WHITEPAPER

Get in the Game with PRAME - A Versatile Marker for Many Applications

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Preferentially Expressed Antigen in Melanoma (PRAME) is a protein that is encoded by the PRAME gene. This gene, originally identified to encode a novel cancer-testis antigen (CTA), is overexpressed in several melanomas and is recognized by cytolytic T lymphocytes.[1] Due to its expression profile, PRAME may be an attractive target for immunotherapy.

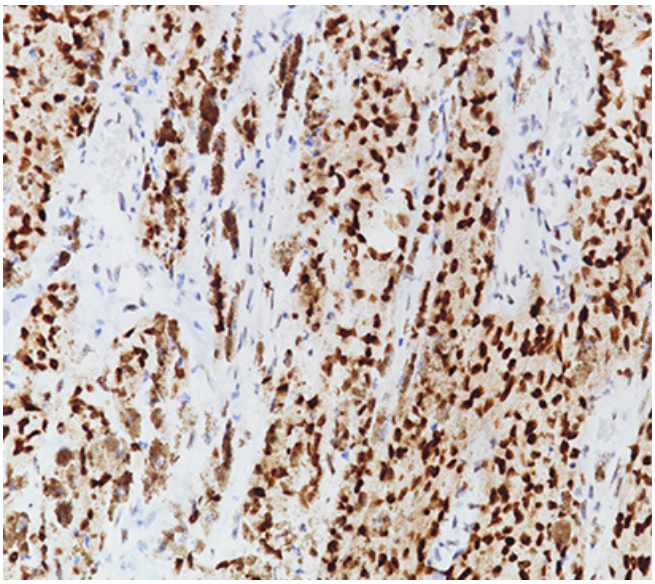
With the exceptions of testis, ovary, placenta, adrenals, and endometrium tissue, PRAME is not typically expressed in normal healthy tissue.[1] PRAME is, however, expressed in the vast majority of primary and metastatic cutaneous melanomas.

> In a study of 400 melanocytic lesions, PRAME diffusely expressed in 94.4% of acral melanomas, 92.5% of superficial spreading melanomas, 90% of nodular melanomas, 88.6% of lentigo maligna melanomas, and 35% of desmoplastic melanomas, while most melanocytic nevi (86.4%), were completely negative for PRAME.[2]

The study also suggests that immunohistochemistry (IHC) for PRAME provides a "cleaner" microscopic picture as to where a lesion ends, as PRAME usually does not stain normal melanocytes, unlike Melan-A and Sox10.[2] Due to PRAME's predominately restricted expression to cancer cells, this protein may be useful in the evaluation of margin status, particularly in cases with a lentiginous in situ component such as seen in acral and lentigo maligna melanomas.[2]

Along with metastatic melanoma, PRAME has been identified as an important biomarker for metastatic risk in class 1 uveal melanoma.[3,4] In fact, PRAME is a component of a 12-gene array prognostic assay for uveal melanoma, a 23-gene array diagnostic assay for cutaneous melanoma, and one of the 2 genes used in a noninvasive molecular assay guiding clinicians for biopsy of a melanocytic lesion.[2]

Unlike other CTA's, PRAME is also expressed in acute leukemias and serves as both a useful prognostic marker in acute leukemias and solid tumors.[5] This protein is identified in various nonmelanocytic malignant neoplasms, such as non-small cell lung cancer, renal cell carcinoma, ovarian carcinoma, synovial sarcoma, myxoid liposarcoma, and breast carcinoma.[2] In triple negative breast cancer, PRAME overexpression has been found to promote cancer cell motility through induction of the epithelial-to-mesenchymal transition and is, therefore, correlated with a worse survival, further supporting its clinical value as a prognostic biomarker and/or therapeutic target in cancer.[6]



Melanoma stained with PRAME [EPR20330]

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1. Fulton, J, Heery, D. PRAME (Preferentially Expressed Antigen In Melanoma). Atlas of Genetics and Cytogenetics in Oncology and Haematology.
2. Lezcano, C *et al.* PRAME Expression in Melanocytic Tumors. Am J Surg Pathol. 2018 Nov; 42(11): 1456–1465.
3. Field MG, Decatur CL, Kurtenbach S, *et al.* PRAME as an independent biomarker for metastasis in uveal melanoma. Clin Cancer Res. 2016;22:1234–1242.
4. Field MG, Durante MA, Decatur CL, *et al.* Epigenetic reprogramming and aberrant expression of PRAME are associated with increased metastatic risk in Class 1 and Class 2 uveal melanomas. Oncotarget. 2016;7:59209–59219.
5. Wadelin, F *et al.* Leucine-rich repeat protein PRAME: expression, potential functions and clinical implications for leukaemia. Mol Cancer. 2010; 9: 226.
6. Al-Khadairi, G., Naik, A., Thomas, R. *et al.* PRAME promotes epithelial-to-mesenchymal transition in triple negative breast cancer. J Transl Med 17, 9 (2019).