# MDM2 Monoclonal Antibody (IF2)

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>50 µg</td>
</tr>
<tr>
<td><strong>Host/Isotope</strong></td>
<td>Mouse / IgG2b, kappa</td>
</tr>
<tr>
<td><strong>Class</strong></td>
<td>Monoclonal</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>Antibody</td>
</tr>
<tr>
<td><strong>Clone</strong></td>
<td>IF2</td>
</tr>
<tr>
<td><strong>Immunogen</strong></td>
<td>Synthetic peptide derived from the N-terminal region of human MDM2</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>
</tr>
<tr>
<td><strong>Purification</strong></td>
<td>Protein A</td>
</tr>
<tr>
<td><strong>Storage buffer</strong></td>
<td>PBS, pH 7.4, with 1mg/ml BSA, 30% glycerol</td>
</tr>
<tr>
<td><strong>Contains</strong></td>
<td>0.05% sodium azide</td>
</tr>
<tr>
<td><strong>Storage Conditions</strong></td>
<td>-20° C, Avoid Freeze/Thaw Cycles</td>
</tr>
</tbody>
</table>

## Species Reactivity

<table>
<thead>
<tr>
<th>Tested species reactivity</th>
<th>Human</th>
</tr>
</thead>
<tbody>
<tr>
<td>Published species reactivity</td>
<td>Rat, Bacteria, Human, Not Applicable, Guinea pig</td>
</tr>
</tbody>
</table>

## Tested Applications

<table>
<thead>
<tr>
<th><strong>Tested Applications</strong></th>
<th><strong>Dilution</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunocytochemistry (ICC)</td>
<td>1:2 µg/ml</td>
</tr>
<tr>
<td>Immunofluorescence (IF)</td>
<td>1:2 µg/ml</td>
</tr>
<tr>
<td>Immunohistochemistry (IHC)</td>
<td>Assay Dependent</td>
</tr>
<tr>
<td>Immunoprecipitation (IP)</td>
<td>Assay Dependent</td>
</tr>
<tr>
<td>Western Blot (WB)</td>
<td>2:3 µg/ml</td>
</tr>
</tbody>
</table>

## Published Applications

<table>
<thead>
<tr>
<th><strong>Published Applications</strong></th>
<th><strong>See</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous PubMed (MISC)</td>
<td>5 publications below</td>
</tr>
<tr>
<td>Immunohistochemistry (Paraffin) (IHC (P))</td>
<td>6 publications below</td>
</tr>
<tr>
<td>Western Blot (WB)</td>
<td>1 publications below</td>
</tr>
<tr>
<td>Immunohistochemistry (IHC)</td>
<td>8 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 antibody recognizes the ~90 kDa (apparent MW) MDM2 protein. Also recognizes isoforms at ~57 and ~74/76 kDa.

## Background/Target Information

MDM2 is a target of the transcription factor tumor protein p53. The encoded protein is a nuclear phosphoprotein that binds and inhibits transactivation by tumor protein p53, as part of an autoregulatory negative feedback loop. Overexpression of MDM2 can result in excessive inactivation of tumor protein p53, diminishing its tumor suppressor function. This protein has E3 ubiquitin ligase activity, which targets tumor protein p53 for proteosomal degradation. This protein also affects the cell cycle, apoptosis, and tumorigenesis through interactions with other proteins, including retinoblastoma 1 and ribosomal protein L5.

MDM2 Antibody (33-7100) in IF

Immunofluorescence analysis of MDM2 in subconfluent U2OS cells. The cells were fixed with 4% paraformaldehyde for 15 minutes, permeabized with 0.1% Triton™ X-100 for 15 minutes, and blocked with 3% BSA for 15 minutes at room temperature. The cells were probed with a MDM2 Mouse Monoclonal Antibody (Product # 33-7100) at 1.5 µg/mL for 1 hour at room temperature and then labeled with a Goat anti-Mouse IgG (H+L) Superclonal Secondary Antibody, Alexa Fluor 488 conjugate (Product # A28175) at a dilution of 1:400 for 30 minutes at room temperature (Panel a: green). Nuclei (Panel b: blue) were stained with Hoechst Dye. F-actin (Panel c: red) was stained with DyLight 554 Phalloidin (Product # 21834). Panel d is a merged image showing predominantly nuclear localization. Panel e shows no primary antibody control. The images were captured at 20X magnification.

MDM2 Antibody (33-7100) in IHC

Immunohistochemistry analysis of MDM2 showing staining in the cytoplasm and nucleus of paraffin-embedded human breast carcinoma (right) compared to a negative control without primary antibody (left). To expose target proteins, antigen retrieval was performed using 10mM sodium citrate (pH 6.0) and heated in a 95C water bath for 20 minutes. Following antigen retrieval, tissues were blocked in 10% goat serum in PBS for 30 minutes at room temperature and quenched with Peroxide Suppressor (Product # 35000) for 30 minutes. Tissues were then probed with a MDM2 monoclonal antibody (Product # 33-7100) at a dilution of 40 µg/mL in blocking buffer for 1 hour at room temperature. Tissues were washed extensively in PBST and detection was performed using the SuperPicture HRP Polymer Detection Kit (Product # 87-8963) and DAB substrate (Product # 34002). Tissues were counterstained with hematoxylin (Product # TA-125-MH) and dehydrated with ethanol and xylene to prep for mounting.

MDM2 Antibody (33-7100) in WB

Western blot analysis of MDM2 was performed by loading 30µg of the indicated whole cell lysates and 5µl of PageRuler Plus Prestained Protein Ladder (Product # 26619) per well onto a Novex 4-20% Tris-Glycine polyacrylamide gel (Product # WT4202BOX). Proteins were transferred to a nitrocellulose membrane using the G2 Blotter (Product # 62288), and blocked with 5% Milk in TBST for 1 hour at room temperature. MDM2 was detected at ~57, ~75, and ~90kDa using a MDM2 monoclonal antibody (Product # 33-7100) at a dilution of 2.5 µg/mL in 5% Milk in TBST overnight at 4C on a rocking platform, followed by a Goat anti-Mouse IgG (H+L) Superclonal Secondary Antibody, HRP conjugate (Product # A28177) at a dilution of 1:1000 for at least 30 minutes at room temperature. Chemiluminescent detection was performed using SuperSignal Pico substrate (Product # 34078) and the myECL Imager (Product # 62236).
### 5 Miscellaneous PubMed References

**Species / Dilution** | **Summary**
--- | ---
**Human / Not Cited** | 33-7100 was used in immunohistochemistry to investigate the frequency and contribution of HMG2, CDK4, and JUN to dedifferentiated liposarcomas and atypical lipomatous tumors/well-differentiated liposarcomas.


**Human / 1:100** | 33-7100 was used in immunohistochemistry - paraffin section to explore the use of MDM2 and CDK4 for the histological diagnosis of low-grade osteosarcoma


**Human / 1:100** | 33-7100 was used in immunohistochemistry - paraffin section to use 9 cases of well-differentiated/dedifferentiated liposarcoma to characterize unappreciated features


**Human / 1:100** | 33-7100 was used in immunohistochemistry (frozen) to characterize dedifferentiated liposarcomas with an inflammatory malignant fibrous histiocytoma component.


**Human / Not Cited** | 33-7100 was used in immunohistochemistry - paraffin section to report that most so-called malignant fibrous histiocytomas from the retropitoneum are dedifferentiated liposarcoma.

Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc (Mar 2003; 16: 256) "Most malignant fibrous histiocytomas developed in the retroperitoneum are dedifferentiated liposarcoma.

**Human / Not Cited** | 33-7100 was used in immunohistochemistry (paraffin) to report genetic changes in dedifferentiated liposarcomas

Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc (Sep 2010; 23: 1486) "Inflammatory malignant fibrous histiocytomas and differentiated liposarcomas: a review of 25 cases initially diagnosed as malignant fibrous histiocytoma." Author(s):Coindre JM,Mariani O,Chibon F,Mairal A,De Saint Aubain Somerhausen N,Favre-Guillervin E,Bui NB,Stoeckle E,Hostein I,Aurias A PubMed Article URL:http://dx.doi.org/10.1097/01.PAS.0000056983.78547.77

### 6 Immunohistochemistry (Paraffin) References

**Species / Dilution** | **Summary**
--- | ---
**Human / 1:50** | 33-7100 was used in immunohistochemistry - paraffin section to characterize a primary myxoid liposarcoma with chondroid and osseous components


**Not Applicable / 1:100** | 33-7100 was used in immunohistochemistry - paraffin section to report genetic changes in dedifferentiated liposarcomas

33-7100 was used in immunohistochemistry - paraffin section to identify immunohistochemical markers to aid chondroid tumor diagnosis

APMIS : acta pathologica, microbiologica, et immunologica Scandinavica (Jul 2009; 117: 518)
"Markers aiding the diagnosis of chondroid tumors: an immunohistochemical study including osteonectin, bcl-2, Cox-2, actin, calponin, D2-40 (podoplanin), mdm-2, CD117 (c-kit), and YKL-40."
Author(s):Daugaard S,Christensen LH,Hegdall E
PubMed Article URL:http://dx.doi.org/10.1111/j.1600-0463.2009.02461.x

Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc (May 2008; 21: 517)
"Immunostaining for peroxisome proliferator gamma distinguishes dedifferentiated liposarcoma from other retroperitoneal sarcomas."
Author(s):Horvai AE,Schafer JT,Nakakura EK,O'Donnell RJ
PubMed Article URL:http://dx.doi.org/10.1038/modpathol.3801017

33-7100 was used in immunohistochemistry - paraffin section to present a unique case of relapsing retroperitoneal dedifferentiated liposarcoma with alpha-fetoprotein ectopic production

Vinchows Archiv : an international journal of pathology (Mar 2005; 446: 300)
"Palmar atypical lipomatous tumour with spindle cell features (well-differentiated spindle cell liposarcoma): a rare neoplasm arising in an unusual anatomical location."
Author(s):Mentzel T,Toennissen J,Rütten A,Schaller J
PubMed Article URL:http://dx.doi.org/10.1007/s00428-004-1138-6

1 Western Blot References

Species / Dilution Summary

Human / Not Cited
PloS one (Apr 2013; 8: null)
"Targeting CDH7 suppresses tumor progression in gastric cancer by downregulating Wnt/-catenin signaling."
Author(s):Qiu HB,Zhang LY,Ren C,Zeng ZL,Wu WJ,Luo HY,Zhou ZW,Xu RH
PubMed Article URL:http://dx.doi.org/10.1371/journal.pone.0056959

8 Immunohistochemistry References

Species / Dilution Summary

Human / Not Cited
The American journal of surgical pathology (Mar 2012; 36: 423)
"MDM2 and CDK4 immunohistochemical coexpression in high-grade osteosarcoma: correlation with a dedifferentiated subtype."
Author(s):Yoshida A,Ushiku T,Motoi T,Beppu Y,Fukayama M,Tsuda H,Shibata T
PubMed Article URL:http://dx.doi.org/10.1097/PAS.0b013e31824230d0

Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc (May 2011; 24: 624)
"MDM2 and CDK4 immunohistochemistry is a valuable tool in the differential diagnosis of low-grade osteosarcomas and other primary fibro-osseous lesions of the bone."
PubMed Article URL:http://dx.doi.org/10.1038/modpathol.2010.229

"Lipoleiomyosarcoma of the rectosigmoid colon: a unique site for a rare variant of liposarcoma."
Author(s):Nahal A,Meterissian S
PubMed Article URL:http://dx.doi.org/10.1097/COC.0b013e31818c0926


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Bacteria / Not Cited
Guinea pig / Not Cited
Human / Not Cited
Rat / Not Cited

Modern pathology: an official journal of the United States and Canadian Academy of Pathology, Inc (Jan 2009; 22: 66)
"Detection of MDM2 gene amplification or protein expression distinguishes sclerosing mesenteritis and retroperitoneal fibrosis from inflammatory well-differentiated liposarcoma."
PubMed Article URL: http://dx.doi.org/10.1038/modpathol.2008.153

33-7100 was used in immunohistochemistry to discuss the properties of desmoid tumors

Not Applicable / Not Cited

Modern pathology: an official journal of the United States and Canadian Academy of Pathology, Inc (Jan 2009; 22: 66)
"Detection of MDM2 gene amplification or protein expression distinguishes sclerosing mesenteritis and retroperitoneal fibrosis from inflammatory well-differentiated liposarcoma."
PubMed Article URL: http://dx.doi.org/10.1038/modpathol.2008.153

"Sporadic desmoid tumor. An exceptional cause of cystic pancreatic lesion."
PubMed Article URL: http://dx.doi.org/null

American journal of clinical pathology (May 2006; 125: 693)
"Reproducibility of MDM2 and CDK4 staining in soft tissue tumors."
Author(s): Binh MB, Garau XS, Guillon L, Aurias A, Coindre JM
PubMed Article URL: http://dx.doi.org/10.1309/VMBP-67QU-NN6Q-3JOE

Cancer (Sep 2005; 104: 962)
"MDM2 as a predictor of prostate carcinoma outcome: an analysis of Radiation Therapy Oncology Group Protocol 8610."
Author(s): Khor LY, Desilvio M, Al-Saleem T, Hammond ME, Grignon DJ, Sause W, Pilepich M, Okunieff P, Sandler H, Pollack A
PubMed Article URL: http://dx.doi.org/10.1002/cncr.21261

Journal of clinical oncology: official journal of the American Society of Clinical Oncology (Jan 2005; 23: 154)
"Wild-type p53 overexpression and its correlation with MDM2 and p14ARF alterations: an alternative pathway to non-small-cell lung cancer."
Author(s): Wang YC, Lin RK, Tan YH, Chen JT, Chen CY, Wang YC
PubMed Article URL: http://dx.doi.org/10.1200/JCO.2005.03.139


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