

# ИГХлогия в практике

патологоанатома



By Dr. Altruist





# Что это за слово?

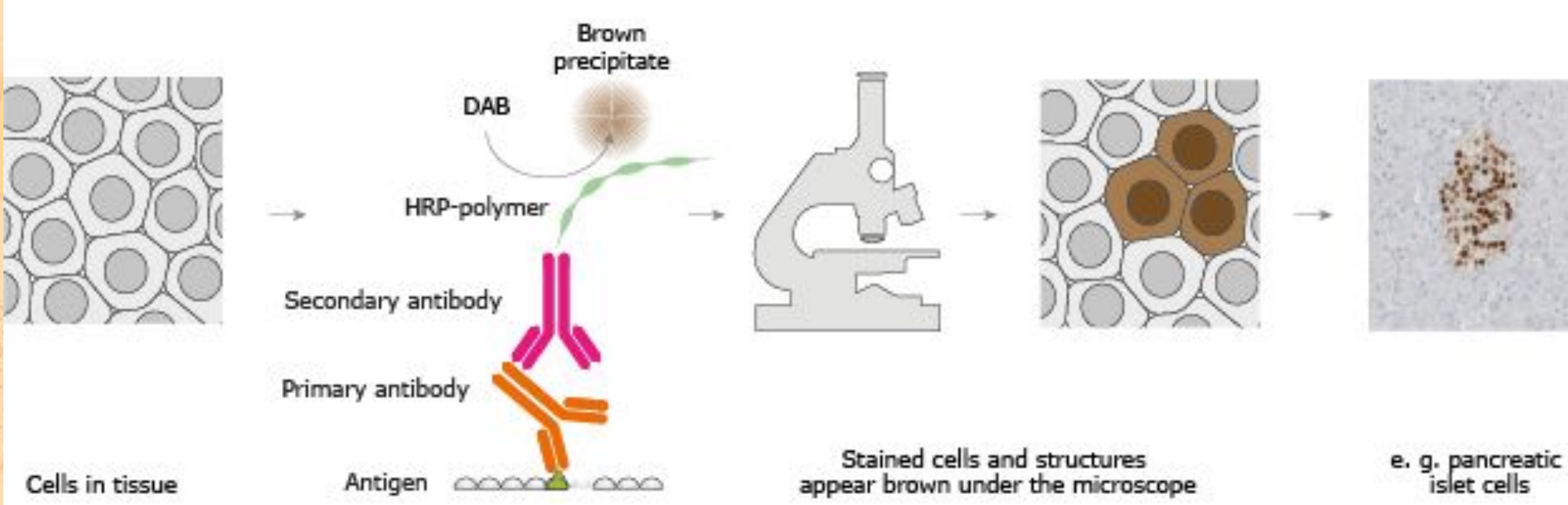
- Иммуногистохимическое (ИГХ) исследование представляет собой метод идентификации специфических антигенных свойств соответствующих субстратов.



**НЕСПОКОЙНЫЙ ПЕШЕХОД**



# WHY R U RUNNING?





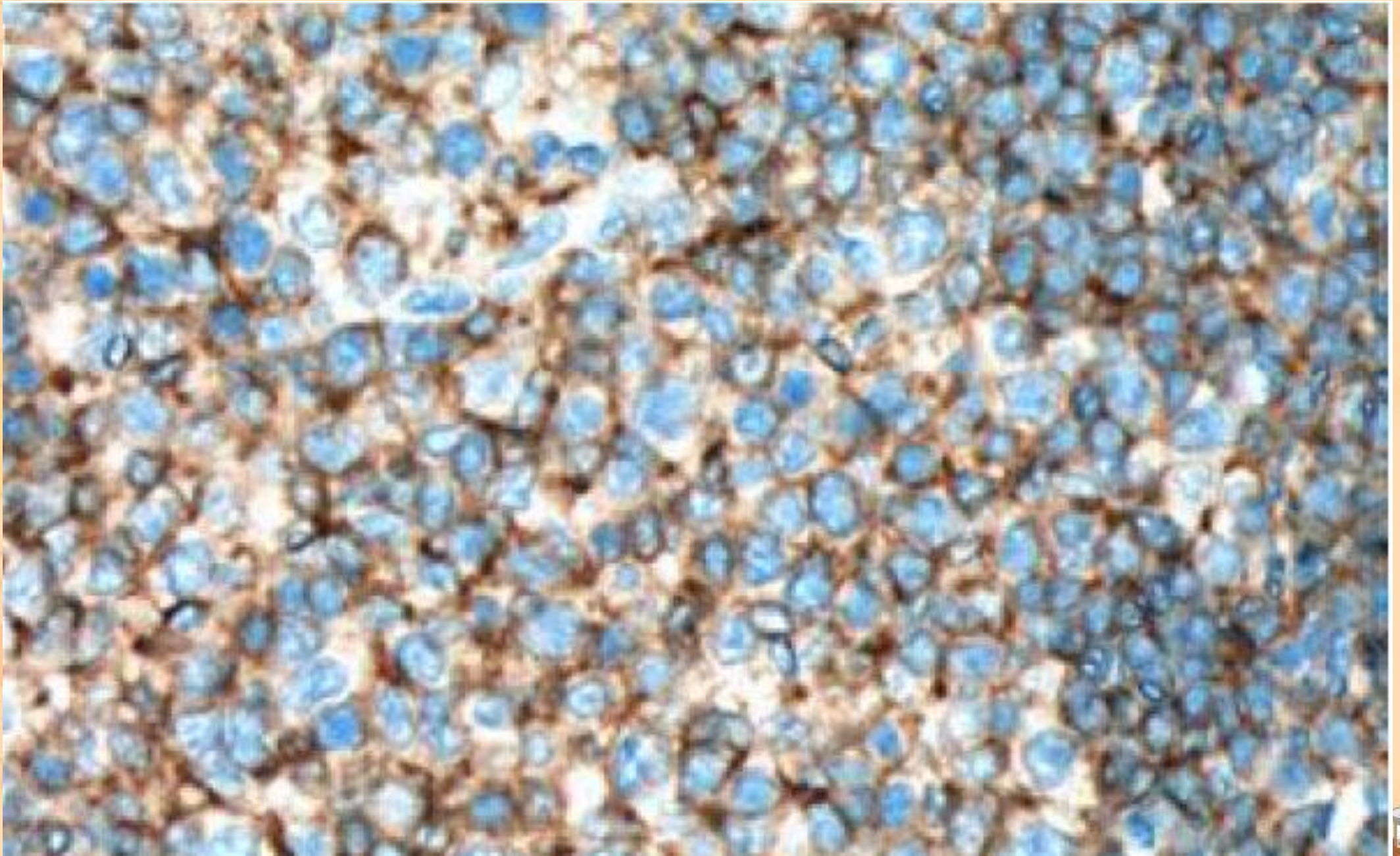
# Что за субстраты?

- Опухоли
- Опухоли
- Злокачественные опухоли
- Доброкачественные опухоли
- Опухоли в промежуточной злокачественности
- (Borderline type tumors)
- Генетическая патология
- Инфекционная патология
- Посмертная ИГХ в судебке



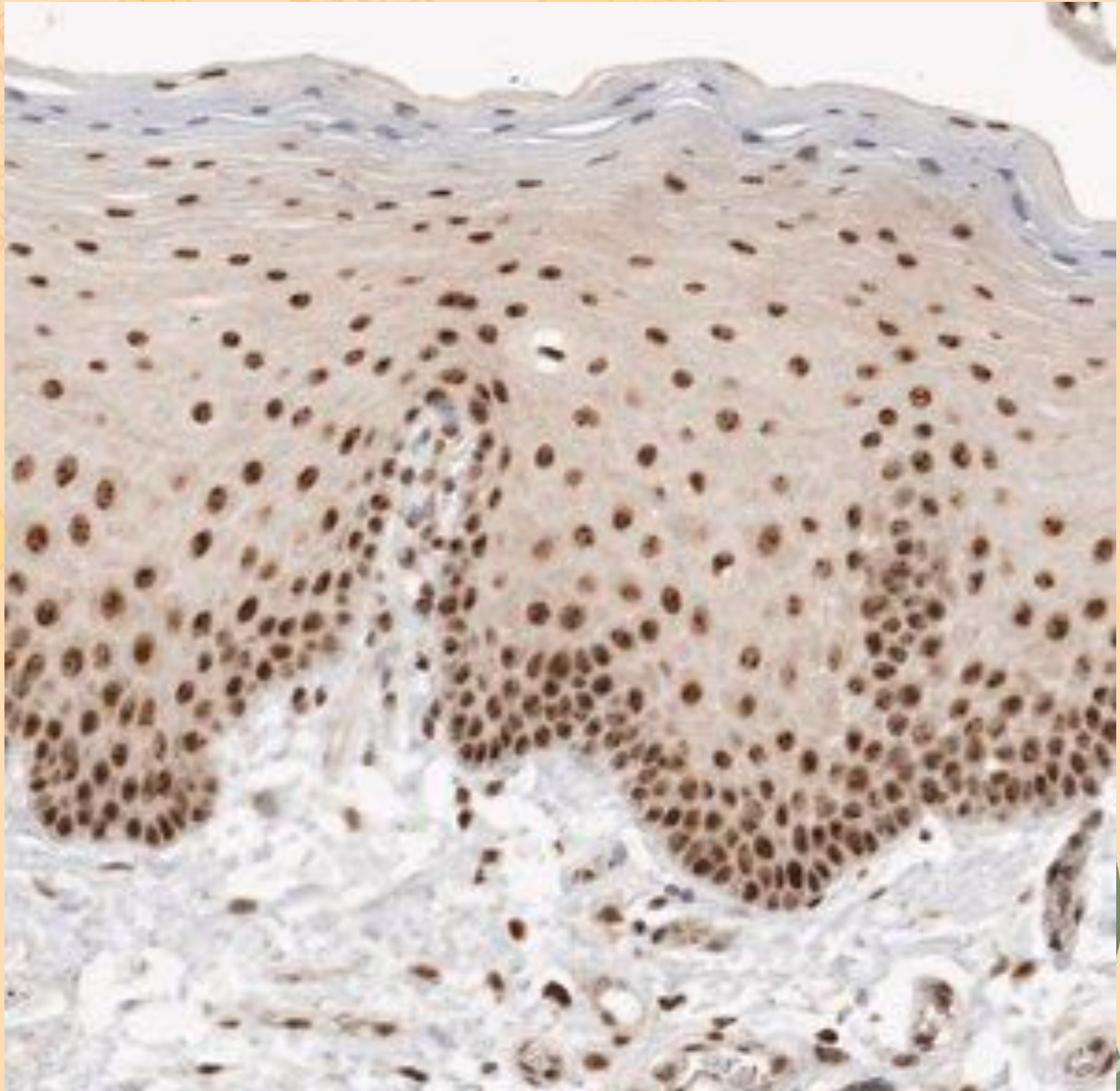


# Какая экспрессия? CD45



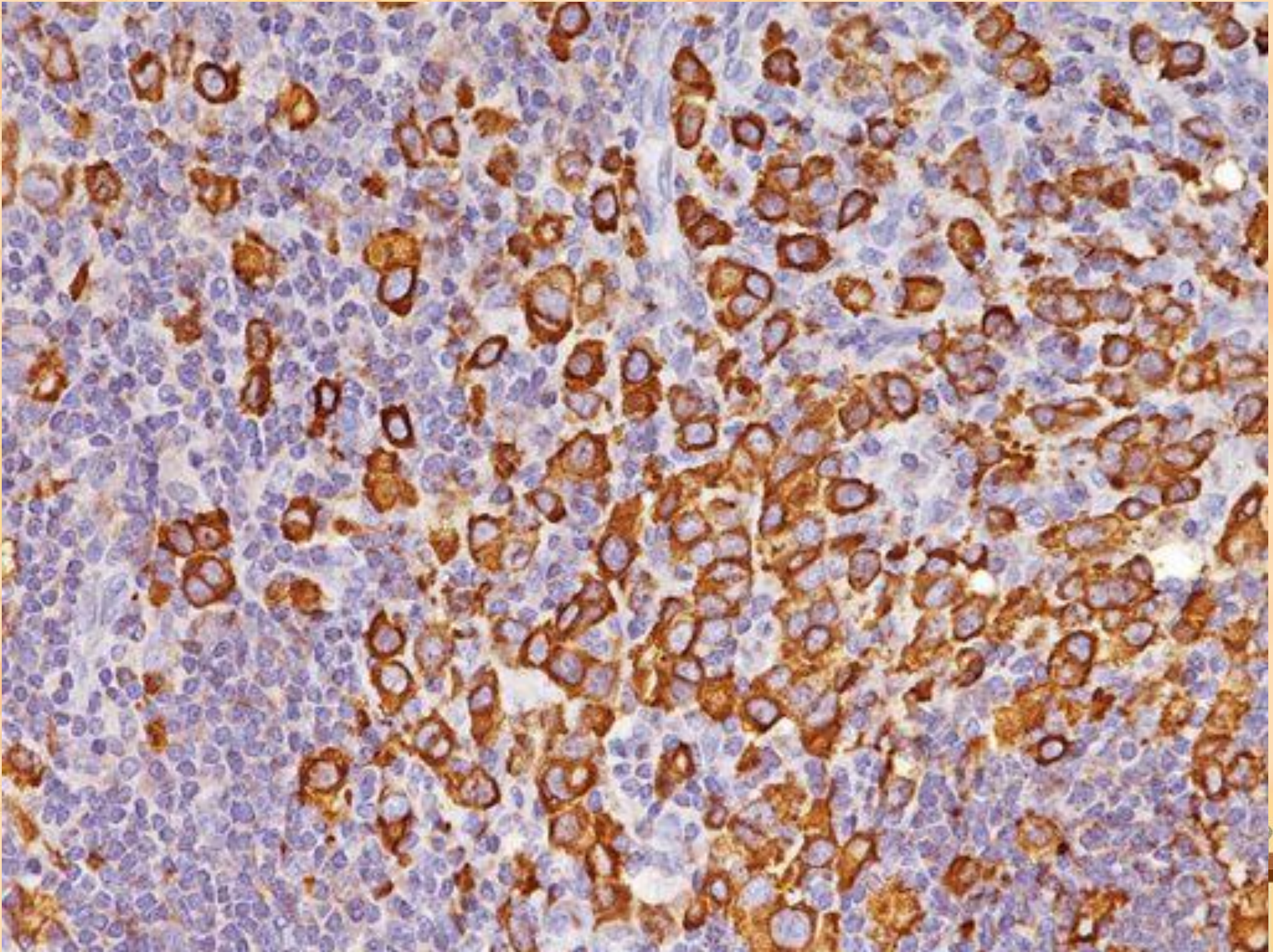


# EBNA





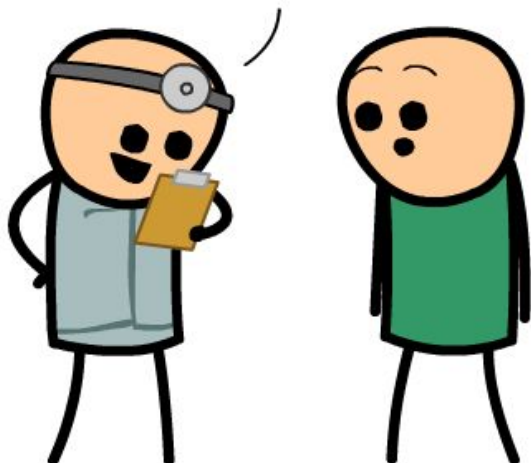
# EMA



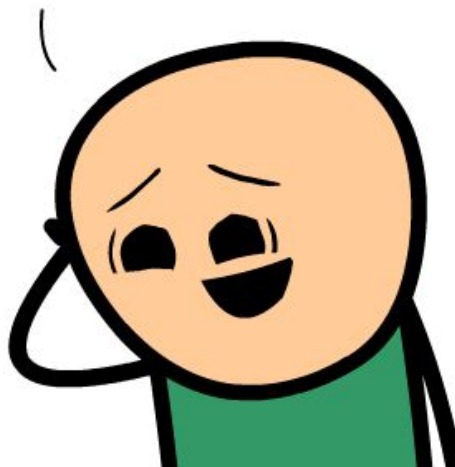


# ИГХ В ОПУХОЛЯХ

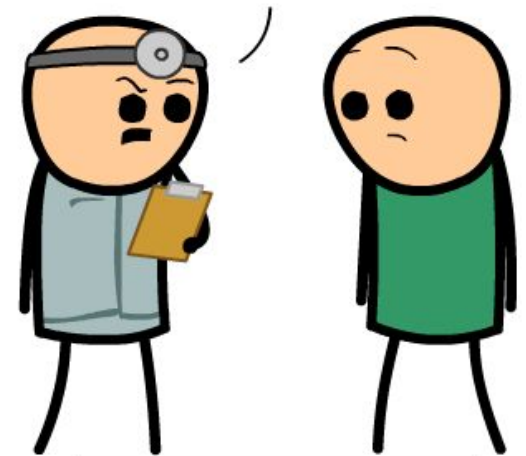
I'VE GOT THE RESULTS! IT LOOKS LIKE IT'S ALL IN YOUR HEAD.



OH MY GOD... I'M SO RELIEVED!



YOU'RE RELIEVED TO HAVE BRAIN TUMORS?





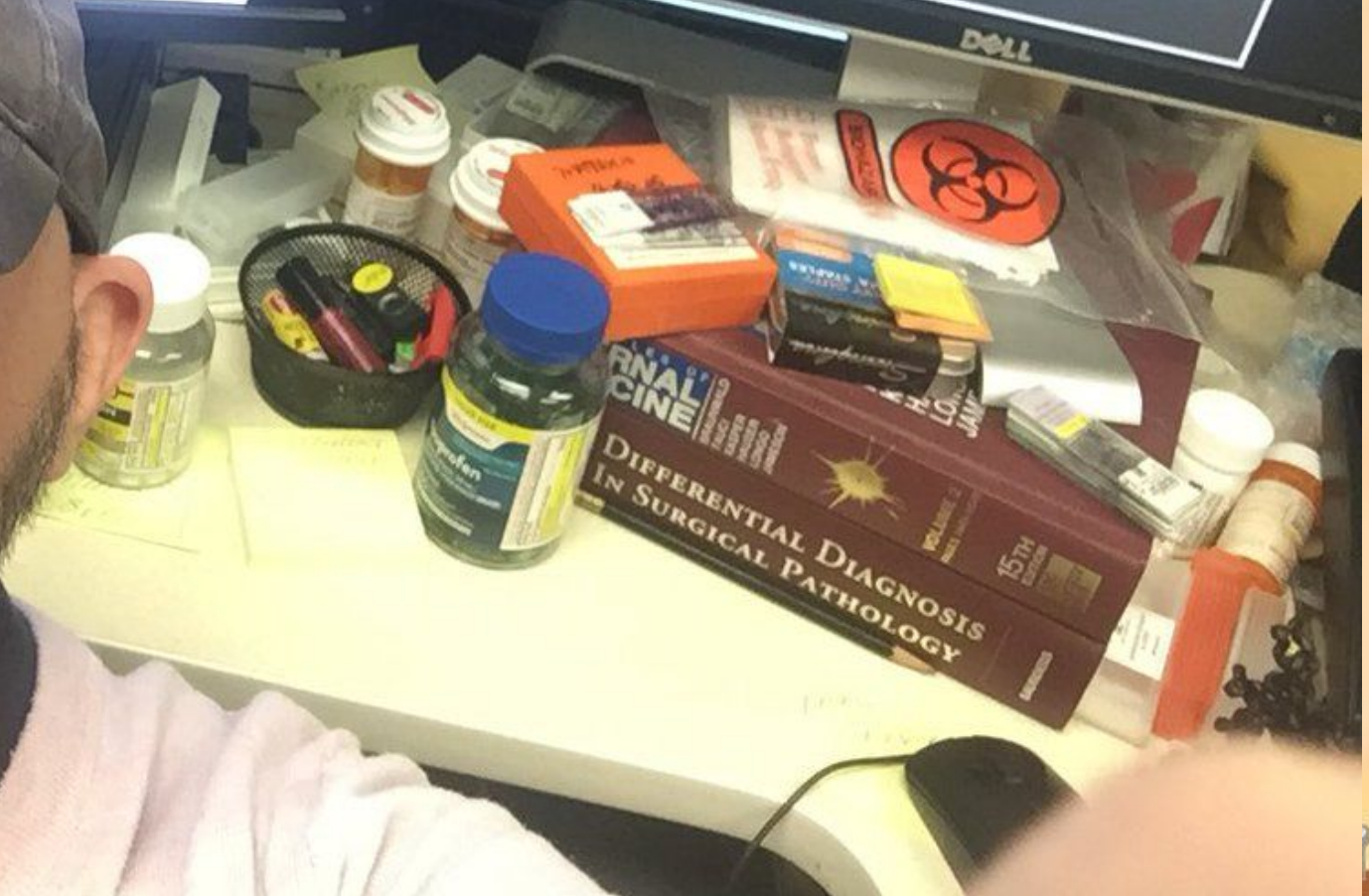
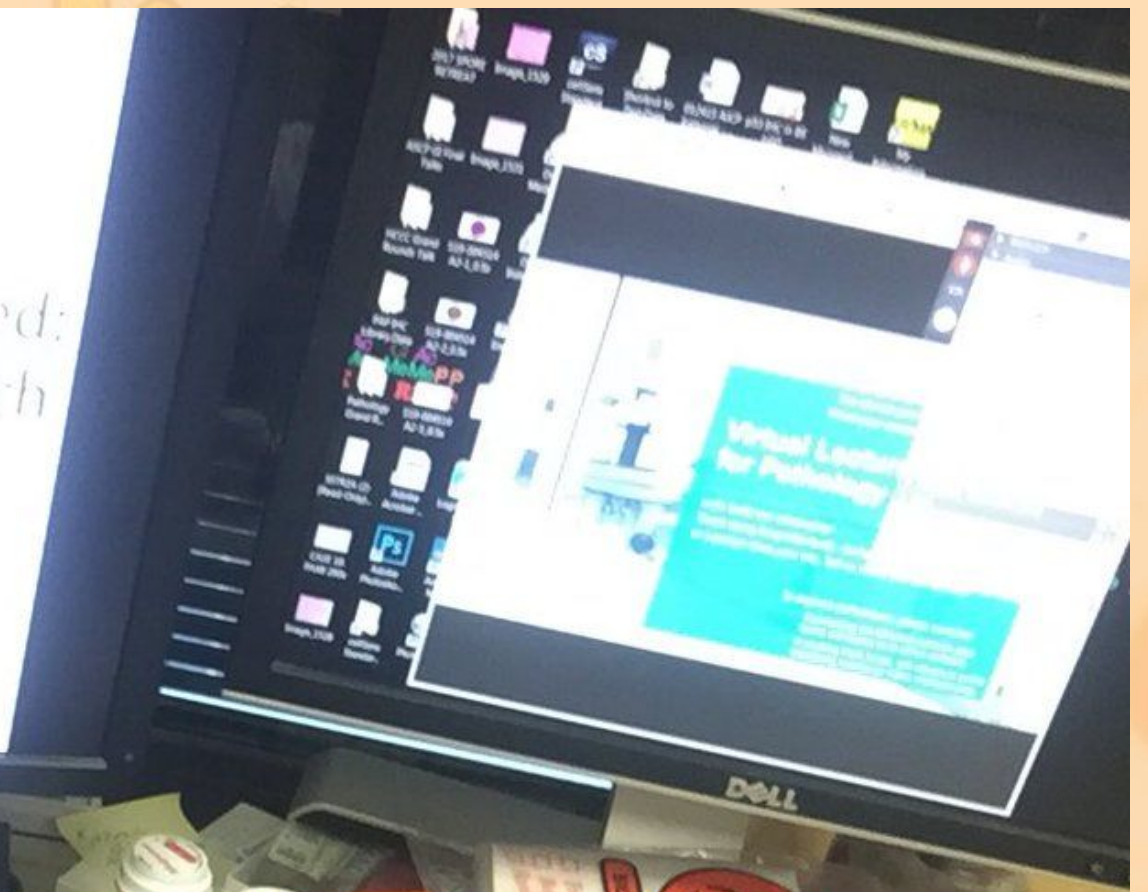
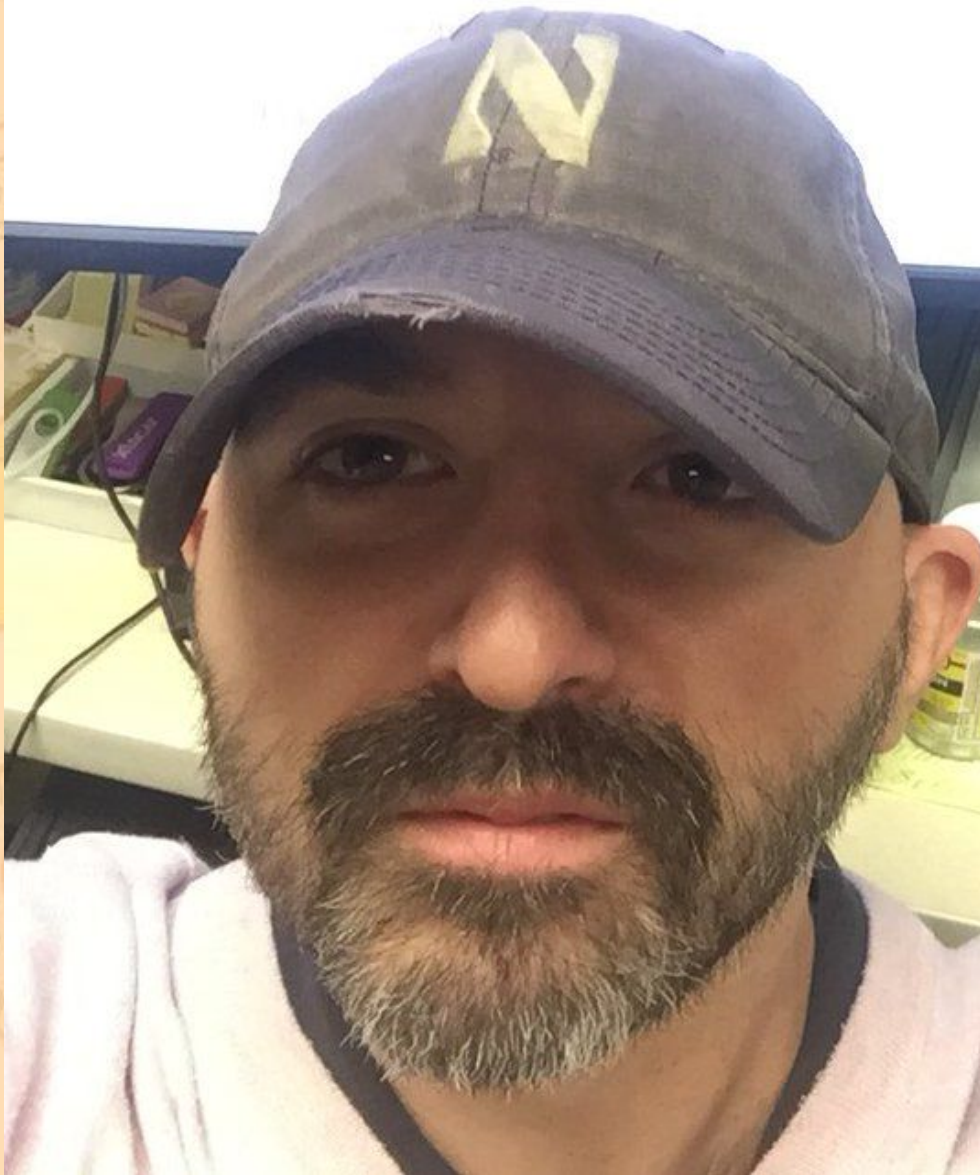
# Группы опухолей

- Раки
  - Мягкотканые опухоли
  - Опухоли крови
  - Герминативные опухоли
  - Меланоцитарные опухоли
- Опухоли ЦНС





fferentiating the Undifferentiated:  
n Immunohistochemical Approach





Pattern	Principal Diagnostic Considerations	Initial Screening Panel
Epithelioid	Carcinoma, melanoma, large cell lymphoma	Broad-spectrum keratin, CD45, SOX10
Round cell	Round cell sarcoma, lymphoma, small cell carcinoma	CD99, NKX2.2, desmin, myogenin, CD45, TdT, INSM1, broad-spectrum keratin, SOX10
Spindle cell	Sarcomatoid carcinoma, sarcoma, spindle cell/desmoplastic melanoma	Broad-spectrum keratin, p40, SMTSA, desmin, SOX10
Anaplastic	Anything (usually not lymphoma)	Broad-spectrum keratin, CD45, SOX10



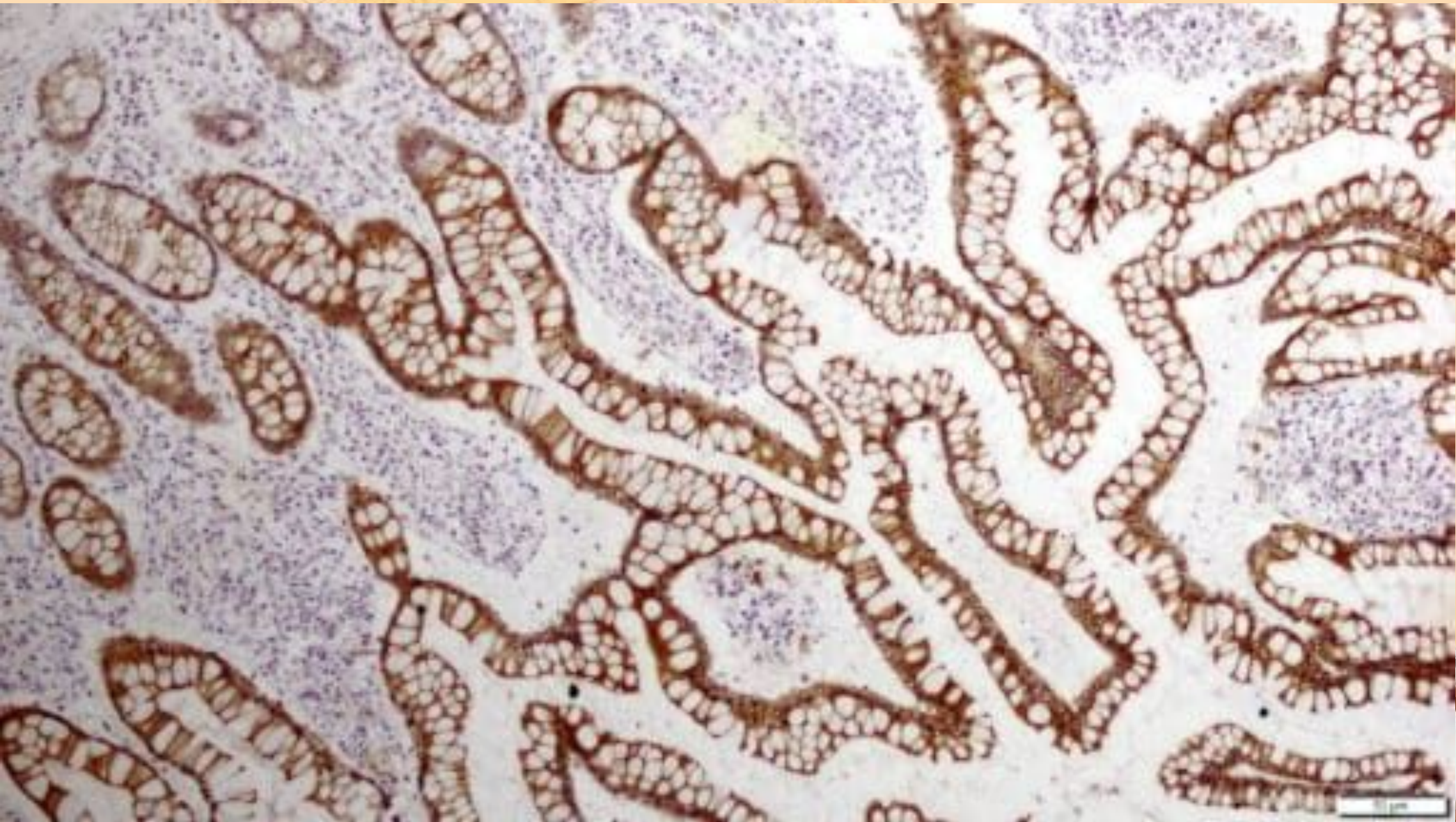
# ИГХлогия раков





# СК

- Cytokeratines – промежуточные филаменты эпителиальных тканей.
- Pan CK AE1//AE3

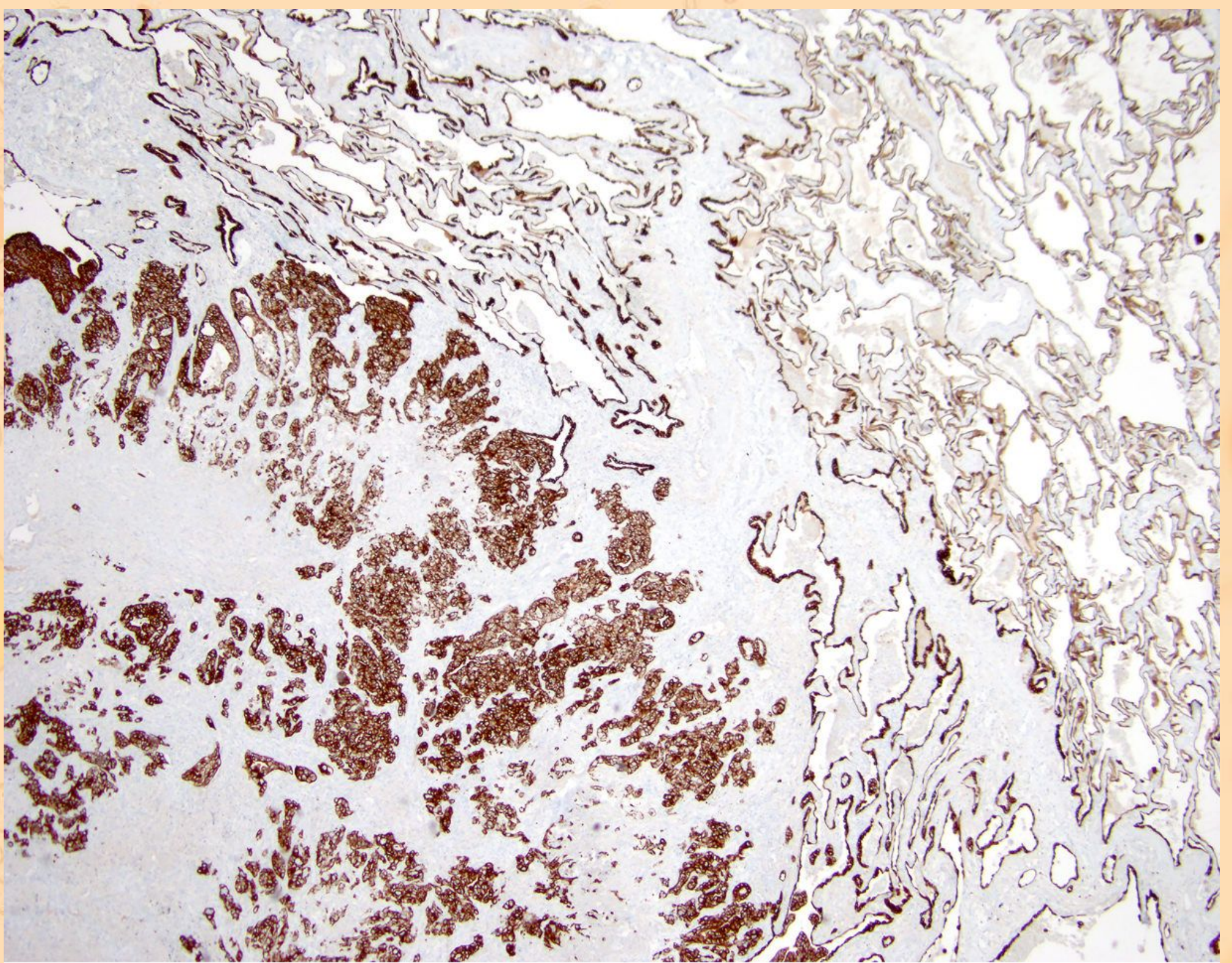




# Coordinate Expression of CK7/CK20

Site (tumor)	CK7	CK20
Prostate, hepatocellular carcinoma, renal cell carcinoma, adrenal cortical carcinoma, squamous cell carcinoma, NET, visceral NEC, germ cell tumor (i.e., yolk sac tumor, seminoma)	-	-
Lung, breast, Müllerian, thyroid, bladder, upper GI (UG), pancreatobiliary (PB), mucinous ovarian	+	-
Bladder, UGI, PB, Mucinous Ovarian, occasional colon (especially rectum), occasional lung (especially mucinous)	+	+
Colon, Merkel cell, occasional UGI	-	+



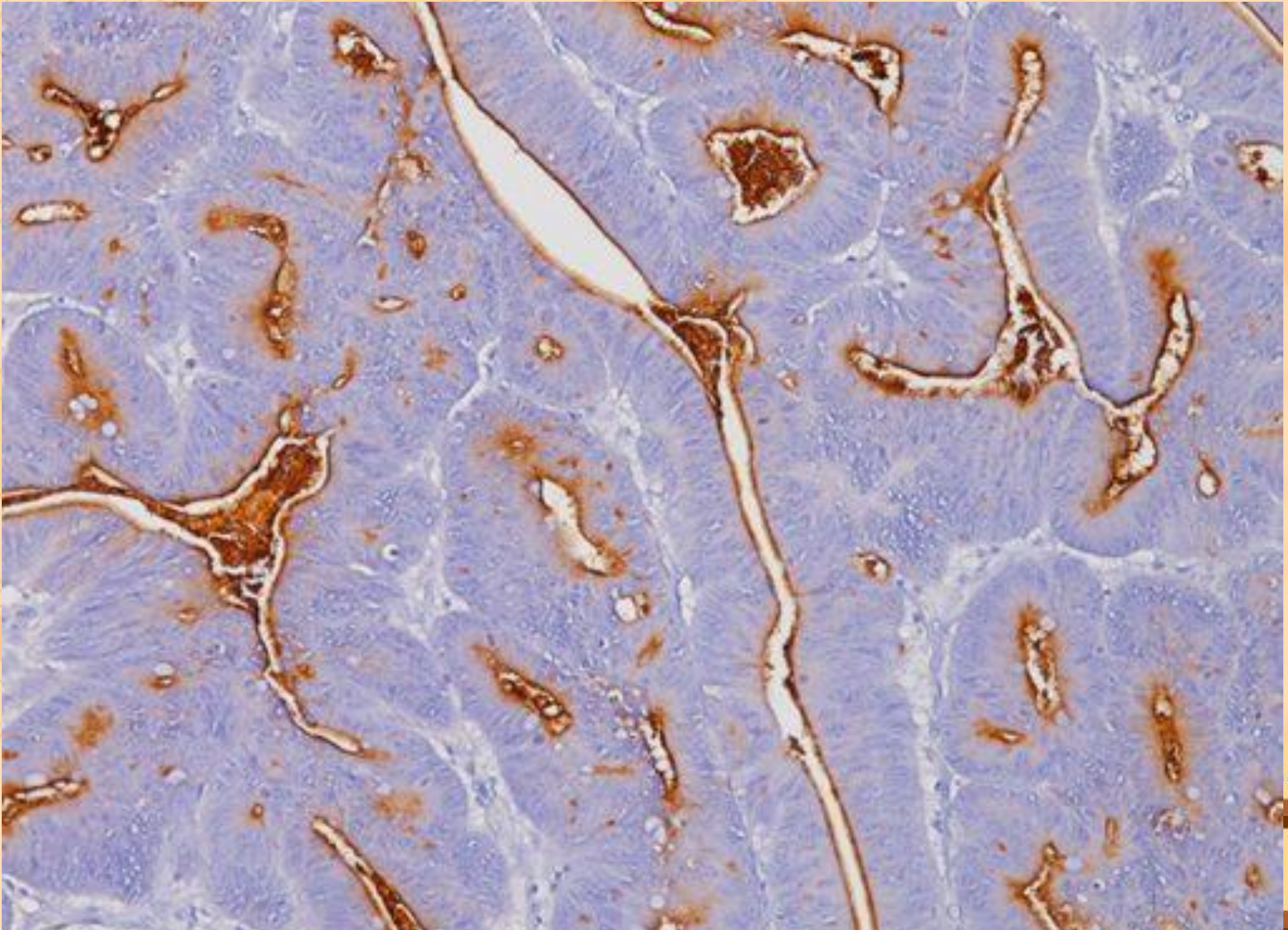


**CK7+ in lung adenocarcinoma and normal alveolar cells**



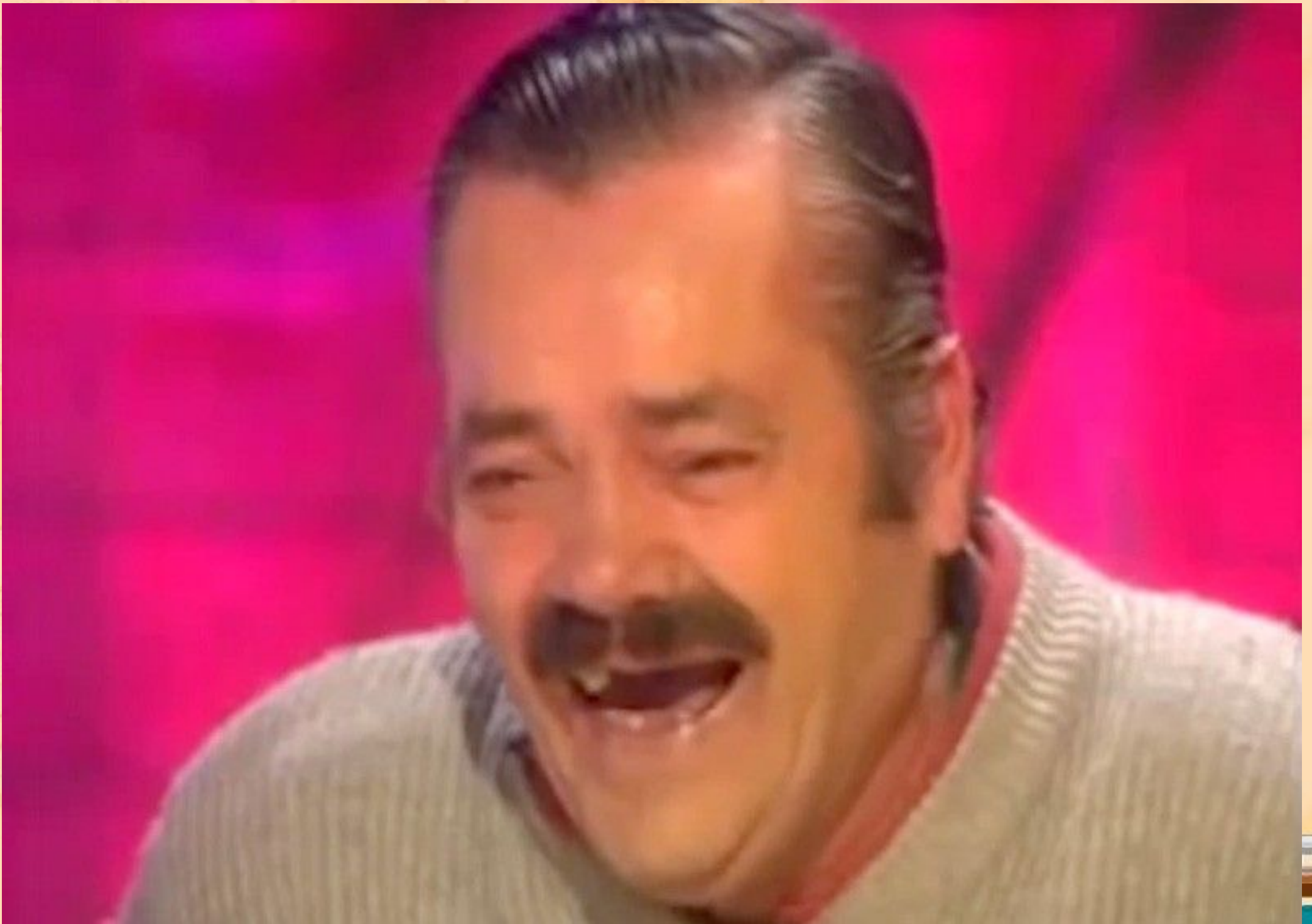
CEA

# Endometrioid carcinoma





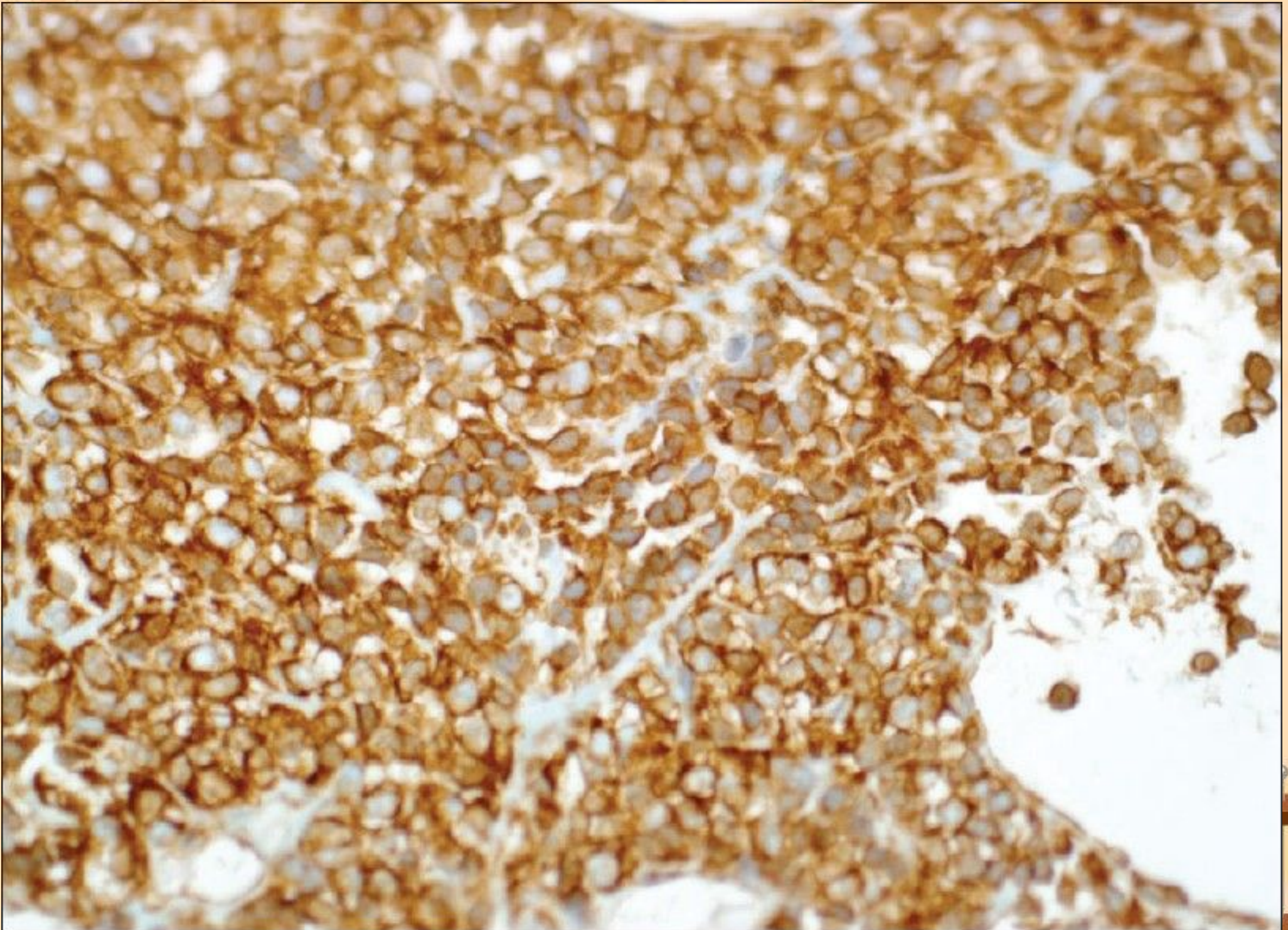
# ИГХлогия сраком



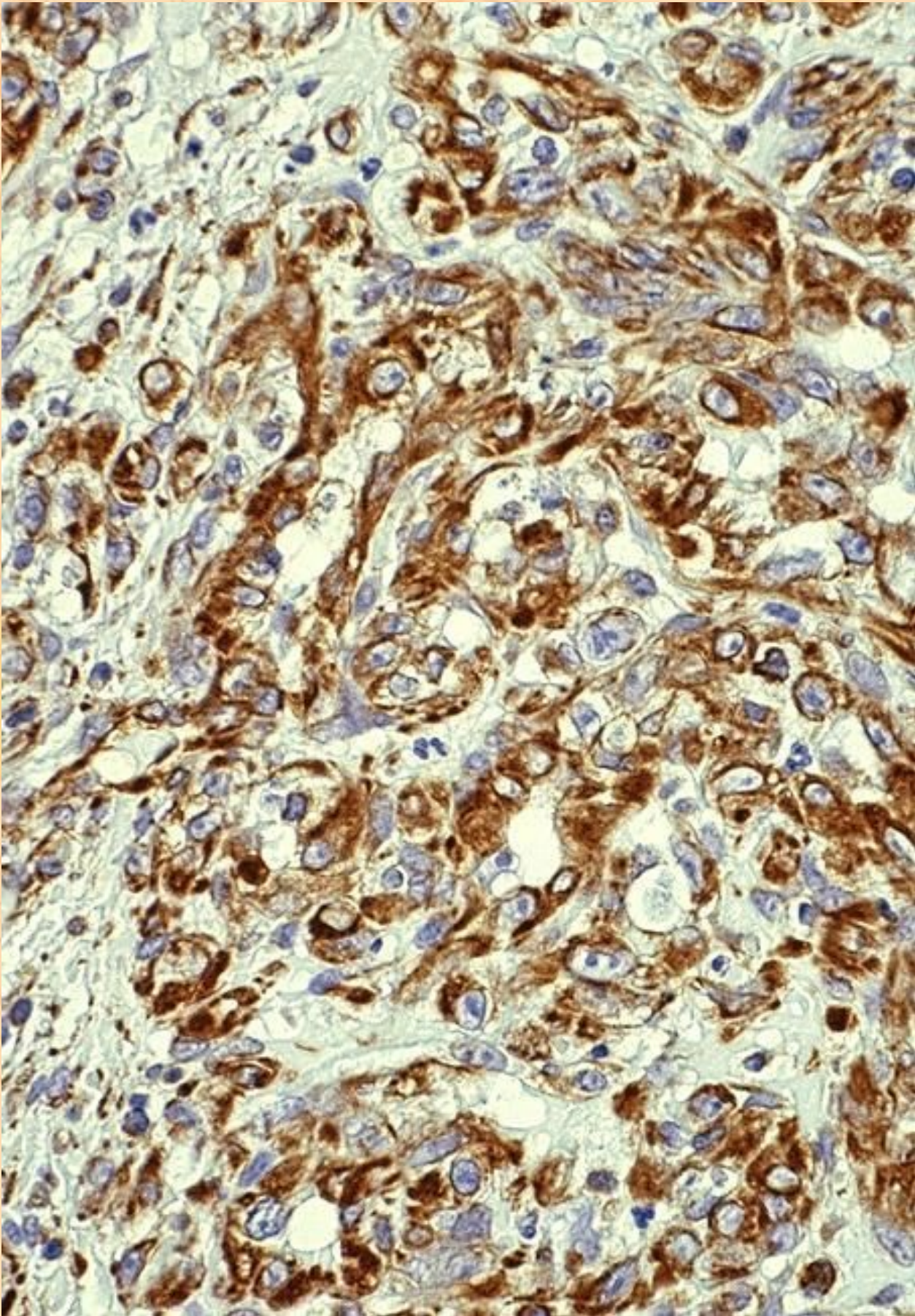


# Vimentin – промежуточный филамент мезенхимальных тканей

synovial sarcoma







**Thyroid gland:  
angiosarcoma**



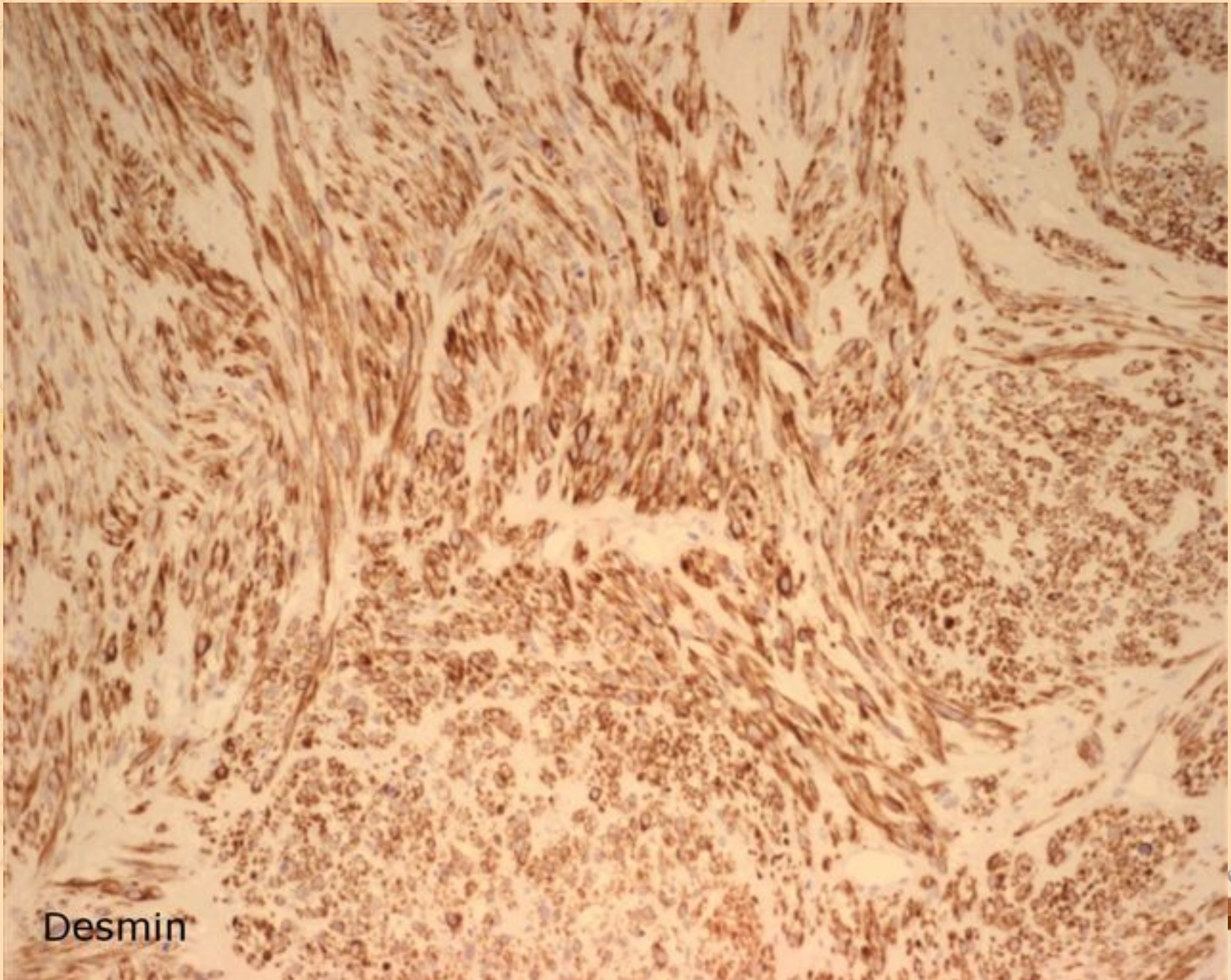


# ИГХлогия миогенных опухолей



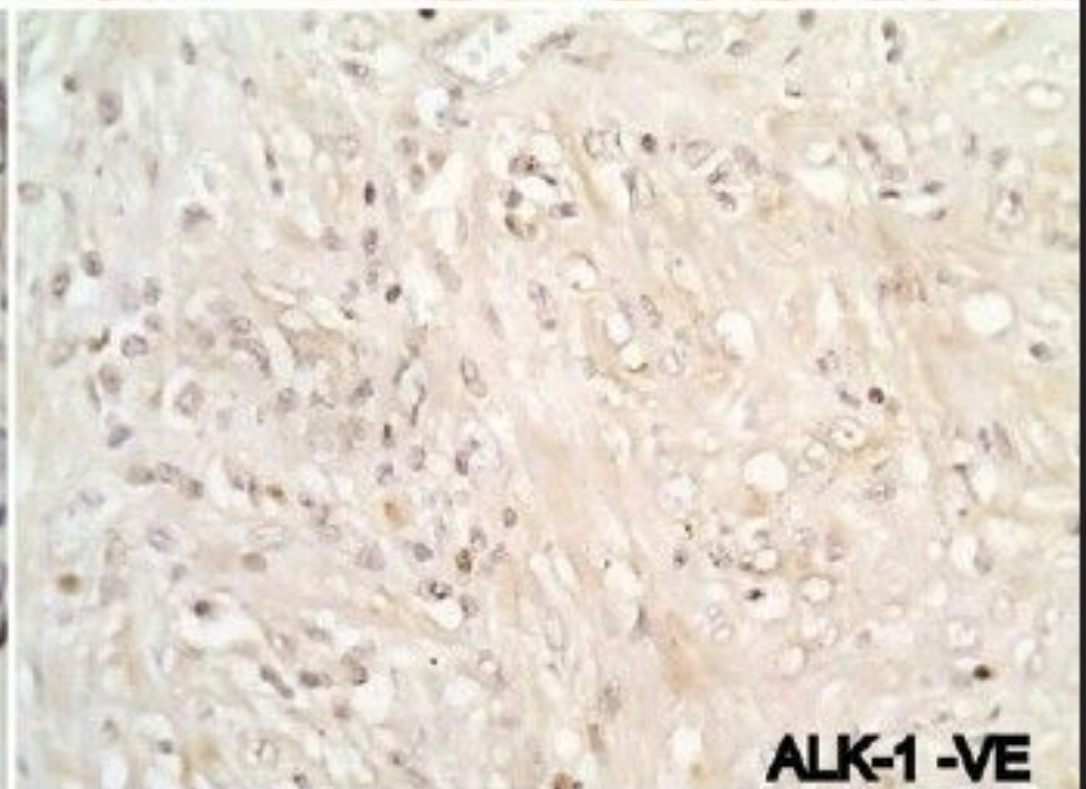
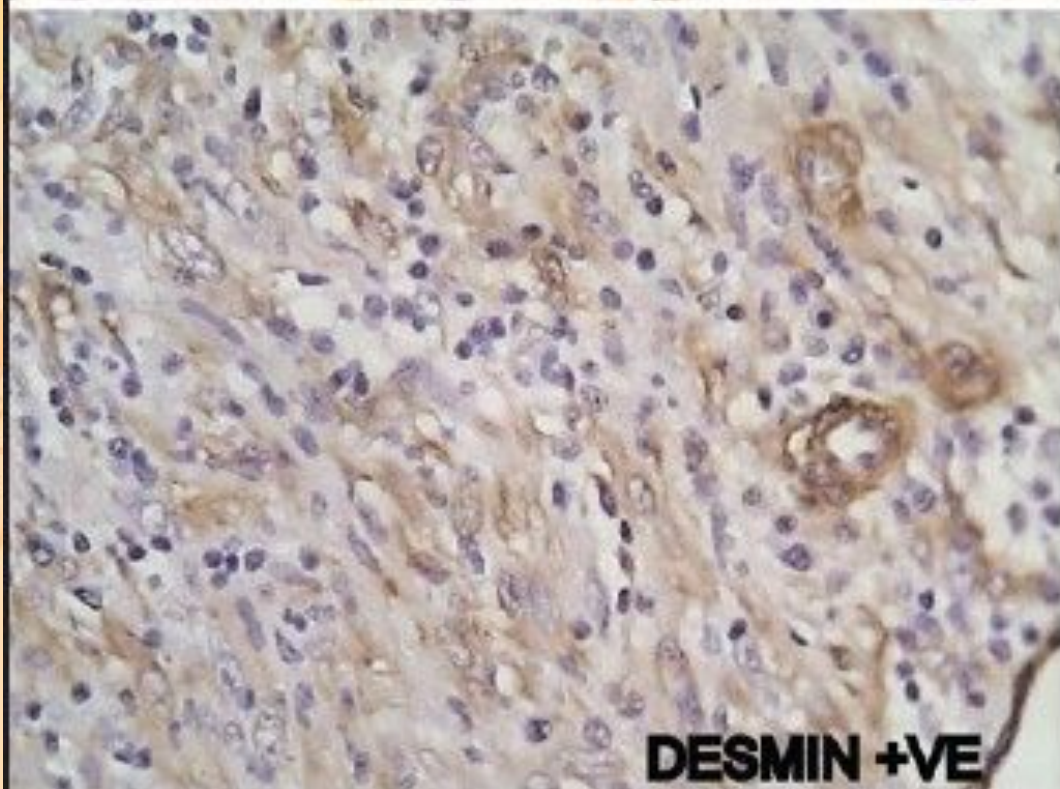
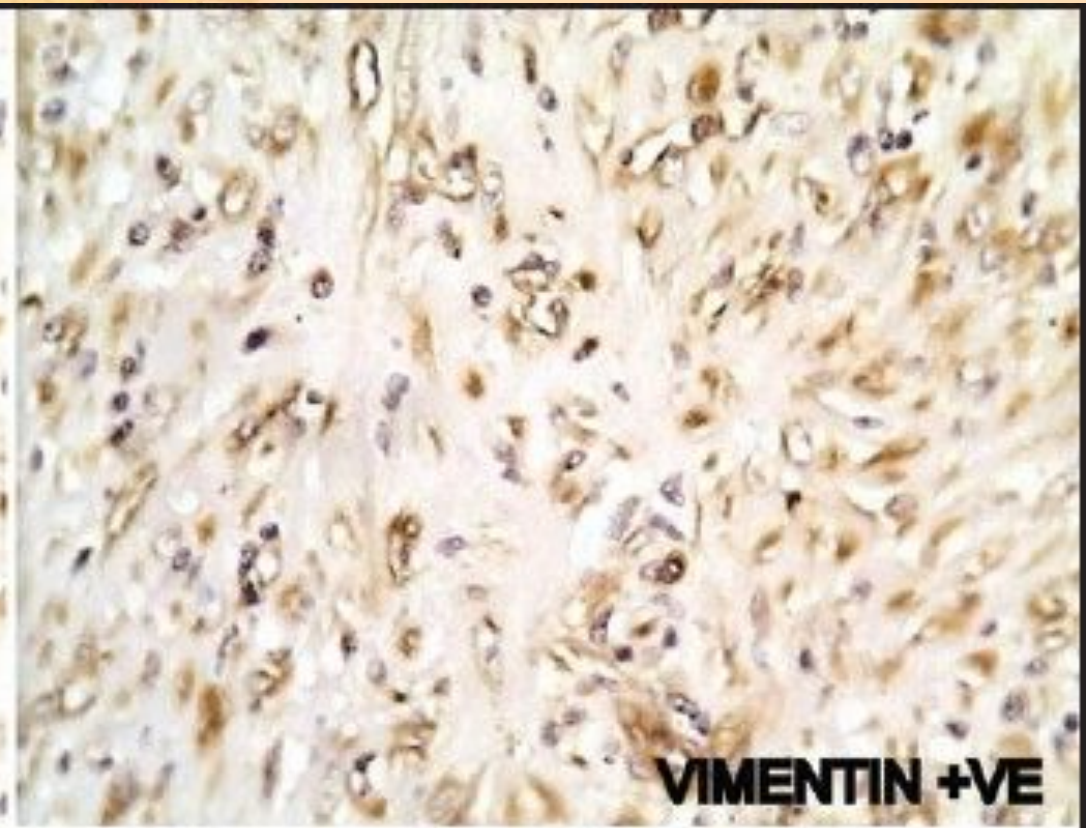
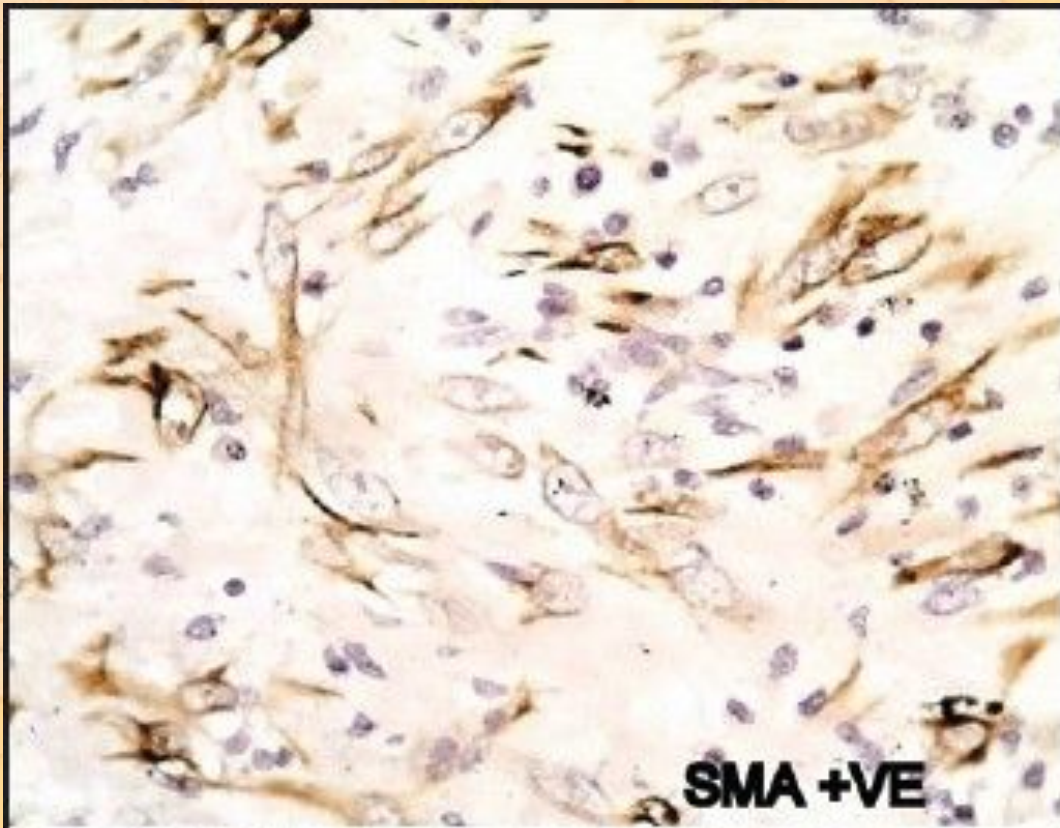


# Миогенные опухоли





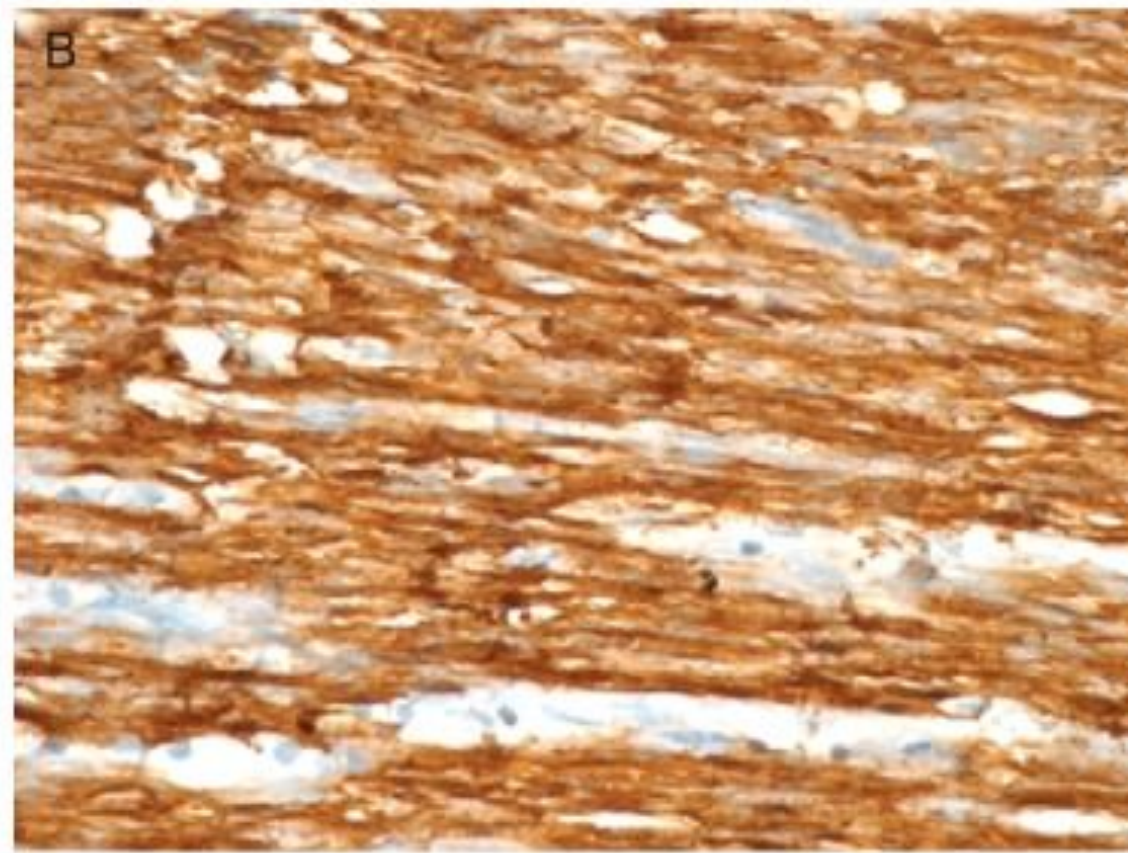
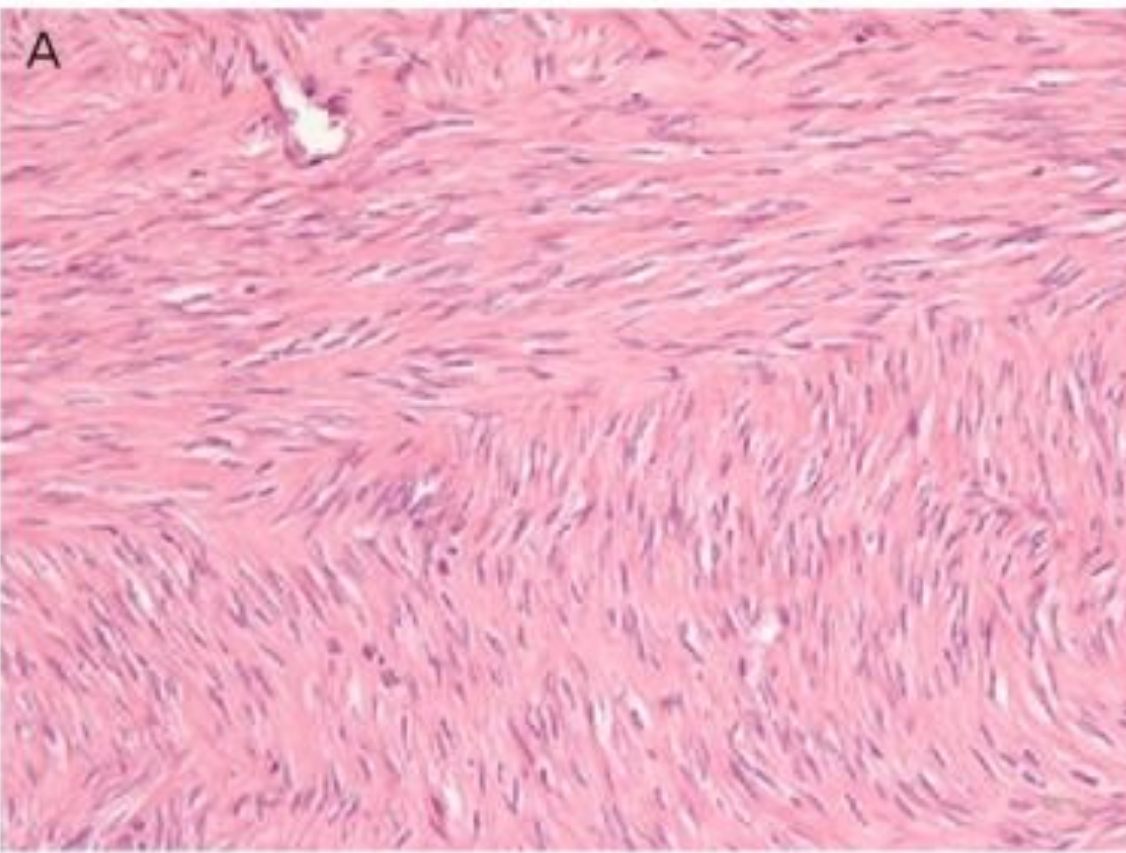
# IMT





# Calponin

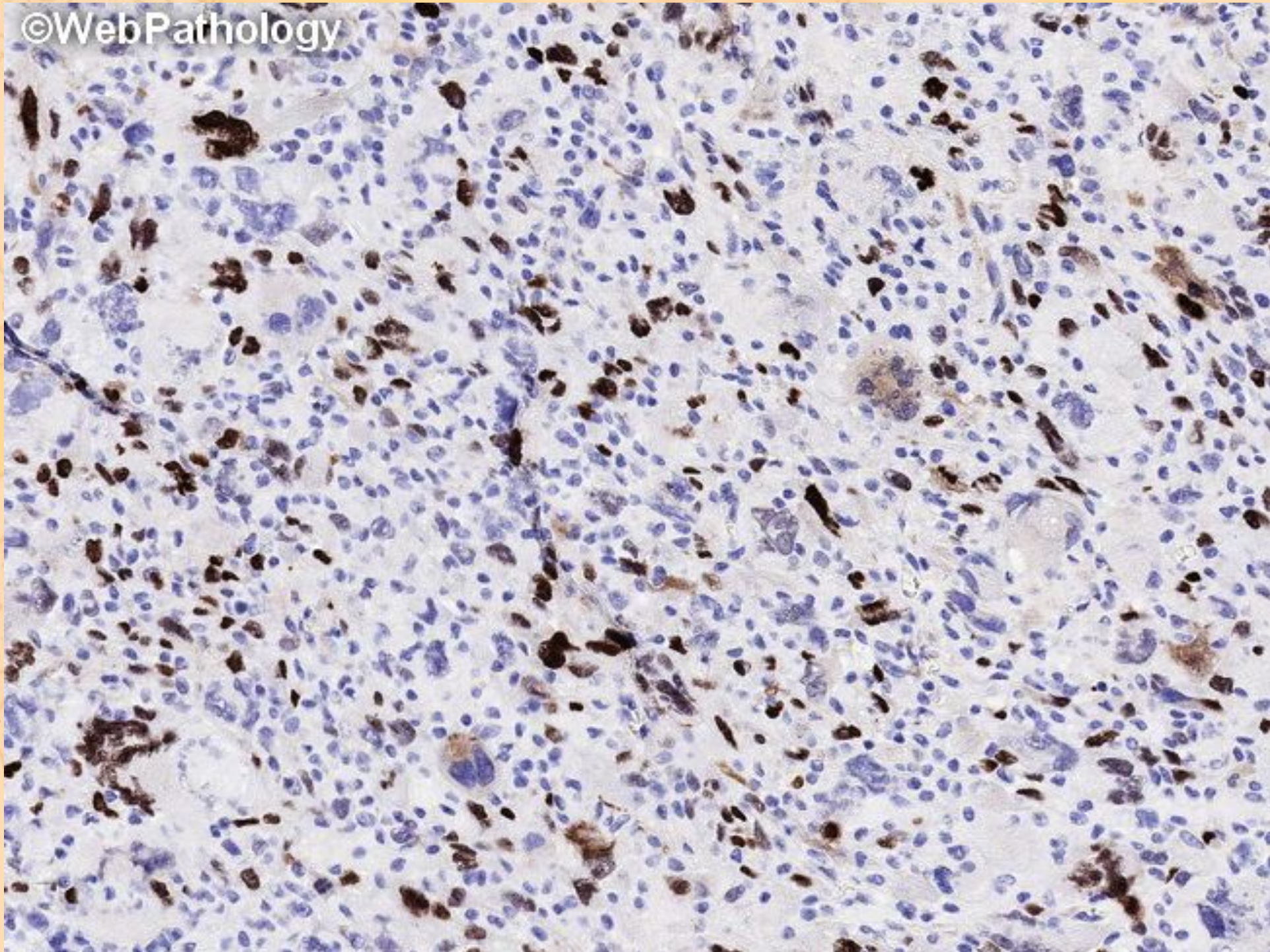
- Leiomyoma



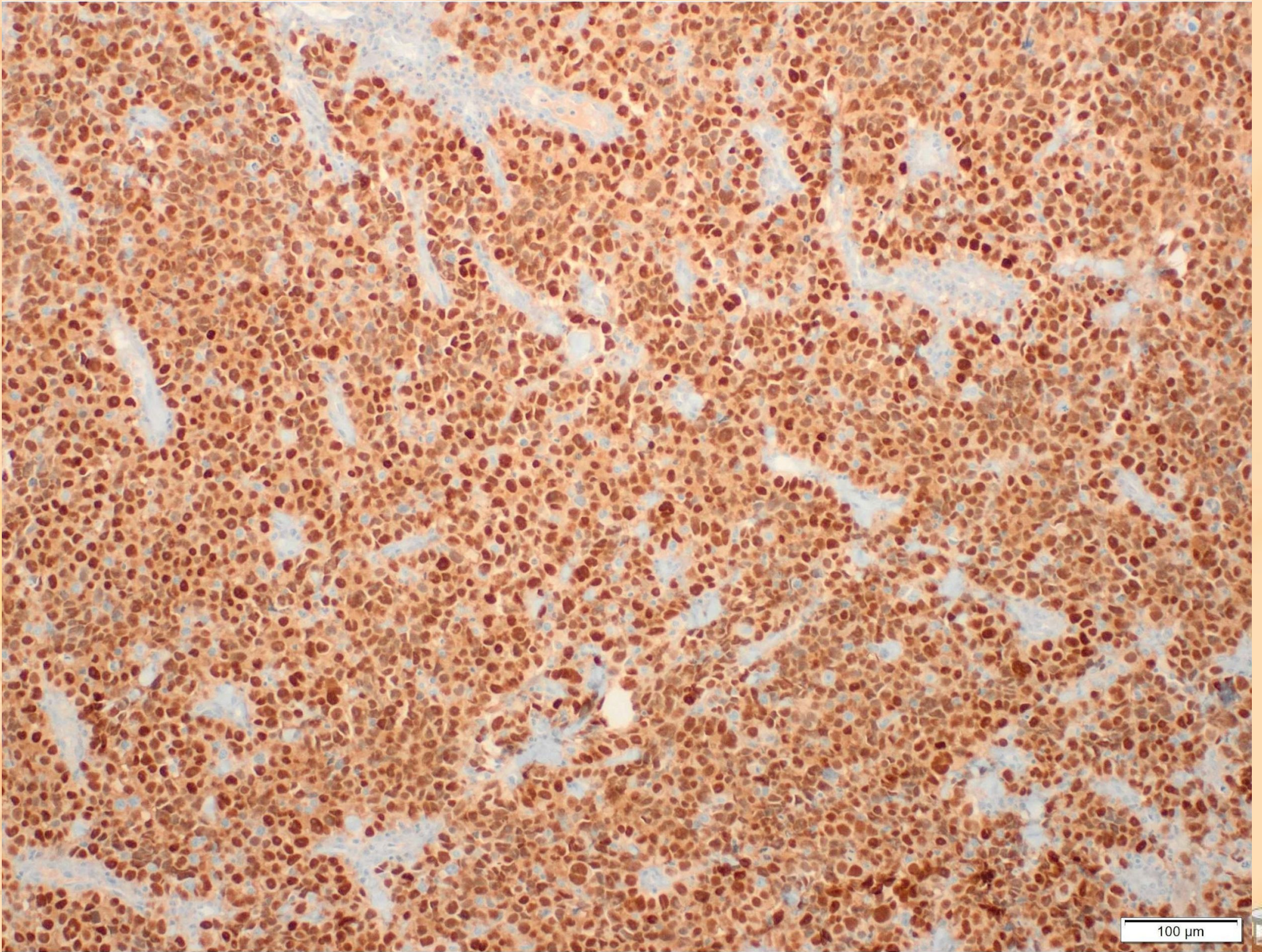


# MYO d1

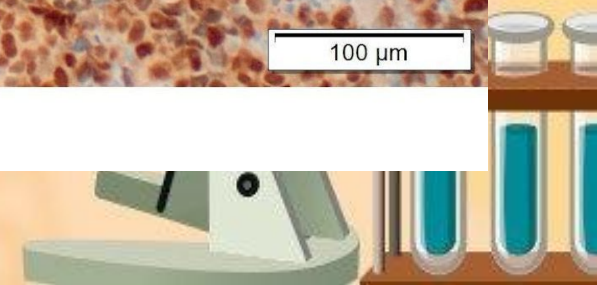
- Embryonal rhabdomyosarcoma





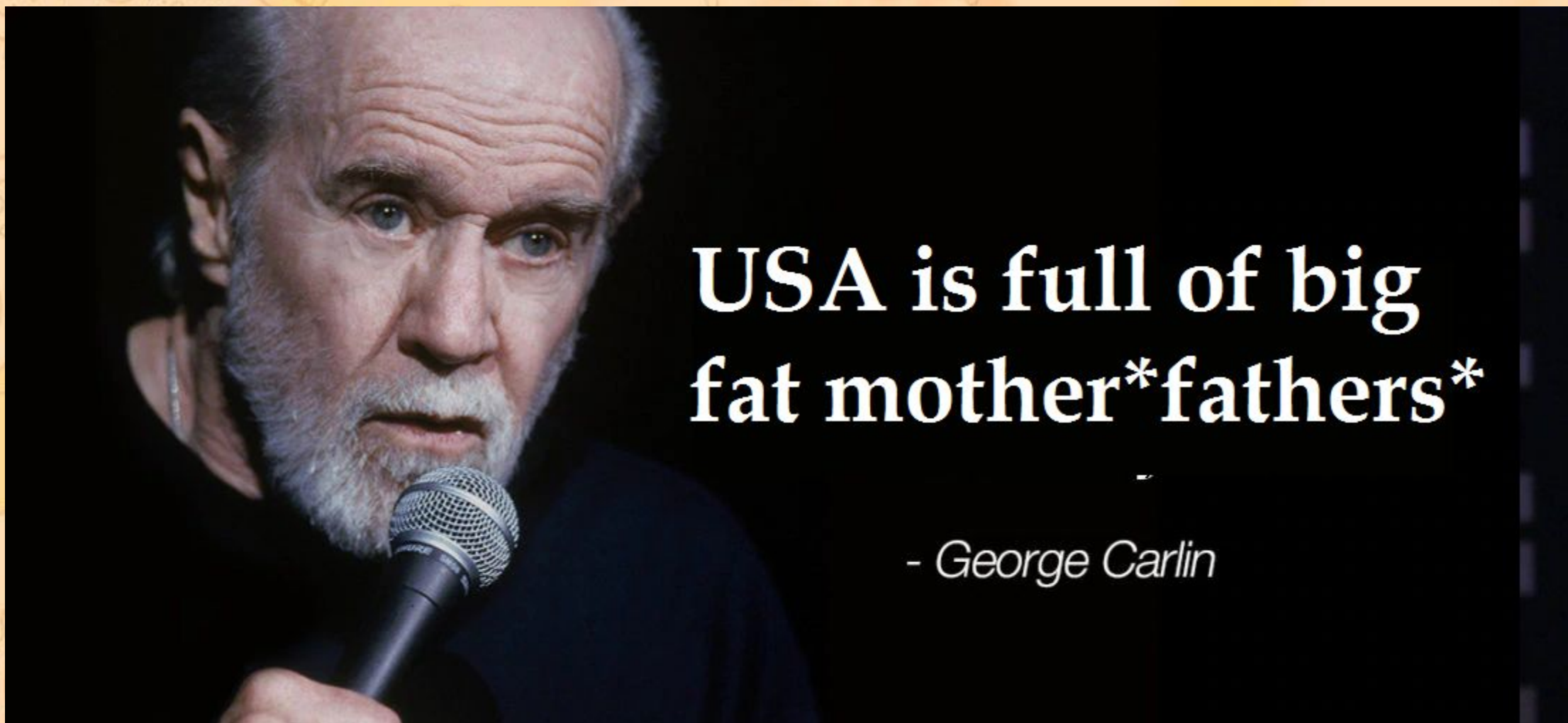


Soft tissue, Alveolar rhabdomyosarcoma, Myogenin IHC





# ИГХлогия липогенных опухолей





# Liposarcoma

1 { Well Differentiated Liposarcoma  
↓  
Dedifferentiated Liposarcoma } *MDM2/CDK4*  
gene amplification

2 { Myxoid Liposarcoma  
↓  
High Grade (formerly "Round Cell") Myxoid Liposarcoma } *FUS-DDIT3* or  
*EWSR1-DDIT3*  
gene fusion

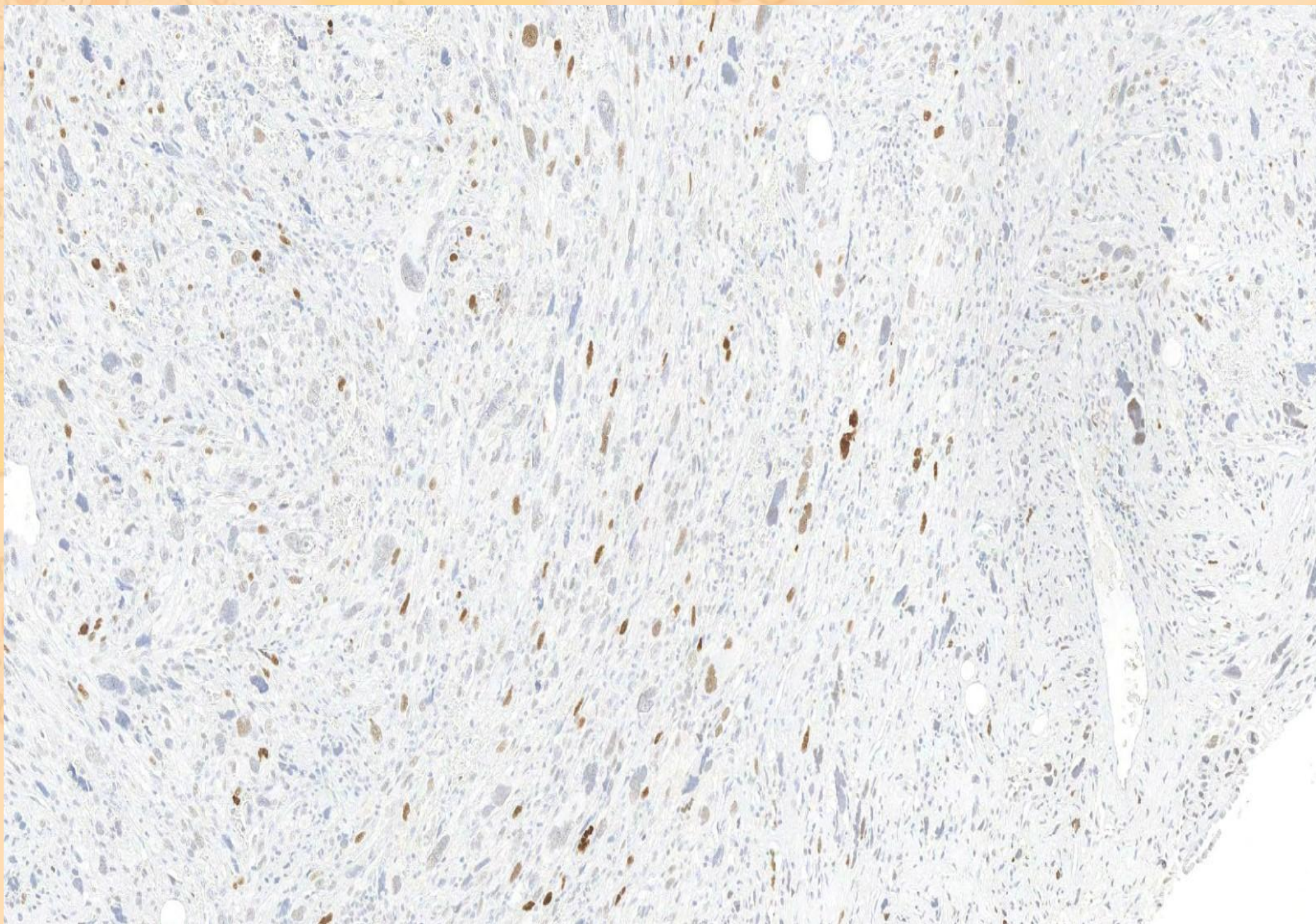
3 { Pleomorphic Liposarcoma } Complex  
karyotype  
(aneuploidy)





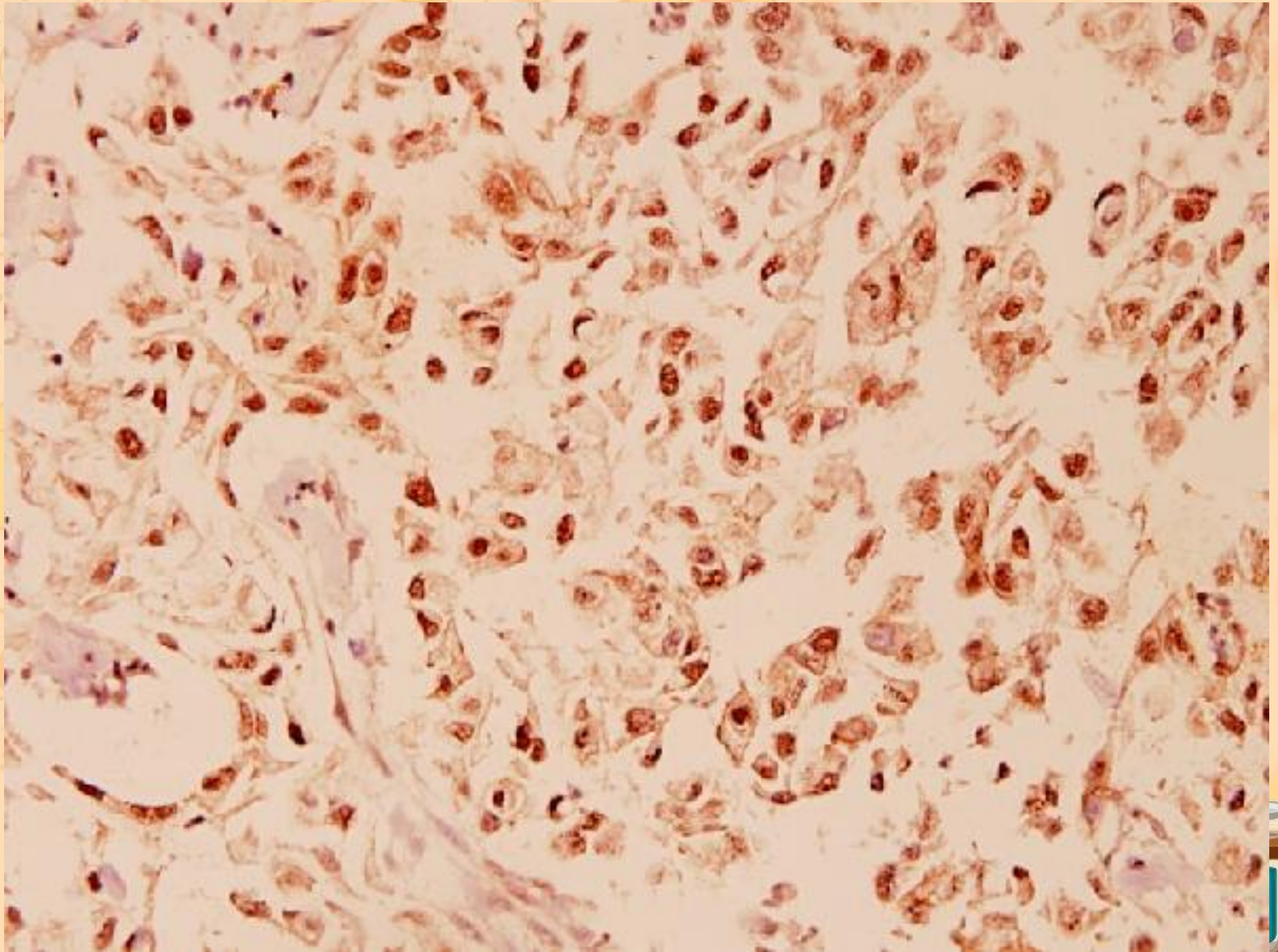
# MDM2

- Dedifferentiated liposarcoma





# DDIT3

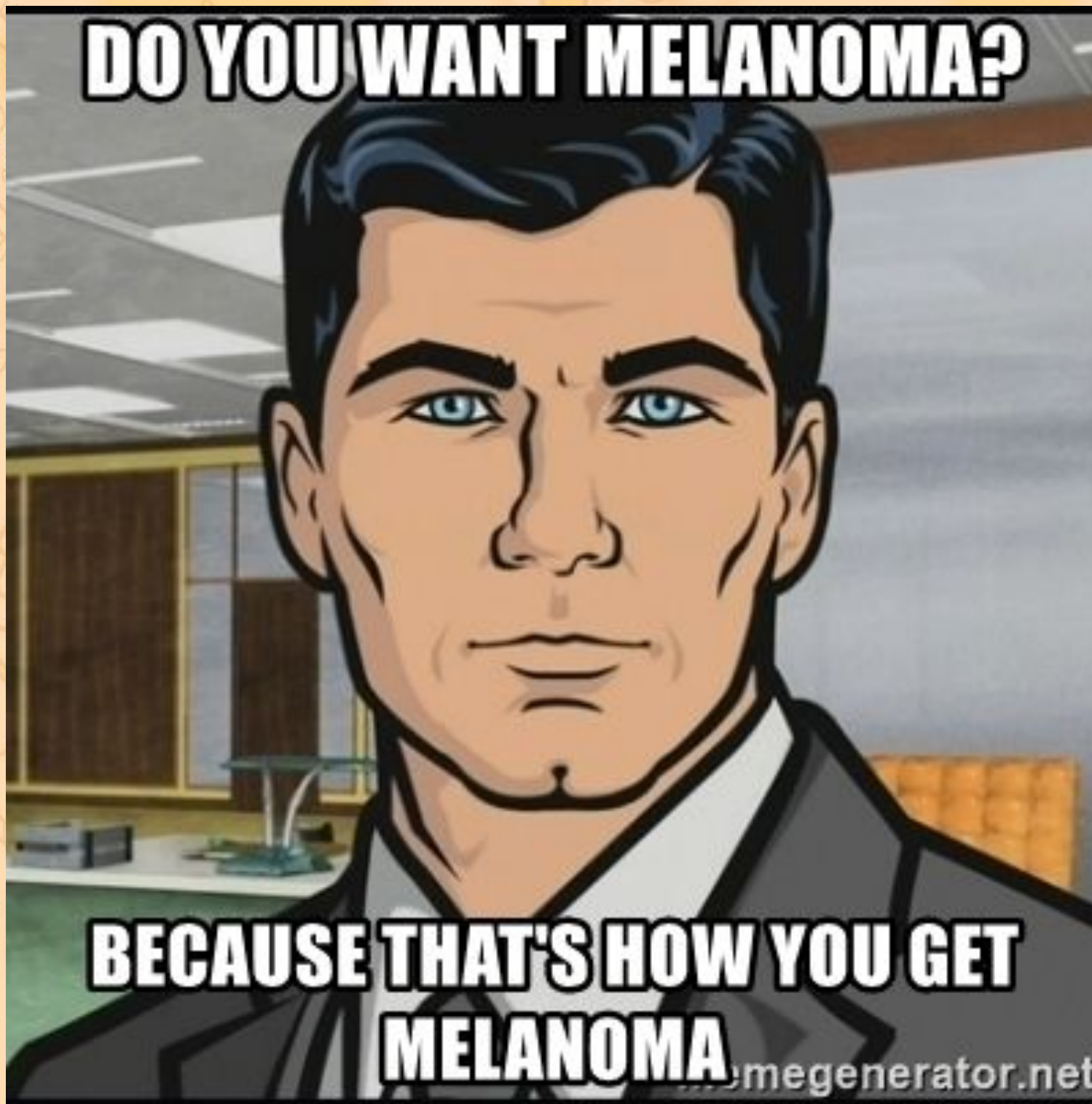








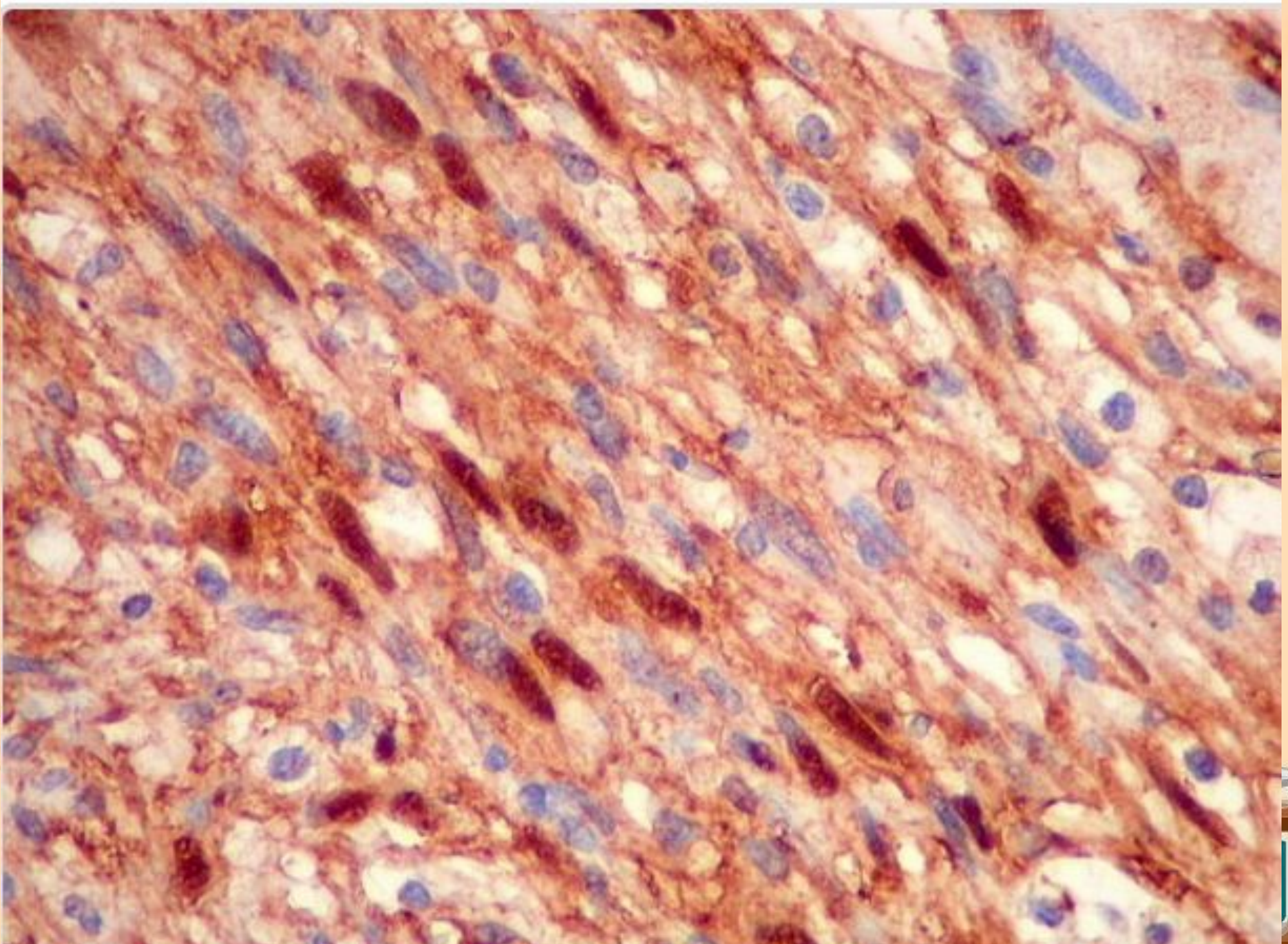
# ИГХлогия нейральных и меланоцитарных опухолей





# SOX10

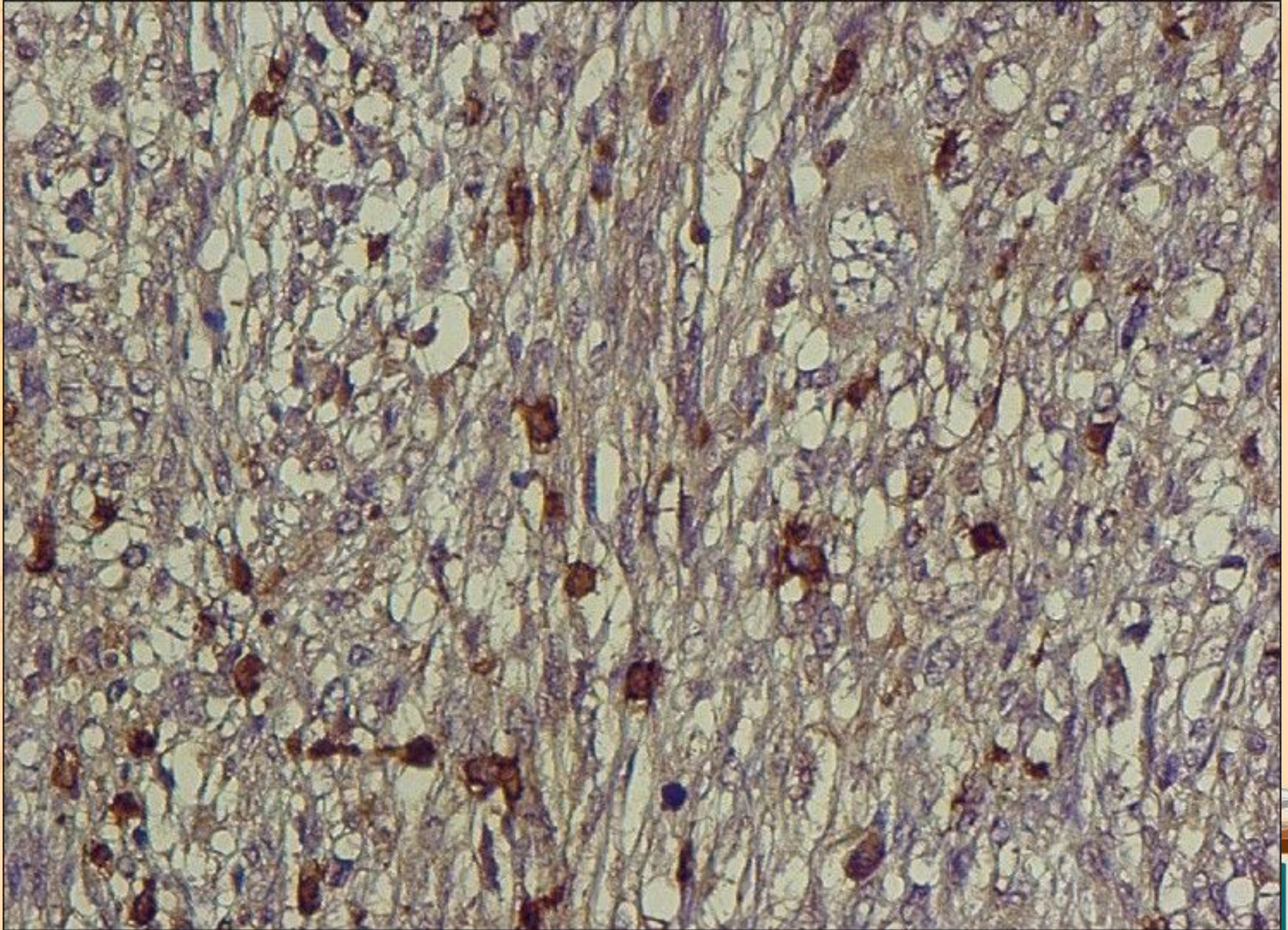
- Schwannoma





**S100**

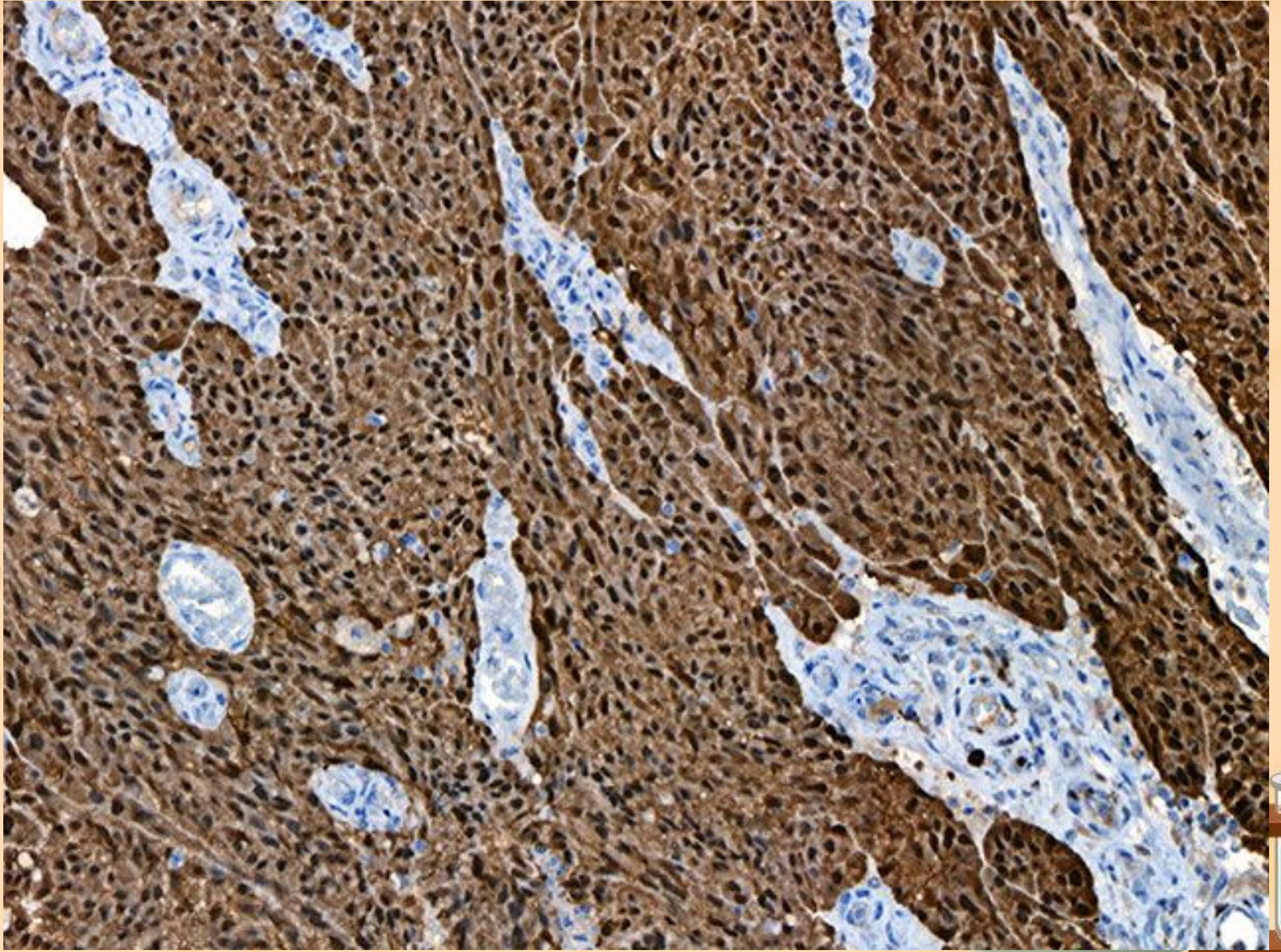
- MPNT





# S100

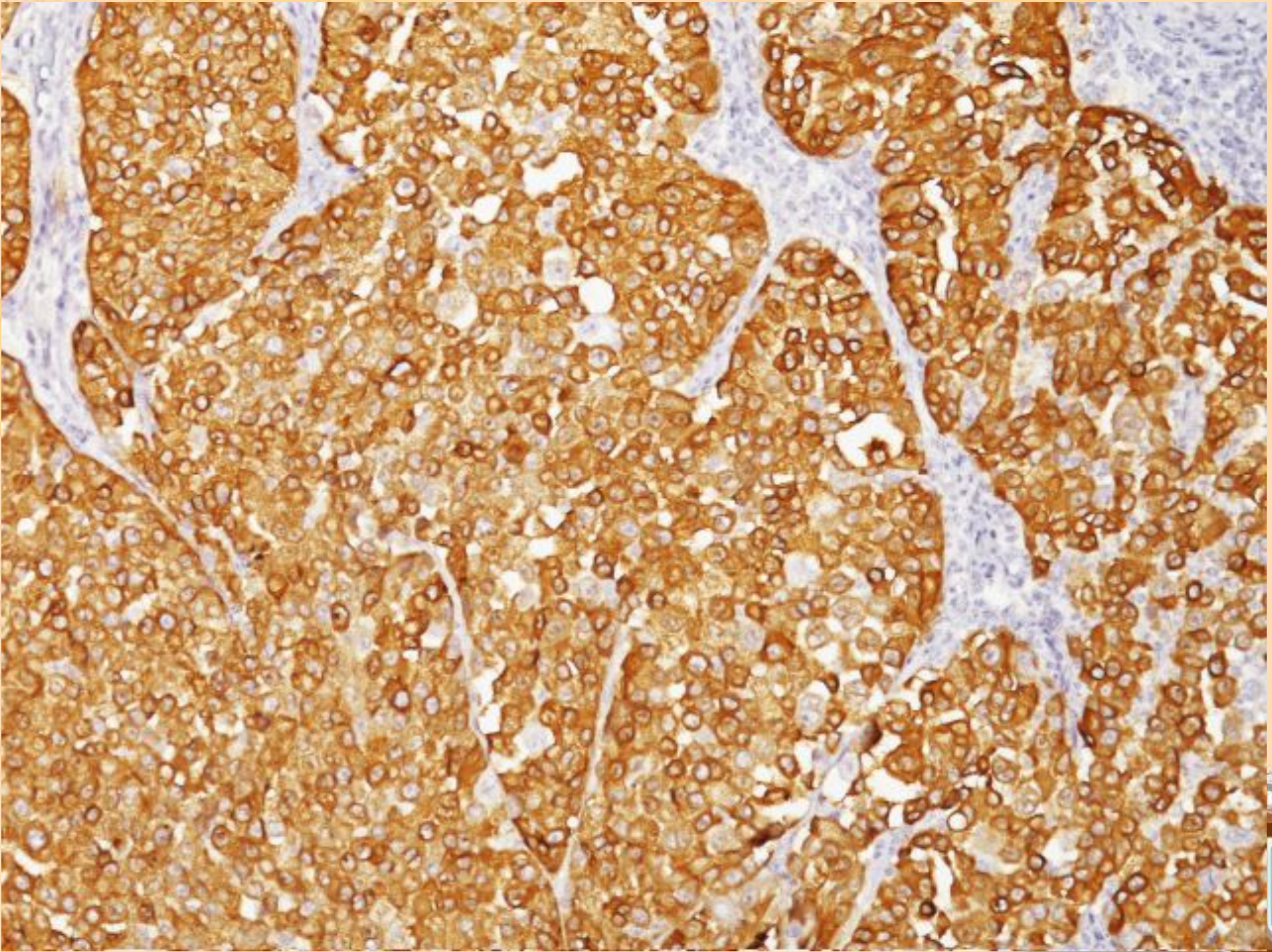
- Melanoma





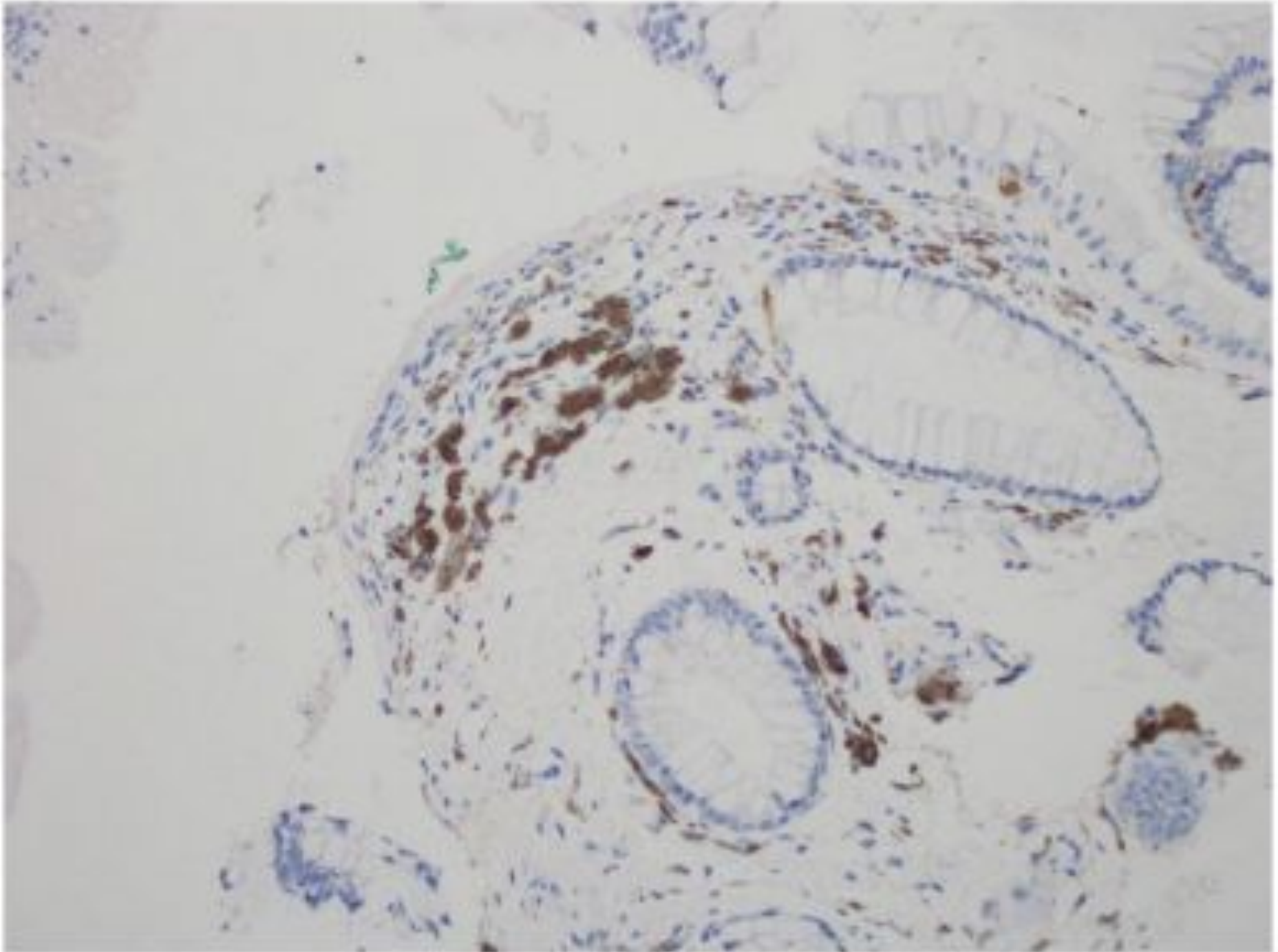
# HMB45//MelanA

- Melanoma





# Blue nevus



**Fig. 4.** × 10 magnification: strong staining of spindle melanocytes with S-100



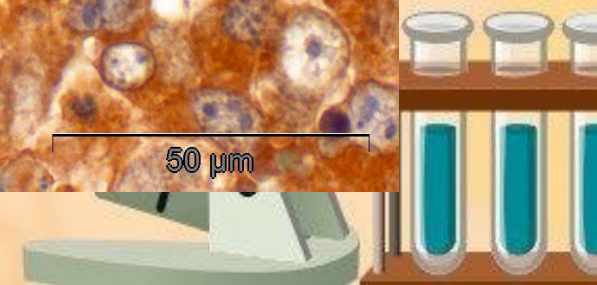
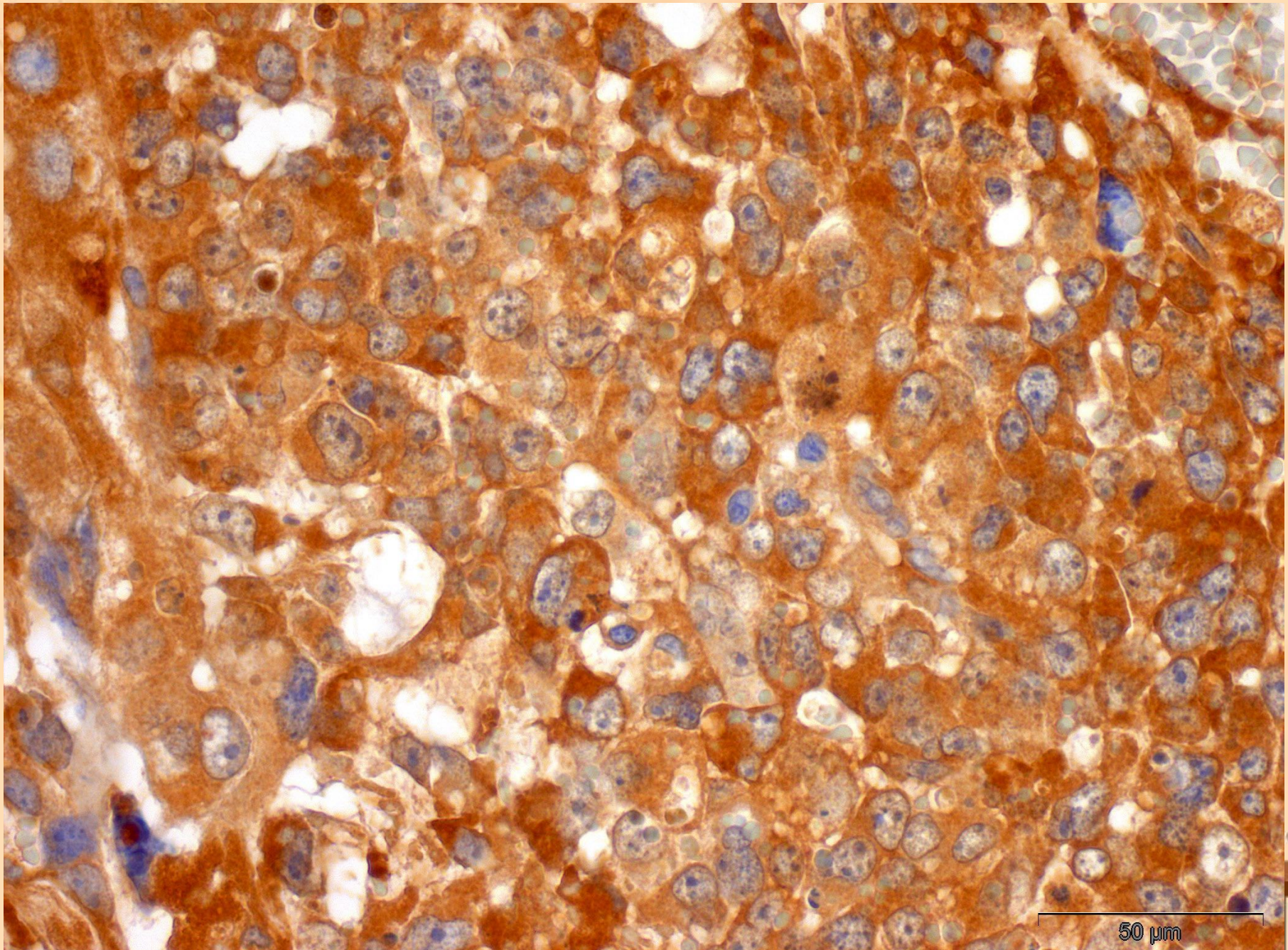
# Герминативные маркеры





# AFP

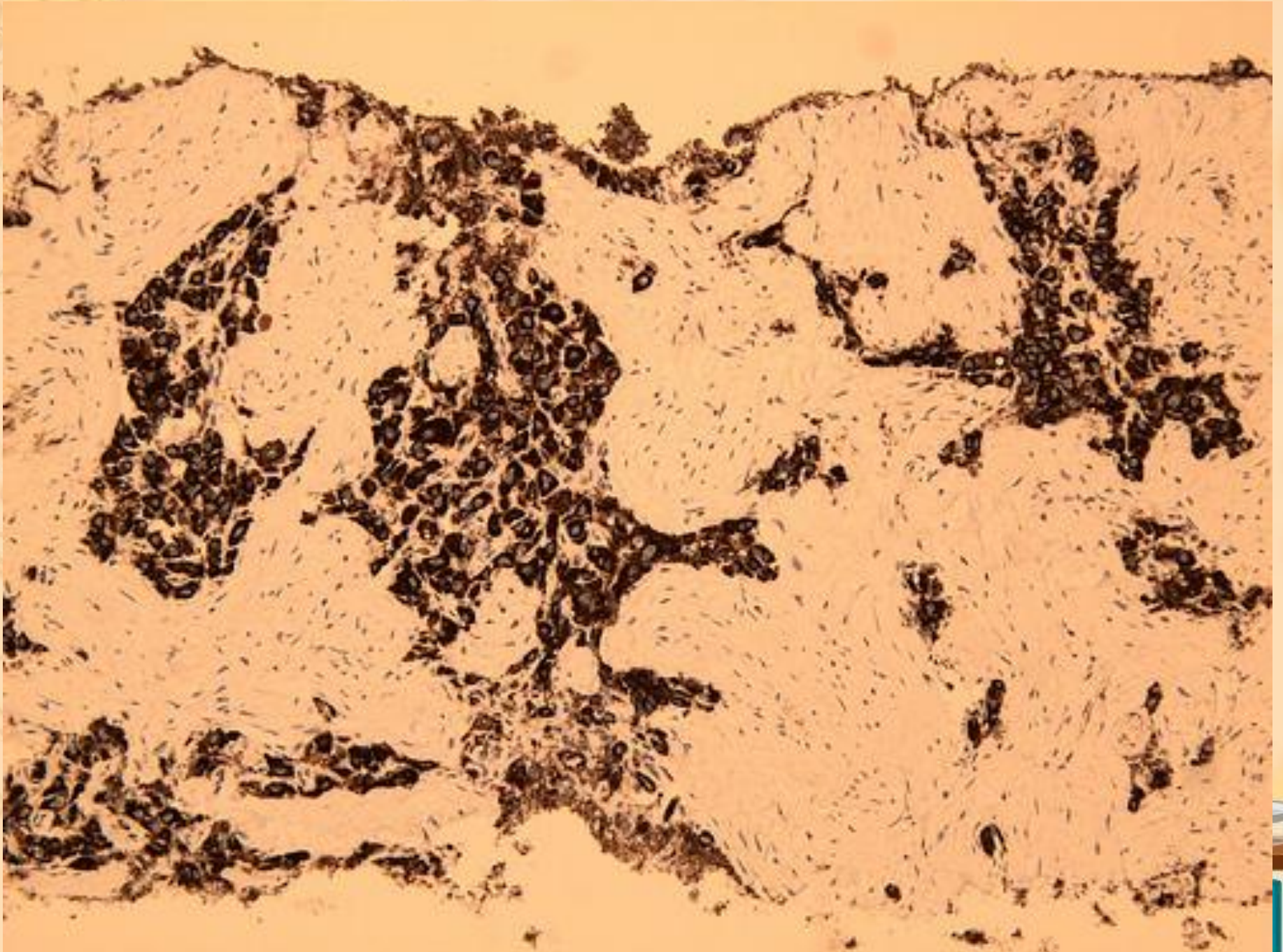
- YST metastatic





# HepPar1

- Fibrolamellar type HCC





# ИГХлогия опухолей крови

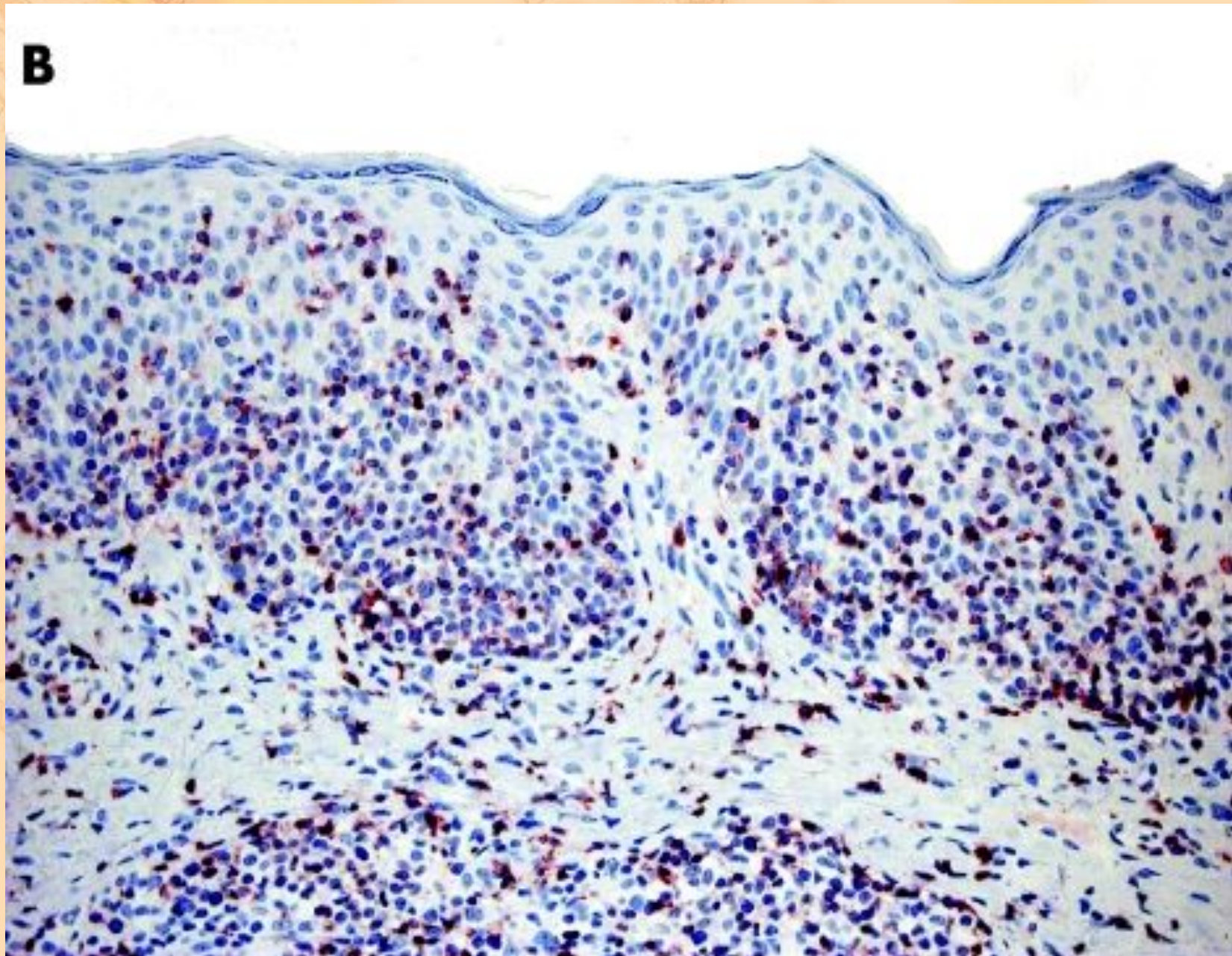
О, если б только он знал,  
сколько боли ждало за  
углом:  
Сынок-то был дуболом, и за  
намалёванным криво  
таблом  
Увы, вот облом,  
вместо извилин — лишь  
годовые кольца:  
- Тук-тук, есть кто дома,  
алло? - **Сиди**, я открою, не  
беспокойся!





# CD8

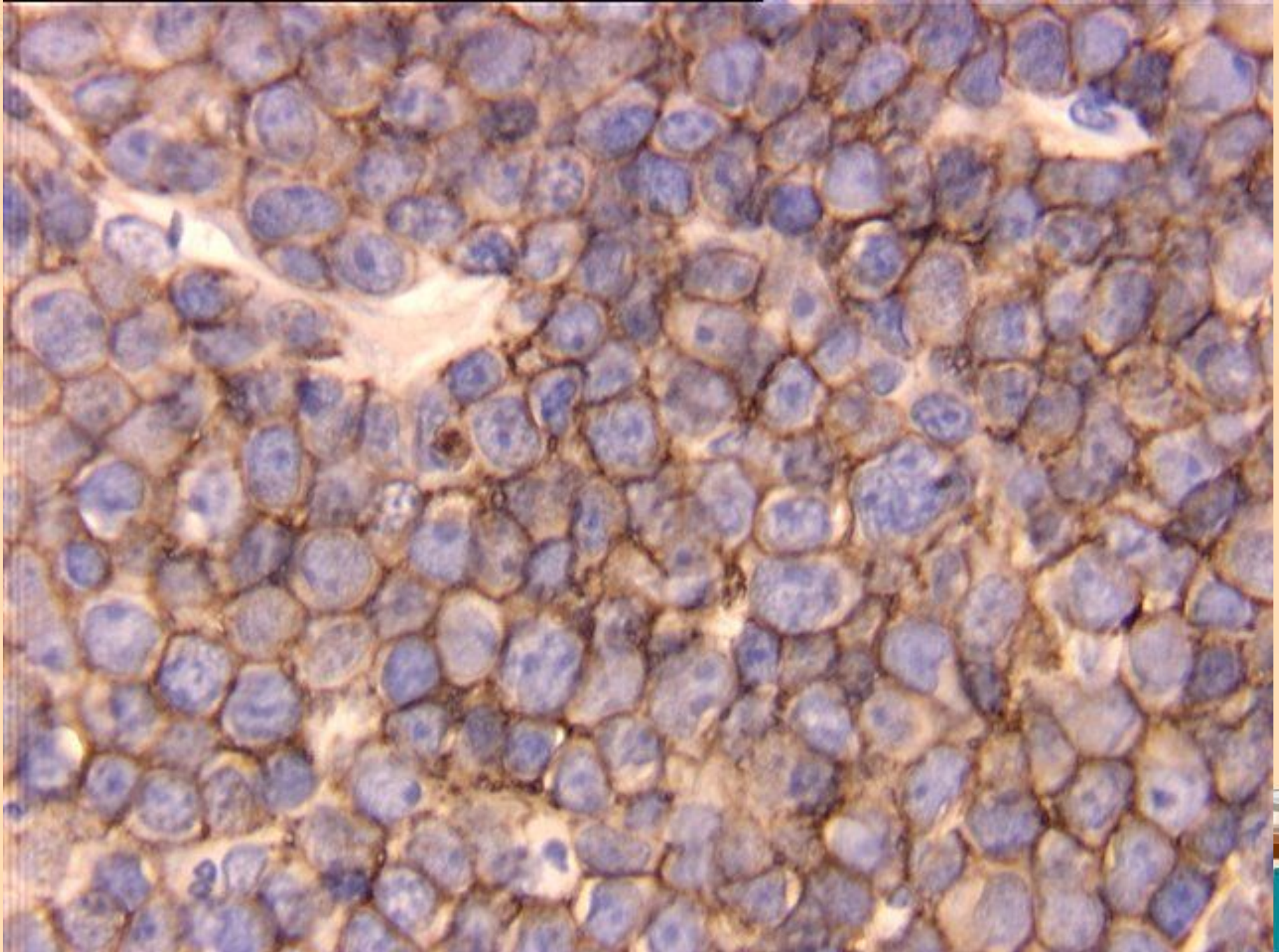
- T cell lymphoma of skin





# CD45

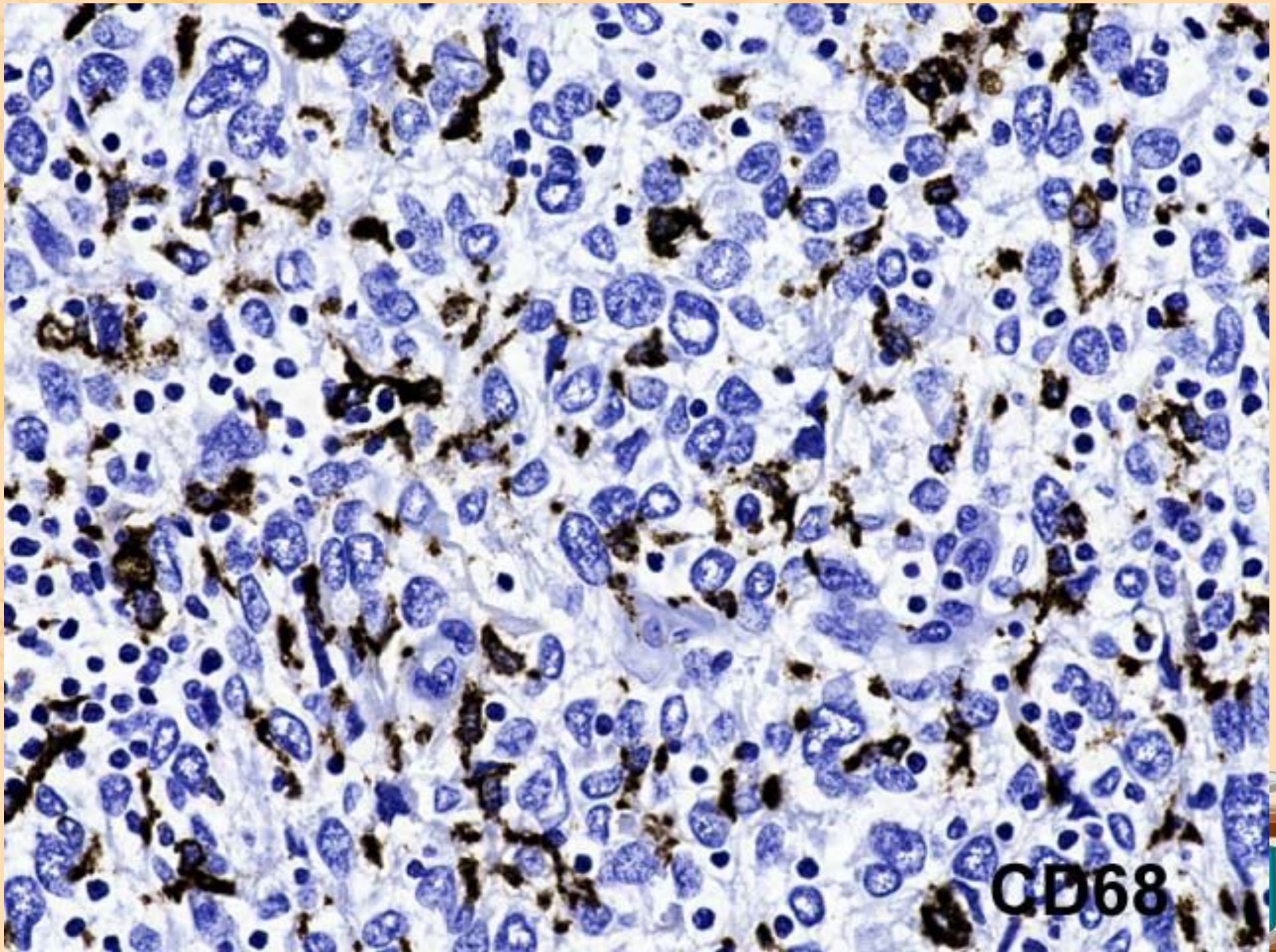
**Diffuse large B cell lymphoma (H&E)**





# CD68

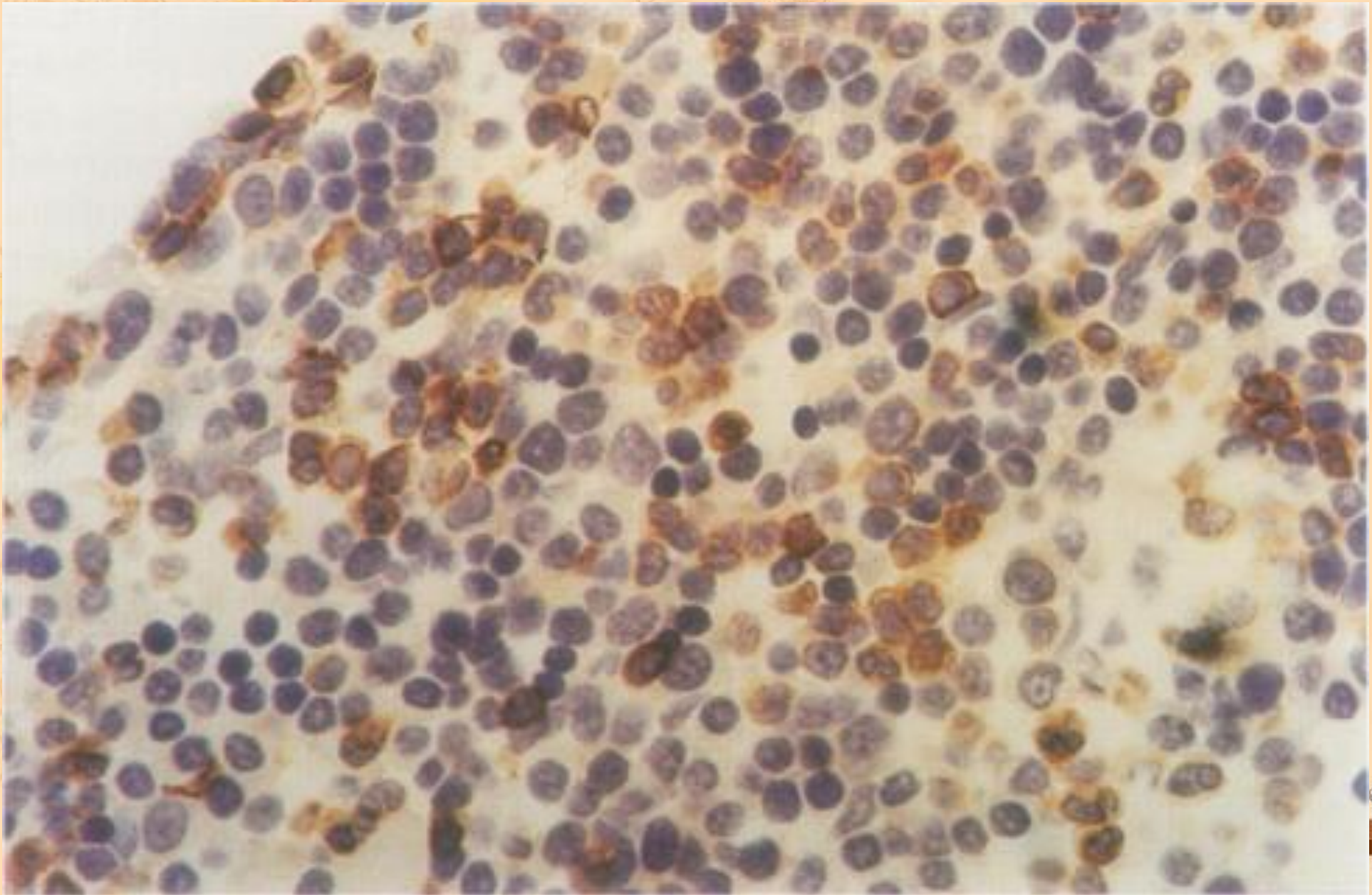
- Follicular Dendritic Cell Sarcoma





# CD45ro

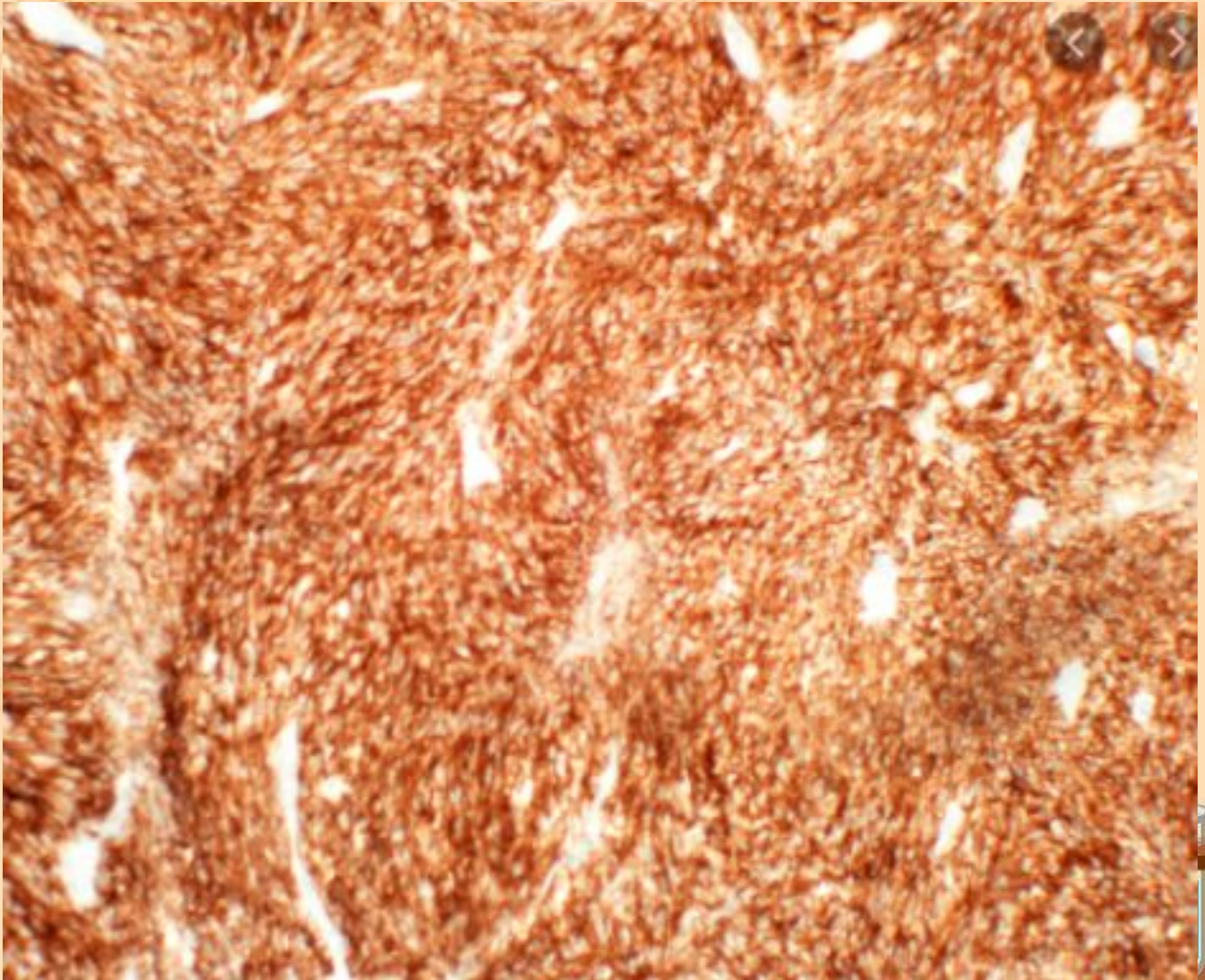
- Multiple myeloma-plasma cell staining





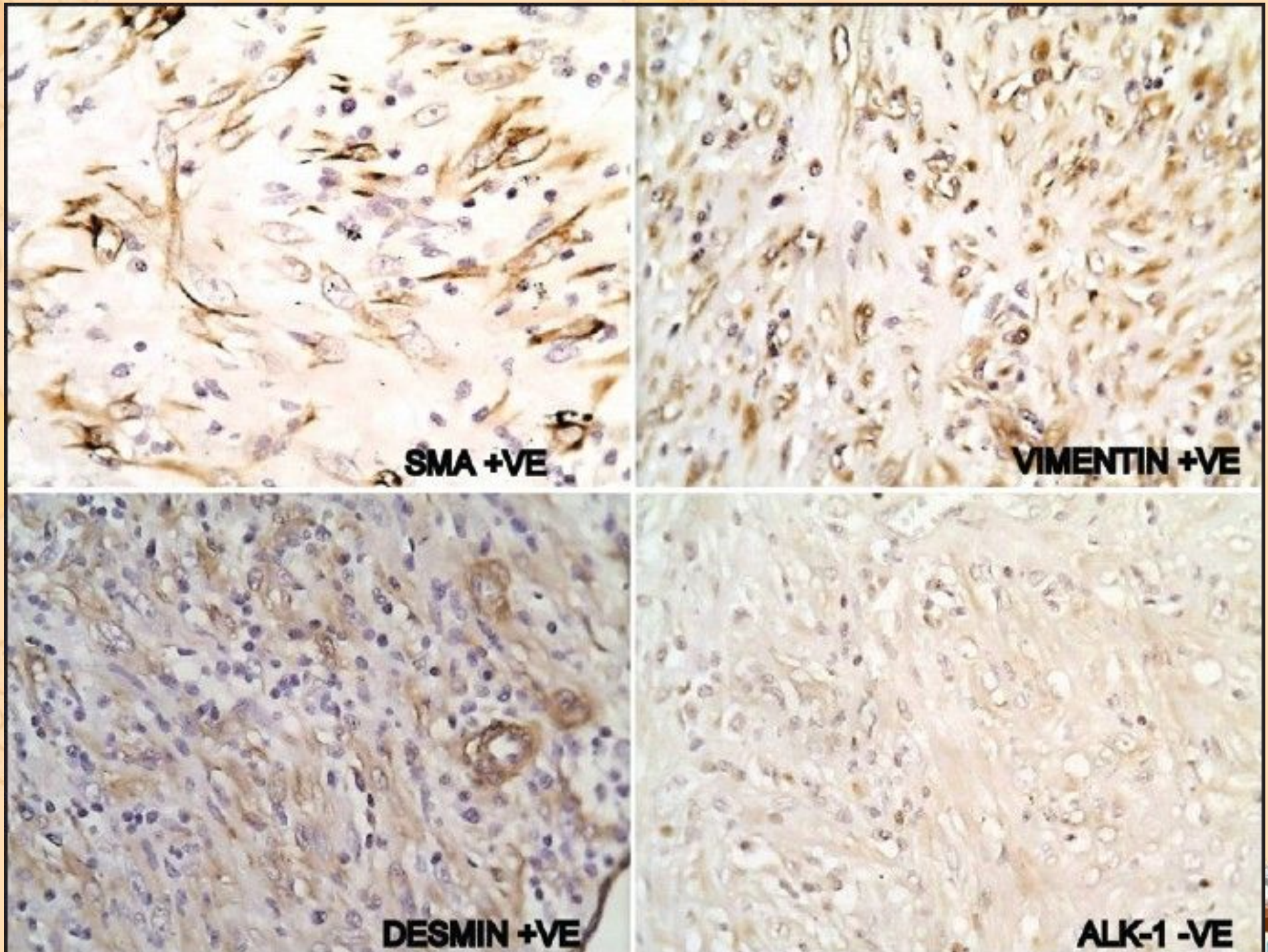
# Специальные маркеры

**DOG1 HIST**



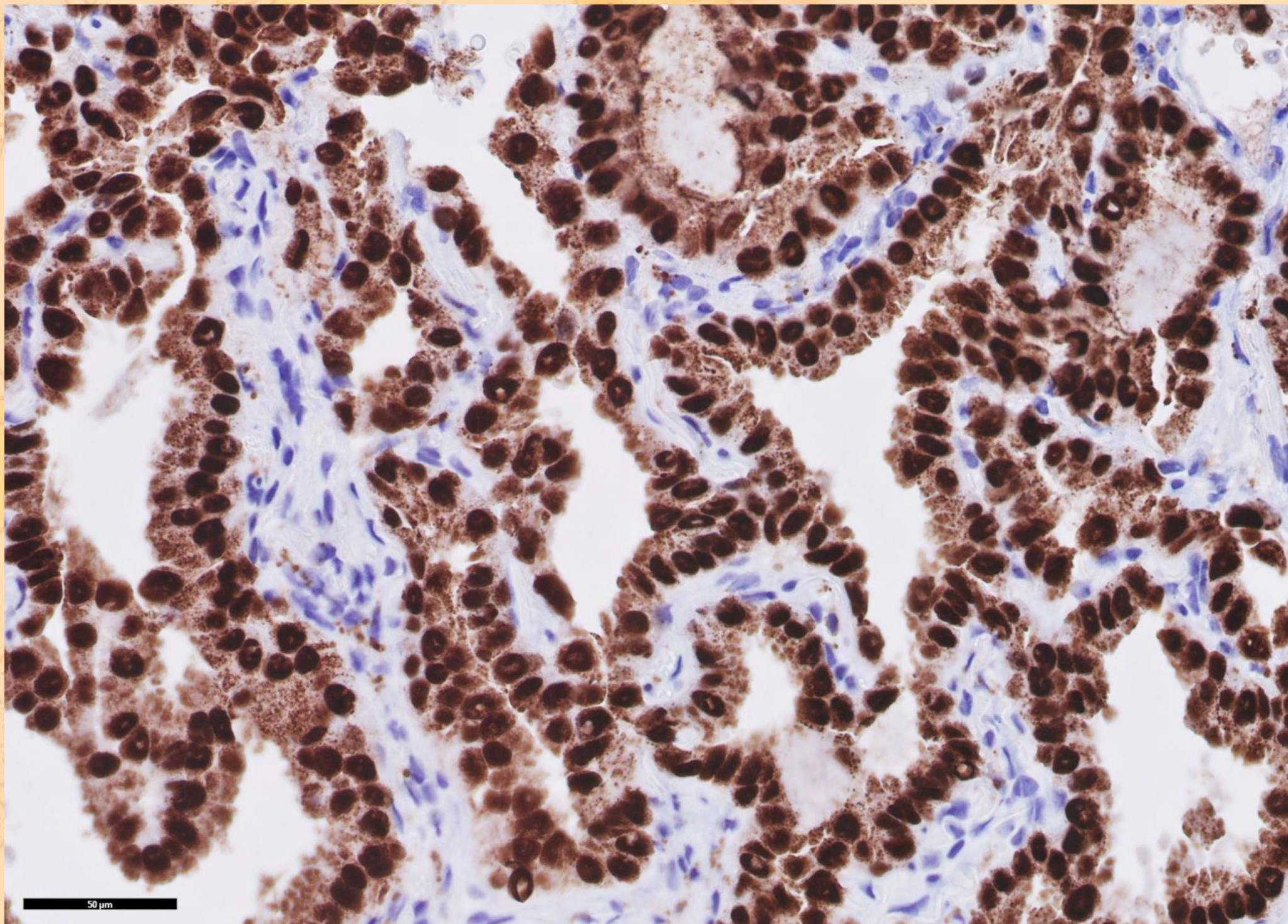


# ALK-1





# TTF-1



Lung adenocarcinoma:  
ADC cocktail, TTF-1 (nuclear) and NapsinA (cytoplasmic), is strongly positive (IHC, ×40)



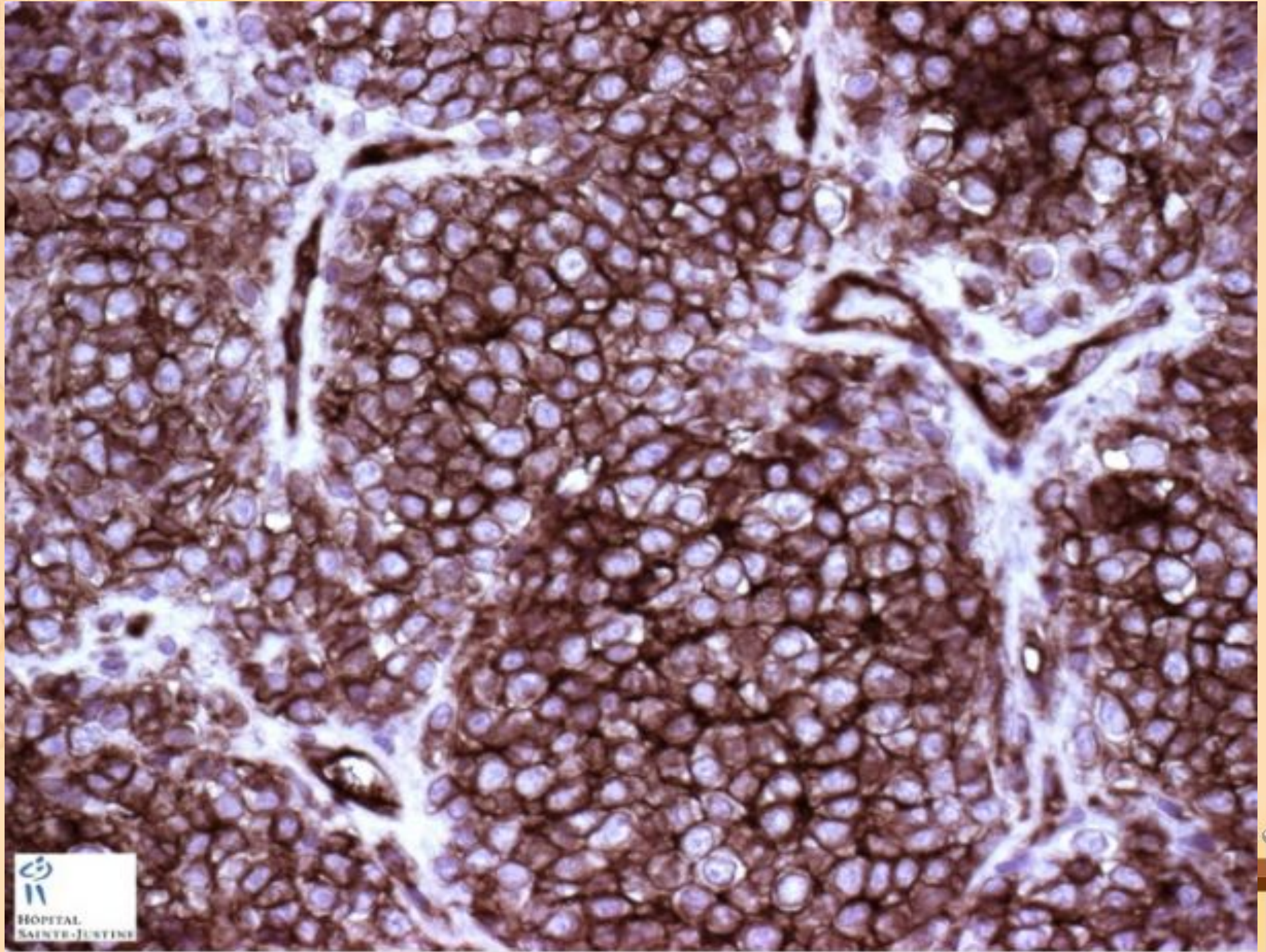
# ИГХ диагностика анапластичных опухолей

- PanCK
- Vimentin
- S100
- MelanA//HMB-45
- Иногда:
- CD8//4//19//etc
- CD99





# CD99 PNET





# Stains I Hate

Stain I Hate	Undeserved Reputation	What to Use Instead	Comment
Vimentin	Sarcoma	MDM2/CDK4 in undiff. malignant neoplasm; otherwise, morphology-driven	Ubiquitously expressed by melanoma and often expressed by lymphoma and carcinoma; I DO use to support endometrial over endocervical AdCA
p63	Squamous cell CA	p40	Dangerously non-specific
CA125	Pan-Müllerian	PAX8	Broadly expressed by non-GYN CA
CA19-9	Pancreas CA	SMAD4; CDH17 in CK7+ only	Broadly expressed by non-pancreas CA
CK19	CholangioCA	BAP1 (iCC); SMAD4 (i and eCC)	Nearly ubiquitously expressed by non-HCC carcinomas
MOC-31	AdenoCA	There is no pan-AdCA marker	I DO use as a broad-spectrum epithelial marker
RCC	Renal cell CA	PAX8	Supplanted by much better marker
CEA	Colon CA	CDX2 homogeneous; SATB2	Broadly expressed by non-colon CA







Ask us shit...or something...

