

Malignant tumors of the lung

- Incidence: first place
- Mortality: first place in the tumorous mortality statistics
- Risk factors:
 - Smoking 15x, pack-year index (number of yrs x pack/day)
 - Asbestos, radon...
- Diagnostics:
 - Anamnesis (smoking!)
 - Imaging: X-ray, CT, US, MR, Scintigraphy, PET
 - Cytology/histology: bronchoscopy, mediastinoscopy, thoracoscopy, sputum, aspiration cytology, thoracic fluid cytology, biopsy

Histological subtypes

- **Small cell carcinoma (SCLC)** – centrally localized, ~ 10%
- **Squamous cell carcinoma (NSCLC)** – centrally localized, ~ 15-20%
- **Adenocarcinoma (NSCLC)** – centrally localized, ~ 50%
- Large cell (anaplastic) carcinoma (undifferentiated carcinoma, negative immunostains, LCNOS)
- Adenosquamous carcinoma (both components present at least 10%)
- Large cell neuroendocrine carcinoma (LCNEC)
- **Carcinoid, atypical carcinoid**
- Miscellaneous tumors
- Metastatic tumors (breast, lower rectum, prostate, kidney, testis, lymphoma, head and neck)

Signs and symptoms of bronchiogenic carcinomas

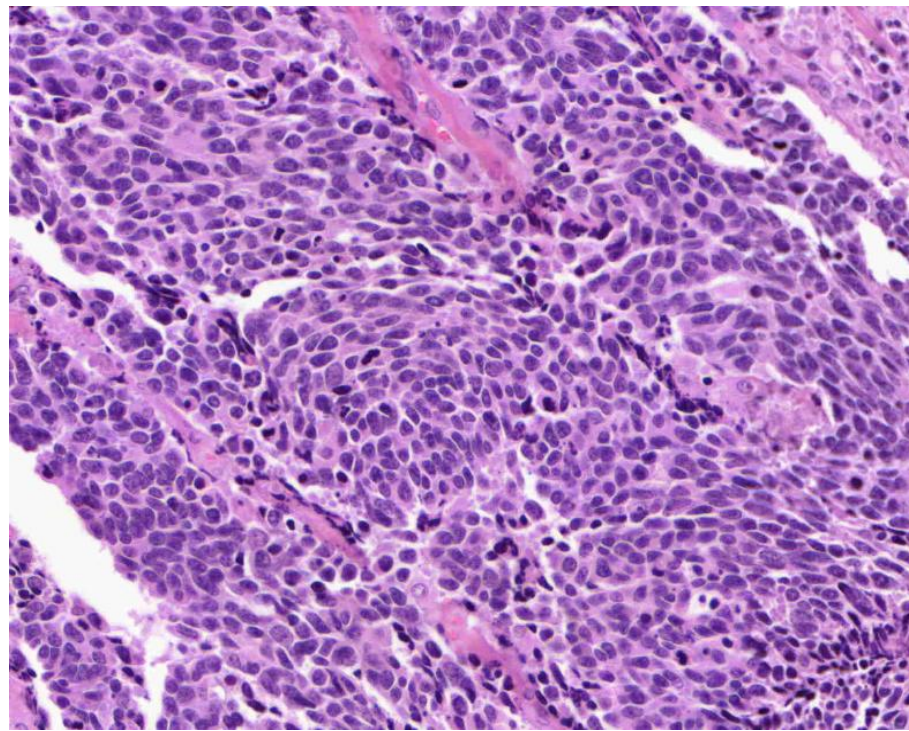
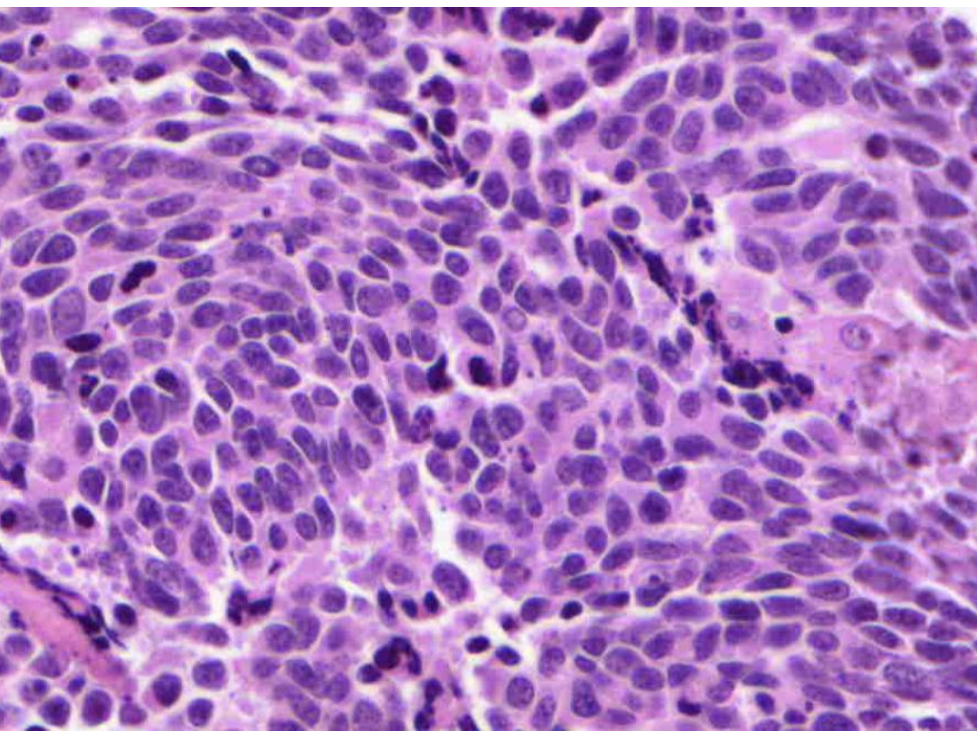
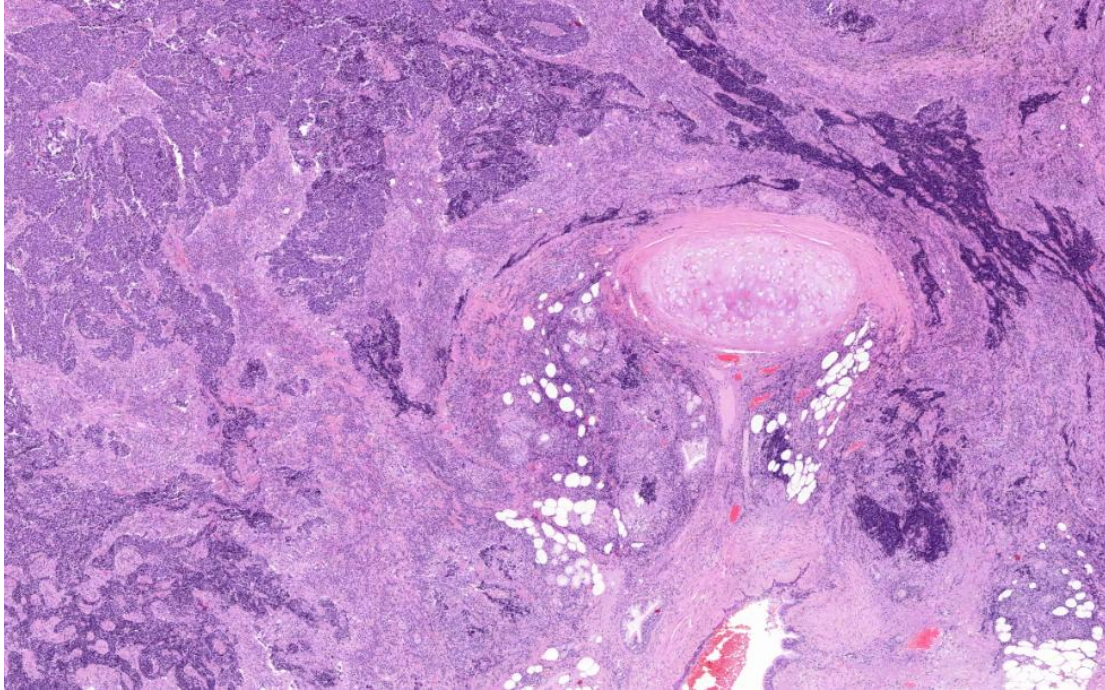
- Partial obstruction may cause emphysema
- Total obstruction may lead to atelectasia
- Severe suppurative bronchitis, bronchiectasis, pulmonary abscess, fever, hemoptoe (blood in the sputum)
- Invasion of the superior vena cava causes venous congestion with head and arm edema – vena cava superior syndrome
- Extension to the pericardium and/or pleura may cause pericarditis and pleuritis with pleural effusions.
- Extension to the wall of the esophagus can cause a broncho-esophageal connection (fistul) leading to aspiration pneumonia.
- Pancost tumor (apical tumor): Horner syndrome (sympathetic ganglia invasion): myosis, ptosis, enophthalmus.

Small cell carcinoma

- The most aggressive of lung tumors
- In smokers (99 %)
- Centrally located (hilar), surgical treatment is difficult
- Bad prognosis, depends on stage, but overall 5 year survival below 5%
- From neuroendocrine (Kulchitsky's) cells (normally found in bronchial epithelium)
- Commonly associated with paraneoplastic syndromes (e.g. ACTH production)
- Widely metastasizing (bones, supr.glands, liver, brain)
- microscopy: very scant cytoplasm, oval shaped dark nuclei (no nucleoli)
- therapy: **radio-** and chemotherapy

small cell carcinoma



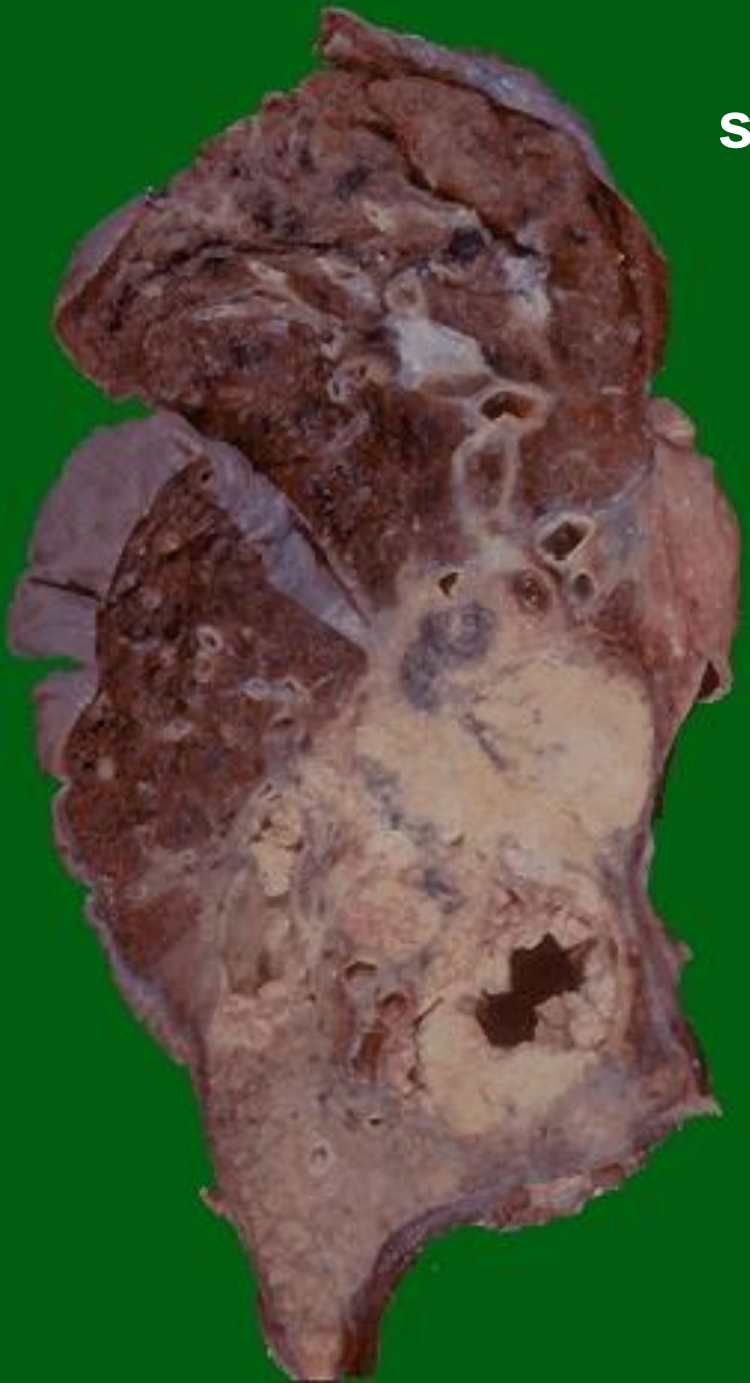


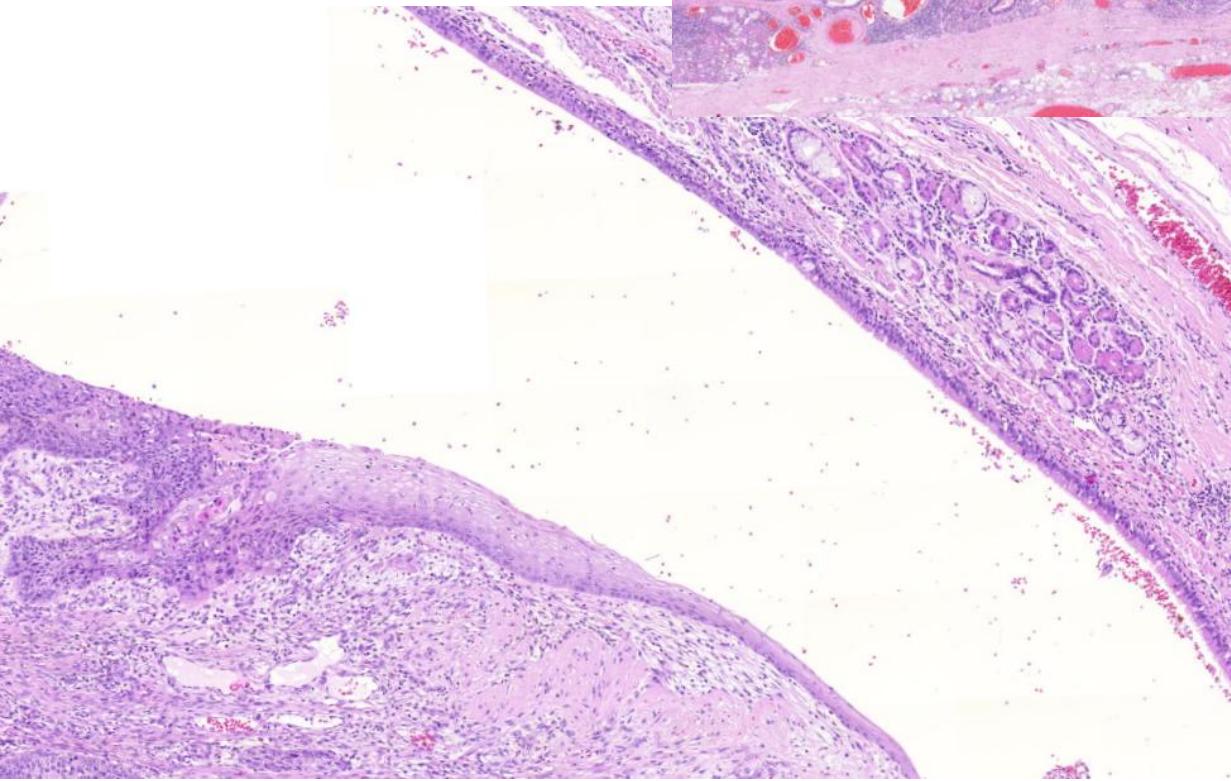
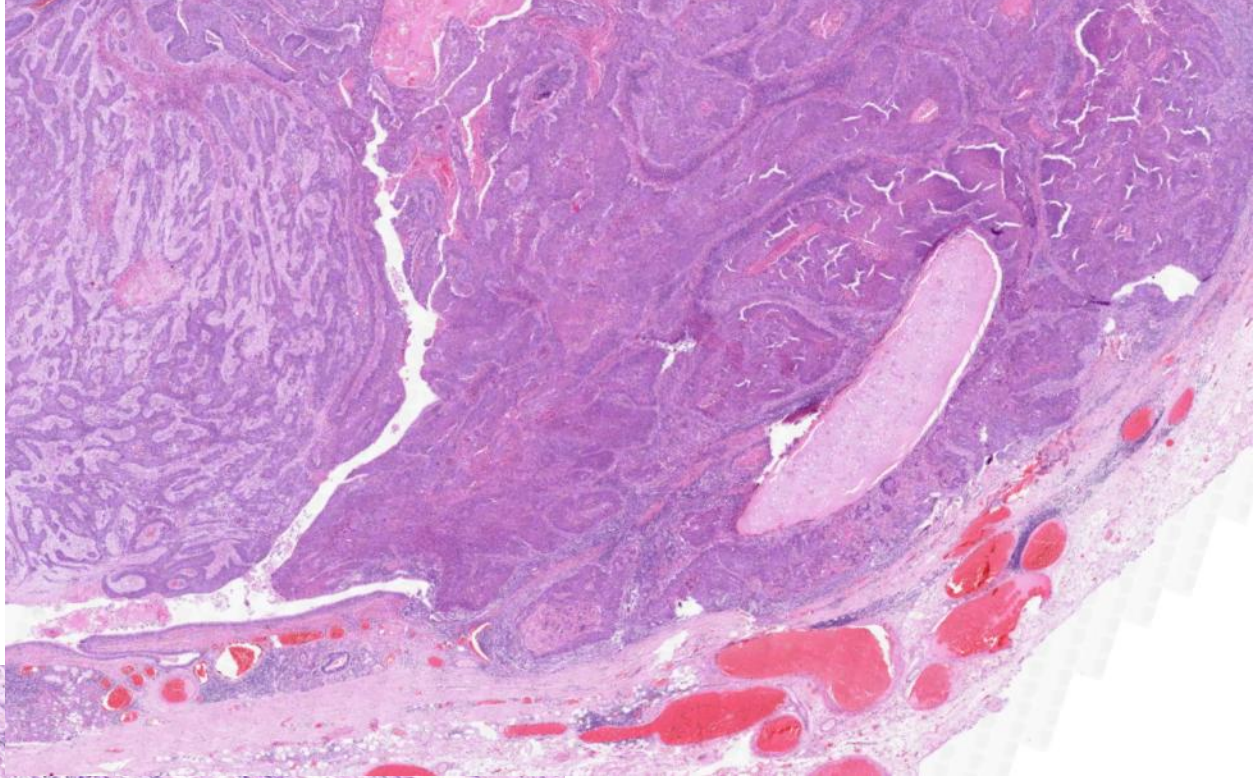
Squamous cell carcinoma

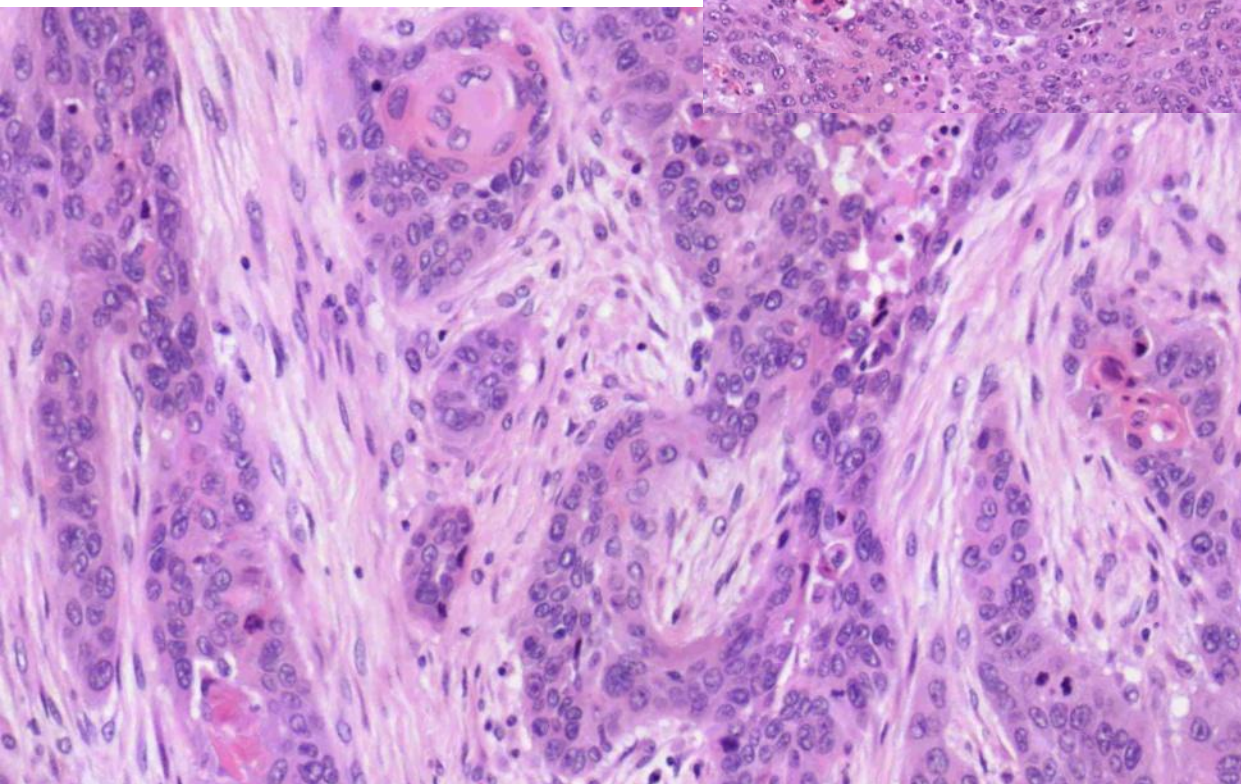
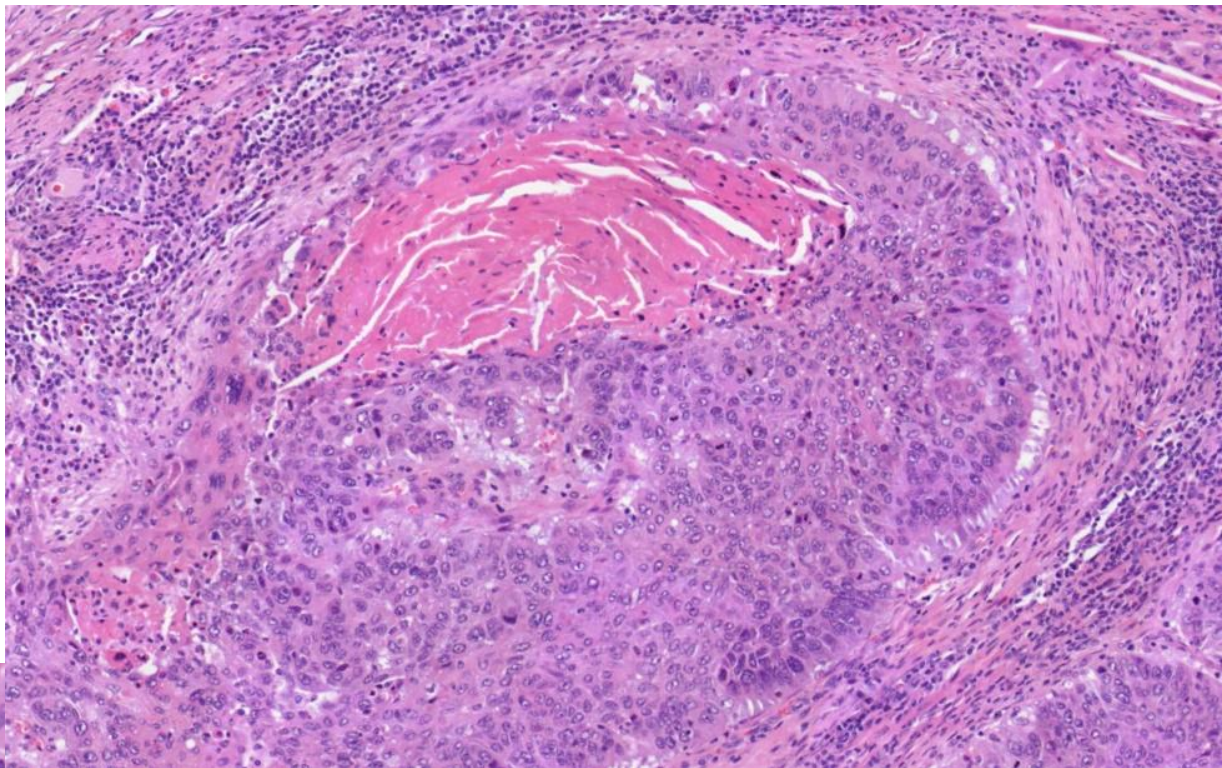
- in smokers (survival rate depends on stage)
- men:women 2:1
- arises in the larger, more central bronchi
- squamous metaplasia, epithelial dysplasia, carcinoma in situ in adjacent foci
- extension to pleural surface, pleural cavity or into the pericardium may occur
- spread to the tracheal, bronchial areas and mediastinal lymph nodes
- Distant metastases: bones, suprarenal glands, brain, liver



squamous cell carcinoma







Adenocarcinoma

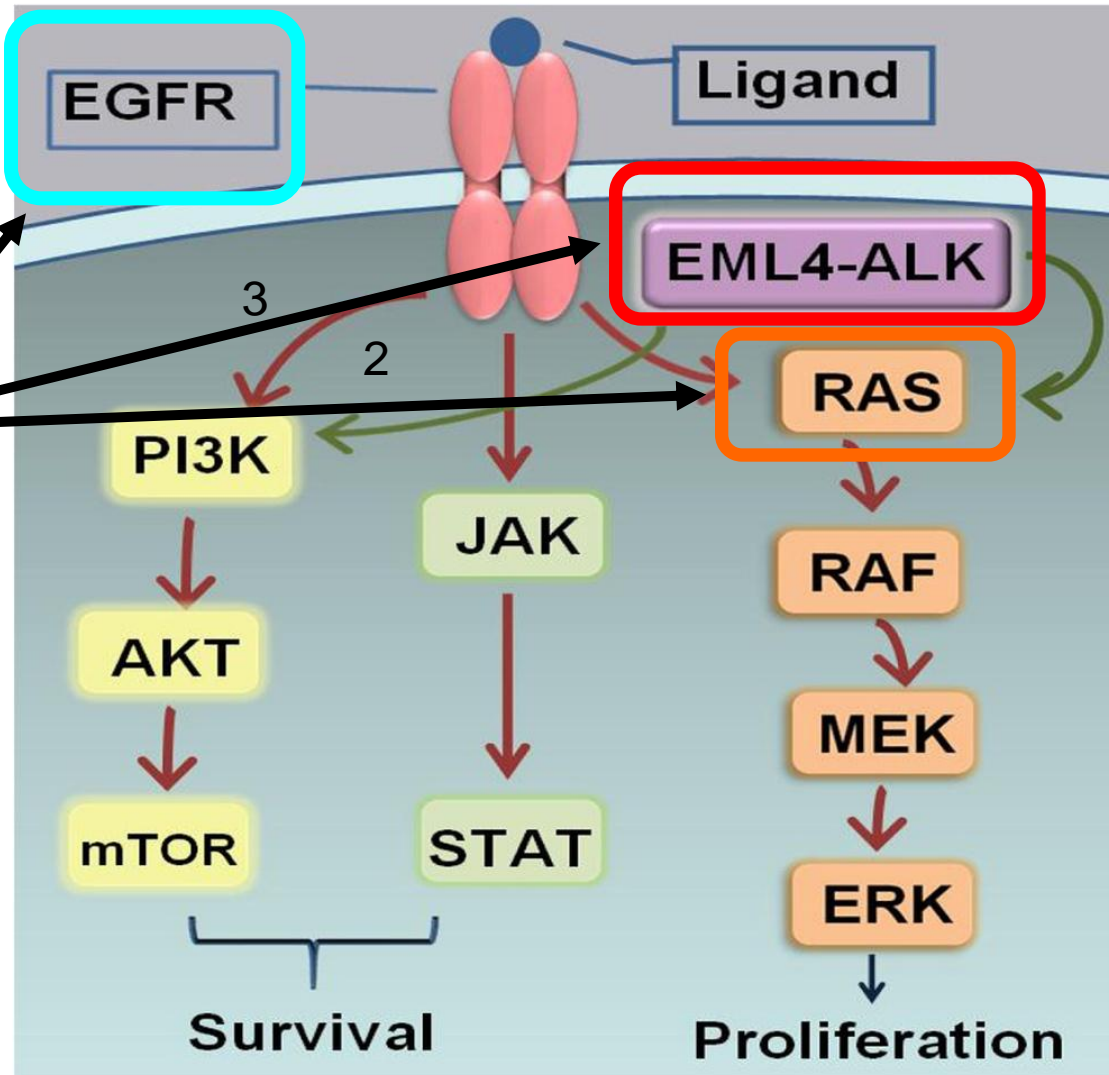
- More common in females
- In recent years it became the most common type
- Poorly circumscribed lesion
- 65% peripheral
- Histologically:
 - wide range of differentiation
 - Lepidic, acinar, papillary, micropapillary, solid

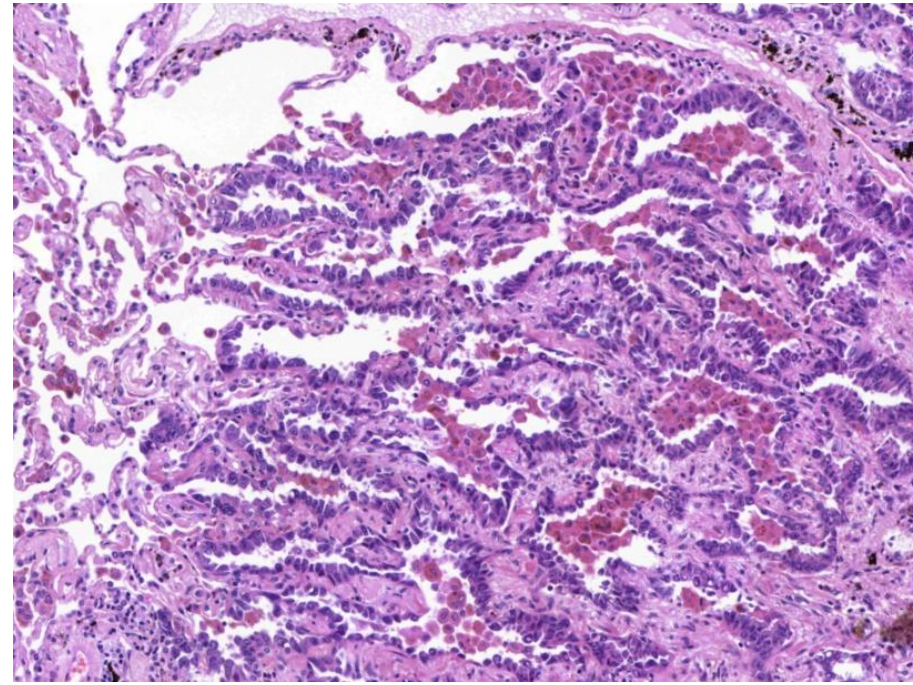
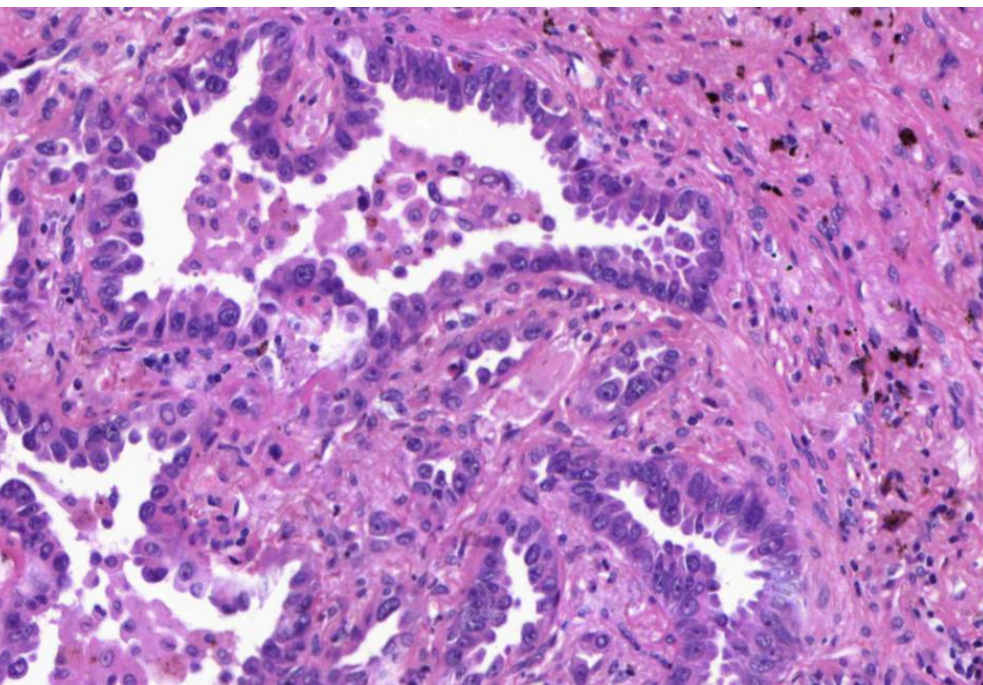
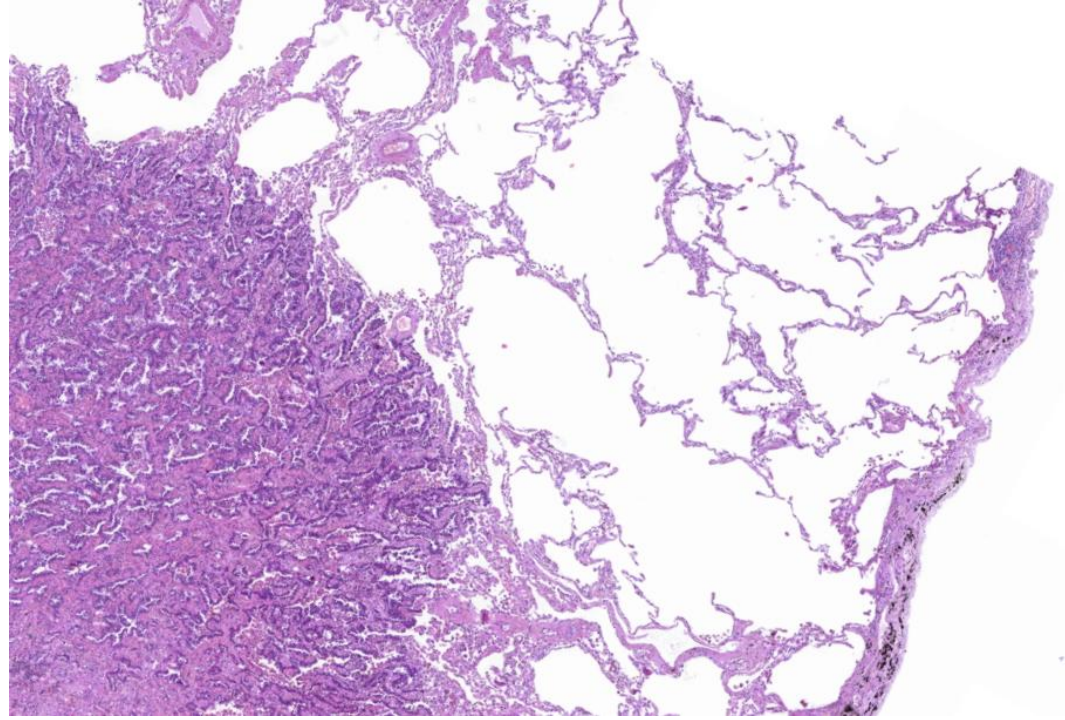
Molecular genetics

Adenocc.

Mutations
(mostly mutually exclusive)

Specific
treatment





Mesothelioma

- Arises either from the visceral or the parietal pleura
- asbestos exposure related
- dyspnea, recurrent pleural effusions
- Macroscopy: thick layer of gelatinous grayish-pink tumor tissue around the affected lung”
- Microscopy:
 - sarcomatoid type
 - epithelial type
 - mixed type

mesothelioma



