**SUMO1 Monoclonal Antibody (21C7)**

**Catalog Number** 33-2400

**Product data sheet**

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>100 µg</td>
</tr>
<tr>
<td><strong>Host/Isotope</strong></td>
<td>Mouse / IgG1, kappa</td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>Monoclonal</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>Antibody</td>
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<tr>
<td><strong>Clone</strong></td>
<td>21C7</td>
</tr>
<tr>
<td><strong>Immunogen</strong></td>
<td>Full length recombinant GMP-1</td>
</tr>
<tr>
<td><strong>Conjugate</strong></td>
<td>Unconjugated</td>
</tr>
<tr>
<td><strong>Form</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Concentration</strong></td>
<td>0.5 mg/mL</td>
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<tr>
<td><strong>Storage buffer</strong></td>
<td>PBS, pH 7.4</td>
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<tr>
<td><strong>Contains</strong></td>
<td>0.1% sodium azide</td>
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<tr>
<td><strong>Storage Conditions</strong></td>
<td>-20°C</td>
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</table>

<table>
<thead>
<tr>
<th>Species Reactivity</th>
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</tr>
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<tbody>
<tr>
<td><strong>Species reactivity</strong></td>
<td>Human, Mouse, Rat</td>
</tr>
<tr>
<td><strong>Published species</strong></td>
<td>Mink, Rat, Non-human primate, Hamster, Mouse, Human, Not Applicable, Rhesus monkey, Xenopus</td>
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<table>
<thead>
<tr>
<th>Tested Applications</th>
<th>Dilution *</th>
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</thead>
<tbody>
<tr>
<td><strong>ELISA (ELISA)</strong></td>
<td>0.1-1.0 µg/mL</td>
</tr>
<tr>
<td><strong>Immunohistochemistry (IHC)</strong></td>
<td>Assay-dependent</td>
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<tr>
<td><strong>Western Blot (WB)</strong></td>
<td>1-3 µg/mL</td>
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<table>
<thead>
<tr>
<th>Published Applications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Western Blot (WB)</strong></td>
<td>See 45 publications below</td>
</tr>
<tr>
<td><strong>in situ PLA (PLA)</strong></td>
<td>See 1 publications below</td>
</tr>
<tr>
<td><strong>Immunoprecipitation (IP)</strong></td>
<td>See 10 publications below</td>
</tr>
<tr>
<td><strong>Immunocytchemistry (ICC/IF)</strong></td>
<td>See 20 publications below</td>
</tr>
<tr>
<td><strong>Immunohistochemistry (IHC)</strong></td>
<td>See 7 publications below</td>
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<tr>
<td><strong>Immunohistochemistry (Paraffin) (IHC (P))</strong></td>
<td>See 1 publications below</td>
</tr>
<tr>
<td><strong>ELISA (ELISA)</strong></td>
<td>See 1 publications below</td>
</tr>
<tr>
<td><strong>Miscellaneous PubMed (Misc)</strong></td>
<td>See 17 publications below</td>
</tr>
<tr>
<td><strong>Gel Shift (GS)</strong></td>
<td>See 1 publications below</td>
</tr>
</tbody>
</table>

* Suggested working dilutions are given as a guide only. It is recommended that the user titrate the product for use in their own experiment using appropriate negative and positive controls.

**Product specific information**

This monoclonal antibody can be used to specifically detect the unconjugated (~17 kDa) form of SUMO-1/GMP-1, as well as proteins covalently ligated to GMP-1 (e.g., RanGAP-1). Lysates tested: Rat liver nuclear envelopes, total lysates derived from NIH 3T3 and HeLa cells.

**Background/Target Information**

SUMO1 is an ubiquitin-like protein that can be covalently attached to proteins as a monomer or a lysine-linked polymer. Covalent attachment, via an isopeptide bond, to its substrates requires prior activation by the E1 complex SAE1-SE2 and linkage to the E2 enzyme UBE2I, and can be promoted by E3 ligases such as Pias1-4, RanBP2 or Cbx4. This post-translational modification on lysine residues of proteins plays a crucial role in a number of cellular processes such as nuclear transport, DNA replication and repair, mitosis and signal transduction. SUMO1 is involved, for instance, in targeting RANGAP1 to the nuclear pore complex protein RANBP2. Polymeric SUMO1 chains are also susceptible to polyubiquitination which functions as a signal for proteasomal degradation of modified proteins. SUMO1 may also regulate a network of genes involved in palate development. Mutations in the gene can result in non-syndromic orofacial cleft 10.

SUMO1 Antibody (33-2400) in WB

Western blot analysis of GMP-1 modified RanGAP-1 (90kDa) protein in rat liver nuclei using Ms x GMP-1.
<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
</tr>
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<tbody>
<tr>
<td>Not Applicable / Not Cited</td>
<td>33-2400 was used in western blot to elucidate how p14ARF alterations contribute to susceptibility to cutaneous melanoma</td>
</tr>
<tr>
<td></td>
<td>Cell cycle (Georgetown, Tex.) (Apr 2005; 4; 597)</td>
</tr>
<tr>
<td></td>
<td>“p14ARF Interacts with the SUMO-conjugating enzyme Ubc9 and promotes the sumoylation of its binding partners.”</td>
</tr>
<tr>
<td></td>
<td>Author(s): Rizos H, Woodruff S, Kerford RF</td>
</tr>
<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.4161/cc.4.4.1597">http://dx.doi.org/10.4161/cc.4.4.1597</a></td>
</tr>
<tr>
<td>Human / Not Cited</td>
<td>33-2400 was used in western blot to study the effect of SUMOylation on chromatin occupancy and anti-proliferative gene programs of glucocorticoid receptor</td>
</tr>
<tr>
<td></td>
<td>Nucleic acids research (Feb 2014; 42; 1575)</td>
</tr>
<tr>
<td></td>
<td>“SUMOylation regulates the chromatin occupancy and anti-proliferative gene programs of glucocorticoid receptor.”</td>
</tr>
<tr>
<td></td>
<td>Author(s): Paakinnaho V, Kalkkonen S, Makkonen H, Benes V, Palvimo JJ</td>
</tr>
<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1093/nar/gkt1033">http://dx.doi.org/10.1093/nar/gkt1033</a></td>
</tr>
<tr>
<td>Not Applicable / Not Cited</td>
<td>33-2400 was used in western blot to report that E1B-55K stimulates the post-translational modification of p53 by SUMOylation</td>
</tr>
<tr>
<td></td>
<td>Cell cycle (Georgetown, Tex.) (Mar 2008; 7; 754)</td>
</tr>
<tr>
<td></td>
<td>“The adenovirus E1B-55K oncoprotein induces SUMO modification of p53.”</td>
</tr>
<tr>
<td></td>
<td>Author(s): Muller S, Dobner T</td>
</tr>
<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.4161/cc.7.6.5495">http://dx.doi.org/10.4161/cc.7.6.5495</a></td>
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<tr>
<td>Human / Not Cited</td>
<td>33-2400 was used in western blot to determine the post-translational modifications that regulate KDM5B.</td>
</tr>
<tr>
<td></td>
<td>Epigenetics (Nov 2013; 8; 1162)</td>
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<tr>
<td></td>
<td>“SUMOylation negatively modulates target gene occupancy of the KDM5B, a histone lysine demethylase.”</td>
</tr>
<tr>
<td></td>
<td>Author(s): Bueno MT, Richard S</td>
</tr>
<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.4161/epi.26112">http://dx.doi.org/10.4161/epi.26112</a></td>
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<tr>
<td>Human / Not Cited</td>
<td>33-2400 was used in Western Blotting to study a mechanism for interfering with the SUMO pathway.</td>
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<tr>
<td></td>
<td>Molecular cell (Nov 2004; 16; 549)</td>
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<tr>
<td></td>
<td>“A mechanism for inhibiting the SUMO pathway.”</td>
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<tr>
<td></td>
<td>Author(s): Boggio R, Colombo R, Hay RT, Draetta G, Chiocca S</td>
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<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1016/j.molcel.2004.11.007">http://dx.doi.org/10.1016/j.molcel.2004.11.007</a></td>
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<tr>
<td>Human / Not Cited</td>
<td>33-2400 was used in Western Blot to investigate if small ubiquitin-like modifier-1-dependent regulatory mechanism of oligodendrocyte transcription factor 2 in regulating cancer survival exists.</td>
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<td>Cell death and differentiation (Nov 2020; 27; 3146)</td>
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<td></td>
<td>“Olig2 SUMOylation protects against genotoxic damage response by antagonizing p53 gene targeting.”</td>
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<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1038/s41418-020-0569-1">http://dx.doi.org/10.1038/s41418-020-0569-1</a></td>
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<tr>
<td>Human / Not Cited</td>
<td>33-2400 was used in Western Blotting to indicate that glucocorticoid receptor SUMOylation modifies the glucocorticoid signaling during acute cell stress.</td>
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<tr>
<td></td>
<td>Molecular and cellular biology (Sep 2014; 34; 3202)</td>
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<td></td>
<td>“Electrophilic lipid mediator 15-deoxy-12,14-prostaglandin j2 modifies glucocorticoid signaling via receptor SUMOylation.”</td>
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<tr>
<td></td>
<td>Author(s): Paakinnaho V, Kalkkonen S, Levonen AL, Palvimo JJ</td>
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<td>PubMed Article URL: <a href="http://dx.doi.org/10.1128/MCB.00748-14">http://dx.doi.org/10.1128/MCB.00748-14</a></td>
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<td>Human / Not Cited</td>
<td>33-2400 was used in Western Blotting to report that K11 of SUMO2/3 undergoes reversible acetylation with SIRT1 being the K11 deacetylase.</td>
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<td>EMBO reports (Nov 2018; 19; )</td>
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<td></td>
<td>“Acetylation of SUMO2 at lysine 11 favors the formation of non-canonical SUMO chains.”</td>
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<tr>
<td></td>
<td>Author(s): Gärtnert A, Wagner K, Höller S, Kunz K, Rodriguez MS, Müller S</td>
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<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.15252/embr.201846117">http://dx.doi.org/10.15252/embr.201846117</a></td>
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<td>Human / Not Cited</td>
<td>332400 was used in western blot to discover SUMO-paralog-specific conjugation of HDAC1</td>
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<tr>
<td></td>
<td>Methods in molecular biology (Clifton, N.J.) (Jan 2018; 1510; 329)</td>
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<tr>
<td></td>
<td>“Assessing the Role of Paralog-Specific Sumoylation of HDAC1.”</td>
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<tr>
<td></td>
<td>Author(s): Citro S, Chiocca S</td>
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<tr>
<td></td>
<td>PubMed Article URL: <a href="http://dx.doi.org/10.1007/978-1-4939-6527-4_24">http://dx.doi.org/10.1007/978-1-4939-6527-4_24</a></td>
</tr>
</tbody>
</table>
33-2400 was used in western blot to show that the gamma 1 isoform of PLC associates with nuclear promyelocytic leukemia

"Nuclear phospholipase C gamma: punctate distribution and association with the promyelocytic leukemia protein."
Author(s): Ferguson BJ, Dovey CL, Lilley K, Wuille AH, Rich T
PubMed Article URL:http://dx.doi.org/10.1021/pr060684v

33-2400 was used in Western blotting to provide novel insight into the mechanism underlying SUMOylation-regulated tumor growth in UM.

Cancer science (Feb 2022; 113: 622)
"SUMOylation regulates Rb hyperphosphorylation and inactivation in uveal melanoma."
Author(s): Meng F, Yuan Y, Ren H, Yue H, Xu B, Qian J
PubMed Article URL:http://dx.doi.org/10.1111/cas.15223

33-2400 was used in immunoprecipitation and western blot to report that repression by Net's NID involves sumoylation by Ubc9 and Pias1

Oncogene (Jan 2005; 24: 820)
"Sumoylation of the net inhibitory domain (NID) is stimulated by Pias1 and has a negative effect on the transcriptional activity of Net."
Author(s): Wasylyk C, Criqui-Filipe P, Wasylyk B
PubMed Article URL:http://dx.doi.org/10.1038/sj.ont.1208226

33-2400 was used in immunoprecipitation and western blot to uncover a molecular mechanism involving ALKBH5 PTMs and increased mRNA m6A levels that protect genomic integrity of cells in response to ROS.

Mouse / Not Cited
Nucleic acids research (Jun 2021; 49: 5779)
"Post-translational modification of RNA m6A demethylase ALKBH5 regulates ROS-induced DNA damage response."
Author(s): Yu F, Wei J, Cui X, Yu C, Ni W, Bungert J, Wu L, He C, Qian Z
PubMed Article URL:http://dx.doi.org/10.1093/nar/gkb415

33-2400 was used in western blot to investigate the contribution of small ubiquitin-related modifiers to Caenorhabditis elegans development.

Human / Not Cited
Cellular and molecular life sciences : CMLS (Oct 2011; 68: 3219)
"Overexpression of SUMO perturbs the growth and development of Caenorhabditis elegans."
PubMed Article URL:http://dx.doi.org/10.1002/jcc.22125

33-2400 was used in western blot to determine how regulations of m TORC1 signalling occurs by SUMOylation of AMPK alpha 1 through Pias4

Not Applicable / 1:1000
Nature communications (Nov 2015; 6: )
"SUMOylation of AMPK1 by Pias4 specifically regulates mTORC1 signalling."
Author(s): Yan Y, Olilia S, Wong IPL, Vallienius T, Palvimo JJ, Vahtomeri K, Mäkelä TP
PubMed Article URL:http://dx.doi.org/10.1038/ncomms9979

33-2400 was used in western blot to identify interaction partners of M2-PK in order to discover novel links between M2-PK and cellular functions

Not Applicable / Not Cited
Journal of cellular biochemistry (May 2009; 107: 293)
"The SUMO-E3 ligase Pias3 targets pyruvate kinase m2."
Author(s): Spoden GA, Morandell D, Ehehalt D, Fiedler M, Jansen-Dürr P, Hermann M, Zwierschke W
PubMed Article URL:http://dx.doi.org/10.1002/jcb.22125

33-2400 was used in western blot to report that SUMOylation controls phosducin stability and function

Not Applicable / Not Cited
The Journal of biological chemistry (Mar 2006; 281: 8357)
"SUMO-1 controls the protein stability and the biological function of phosducin."
Author(s): Klenk C, Humrich J, Quitterer U, Lohe MJ
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M513703200

33-2400 was used in western blot to study the mechanism by which p14 Arf promotes small ubiquitin-like modifier conjugation of Werners helicase

Not Applicable / Not Cited
The Journal of biological chemistry (Nov 2004; 279: 50157)
"p14 Arf promotes small ubiquitin-like modifier conjugation of Werners helicase."
Author(s): Woods YL, Xirodimas DP, Prescott AR, Sparks A, Lane DP, Saville MK
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M405414200
Mouse / 1:250
Oncogene (May 2007; 26: 3572)
"E2F regulates DDB2: consequences for DNA repair in Rb-deficient cells."
Author(s): Prost S, Lu P, Caldwell H, Harrison D
PubMed Article URL: http://dx.doi.org/10.1038/sj.onc.1210151

Human / Not Cited
Proceedings of the National Academy of Sciences of the United States of America (Oct 2006; 103: 16272)
"Regulation of the SUMO pathway sensitizes differentiating human endometrial stromal cells to progestosterone."
Author(s): Jones MC, Fusi L, Higham JH, Abdell-Hafiz H, Horwitz KB, Lam EW, Brosens JJ
PubMed Article URL: http://dx.doi.org/10.1073/pnas.0603002103

Human / 1:1,000
Small GTPases (Mar 2019; 10: 146)
"Impairments in age-dependent ubiquitin proteostasis and structural integrity of selective neurons by uncoupling Ran GTPase from the Ran-binding domain 3 of Ranbp2 and identification of novel mitochondrial isoforms of ubiquitin-conjugating enzyme E2I (ubc9) and Ranbp2."
Author(s): Patil H, Yoon D, Bhomrick R, Cai Y, Cho KI, Ferreira PA
PubMed Article URL: http://dx.doi.org/10.1080/21541248.2017.1356432

Not Applicable / Not Cited
Journal of virology (Jul 2004; 78: 7803)
"SUMOylation of the human cytomegalovirus 72-kilodalton IE1 protein facilitates expression of the 86-kilodalton IE2 protein and promotes viral replication."
Author(s): Nevels M, Brune W, Shenik T

Mouse / 1:1,000
Molecular biology of the cell (Apr 2014; 25: 1202)
"A pathway linking oxidative stress and the Ran GTPase system in progeria."
Author(s): Datta S, Snow CJ, Paschal BM
PubMed Article URL: http://dx.doi.org/10.1091/mbc.E13-07-0430

Mouse / Not Cited
Molecular and cellular biology (Jun 2005; 25: 5171)
"Mutation of SENP1/SuPr-2 reveals an essential role for desumoylation in mouse development."
Author(s): Yamauchi T, Sharma P, Athanasiou M, Kumar A, Yamada S, Kuehn MR

Not Applicable / Not Cited
Archives of virology (Sep 2005; 150: 1763)
"SUMO-1 modification of the major immediate-early (IE) 1 and 2 proteins of human cytomegalovirus is regulated by different mechanisms and modulates the intracellular localization of the IE1, but not IE2, protein."
Author(s): Sadanari H, Yamada R, Ohnishi K, Matsubara K, Tanaka J
PubMed Article URL: http://dx.doi.org/10.1007/s00705-005-0559-0

Human / Not Cited
33-2400 was used in Western Blot to elucidate the crystal structure of Imp13 in complex with the SUMO E2-conjugating enzyme, Ubc9.

Mouse / Not Cited
33-2400 was used in Western Blot to demonstrate that cAMP signalling attenuates ligand-dependent sumoylation of the progesterone receptor in human endometrial stromal cells.

Human / Not Cited
33-2400 was used in Western blot to prove that SUMO modification of IE1-72 kDa contributes to efficient human cytomegalovirus replication by promoting the accumulation of IE2-86 kDa

Not Applicable / Not Cited
33-2400 was used in Western blot to propose that SUMO modification of IE1-72 kDa contributes to efficient human cytomegalovirus replication by promoting the accumulation of IE2-86 kDa

Mouse / 1:1,000
33-2400 was used in Western Blot to explore the relationship between progerin, the Ran GTPase, and oxidative stress.

Human / Not Cited
33-2400 was used in Western blot to study SUMO-1-modified immediate-early 1 and 2 proteins of human cytomegalovirus

Not Applicable / Not Cited
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Mouse / 1:1,000
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Human / Not Cited
33-2400 was used in Western blot to elucidate the crystal structure of Imp13 in complex with the SUMO E2-conjugating enzyme, Ubc9.
33-2400 was used in Western Blotting to show when ubiquitin-proteasome substrates in the nucleus are not degraded due to ubiquitin inhibition, they instead become SUMOylated and accumulate in promyelocytic leukemia protein bodies.

**Human / 1:500**

The Journal of biological chemistry (Oct 2019; 294: 15218)

"Inhibiting ubiquitination causes an accumulation of SUMOylated newly synthesized nuclear proteins at PML bodies."

Author(s): Sha Z, Blyszcz T, Gonzalez-Prieto R, Vertegaal ACO, Goldberg AL

PubMed Article URL: http://dx.doi.org/10.1074/jbc.RA119.09147

Not Applicable / Not Cited

Oncogene (Apr 2015; 34: 2251)

"Deubiquitinating activity of CYLD is impaired by SUMOylation in neuroblastoma cells."

Author(s): Kobayashi T, Masoumi KC, Massoumi R

PubMed Article URL: http://dx.doi.org/10.1038/onc.2014.159

**Rat / Not Cited**

The Journal of cell biology (Dec 1996; 135: 1457)

"A novel ubiquitin-like modification modulates the partitioning of the Ran-GTPase-activating protein RanGAP1 between the cytosol and the nuclear pore complex."

Author(s): Matunis MJ, Coutavas E, Blobel G

PubMed Article URL: http://dx.doi.org/10.1083/jcb.135.6.1457

33-2400 was used in western blot to analyze SUMOylation in neuroblastoma cells as it impairs deubiquitinating activity of CYLD

**Not Applicable / 1:500**

Scientific reports (May 2016; 6: )

"Loss of ubiquitin E2 Ube2w rescues hypersensitivity of Rnf4 mutant cells to DNA damage."

Author(s): Maure JF, Moser SC, Jaffray EG, F Alpi A, Hay RT

PubMed Article URL: http://dx.doi.org/10.1038/srep26178

**Not Applicable / Not Cited**

Arthritis and rheumatism (Jul 2009; 60: 2065)

"Small ubiquitin-like modifier 1 [corrected] mediates the resistance of prolothesis-loosening fibroblast-like synoviocytes against Fas-induced apoptosis."


PubMed Article URL: http://dx.doi.org/10.1002/art.24633

33-2400 was used in western blot to measure small ubiquitin-like modifier 1 expression in aseptic loosening of prosthesis implants and investigate its role in prosthesis-loosening fibroblast-like synoviocytes

**Human / Not Cited**

Molecular endocrinology (Baltimore, Md.) (Feb 2013; 27: 212)

"Prostaglandin 15d-PGJ(2) inhibits androgen receptor signaling in prostate cancer cells."

Author(s): Kaikkonen S, Paakinaho V, Sutinen P, Levonen AL, Palvimo JJ

PubMed Article URL: http://dx.doi.org/10.1038/mcp.2012.131

33-2400 was used in Western Blotting to identify 5d-PGJ(2) as an inhibitor of androgen signaling.

**Not Applicable / Not Cited**

Proceedings of the National Academy of Sciences of the United States of America (Jan 2006; 103: 45)

"PDSM, a motif for phosphorylation-dependent SUMO modification."

Author(s): Hetsch V, Ancker J, Böckstelier HA, Fujimoto M, Palvimo JJ, Nakai A, Sistonen L

PubMed Article URL: http://dx.doi.org/10.1073/pnas.0503698102

**Rat / Not Cited**

Molecular endocrinology (Baltimore, Md.) (Feb 2013; 27: 212)

"Prostaglandin 15d-PGJ(2) inhibits androgen receptor signaling in prostate cancer cells."

Author(s): Kaikkonen S, Paakinaho V, Sutinen P, Levonen AL, Palvimo JJ

PubMed Article URL: http://dx.doi.org/10.1038/mcp.2012.131

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PubMed Article URL: http://dx.doi.org/10.1038/mcp.2012.131

33-2400 was used in western blot to identify 5d-PGJ(2) as an inhibitor of androgen signaling.

**Not Applicable / Not Cited**

Molecular & cellular proteomics : MCP (Nov 2008; 7: 2107)

"The ubiquitin-proteasome system is a key component of the SUMO-2/3 cycle."

Author(s): Schimmel J, Larsen KM, Matic I, van Hagen M, Cox J, Mann M, Andersen JS, Vertegaal AC

PubMed Article URL: http://dx.doi.org/10.1074/mcp.M800025-MCP200

33-2400 was used in Western Blotting to identify Borealin, a component of the chromosomal passenger complex, as a mitotic target of SUMO.

**Human / Not Cited**

Molecular biology of the cell (Jan 2009; 20: 410)

"RanBP2 and SENP3 function in a mitotic SUMO2/3 conjugation-deconjugation cycle on Borealin."

Author(s): Klein UR, Haindl M, Nigg EA, Muller S

PubMed Article URL: http://dx.doi.org/10.1019/mbc.e08-05-0511
33-2400 was used in western blot to investigate phenobarbital and pregnenolone-induced expression of murine double minute 2

**Toxicological sciences : an official journal of the Society of Toxicology** (Dec 2006; 94: 272)
"p53-independent induction of rat hepatic Mdm2 following administration of phenobarbital and pregnenolone 16alpha-carbonitrile."
Author(s): Nelson DM, Bhaskaran V, Foster WR, Lehman-McKeeman LD
PubMed Article URL: http://dx.doi.org/10.1093/toxsci/kfl115

33-2400 was used in Western Blotting to isolate and profile new small ubiquitin-like modifier protein substrates exposed to sumoylation in the Xenopus egg extract system.

**Molecular & cellular proteomics : MCP** (Jul 2014; 13: 1659)
"Identification of small ubiquitin-like modifier substrates with diverse functions using the Xenopus egg extract system."
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<td>Thermofisher.com/contactus 33-2400 was used in immunohistochemistry to investigate the association of giant cell polymyositis and myocarditis with myasthenia gravis and thymoma</td>
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PubMed Article URL: http://dx.doi.org/10.1128/MCB.19.7.5170


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33-2400 was used in immunohistochemistry (frozen) to test if autophagic vacuoles formation is required for A production by SUMO1.

**Mouse / 1:100**

Autophagy (Nov 2015; 11: 100)
"SUMO1 promotes A production via the modulation of autophagy."
Author(s): Cho SJ, Yun SM, Jo C, Lee DH, Choi KJ, Song JC, Park SJ, Kim YJ, Koh YH
PubMed Article URL: http://dx.doi.org/10.4161/15548627.2014.984283

33-2400 was used in immunoprecipitation and western blot to identify proteins that interact with bovine papillomavirus E1.

**Human / 5 µg**

The Journal of biological chemistry (Sep 2000; 275: 30487)
"Bovine papillomavirus E1 protein is sumoylated by the host cell Ubc9 protein."
Author(s): Rangasamy D, Wilson VG
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M003889200

33-2400 was used in western blot to study SUMO-1-modified IkappaBalha.

**Human / Not Cited**

Molecular cell (Aug 1998; 2: 233)
"SUMO-1 modification of IkappaBalha inhibits NF-kappaB activation."
Author(s): Desterro JM, Rodriguez MS, Hay RT
PubMed Article URL: http://dx.doi.org/10.1016/s1097-2765(00)80133-1

33-2400 was used in immunocytochemistry to report that the effects of progerin are partially transduced by reduced function of Ran GTPase and SUMOylation pathways.

**Human / Not Cited**

Journal of virology (Mar 2000; 74: 2510)
"Covalent modification of the transactivator protein IE2-p86 of human cytomegalovirus by conjugation to the ubiquitin-homologous proteins SUMO-1 and hSMT3b."
Author(s): Hofmann H, Floss S, Stamminger T
PubMed Article URL: http://dx.doi.org/10.1128/JVI.74.6.2510-2524.2000

33-2400 was used in western blot to examine the cross-talk between glucocorticoid-induced leucine zipper and caspase-8 in dexamethasone-treated thymocytes.

**Mouse / Not Cited**

Cell death and differentiation (Jan 2011; 18: 183)
"Glucocorticoid-induced activation of caspase-8 protects the glucocorticoid-induced protein Gilz from proteasomal degradation and induces its binding to SUMO-1 in murine thymocytes."
Author(s): Delfino DV, Spinicelli S, Pozzesi N, Pierangelo S, Velardi E, Bruscoli S, Martelli MP, Petrirosso V, Falchi L, Kang TB, Riccardi C
PubMed Article URL: http://dx.doi.org/10.1038/cdd.2010.86

33-2400 was used in western blot to examine the role of pescadilloin glial tumorigenesis.

**Human / 1:1000**

The Journal of biological chemistry (Mar 2001; 276: 6656)
"Pescadillo, a novel cell cycle regulatory protein abnormally expressed in malignant cells."
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M008536200

33-2400 was used in western blot to study sumoylation of the E1 protein.

**Human / Not Cited**

The Journal of biological chemistry (Dec 2000; 275: 37999)
"SUMO-1 modification of bovine papillomavirus E1 protein is required for intranuclear accumulation."
Author(s): Rangasamy D, Woytek K, Khan SA, Wilson VG
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M007777200

### 1 Gel Shift References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
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<tr>
<td>Human / 1:1000</td>
<td>The Journal of biological chemistry (Dec 2000; 275: 37999)</td>
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Molecular endocrinology (Baltimore, Md.) (Oct 2004; 18: 2451)
"Small ubiquitin-like modifier 1 (SUMO-1) modification of the synergy control motif of Ad4 binding protein/steroidogenic factor 1 (Ad4BP/SF-1) regulates synergistic transcription between Ad4BP/SF-1 and Sox9."

Author(s): Komatsu T, Mizusaki H, Mukai T, Ogawa H, Baba D, Shirakawa M, Hatakeyama S, Nakayama KI, Yamamoto H, Kikuchi A, Morohashi K

PubMed Article URL: http://dx.doi.org/10.1210/me.2004-0173