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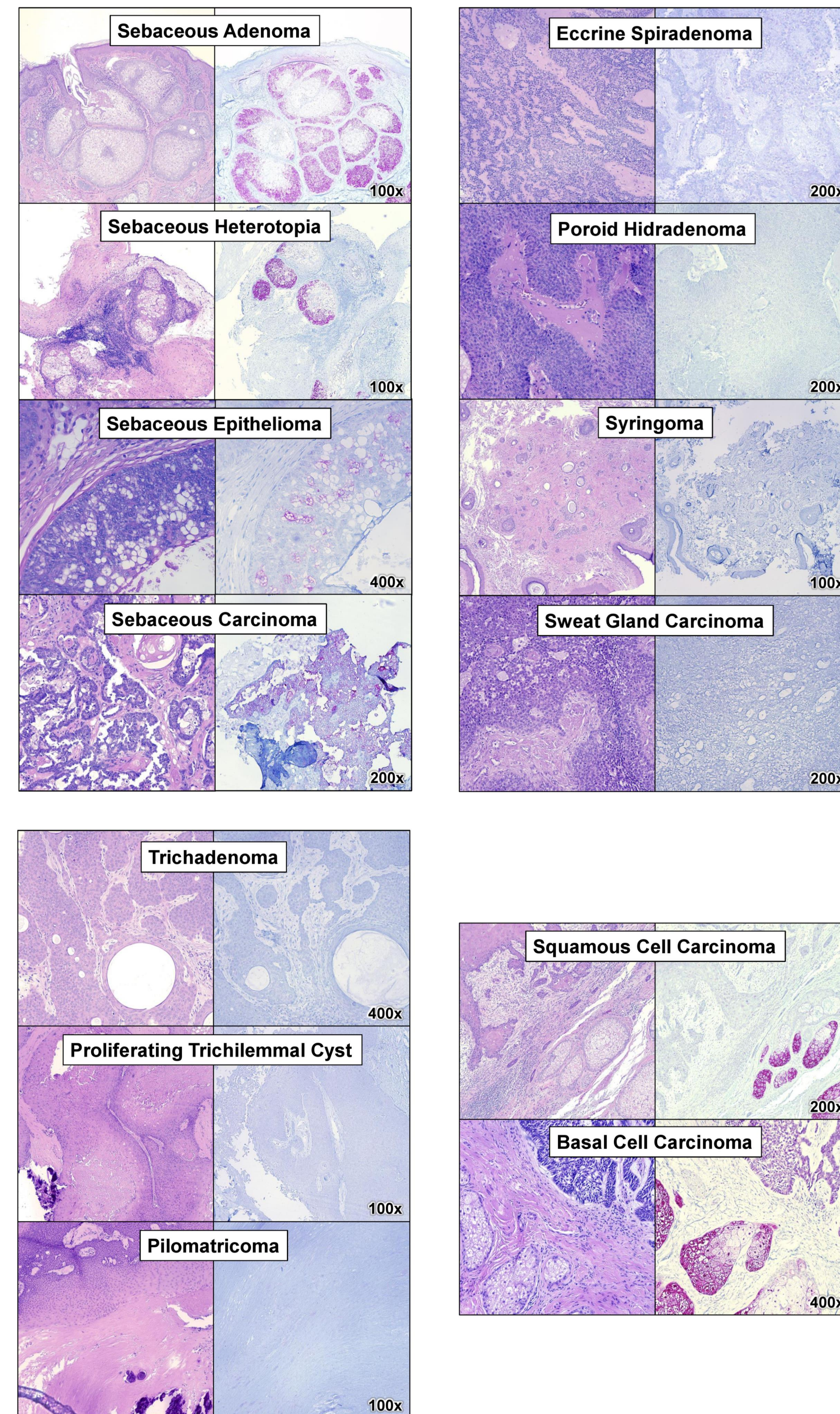
## Introduction

- PRAME (PReferentially expressed Antigen in MElanoma) is a tumor-associated antigen first identified in tumor-reactive T-cell clones derived from a patient with metastatic melanoma [1].
- IHC for PRAME is useful for diagnostic purposes to support a suspected diagnosis of melanoma [2].
- Anecdotally, PRAME has been observed to stain sebaceous units in glands in background skin [3].
- We examined the expression of PRAME in adnexal lesions and common skin cancers to determine whether it is of potential diagnostic utility in distinguishing between sebaceous and non-sebaceous neoplasms (**Figure 1**).

## Methods

- IRB approval from MSMC was obtained.
- In total, **81 patients** were included:
  - **Sebaceous lesions (17 cases)** with normal sebaceous glands, hyperplasia, heterotopia, adenoma, steatocystoma, epithelioma, carcinoma)
  - **Sweat gland lesions (32 cases)** with hyperplasia, syringoma, hidradenoma, hidrocystoma, poroma, spiradenoma, papillary hidradenoma, and carcinoma)
  - **Follicular lesions (13 cases)** with trichadenoma, pilomatricoma, trichilemmal cyst)
  - **Basal cell carcinoma (10 cases)**
  - **Squamous cell carcinoma (9 cases)**
- Cases from MSMC between **January 01, 2012, and December 31, 2023**, were included.
- Staining intensity was subcategorized into negative, weak, moderate, and strong, whereas expression % positivity into 0%, 1-25%, 26-50%, 51-75%, 76-100%.

## Results



**Figure 1.** PRAME IHC expression in different adnexal lesions and common skin cancer-types.

## Results (Continued)

**Table 1. PRAME positivity in sebaceous vs. non-sebaceous adnexal lesions.**

	Sebaceous (N=17)	Non-sebaceous (N=45)	p-value
<b>PRAME Positivity</b>			<0.001
NEGATIVE	0 (0.0%)	39 (86.7%)	
POSITIVE	17 (100.0%)	6 (13.3%)	

**Table 2. PRAME % in sebaceous vs. non-sebaceous adnexal lesions.**

	Sebaceous (N=17)	Non-sebaceous (N=45)	p-value
<b>PRAME %</b>			<0.001
0%	0 (0.0%)	39 (86.7%)	
1-25%	0 (0.0%)	1 (2.2%)	
26-50%	2 (11.8%)	0 (0.0%)	
51-75%	2 (11.8%)	2 (4.4%)	
76-100%	13 (76.4%)	3 (6.7%)	

**Table 3. PRAME intensity in sebaceous vs. non-sebaceous adnexal lesions.**

	Sebaceous (N=17)	Non-sebaceous (N=45)	p-value
<b>PRAME intensity</b>			<0.001
NEGATIVE	0 (0.0%)	39 (86.7%)	
WEAK	5 (29.4%)	1 (2.2%)	
MODERATE	3 (17.6%)	2 (4.4%)	
STRONG	9 (53.0%)	3 (6.7%)	

**Table 4. PRAME positivity in BCC and SCC (NUCLEAR).**

	BCC (N=10)	SCC (N=9)
<b>PRAME Positivity</b>		
NEGATIVE	0 (0.0%)	2 (22.2%)
POSITIVE	10 (100.0%)	7 (77.8%)

## Results and Discussion

- Most sebaceous (vs. non-sebaceous) lesions exhibited **positive PRAME expression (CYTOPLASMIC staining)** of moderate to strong intensity in >75% of cells.
- **BCCs** and **SCCs** show weak to moderate **NUCLEAR staining** for PRAME (mostly in >75% of cells).
- Of the 13 lesions of **hair follicle origin**, **none** expressed PRAME. Of the 32 lesions of **sweat gland origin**, 26 (**81.25%**) **did NOT express PRAME** while 6 (18.75%) expressed PRAME.
- **PRAME** has a **sensitivity** and **specificity** of **100.0%** and **86.7%**, respectively, for sebaceous vs. non-sebaceous adnexal lesions.
- Our observations demonstrated that the greater the maturation of sebaceous units (higher proportion of mature sebocytes), the stronger the PRAME staining is.
- Primitive sebocytes tend to lose PRAME.
- PRAME stain diminishes towards the center of the sebaceous unit (strong at the periphery).

## Conclusion

- We confirm the potential utility of PRAME for distinguishing (1) sebaceous from non-sebaceous adnexal neoplasms and (2) BCC and SCC (that may show nuclear staining) from sebaceous carcinoma (that shows cytoplasmic staining).

## References

- [1] Ikeda *et al.*, 1997. PMID: 9047241.
- [2] Bahmad *et al.*, 2023. PMID: 37114299.
- [3] Donnell *et al.*, 2021. PMID: 33949693.