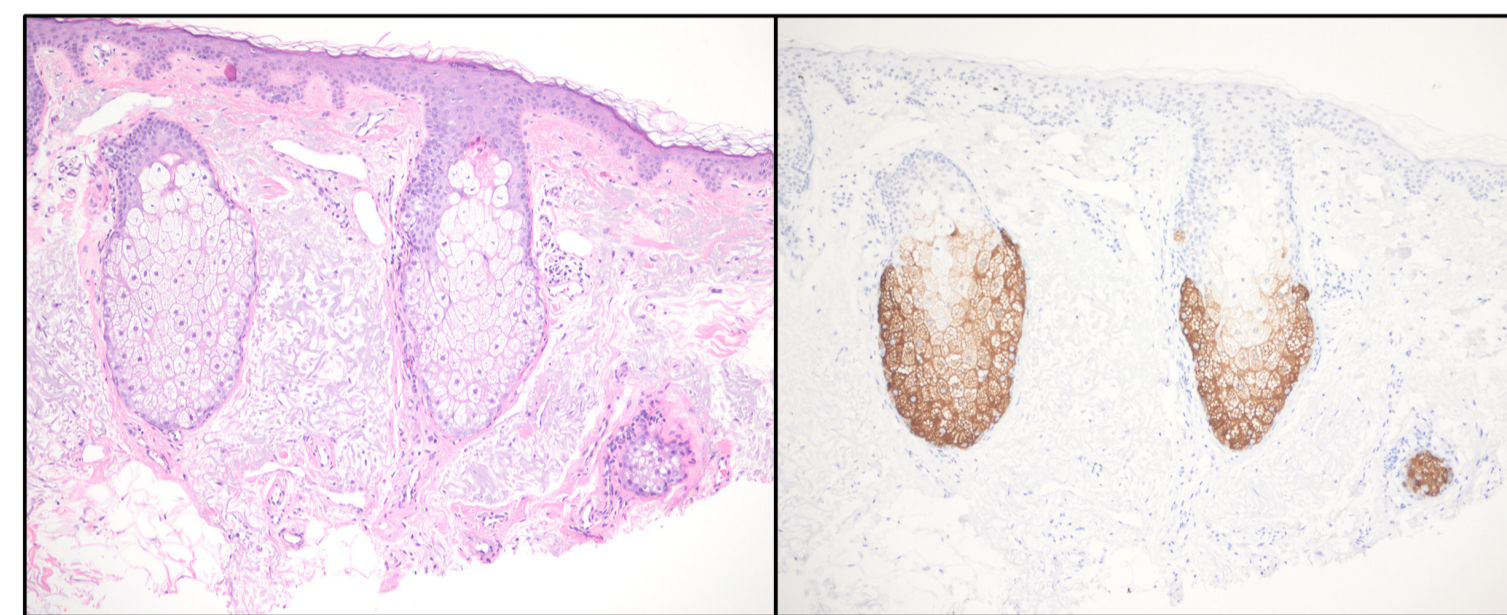


Background

- The histopathology of sebaceous carcinoma (SBC) can mimic other skin neoplasms, including basal cell carcinoma (BCC). Therefore, diagnostic biomarkers are needed for a subset of cases.
- Normal sebaceous glands express PRAME (PRAME nuclear receptor transcriptional regulator), a melanoma-associated biomarker.



Sebaceous glands (H&E stain and PRAME stain)

- Donell et al. showed that PRAME has strong immunoreactivity with basaloid sebocytes in SBC.
- Ng et al. reported patchy cytoplasmic staining in the germinative sebocytes only.

Objective

- To evaluate the utility of PRAME immunohistochemistry as a diagnostic biomarker for SBC and its usefulness in the distinction of SBC from BCC.

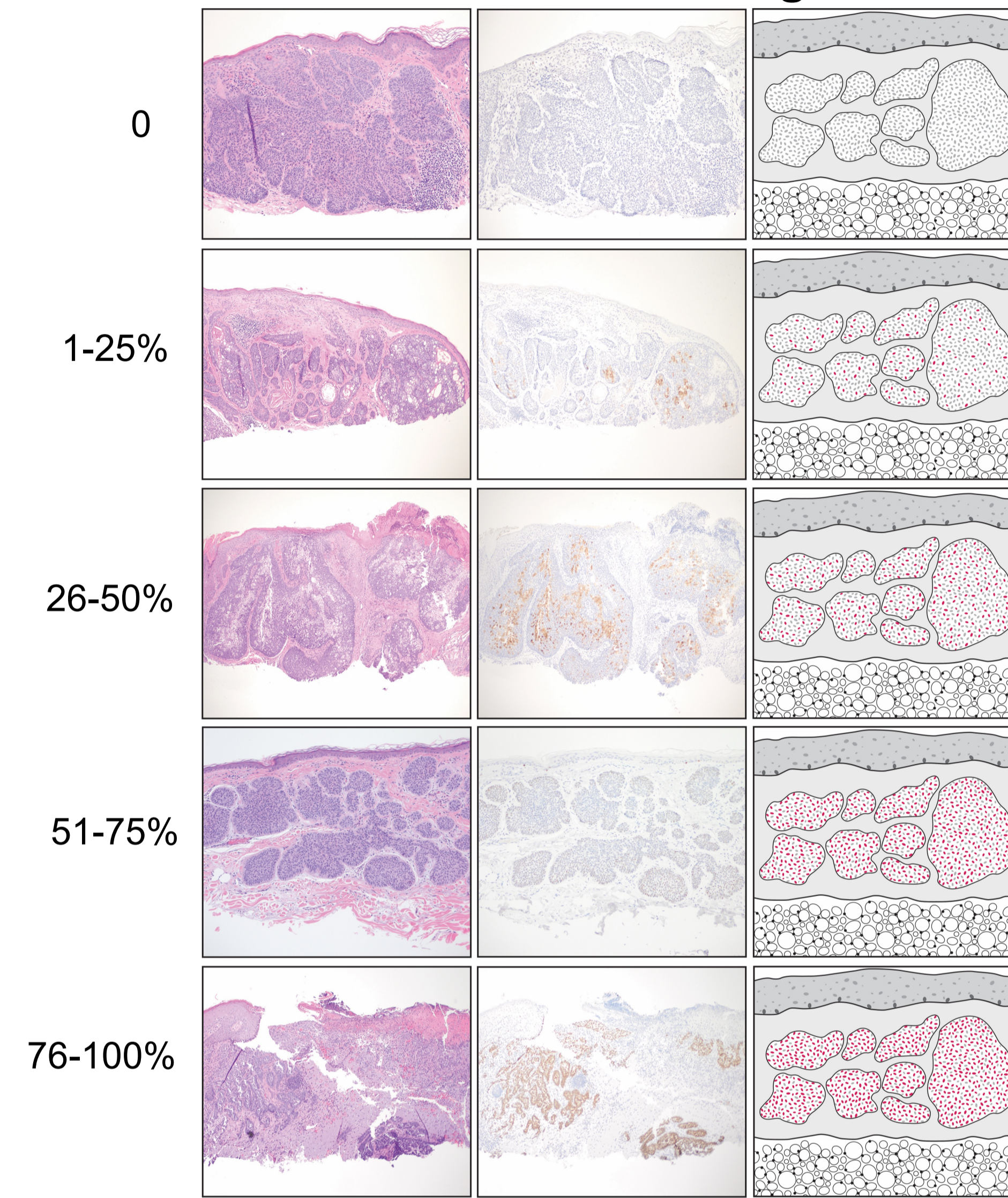
Methodology

- The institutional dermatopathology database was searched and 19 SBCs and 42 nodular BCCs were selected.
- Formalin-fixed, paraffin-embedded tissue blocks were cut and stained with H&E and PRAME antibody.
- Tumors were independently scored for PRAME expression by two authors (MFOS and MSD) using consensus scoring.
- Scores were based on the extent of staining (percent of positive cells), staining pattern (diffuse/focal/patchy), intensity (weak/moderate/strong), and subcellular location (nuclear/cytoplasmic).

Diagnosis	N	Age Median	Sex		Location		
			F	M	Head & Neck	Trunk	Extremity
Sebaceous Carcinoma	19	70 (48-90)	9	10	9	4	6
Basal Cell Carcinoma, Nodular	42	71 (44-94)	16	26	23	5	14

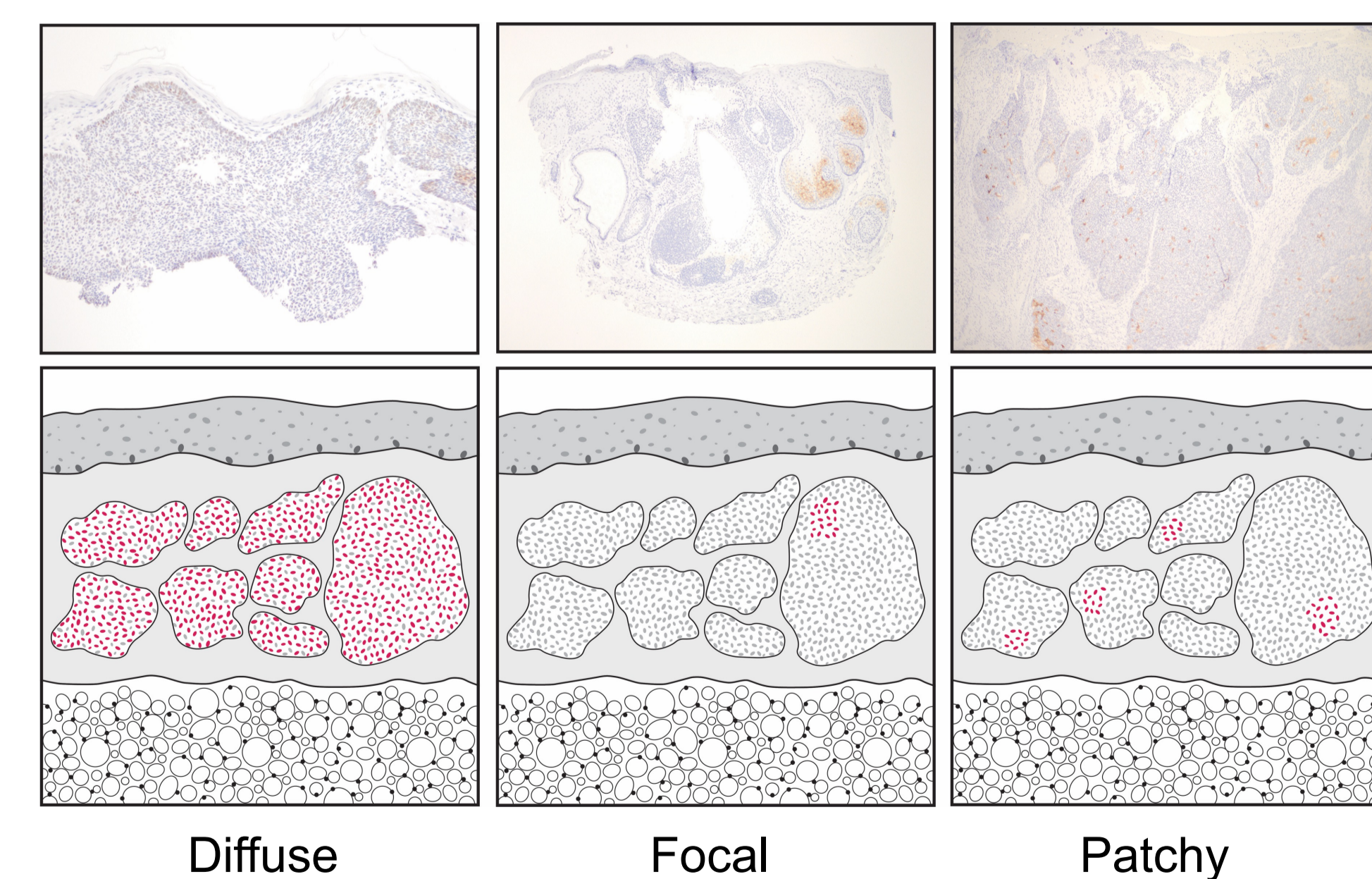
Results

Extent of Staining



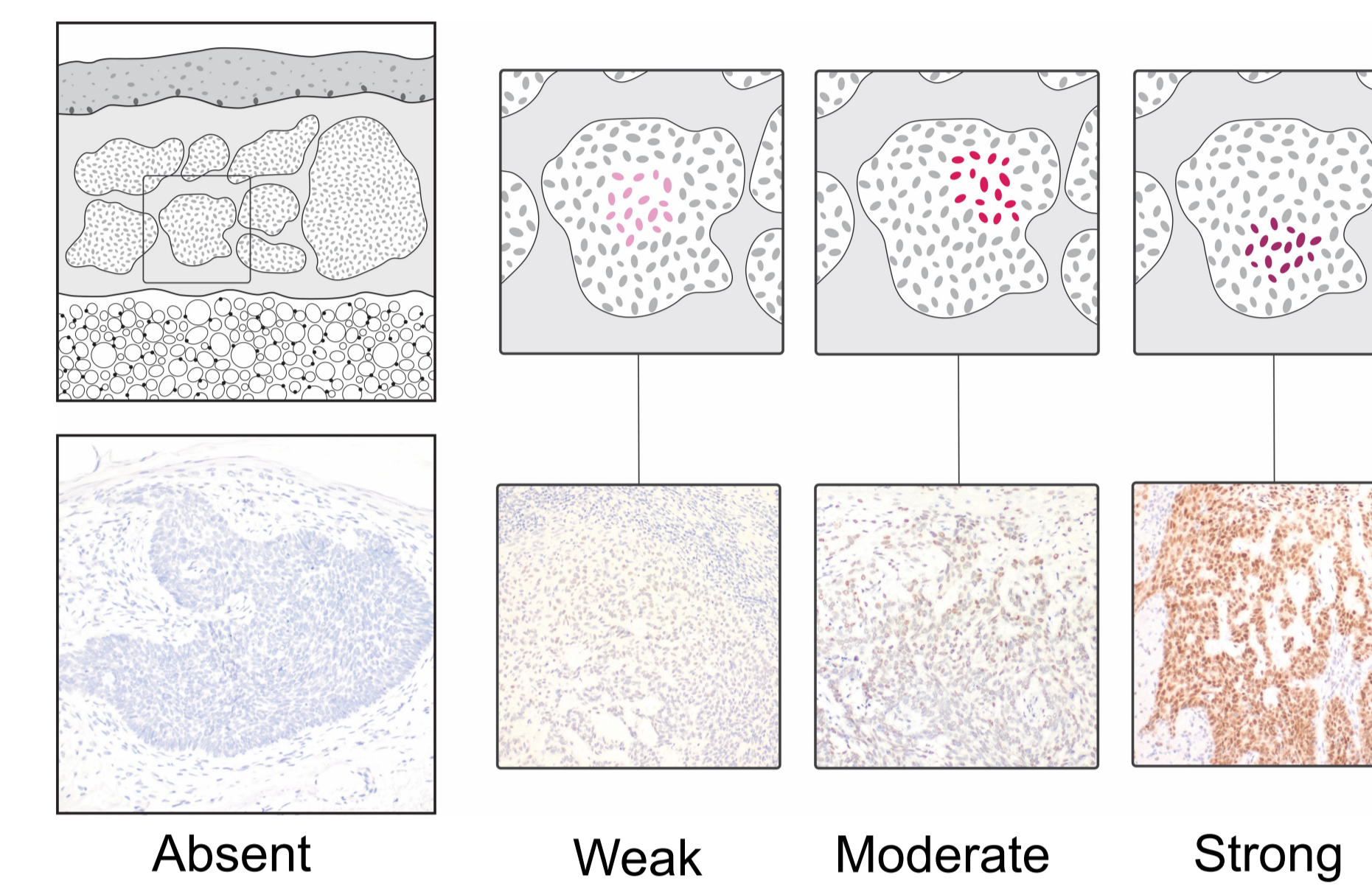
Diagnosis	0	1-25%	26-50%	51-75%	>75%	P value
Sebaceous Carcinoma	1	9	5	3	1	<.001
Basal Cell Carcinoma	27	6	2	4	3	<.001

Pattern of Staining



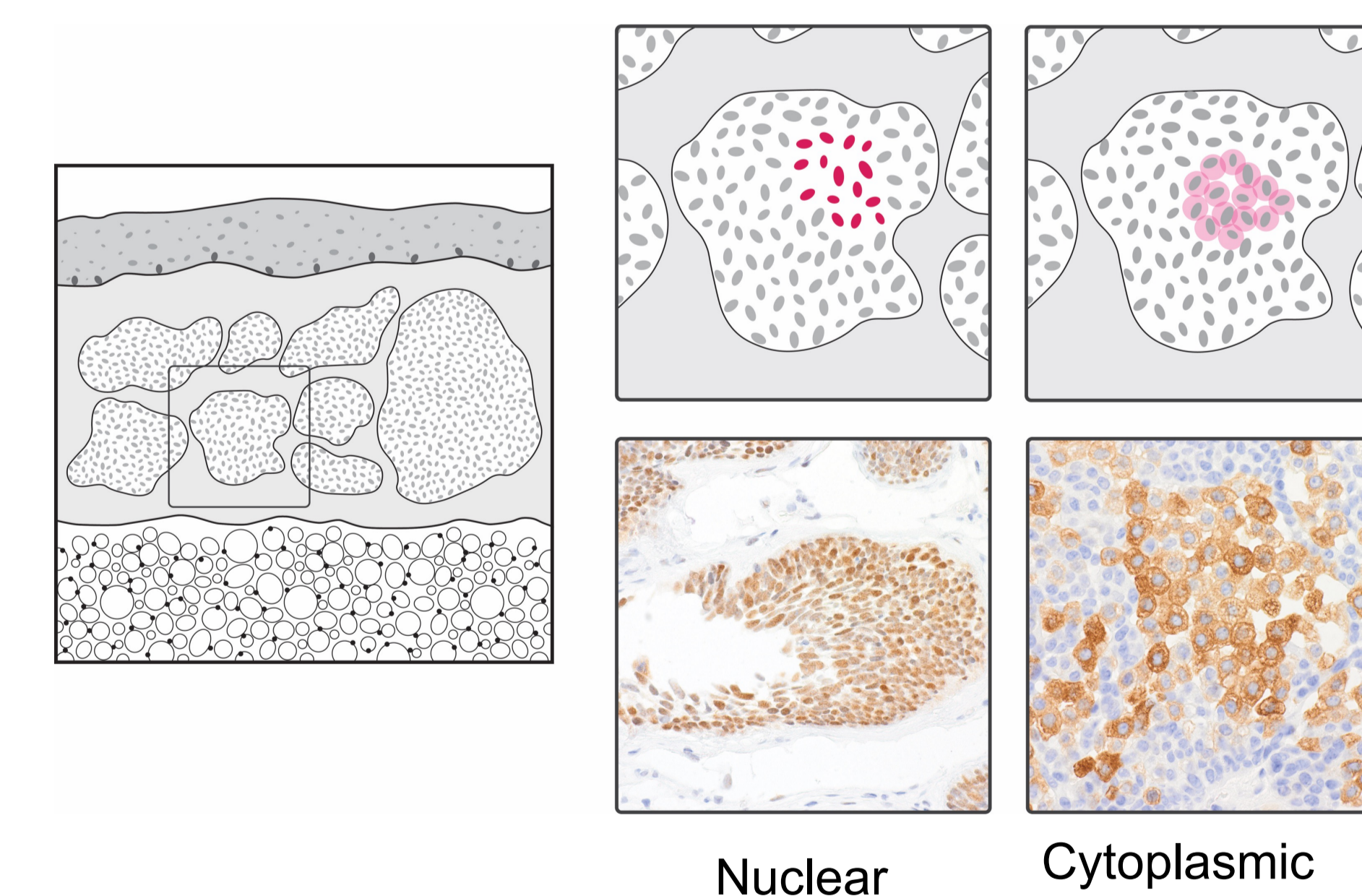
Diagnosis	Diffuse	Focal	Patchy	P value
Sebaceous Carcinoma	6	1	11	<.05
Basal Cell Carcinoma	12	1	2	<.05

Intensity of Staining



Diagnosis	Absent	Weak	Moderate	Strong	P value
Sebaceous Carcinoma	1	2	2	14	<.001
Basal Cell Carcinoma	27	8	5	2	<.001

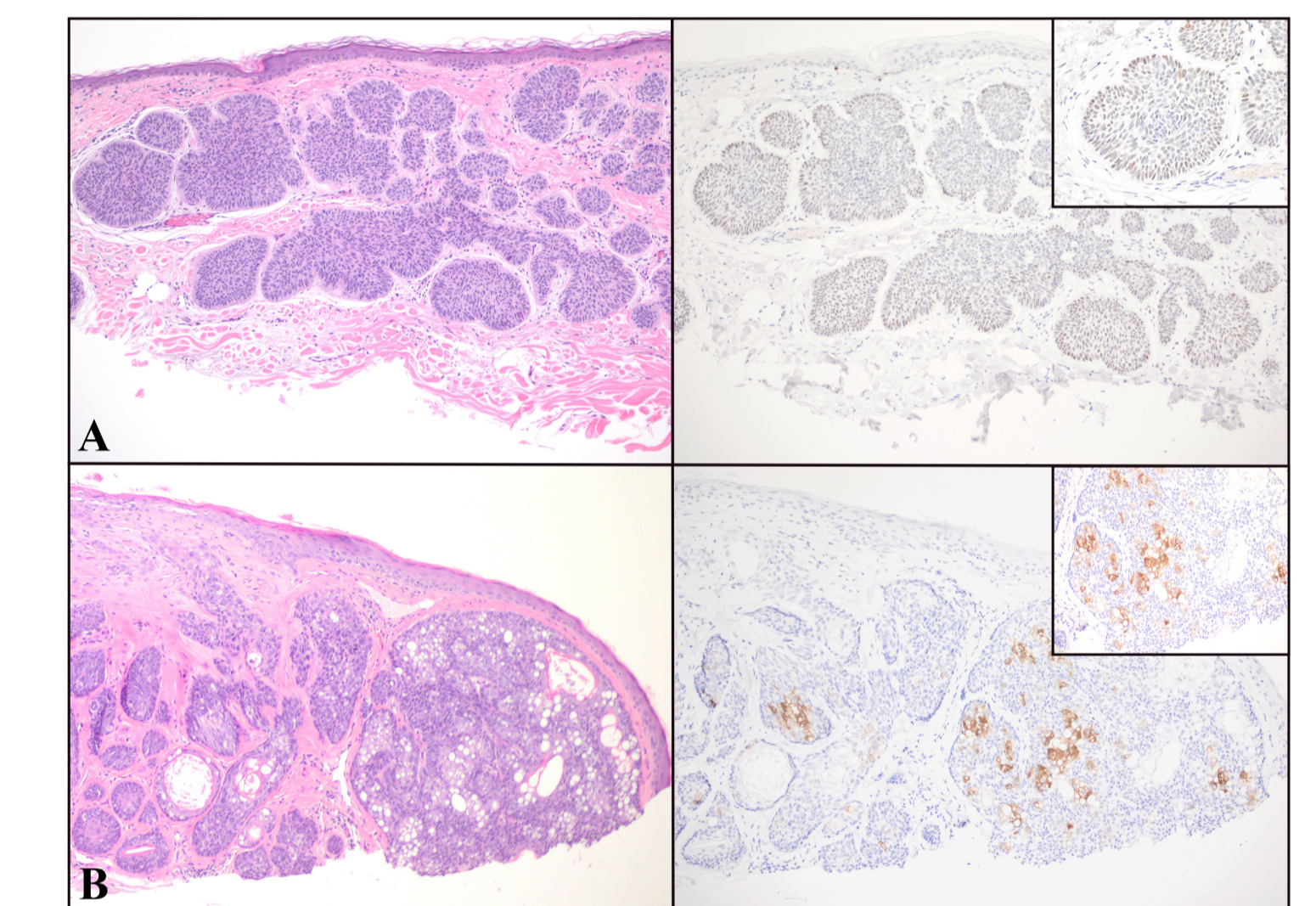
Localization of Staining



Diagnosis	Cytoplasmic	Nuclear	Both	P value
Sebaceous Carcinoma	15	3	0	<.001
Basal Cell Carcinoma	0	14	1	<.001

Conclusion

- We found significant differences in the PRAME staining characteristics of BCC and SBC.
- Most BCCs were negative for PRAME; those that were positive showed weak, diffuse, and nuclear staining pattern.
- Most SBCs were positive for PRAME and exhibited strong, patchy, and cytoplasmic staining pattern.
- PRAME highlighted the germinative/mature sebocytes.
- Takeaway: PRAME may be a useful additional test in the distinction of sebaceous carcinoma from basal cell carcinoma.**



A. Basal cell carcinoma
B. Sebaceous carcinoma

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References

- Doxanas MT, Green WR. Sebaceous Gland Carcinoma: Review of 40 Cases. *Archives of Ophthalmology*. 1984;102(2):245-249. doi:10.1001/archophth.1984.01040030195025
- Lezcano C, Jungbluth AA, Nehal KS, Hollmann TJ, Busam KJ. PRAME Expression in Melanocytic Tumors. *Am J Surg Pathol*. 2018;42(11):1456-1465. doi:10.1097/PAS.0000000000001134
- Donnell SA, LeBlanc RE, Yan S, et al. Comparison of adipophilin and recently introduced PReferentially expressed Antigen in MELanoma immunohistochemistry in the assessment of sebaceous neoplasms: A pilot study. *J Cutan Pathol*. 2021;48(10): 1252–1261. doi:10.1111/cup.14043
- Ng JKM, Choi PCL, Chow C, et al. PRAME immunostain expression in sebaceous lesions, cutaneous carcinomas and adnexal structures. *Pathology*. 2022;54(6):721-728. doi:10.1016/j.pathol.2022.03.003