

1. A biopsy from the tongue shows pseudoepitheliomatous hyperplasia with histiocyte like cells underneath, which contain a granular cytoplasm. A diagnosis is suspected and confirmed with S-100 positivity. Which of the following is true with regards to this tumor:
  - A. EM will show abundant mitochondria
  - B. EM will show abundant rough endoplasmic reticulum
  - C. EM will show numerous premelanosomes
  - D. EM will show numerous lysosomes
  - E. EM will show cytoplasmic microvilli
  
2. EM of an undifferentiated tumor is noted to have long thin microvilli (height to width ~ 10:1). Which of the following tumors is this most consistent with:
  - A. Pulmonary adenocarcinoma
  - B. Breast adenocarcinoma
  - C. Mesothelioma
  - D. Prostate carcinoma
  - E. Thyroid follicular carcinoma
  
3. EM of an undifferentiated tumor shows microvilli with long filamentous core rootlets (electron dense). This finding suggests which diagnosis:
  - A. GI adenocarcinoma
  - B. Breast adenocarcinoma
  - C. Mesothelioma
  - D. Prostate carcinoma
  - E. Thyroid follicular carcinoma
  
4. An undifferentiated tumor shows prominent profiles of rough endoplasmic reticulum. Which of the following markers would also be positive in this lesion?
  - A. S-100
  - B. CD138
  - C. CD45
  - D. Hale's colloidal iron
  - E. Synaptophysin
  
5. A specimen being prepared for electron microscopy should be fixed in:
  - A. B5
  - B. Zinc formalin
  - C. Mercury based fixative
  - D. Gluteraldehyde
  - E. Bouin's

6. EM of a CNS tumor showed intracellular lumens lined by microvilli with specialized junctions between cells and glial features. This is most consistent with which of the following tumors:
  - A. Ependymoma
  - B. Schwannoma
  - C. Astrocytoma
  - D. Carcinoma
  - E. Choroid plexus tumor
  
7. EM of a CNS tumor shows prominent interdigitating processes without a basal lamina. There are well formed desmosome junctions and prominent cytoplasmic inclusions. These findings are most consistent with:
  - A. Schwannoma
  - B. Ependymoma
  - C. Meningioma
  - D. Carcinoma
  - E. Lymphoma
  
8. EM of a tumor shows rhomboid crystalline inclusions. Cytogenetics also showed a t(X;17). These findings are consistent with which of the following neoplasms?
  - A. Neurocytoma
  - B. Medulloblastoma
  - C. Alveolar soft part sarcoma
  - D. Clear cell sarcoma
  - E. Papillary ependymoma

The following questions refer to the website with the appropriate images  
[www.pathmd.com/questions/vol1\\_no13](http://www.pathmd.com/questions/vol1_no13) .

9. Based on the findings in the images for Case 1, which of the following is the best diagnosis?
  - A. Squamous Cell Carcinoma
  - B. Melanoma
  - C. Mesothelioma
  - D. Schwannoma
  - E. Adenocarcinoma
  
10. Based on the findings in the images for Case 2, which of the following is the best diagnosis?
  - A. Granular Cell Tumor
  - B. Plasmacytoma
  - C. Melanoma
  - D. Schwannoma
  - E. Adenocarcinoma

11. Based on the findings in the images for Case #3, which of the following is the best diagnosis?
- A. Squamous Cell Carcinoma
  - B. Melanoma
  - C. Mesothelioma
  - D. Schwannoma
  - E. Adenocarcinoma
12. Based on the findings in the images for Case #4, which of the following is the best diagnosis?
- A. Meningioma
  - B. Schwannoma
  - C. Squamous Cell Carcinoma
  - D. Adenocarcinoma
  - E. Lymphoma
13. Based on the findings in the images for Case #5, which of the following is the best diagnosis?
- A. Melanoma
  - B. Renal Cell Carcinoma, clear cell type
  - C. Renal Cell Carcinoma, chromophobe type
  - D. Oncocytoma
  - E. Granular Cell Tumor