WHITEPAPER

Meet the Marker: p27 KIP1

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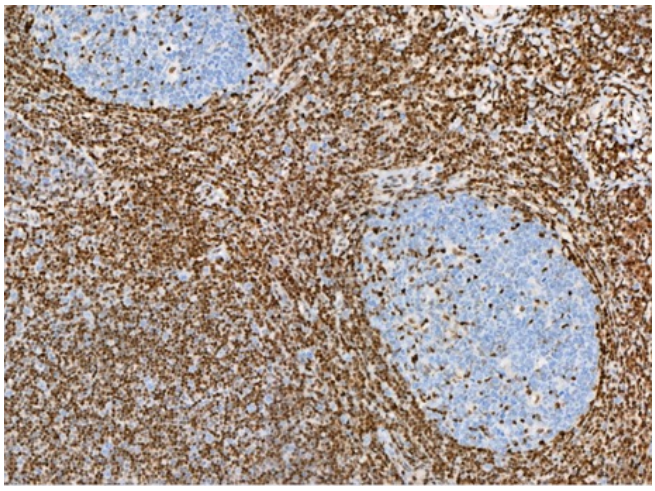
p27 KIP1 (also known as cyclin-dependent kinase inhibitor 1B or CDKN1B) is a protein found in the nuclei of cells throughout the body's tissues where it plays a crucial role in regulating the cell cycle.[1,6] Specifically, p27 acts as a brake on cell cycle progression, preventing cells from dividing too quickly or at the wrong time.[1,6] Human cancers are a result of dysregulation in the cell growth cycle resulting in unchecked growth, and so this braking function makes p27 act as a tumor suppressor.[1] Therefore, levels of p27 expression in a clinical patient sample may give clues about their disease state and prognosis.

When p27 expression is diminished, cellular proliferation becomes uncontrolled and exaggerated.[1] Loss or reduced expression of p27 has been observed in various types of cancer, including breast, lung, prostate, colorectal, endometrial, and pancreatic cancers.[1,4,7] This decreased expression has been associated with more aggressive tumor behavior, increased metastasis, and poorer prognosis. p27 has been clearly identified as an indicator of poor prognosis and decreased survival in breast and colon cancers in particular.[2,7] In breast cancer, tumors with low levels of p27 have been found to have higher levels of cyclin E.[2] However, decreased p27 expression does not seem to clearly correlate with gene mutation, as the p27 gene has not been found to be mutated in most human tumors.[7]

In some cases, p27 IHC may be used to assess the response to cancer treatment. Some anticancer therapies, such as certain chemotherapeutic agents, target cell cycle regulation pathways, and so monitoring the expression of p27 during treatment mayv provide insights into the effectiveness of these therapies.[8] For example, an increase in p27 expression following treatment may indicate a positive response, while persistent low expression may suggest resistance or disease progression.[8] This information may potentially help guide treatment decisions.

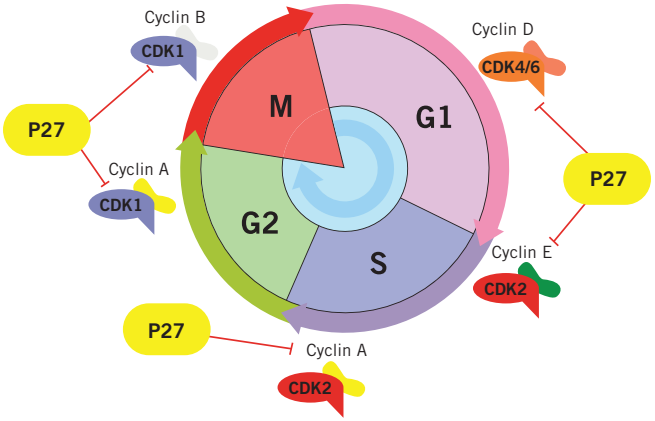
More recently, p27 has been investigated as a regulator in endometriosis, a condition characterized by the presence of endometrial-like tissue growths outside the uterus.[5] Studies have shown decreased p27 expression in endometriotic lesions, suggesting a potential role in the pathogenesis of the disease.[5]

p27 KIP1 Stains and Illustrations



Tonsil stained with p27 KIP1 [Y236] antibody

Cell Cycle



To learn more about Biocare's offerings for p27 KIP1, please visit our website at biocare.net or call 1-800-799-9499 Option 3.

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