WHITEPAPER

Melanoma Markers: BRAF V600E

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Melanoma is a type of skin cancer that can potentially be lethal if not effectively detected and treated. However, differentiation between a cancerous melanoma growth and an ambiguous benign skin nevi poses a visual challenge, necessitating the use of histological staining procedures for definitive diagnosis.[6]

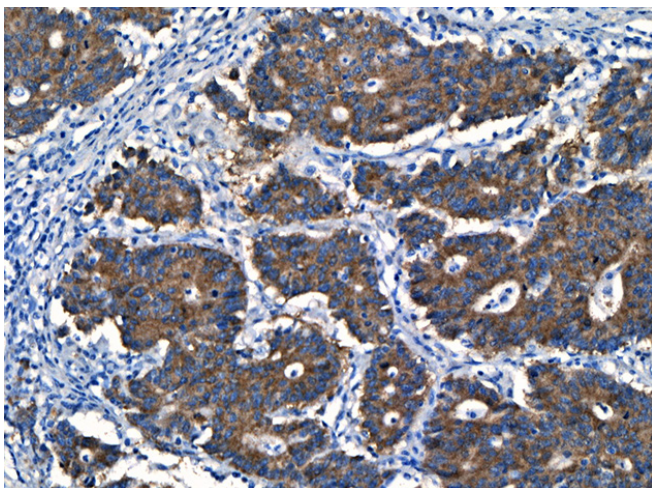
Cutaneous melanoma has one of the highest mutational rates among all solid tumor types, expressing mutations involved in cell cycle regulation, proliferation, and programmed cell death.[4] One such gene known to be implicated in melanoma neoplasms is the gene BRAF.[4]

BRAF is a gene that encodes a protein, also called BRAF, which plays a key role in regulating cell proliferation, differentiation, and survival.[1] When the BRAF gene mutates to become hyperactive, unregulated malignant cell growth can occur.[1] Studies have found BRAF mutations to be present in more than 50% of melanomas.[1,6] In more than 90% of these mutations, the BRAF mutation has been a particular substitution mutation in codon 600 where the codon for valine (V) is swapped with the codon for glutamic acid (E), giving it the name V600E.[2,5] Clinically, BRAF mutations are most commonly found in melanoma patients who do not have chronic sun-induced damage.[2]

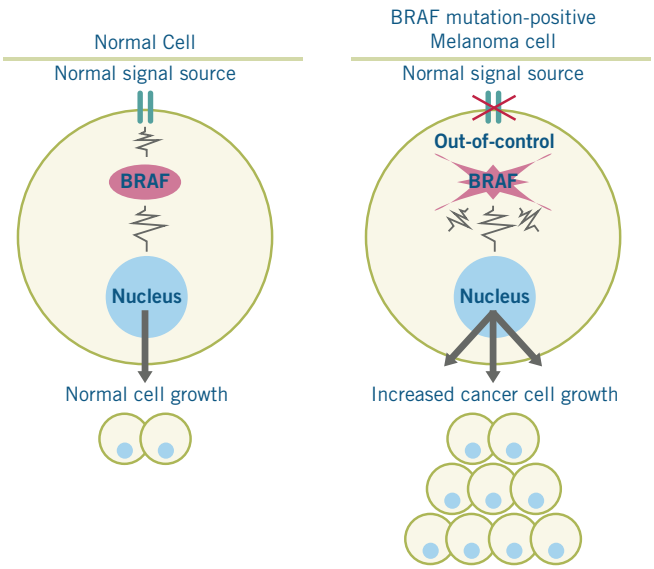
Anti-BRAF V600E antibodies are developed to be specific for the mutated BRAF protein resulting from the BRAF V600E gene mutation.[3] Studies have found BRAF V600E immunostaining to be highly sensitive and highly specific for the BRAF V600E mutation.[3] The identification and detection of BRAF V600E mutation has opened the door for targeted therapies and improved patient outcomes.[4]

In melanoma cases where overactive mutated BRAF is found, BRAF inhibitors may be administered as a targeted therapeutic cancer treatment.[4] Multiple targeted therapies such as vemurafenib, dabrafenib, and encorafenib have been approved by the FDA as BRAF inhibitors.[1]

BRAF Stains and Illustrations



Colon ca stained with BRAF V600E [VE1] antibody



To learn more about Biocare's BRAFV600E antibody offerings, please visit our website at biocare.net or call our technical support team at 1-800-799-9499, Option 3.

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