5/6, cKIT(v)

**DDX** Apocrine carcinoma, ACC, TCCRP

**TALL CELL CA W/ REVERSED POLARITY**

**MX** Nested, nodular pattern with fibrovascular cores +/- papillae. Bland cytology with malpositioned nuclei. *IDH2 p172* mutation

**IHC** POS: Ker+, GATA3+ (v)  
NEG: TTF-1, MyoEps

**DDX** Metastatic thyroid carcinoma

**AGGRESSIVE FIBROMATOSIS**

**MX** Bland spindle cell lesion, infiltrative with thin, wavy nuclei. Displaces native DLUs. Low mits. Old lesins -> chondro-osseous foci

**IHC** POS: SMA, nuclear B-catenin  
NEG: Ker, S100, p63, CD3.4 ER/PR

**DDX** Metaplastic carcinoma, fibromatosis  
Malignant phylloides tumor stroma

LOW GRADE / INDOLENT

**ADENOID CYSTIC CARCINOMA**

**MX** Tubular, cribriform, and solid patterns associated with matrix. Basaloid pattern = high-grade cytology. *MYB-NFIB* transloc.

**IHC** POS: Ker, MyoEp, cKit, MYB

**DDX** Tubular: MGA, Tubular Ca or Cribriform IDC  
Solid-Basal pattern: Cylindroma, NECA

**MUCOEPIDERMOID CARCINOMA**

**MX** Solid or microcystic with squamoid + basaloid + mucinous cell mixture.  
Low Gr: cystic, High Gr: solid. *MAML2 fusion*

**IHC** POS: p63, panKer, GATA3+ (in breast)

**DDX** LG Adenosquamous CA.

**APOCRINE ADENOCARCINOMA**

**MX** Abundant granular eosinophilic or vacuolated cytoplasm with distinct cell borders. >90% apocrine features

**IHC** Androgen receptor + (75%)

**DDX** Apocrine changes in IBT  
Granular cell tumor

**ACINIC CELL CARCINOMA**

**MX** Infiltrative, cellular small gland prolif +/- necrosis. Eosinophilic & basophilic granular cytoplasm, moderate nuclear atypia

**IHC** S100+, EMA+, chymotrypsin+

**DDX** Secretory carcinoma (when more bland cytology)

**FIBROMATOSIS-LIKE MPC**

**MX** Predominantly spindle cell carcinoma with thin wavy cells + fascicles. Only mild nuclear atypia

**DDX** More favorable subtype!  
Desmoid fibromatosis (beta-catenin mut)

**LOW-GRADE ADENOSQUAMOUS MPC**

**MX** Mixed glandular/tubular adenoCa + solid nests of squamous cells with spindled background. **Seen w/ complex scler. lesions**

**DDX** More favorable subtype! +/- **MyoEps**  
Nipple adenoma w/ sq. morlues, Radial scar

**MUCINOUS CYSTADENOCARCINOMA**

**MX** Cystic tumour with intracystic papillary structures lined by tall columnar cells with abundant intracytoplasmic mucin

**IHC** No MyoEps. CK7+/CK20-/CDX2-  
CK5/6 variably +

**DDX** Pancreatobiliary met (CDX2+)  
Mucinous carcinoma (ER+)

**INV BR. CA W/ MEDULLARY PATTERN**

**MX** Invasive breast cancer **enriched with TILs**. Often pushing margins with limited infiltration, syncytial growth + necrosis.

**IHC** MyoEps: Lost in areas of microinvasion

**DDX** Cancerization of lobules or ducts

**METAPLASTIC CARCINOMA (MPC)**

**MX** Spindle cell carcinoma with variably mixed squamoid, sarcomatoid or biphasic appearance

**IHC** Must show + for: p63, p40, CK5/6, AE1/3 ...

**DDX** Mesenchymal dominant -> Malig. Phylloides

**MPC WITH MESENCHYMAL DIFFERENTIATION**

**MX** Carcinomatous + other (chondroid, myxoid, osseous, rhabdoid)

**DDX** Malignant phylloides tumor  
Primary sarcoma (if no IHC epithelial proof)

**PURE SQUAMOUS CELL MPC**

**MX** Usually cystic with malignant squamoid lining cells that infiltrate in cords + desmoplasia

**DDX** Metastatic squamous cell ca from lung or cervix must be excluded

HIGHER-GRADE OR AGGRESSIVE BEHAVIOR