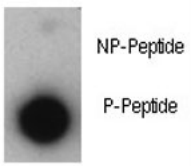
Phospho-p21 T57 Antibody / CDKN1A Phospho-Thr57 Antibody (F48425)

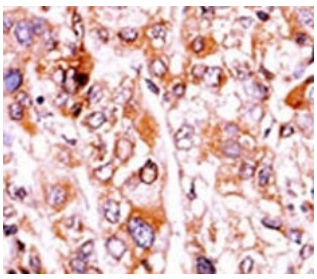
Catalog No.	Formulation	Size
F48425-0.4ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.4 ml
F48425-0.08ML	In 1X PBS, pH 7.4, with 0.09% sodium azide	0.08 ml

Bulk quote request

Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit Ig
Purity	Antigen affinity
UniProt	P38936
Applications	Dot blot: 1:500 IHC (Paraffin): 1:50-1:100
Limitations	This Phospho-p21 T57 Antibody / CDKN1A Phospho-Thr57 Antibody is available for research use only.



Dot blot analysis of Phospho-p21 T57 Antibody. 50ng of phos-peptide or nonphos-peptide per dot were spotted.



IHC analysis of FFPE human hepatocarcinoma tissue stained with the phosphorylated-p21 antibody.

Description

Phospho-p21 T57 Antibody / CDKN1A Phospho-Thr57 Antibody recognizes p21 phosphorylated at threonine 57, a regulatory modification implicated in cyclin-dependent kinase signaling and cell cycle progression. Encoded by CDKN1A, p21 is also known as WAF1 and CIP1 and belongs to the CIP/KIP family of cyclin-dependent kinase inhibitors. The protein regulates proliferation through interactions with cyclin-CDK complexes and proliferating cell nuclear antigen (PCNA). Phosphorylation at Thr57 provides an additional mechanism for modifying these interactions and coordinating cell cycle activity.

CDKN1A is a major transcriptional target of the tumor suppressor p53. Following DNA damage, activated p53 can increase p21 expression, inhibiting cyclin-dependent kinase activity and promoting cell cycle arrest. This response allows additional time for DNA repair before replication continues. However, p21 expression is also regulated independently of p53 through pathways associated with growth factors, differentiation, and cellular stress. Post-translational modifications further influence its stability, localization, and interactions with regulatory proteins.

Thr57 lies within the N-terminal CDK-binding region of p21. Published research has identified CDK2 as an important contributor to p21 phosphorylation during the G2/M transition. Phosphorylation at Thr57 promotes interactions between p21 and cyclin B1, facilitating assembly and activation of cyclin B1-CDK1 complexes. Experimental replacement of Thr57 with alanine impaired these interactions and delayed efficient CDK1 activation. These findings demonstrate that p21 can contribute positively to cell cycle progression under certain conditions, despite its established inhibitory functions during earlier phases.

Additional studies have implicated other kinases in Thr57 phosphorylation. Glycogen synthase kinase 3 (GSK3) has been reported to phosphorylate this residue in experimental systems, influencing p21 stability and degradation. ERK2-mediated phosphorylation at Thr57 and Ser130 has also been associated with cytoplasmic redistribution and ubiquitin-dependent degradation of p21. These observations indicate that the consequences of Thr57 phosphorylation depend on the responsible kinase, accompanying modifications, and cellular context.

Understanding site-specific p21 phosphorylation is relevant to cancer biology because CDKN1A participates in checkpoint regulation, cellular senescence, and responses to proliferative signaling. Changes in Thr57 phosphorylation may influence the balance between cell cycle inhibition, mitotic progression, and protein turnover. NSJ Bioreagents offers this Phospho-p21 T57 Antibody to support investigations into CDKN1A phosphorylation and the molecular mechanisms connecting kinase signaling with cell cycle regulation.

For additional research into CDKN1A-mediated cell cycle regulation and DNA damage responses, explore our p21 Antibody (V2431), featuring clone DCS-60.2.

Application Notes

Titration of the Phospho-p21 T57 Antibody / CDKN1A Phospho-Thr57 Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

This phosphorylated-p21 antibody was produced from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding pT57 of human P21CIP1.

Storage

Aliquot the phosphorylated-p21 antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

Phospho-CDKN1A Thr57 antibody, p21 CIP1 pT57 antibody, p21 WAF1 pT57 antibody, Phosphorylated p21 Thr57 antibody

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