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Comparative Study on Androgen Receptor, STAT6 and PMS2 Immunohistochemistry in Sebaceous Neoplasms

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ASDP 2025



Disclosures

- No financial conflicts of interest
- No commercial support

Background

- Sebaceous neoplasms often mimic BCC and SCC
- AR and adipophilin: reported but not fully discriminatory
- STAT6 and PMS2: distinct patterns in pilot review, widely available

Goto K., Sugino T. (2021). *Cytoplasmic expression of PMS2 (clone EP51), PRAME, and STAT6 (clone YE361) as a potential immunohistochemical finding for detection of sebocyte differentiation.* **J Cutan Pathol**, 48(10):1324-1327.
Epub 2021 Jul 29.

- Clinical relevance: Muir–Torre syndrome

Objectives

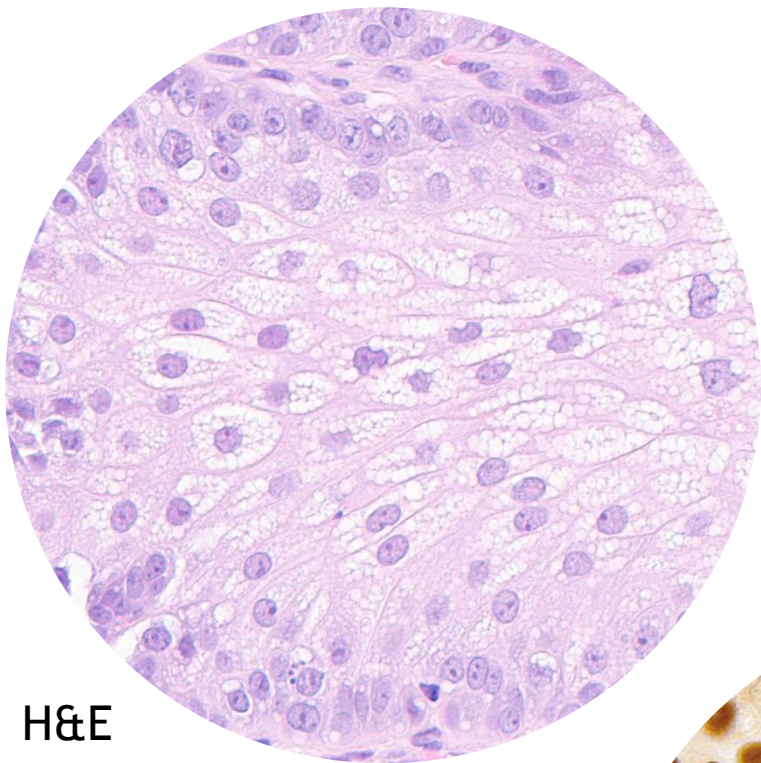
- Evaluate AR, STAT6, PMS2 diagnostic performance
- Compare sensitivity, specificity, PPV, NPV, AUC
- Identify best stain combinations

Methods: Cases

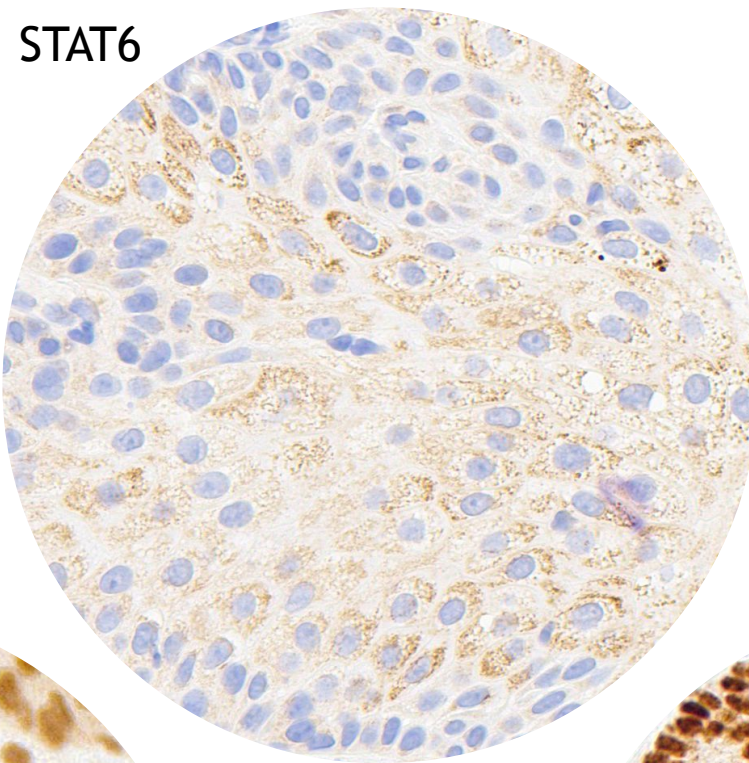
- 100 cases total
- 75 sebaceous neoplasms
 - 20 carcinoma
 - 39 adenoma
 - 11 hyperplasia
 - 5 sebaceoma
- 25 controls (16 BCC, 9 SCC)
 - 9 BCC with sebaceous/adnexal/follicular differentiation
- TMAs constructed
- Whole slides recut if unassessable

Methods: IHC Criteria

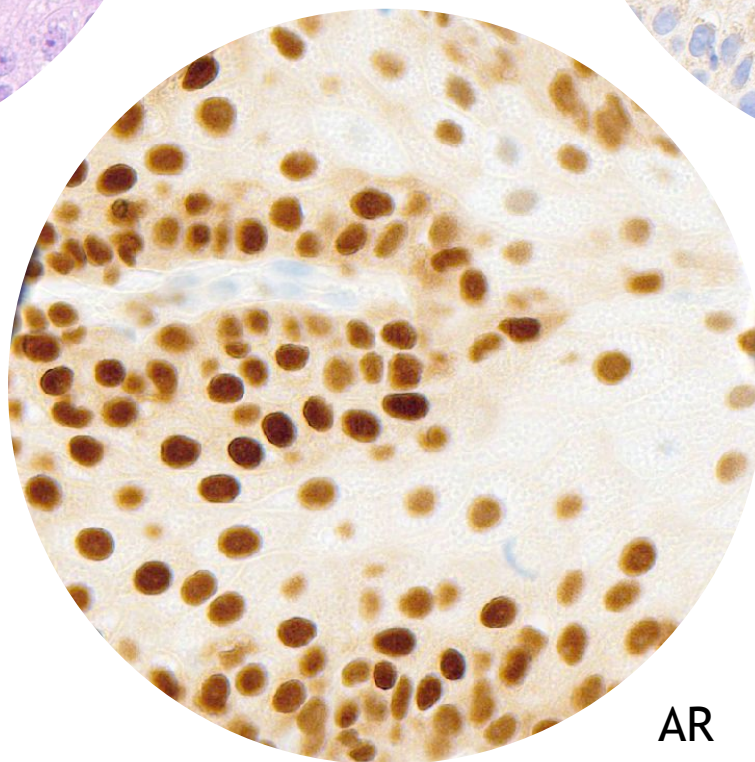
- AR: >1% nuclear positivity
- STAT6: >10% cytoplasmic positivity
- PMS2:
 - Nuclear–cytoplasmic >10%
 - Cytoplasmic-only >10%
- Two blinded dermatopathologists
- Third reviewer resolved discrepancies
- Data: extent, pattern, H-score



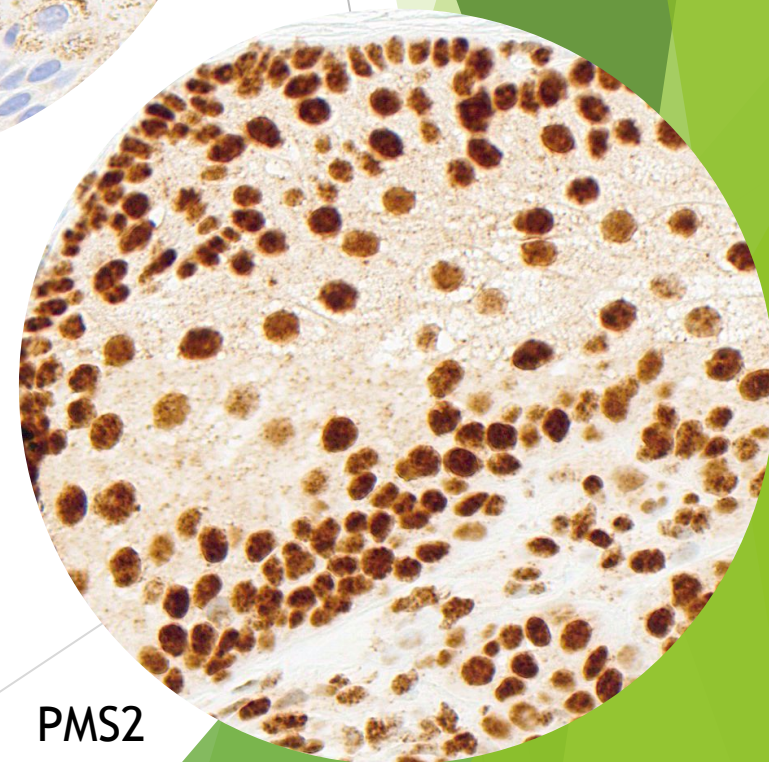
H&E



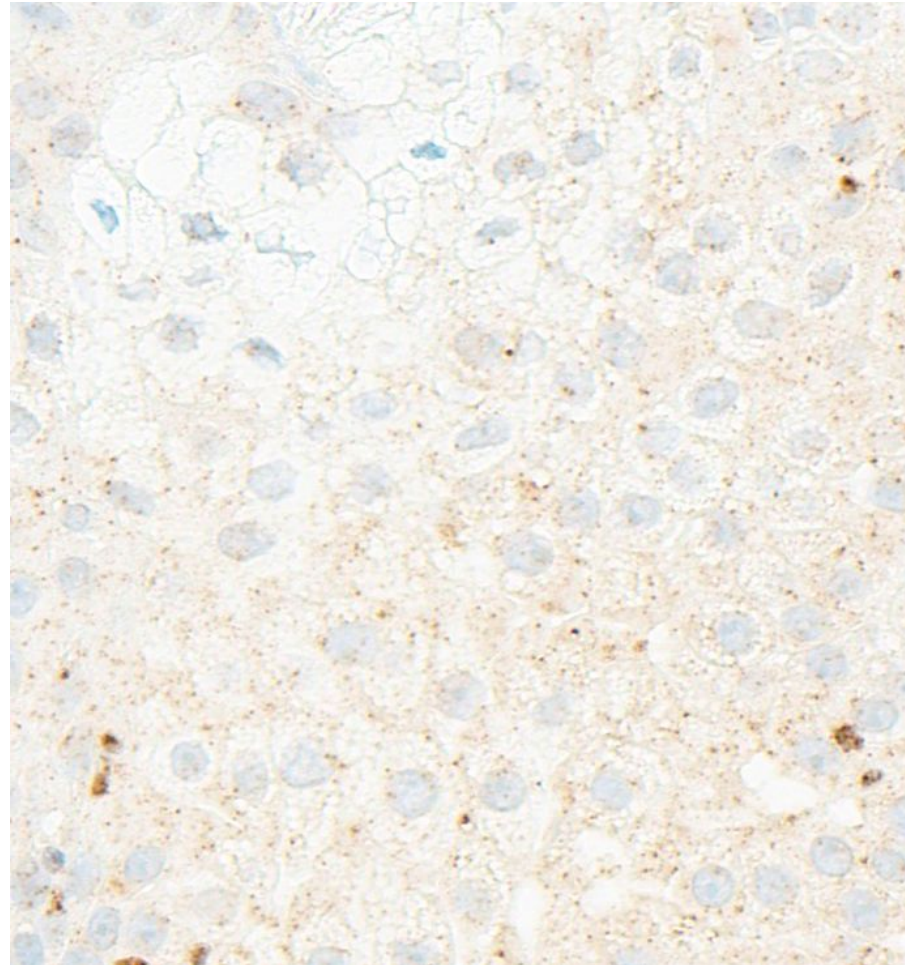
STAT6



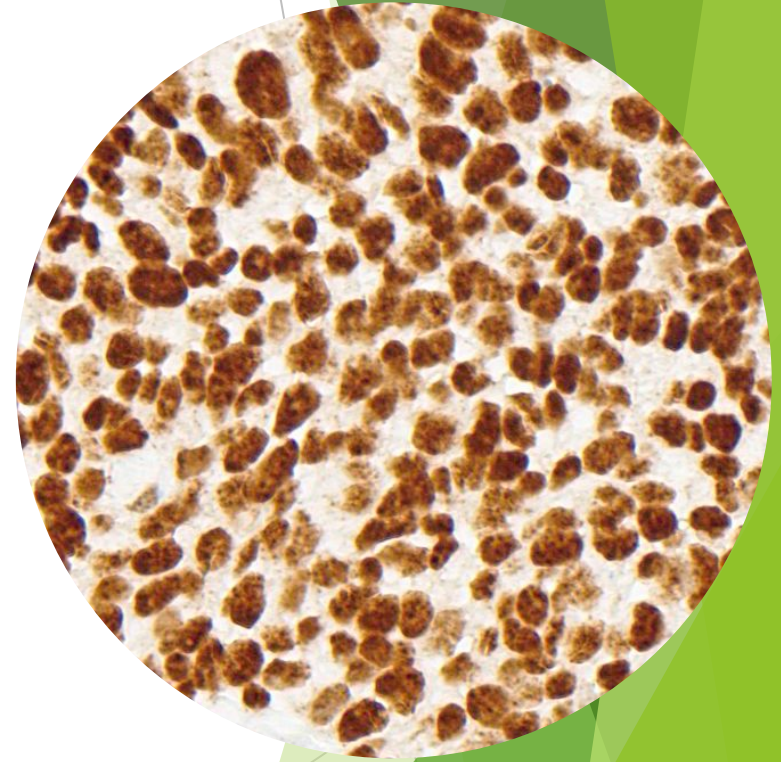
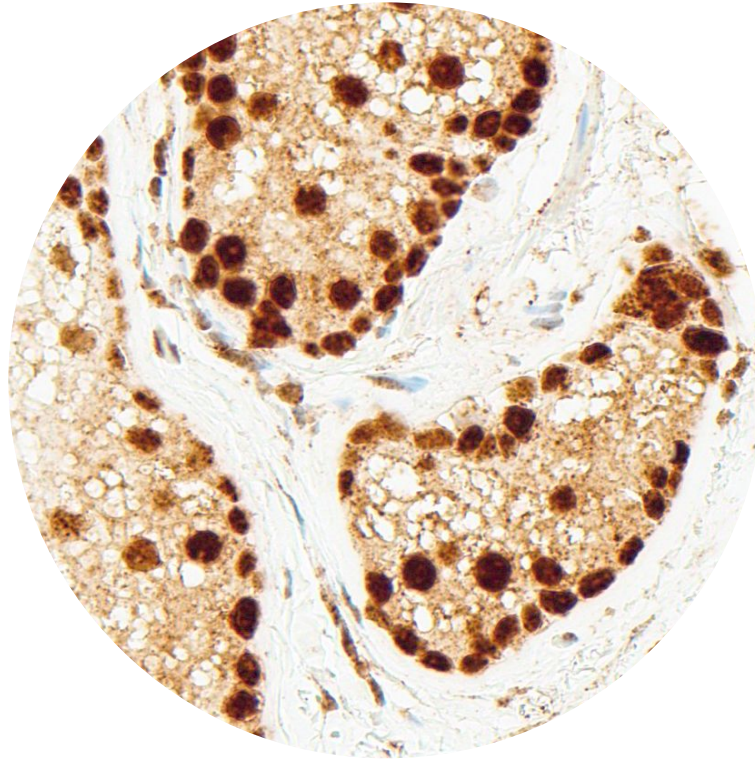
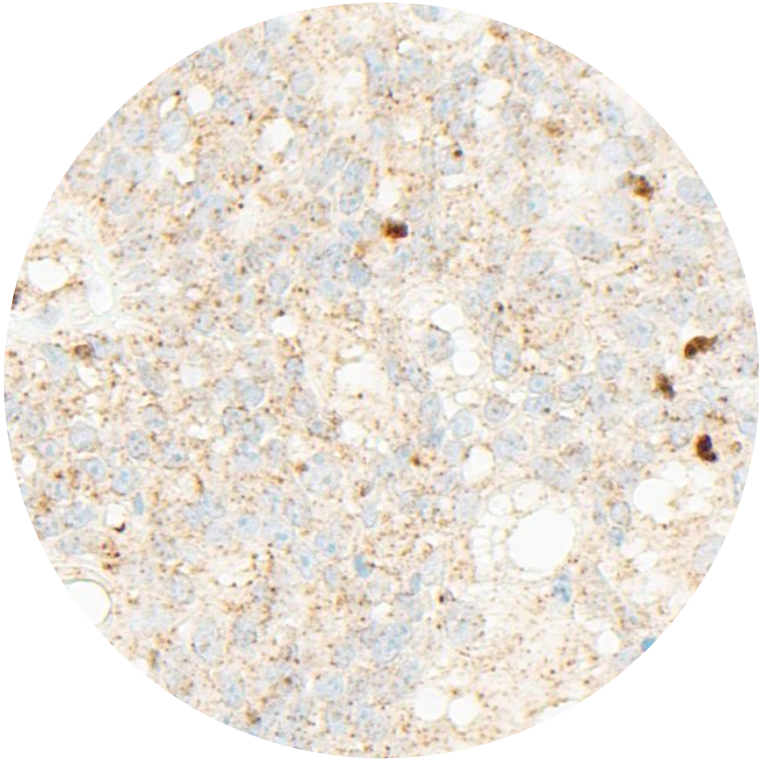
AR



PMS2



PMS2

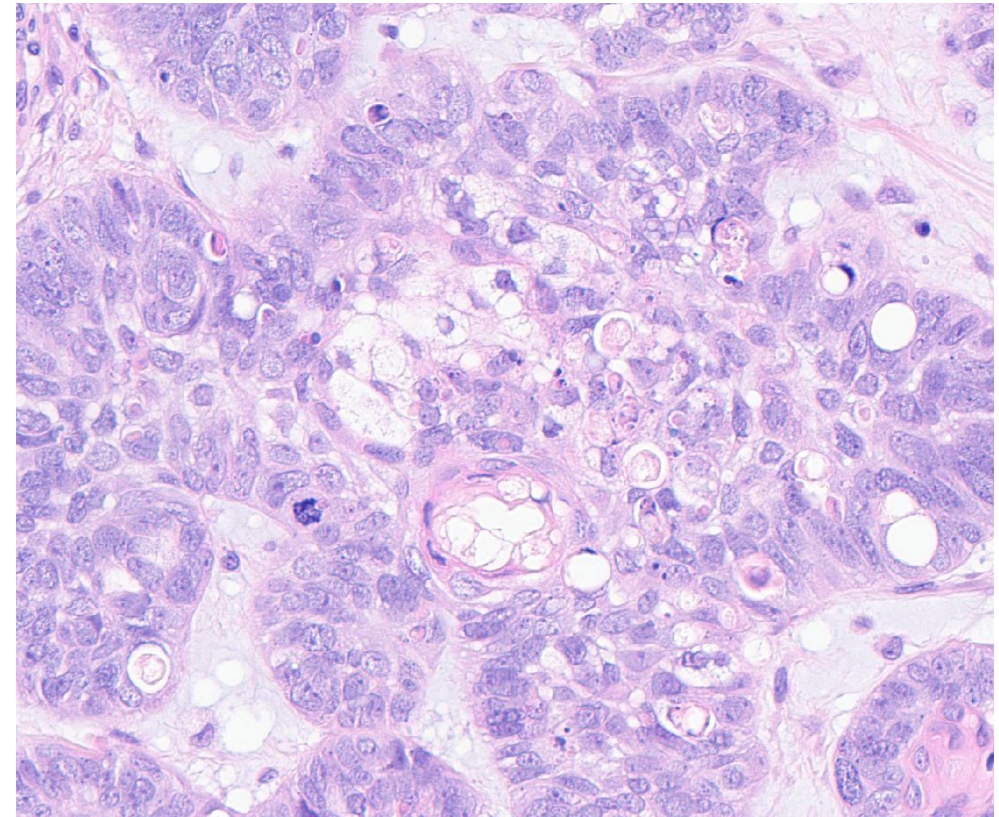
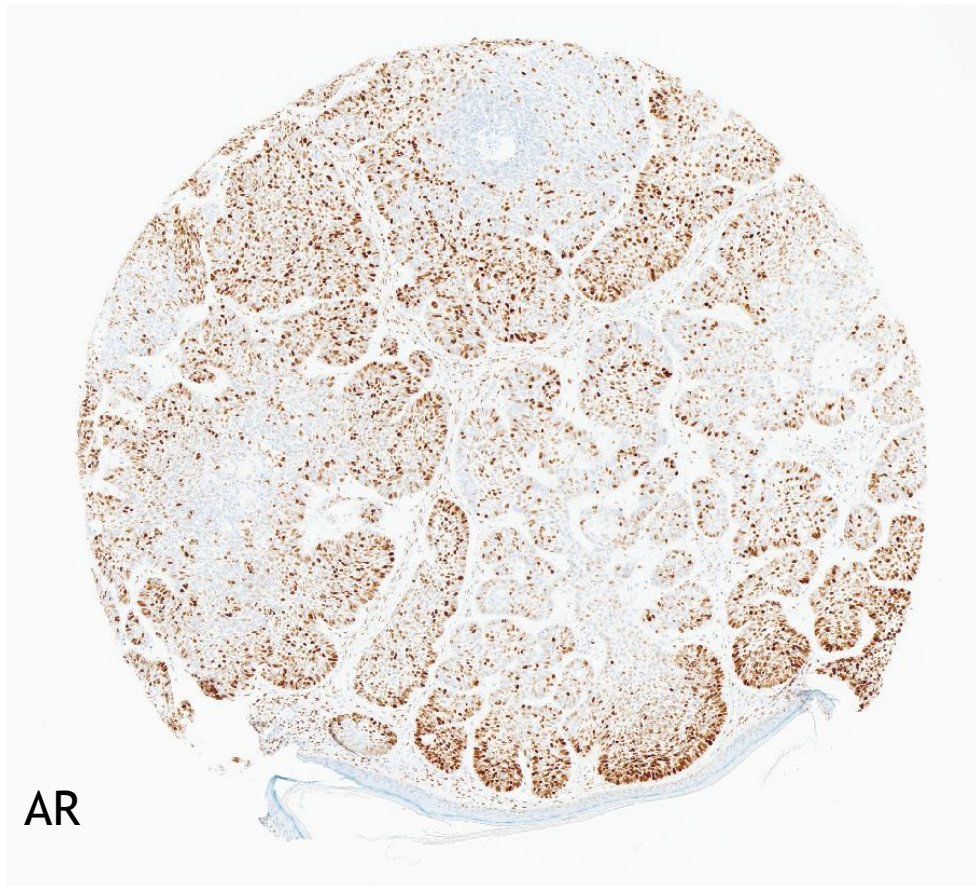


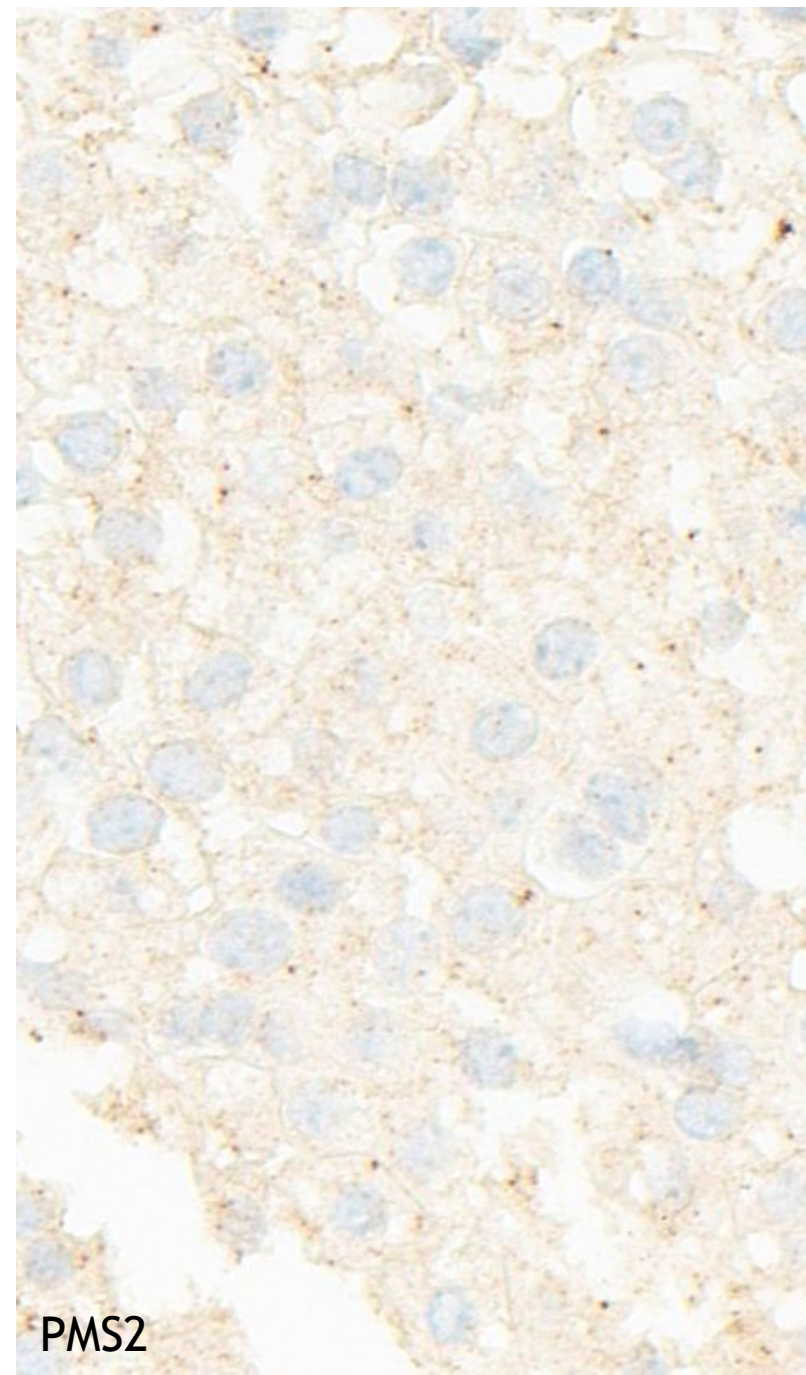
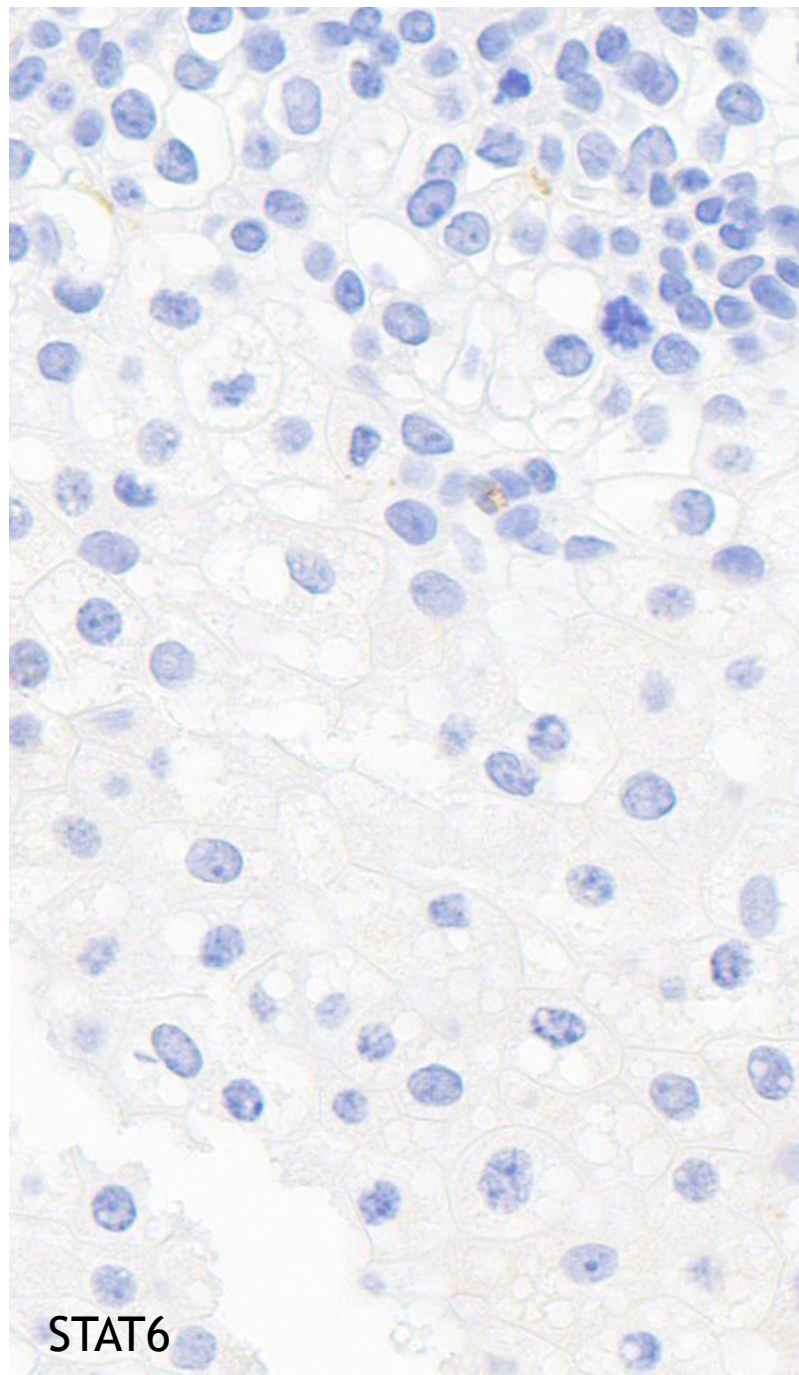
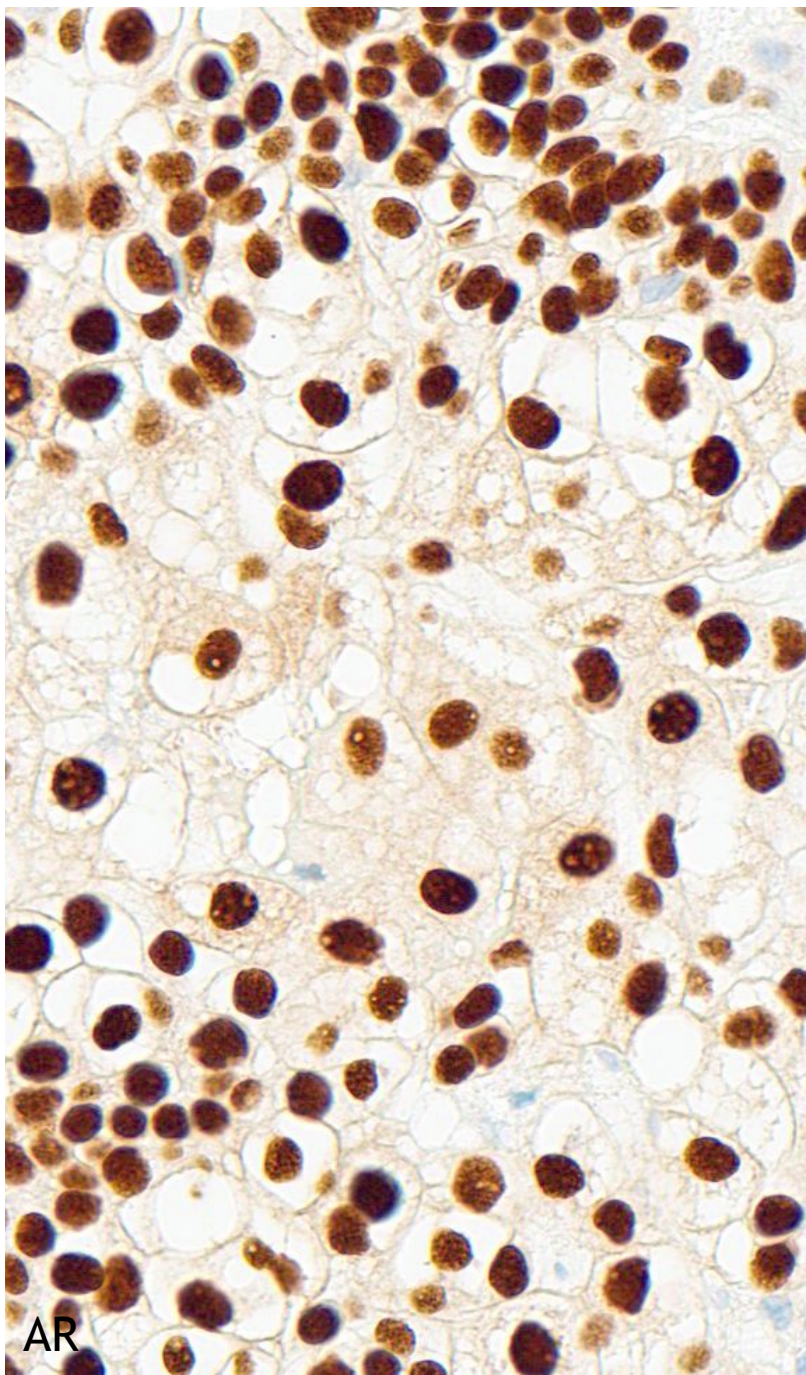
Results: Single Stains

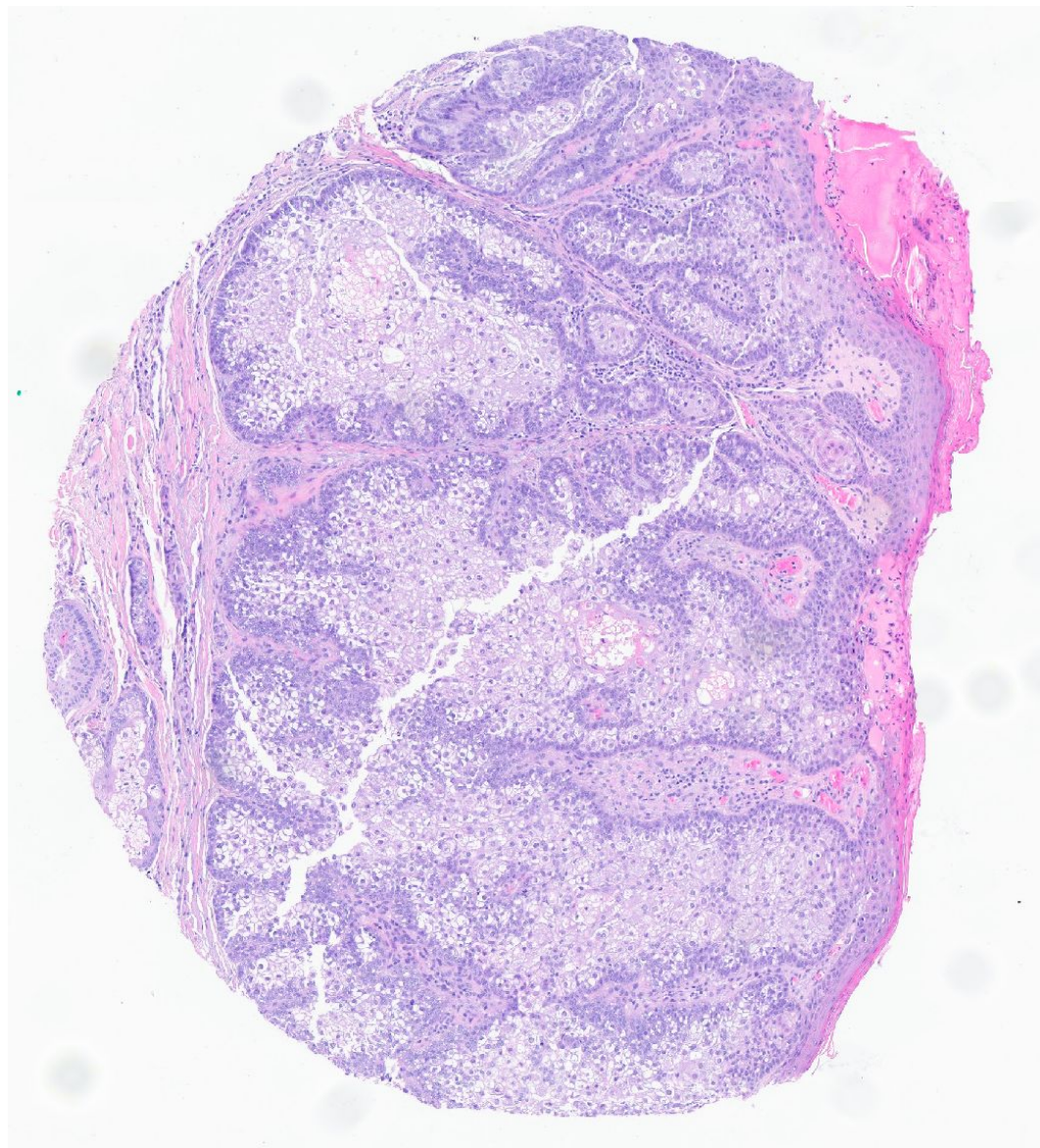
Marker / Combination	Sens (%)	Spec (%)	PPV (%)	NPV (%)	AUC
AR	90	62	88	67	0.76
STAT6 (cytoplasmic)	91	40	82	61	0.66
PMS2 nuclear + cytoplasmic	69	86	94	48	0.77
PMS2 cytoplasmic-only (nuclear loss)	8	100	100	27	0.54

Subgroup Findings

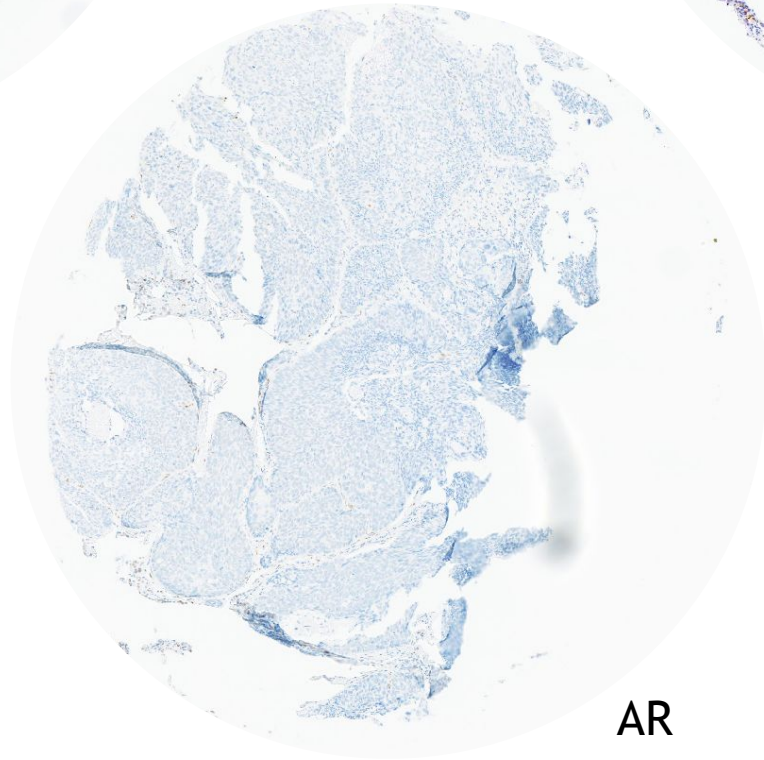
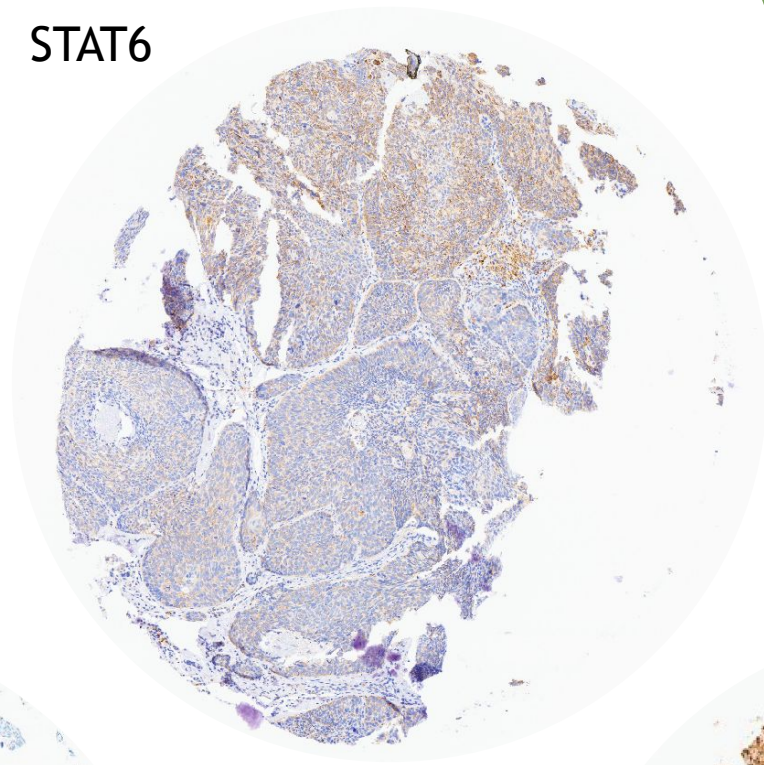
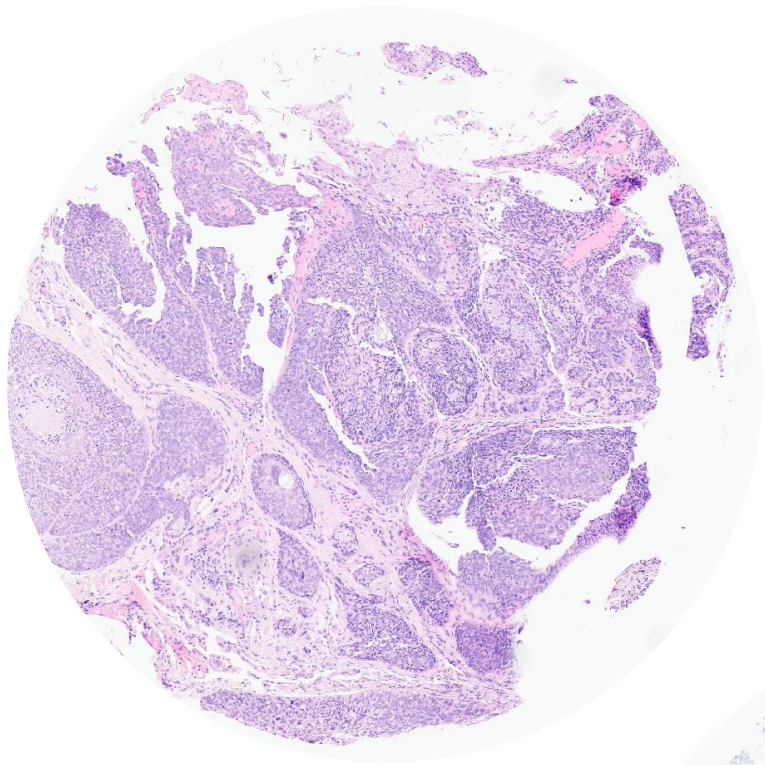
- False positives for AR/STAT6: BCC with adnexal or sebaceous differentiation
- PMS2 nuclear–cytoplasmic: rare in BCC/SCC
- PMS2 cytoplasmic-only: absent in all controls







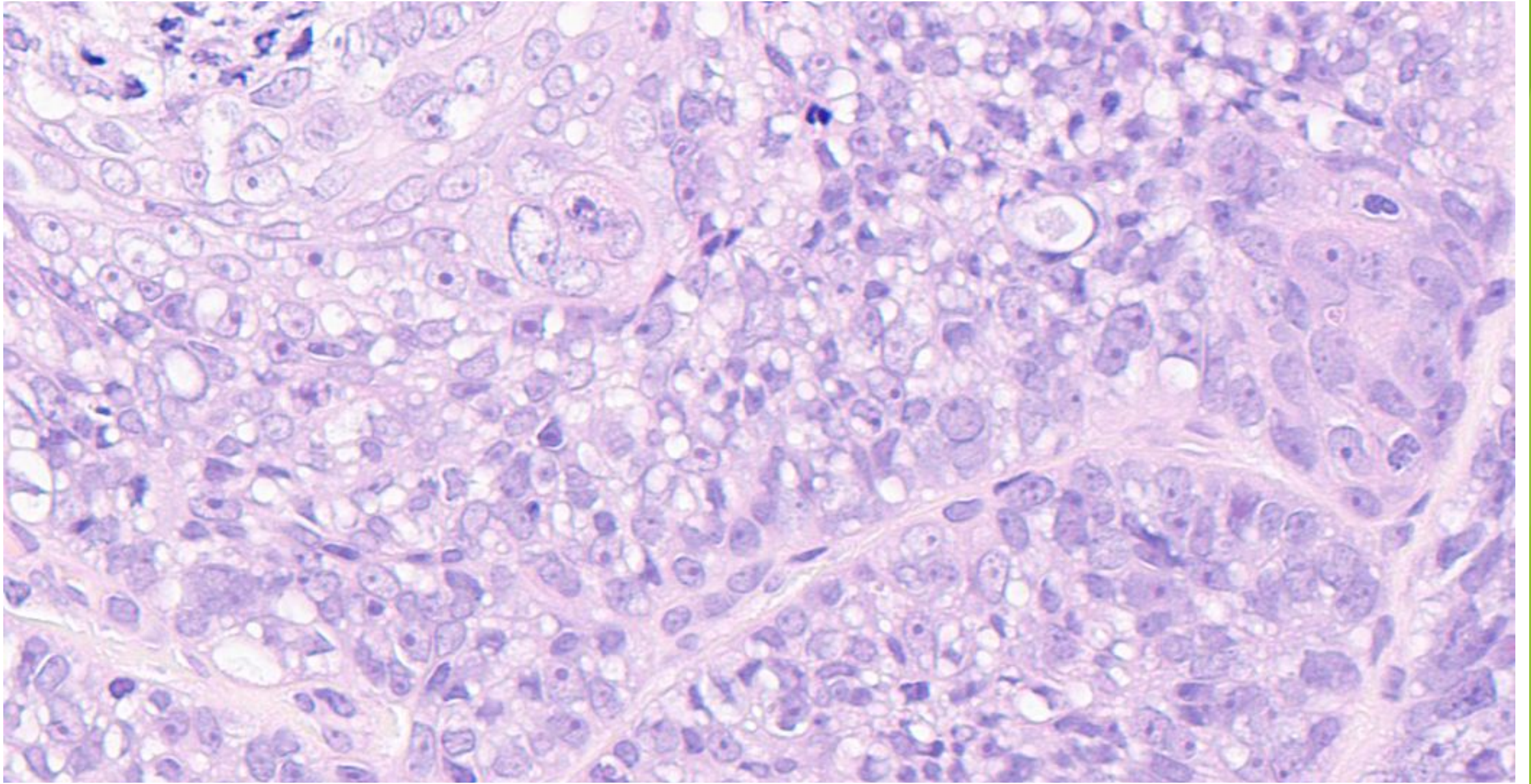
STAT6



AR



PMS2



Results: Combinations

Marker / Combination	Sens (%)	Spec (%)	PPV (%)	NPV (%)	AUC
AR + STAT6	83	70	91	53	0.79
AR + PMS2 (nuclear + cytoplasmic)	66	96	98	48	0.81
AR + PMS2 cytoplasmic-only (nuclear loss)	8	100	100	27	0.54

Conclusions

- AR + STAT6: best sensitivity/specificity balance
- AR + PMS2 nuclear–cytoplasmic: highest specificity
- PMS2 cytoplasmic-only: insensitive, not useful alone
- Panel > single stain

Clinical Impact / Take-Home

- Aids diagnosis in difficult sebaceous cases
- Improves separation from BCC/SCC mimics
- Supports screening for Muir–Torre syndrome

Thank you!

- Questions?

