Technical Data Sheet

Purified Mouse Anti-p21

Product Information

Material Number: 556431
Size: 0.1 mg
Concentration: 0.5 mg/ml
Clone: SXM30
Immunogen: Human p21
Isotype: Mouse IgG1, κ
Reactivity: QC Testing: Human
Tested in Development: Mouse, Rat
Target MW: 21 kDa
Storage Buffer: Aqueous buffered solution containing ≤0.09% sodium azide.

Description

Cyclins and cyclin-dependent kinases (cdks) are evolutionarily conserved proteins that are essential for cell-cycle control in eukaryotes. Cyclins (regulatory subunits) bind to cdks (catalytic subunits) to form complexes that regulate the progression of the cell cycle. The activity of these complexes is modulated by activating and inhibitory phosphorylation events, as well as by interactions with small regulatory proteins including, p16, p21, p27, and others. These proteins, referred to as inhibitors of Cdk activity (CdkIs), bind to cyclins, cdks or their complexes. p21, also known as senescent cell-derived inhibitor 1 (Sdi1), wild-type p53-activated fragment 1 (Waf1), Cdk-interacting protein 1 (Cip1), and p53-regulated inhibitor of cdks (Pic1) inhibits cyclin D-cdk4, cyclin E-cdk3, cyclin A-cdk2, and cyclin A-cdk1. p21 can also inhibit cell cycle progression by binding to PCNA and blocking DNA replication. p21 has also been shown to be a component of active cyclin-cdk complexes, suggesting that p21-containing complexes may shift between active and inactive states through changes in p21 content. Active, p21-containing complexes appear to contain one p21 molecule, whereas inactive complexes contain multiple p21 molecules. The expression of p21 can be induced in response to number of signals, including transcriptional upregulation by the tumor suppressor protein, p53. Human p21 has a calculated molecular weight of 18 kDa and runs at 21 kDa in SDS-PAGE.

Clone SXM30 reacts with human, rat, and mouse p21. With regard to cross-species recognition, SXM30 has similar properties to a related p21 clone, SX118. Purified, recombinant human p21-fusion protein was used as immunogen.

Preparation and Storage

Store undiluted at 4°C.
The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

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Anti-human p21, Cat. No. 556431. Formalin-fixed, paraffin-embedded tissue section of human colon was stained with anti-p21 (clone SXM30), followed by a DAB chromogen detection system, then counter stained with Hematoxylin. Antigen retrieval using BD Pharmingen™ Retrievagen A Buffer Set (Cat. No. 550524) is required. Positive staining can be identified as the intensified brown labeling.
Application Notes

Recommended Assay Procedure:
Clone SX118.3 and SX118.4 can be used for immunoprecipitation (1-2 µg/1x10^6 cells), western blot analysis (1-2 µg/ml), indirect immunofluorescence microscopy of tissue cultured cells, immunohistochemistry of frozen, acetone-fixed tissue sections (1-5 µg/ml), and paraffin-embedded tissue sections requiring antigen retrieval (20 µg/ml). These applications are similar to that described for a related p21 clone, SX118.3. MCF-7 human breast carcinoma cells (ATCC HTB-22), HL-60 human leukemia cells (ATCC CCL-240), and EL4 mouse lymphoma cells (ATCC TIB-39) are suggested as positive controls. In immunohistochemistry, SX118 staining is primarily nuclear. Colon and colon are suggested as positive controls for tissue staining. To obtain optimal immunohistochemical staining, clone SX118 should be titrated at 10-20 µg/ml and visualized via a three-step staining procedure in combination with a biotinylated polyclonal anti-mouse Ig (Cat. No. 550337, multiple absorptions) as the secondary antibody and Streptavidin-HRP (Cat. No. 550946) together with the DAB chromogen detection system (Cat. No. 550880).

Refer to Fredersdorf et al., for information regarding induction of p21 expression, and for p21 distribution in different types of human tissues.

Suggested Companion Products

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<th>Catalog Number</th>
<th>Name</th>
<th>Size</th>
<th>Clone</th>
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<td>554002</td>
<td>HRP Goat Anti-Mouse Ig</td>
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<tr>
<td>550524</td>
<td>Retrievagen A (pH 6.0)</td>
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<td>550946</td>
<td>Streptavidin HRP</td>
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<tr>
<td>550880</td>
<td>DAB Substrate Kit</td>
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<td>551011</td>
<td>Anti-Mouse Ig HRP Detection Kit</td>
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<td>550878</td>
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<td>MOPC-31C</td>
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<td>559148</td>
<td>Antibody Diluent for IHC</td>
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<td>556430</td>
<td>Purified Mouse Anti-p21</td>
<td>0.1 mg</td>
<td>SX118</td>
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<td>550337</td>
<td>Biotin Goat Anti-Mouse Ig (Multiple Adsorption)</td>
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<td>Polyclonal</td>
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</table>

Product Notices
1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.

References