**Glucocorticoid Receptor Monoclonal Antibody (BuGR2)**

<table>
<thead>
<tr>
<th>Details</th>
<th>MA1-510</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catalog Number</strong></td>
<td>MA1-510</td>
</tr>
<tr>
<td><strong>Species Reactivity</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Species Reactivity</strong></td>
<td>Guinea pig, Human, Mouse, Sheep, Rabbit, Rat, Yeast</td>
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<tr>
<td><strong>Published species</strong></td>
<td>Rabbit, Rat, Yeast, Non-human primate, Sheep, Mouse, Human, Not Applicable, Xenopus</td>
</tr>
<tr>
<td><strong>Tested Applications</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Flow Cytometry (Flow)</strong></td>
<td>1-2 µg/test</td>
</tr>
<tr>
<td><strong>Gel Shift (GS)</strong></td>
<td>Assay-dependent</td>
</tr>
<tr>
<td><strong>Immunohistochemistry (Paraffin) (IHC (P))</strong></td>
<td>5 µg/mL</td>
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<td><strong>Immunohistochemistry (PFA fixed) (IHC (PFA))</strong></td>
<td>1:500</td>
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<tr>
<td><strong>Immunoprecipitation (IP)</strong></td>
<td>Assay-dependent</td>
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<tr>
<td><strong>Western Blot (WB)</strong></td>
<td>5 µg/mL</td>
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<tr>
<td><strong>Immunocytochemistry (ICC/IF)</strong></td>
<td>Assay-dependent</td>
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</table>

**Species Reactivity**

- Guinea pig, Human, Mouse, Sheep, Rabbit, Rat, Yeast

**Published Applications**

- Western Blot (WB) **See 65 publications below**
- Immunohistochemistry (IHC) **See 6 publications below**
- ChiP assay (ChiP) **See 12 publications below**
- Immunoprecipitation (IP) **See 19 publications below**
- Immunohistochemistry (Frozen) (IHC (F)) **See 1 publications below**
- Miscellaneous PubMed (Misc) **See 1 publications below**
- Flow Cytometry (Flow) **See 3 publications below**
- Immunocytochemistry (ICC/IF) **See 12 publications below**
- Gel Shift (GS) **See 5 publications below**
- ELISA (ELISA) **See 2 publications below**

**Product specific information**

MA1-510 detects glucocorticoid receptor (GR) from human, mouse, rat, guinea pig, rabbit, sheep and yeast samples. This antibody does not react with primate, avian or amphibian GR. MA1-510 has been successfully used in Western blot, immunofluorescence, immunocytochemistry, flow cytometry, immunohistochemistry, immunoprecipitation, and gel shift procedures. By Western blot, this antibody detects a 97 kDa protein representing GR in L929 cell extract. Immunocytochemical staining of GR in L929 cells with MA1-510 results in staining of both the cytoplasm and nucleus, even in the presence of hormone. Using enzymatic digestion analysis, MA1-510 reacts with the undigested 97 kDa GR, a 17 kDa DNA-binding trypsin fragment, and a 45 kDa steroid- and DNA-binding chymotrypsin fragment. The MA1-510 immunogen is partially purified rat GR. Reconstitute with 100 µL distilled water.

**Background/Target Information**


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Glucocorticoid Receptor (NR3C1) is a receptor for glucocorticoids that can act as both a transcription factor and as a regulator of other transcription factors. Glucocorticoid Receptor can also be found in heteromeric cytoplasmic complexes along with heat shock factors and immunophilins. The protein is typically found in the cytoplasm until it binds a ligand, which induces transport into the nucleus. Glucocorticoid Receptor is expressed in the heart, detected in left and right atria, left and right ventricles, aorta, apex, intraventricular septum, and atrioventricular node as well as whole adult and fetal heart. Alternate splicing, the use of at least three different promoters, and alternate translation initiation sites result in several transcript variants encoding the same protein or different isoforms, but the full-length nature of some variants has not been determined. Mutations in the Glucocorticoid Receptor gene are a cause of glucocorticoid resistance, or cortisol resistance. Studies have shown that glucocorticoid receptor (GR) must be associated with a complex of chaperone proteins for ligand activation. GR binds to known steroids such as dexamethasone with nanomolar affinity

Glucocorticoid Receptor Antibody (MA1-510) in ICC/IF
Immunofluorescent analysis of Glucocorticoid Receptor using Glucocorticoid Receptor Monoclonal Antibody (BuGR2) (Product # MA1-510) shows staining in A549 Cells. Glucocorticoid Receptor (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing Glucocorticoid Receptor (Product # MA1-510) at a dilution of 1:100 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.

Glucocorticoid Receptor Antibody (MA1-510) in ICC/IF
Immunofluorescent analysis of Glucocorticoid Receptor using Glucocorticoid Receptor Monoclonal Antibody (BuGR2) (Product # MA1-510) shows staining in U251 Cells. Glucocorticoid Receptor (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing Glucocorticoid Receptor (Product # MA1-510) at a dilution of 1:100 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.

Glucocorticoid Receptor Antibody (MA1-510) in ICC/IF
Immunofluorescent analysis of Glucocorticoid Receptor using Glucocorticoid Receptor Monoclonal Antibody (BuGR2) (Product # MA1-510) shows staining in Hela Cells. Glucocorticoid Receptor (green), F-Actin staining with Phalloidin (red) and nuclei with DAPI (blue) is shown. Cells were grown on chamber slides and fixed with formaldehyde prior to staining. Cells were probed without (control) or with an antibody recognizing Glucocorticoid Receptor (Product # MA1-510) at a dilution of 1:100 over night at 4 °C, washed with PBS and incubated with a DyLight-488 conjugated secondary antibody (Product # 35552 for GAR, Product # 35503 for GAM). Images were taken at 60X magnification.

Fig. 1
Western blot of glucocorticoid receptor on mouse liver extract using Product # MA1-510.
Glucocorticoid Receptor Antibody (MA1-510) in Flow

Flow cytometry analysis of Glucocorticoid Receptor in NIH/3T3 cells compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/mL, fixed with 2% paraformaldehyde and washed with PBS. Cells were penetrated by dropping the supernatant, adding 90% methanol and incubated for 10 minutes at room temperature. Following penetration, cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with a Glucocorticoid Receptor monoclonal antibody (Product # MA1-510) at a dilution of 2 µg/test for 60 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated goat anti-mouse IgG (H+L) secondary antibody and re-suspended in PBS for FACS analysis.

Glucocorticoid Receptor Antibody (MA1-510) in Flow

Flow cytometry analysis of Glucocorticoid Receptor in Jurkat cells compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/mL, fixed with 2% paraformaldehyde and washed with PBS. Cells were penetrated by dropping the supernatant, adding 90% methanol and incubated for 10 minutes at room temperature. Following penetration, cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with a Glucocorticoid Receptor monoclonal antibody (Product # MA1-510) at a dilution of 1 µg/test for 60 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated goat anti-mouse IgG (H+L) secondary antibody and re-suspended in PBS for FACS analysis.

Glucocorticoid Receptor Antibody (MA1-510) in Flow

Flow cytometry analysis of Glucocorticoid Receptor in Hela cells compared to an isotype control (blue). Cells were harvested, adjusted to a concentration of 1-5x10^6 cells/mL, fixed with 2% paraformaldehyde and washed with PBS. Cells were penetrated by dropping the supernatant, adding 90% methanol and incubated for 10 minutes at room temperature. Following penetration, cells were blocked with a 2% solution of BSA-PBS for 30 min at room temperature and incubated with a Glucocorticoid Receptor monoclonal antibody (Product # MA1-510) at a dilution of 1 µg/test for 60 min at room temperature. Cells were then incubated for 40 min at room temperature in the dark using a Dylight 488-conjugated goat anti-mouse IgG (H+L) secondary antibody and re-suspended in PBS for FACS analysis.
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<tr>
<th>Species / Dilution</th>
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<tbody>
<tr>
<td>MA1-510 was used in western blot to investigate the important role of GRIP1 as a transcriptional coactivator interacting with the hormone binding domain of nuclear hormone receptors</td>
<td></td>
</tr>
<tr>
<td>Rat / Not Cited</td>
<td>Molecular and cellular biology (May 1997; 17: 2735) &quot;GRIP1, a transcriptional coactivator for the AF-2 transactivation domain of steroid, thyroid, retinoid, and vitamin D receptors.&quot; Author(s): Hong H, Kohli K, Garabedian MJ, Stallicup MR PubMed Article URL:<a href="http://dx.doi.org/10.1128/MBI.17.5.2735">http://dx.doi.org/10.1128/MBI.17.5.2735</a></td>
</tr>
<tr>
<td>MA1-510 was used in western blot to study the modulation of the adrenocorticosteroid receptor expression in rat hippocampus</td>
<td></td>
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<tr>
<td>Rat / Not Cited</td>
<td>Endocrinology (Sep 1999; 140: 3981) &quot;Defense of adrenocorticosteroid receptor expression in rat hippocampus: effects of stress and strain.&quot; Author(s): Herman JP, Watson SJ, Spencer RL PubMed Article URL:<a href="http://dx.doi.org/10.1210/endo.140.9.6962">http://dx.doi.org/10.1210/endo.140.9.6962</a></td>
</tr>
<tr>
<td>MA1-510 was used in western blot to study the role of STAT3 and STAT5 in glucocorticoid-induced impairment of mammary gland involution.</td>
<td></td>
</tr>
<tr>
<td>Mouse / Not Cited</td>
<td>Endocrinology (Dec 2010; 151: 5730) &quot;Glucocorticoid-induced impairment of mammary gland involution is associated with STAT5 and STAT3 signaling modulation.&quot; Author(s): Bertucci PY, Quaglino A, Pozzi AG, Kordon EC, Pecci A PubMed Article URL:<a href="http://dx.doi.org/10.1210/en.2010-0517">http://dx.doi.org/10.1210/en.2010-0517</a></td>
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<tr>
<td>MA1-510 was used in western blot to study the role of quercetin on the activation of hypothalamic-pituitary-adrenal axis caused by water immersion-restraint in rats</td>
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<tr>
<td>MA1-510 was used in western blot to study the effect of environment enrichment on maternal immune activation</td>
<td></td>
</tr>
<tr>
<td>Rat / 1:1000</td>
<td>Brain, behavior, and immunity (Nov 2014; 42: 178) &quot;Environmental enrichment mitigates the sex-specific effects of gestational inflammation on social engagement and the hypothalamic pituitary adrenal axis-feedback system.&quot; Author(s): Connors EJ, Shaik AN, Migliore MM, Kentner AC PubMed Article URL:<a href="http://dx.doi.org/10.1016/j.bbi.2014.06.020">http://dx.doi.org/10.1016/j.bbi.2014.06.020</a></td>
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<tr>
<td>MA1-510 was used in western blot to study the role of proline residue in the hsp90 binding region of the glucocorticoid receptor during the hsp90 heterocomplex stabilization and receptor signaling</td>
<td></td>
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<tr>
<td>Rat / 0.17 µg/mL</td>
<td>The Journal of biological chemistry (Aug 1998; 273: 20473) &quot;A conserved proline in the hsp90 binding region of the glucocorticoid receptor is required for hsp90 heterocomplex stabilization and receptor signaling.&quot; Author(s): Caamaño CA, Morano MI, Dalman FC, Pratt WB, Akil H PubMed Article URL:<a href="http://dx.doi.org/10.1074/jbc.273.32.20473">http://dx.doi.org/10.1074/jbc.273.32.20473</a></td>
</tr>
<tr>
<td>MA1-510 was used in western blot to investigate the role of the heat shock protein 90-FKBP52 complex in the nucleus</td>
<td></td>
</tr>
<tr>
<td>Mouse / Not Cited</td>
<td>Molecular and cellular biology (Mar 2010; 30: 1285) &quot;The hsp90-FKBP52 complex links the mineralocorticoid receptor to motor proteins and persists bound to the receptor in early nuclear events.&quot; Author(s): Galigniana MD, Erlejman AG, Monte M, Gomez-Sanchez C, Piwen-Pilipuk G PubMed Article URL:<a href="http://dx.doi.org/10.1128/MCB.01190-09">http://dx.doi.org/10.1128/MCB.01190-09</a></td>
</tr>
</tbody>
</table>
MA1-510 was used in western blot to determine whether glucocorticoid receptor (GR) protein is expressed in the ovine fetal PAECs.

Sheep / 1:500

Circulation research (Feb 1999; 84: 193)
"Glucocorticoids downregulate cyclooxygenase-1 gene expression and prostacyclin synthesis in fetal pulmonary artery endothelium."
Author(s):Jun SS,Chen Z,Pace MC,Shaul PW
PubMed Article URL:http://dx.doi.org/10.1161/1016.01.res.84.2.193

Human / Not Cited

MA1-510 was used in western blot to investigate how environmental exposure to lead interacts with stress.

Rat / 1:6000

Toxicological sciences : an official journal of the Society of Toxicology (Oct 2005; 87: 469)
"Interactions of chronic lead exposure and intermittent stress: consequences for brain catecholamine systems and associated behaviors and HPA axis function."
Author(s):Virgolini MB,Chen K,Weston DD,Bauter MR,Cory-Slechta DA
PubMed Article URL:http://dx.doi.org/10.1093/toxsci/kfl269

Mouse / 2 µg/mL

Endocrinology (Nov 2001; 142: 4607)
"Identification of location and kinetically defined mechanism of cofactors and reporter genes involved in steroid-regulated transactivation"
Author(s):Galigniana MD,Housley PR,DeFranco DB,Pratt WB
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M112.414805

Rat / Not Cited

The Journal of biological chemistry (May 2000; 20: 3027)
"A role for the Hsp40 Ydj1 in repression of basal steroid receptor activity in yeast."
Author(s):Johnson JL,Craig EA

Yeast / Not Cited

Endocrinology (Nov 2001; 142: 4607)
"High neonatal leptin exposure enhances brain GR expression and feedback efficacy on the adrenocortical axis of developing rats."
Author(s):Proulx K,Clavel S,Nault G,Richard D,Walker CD
PubMed Article URL:http://dx.doi.org/10.1210/endo.142.11.4607

Mouse / 1:1000

Brain and behavior (Apr 2020; 10: )
"Sex differences in hypothalamic-pituitary-adrenal axis regulation after chronic unpredictable stress."
Author(s):Palumbo MC,Dominguez S,Dong H
PubMed Article URL:http://dx.doi.org/10.1002/brb3.1586


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MA1-510 was used in western blot to investigate the role of immunophilins in steroid receptor action

The Journal of biological chemistry (Sep 1995; 270: 20479)
"The cyclosporin A-binding immunophilin Cyp40 and the FK506-binding immunophilin hsp56 bind to a common site on hsp90 and exist in independent cytosolic heterocomplexes with the untransformed glucocorticoid receptor."
Author(s): Owens-Grillo, JK, Hoffmann, K, Hutchison, KA, Yem, AW, Deibel, MR, Handschumacher, RE, Pratt, WB
PubMed Article URL:http://dx.doi.org/10.1074/jbc.270.35.20479

MA1-510 was used in western blot to study regulation of GR-mediated gene expression by Cdk9 independently of its kinase activity

The Journal of biological chemistry (Dec 1999; 274: 36527)
"A kinase-independent activity of Cdk9 modulates glucocorticoid receptor-mediated gene induction."
Author(s): Zhu, R, Lu, X, Pradhan, M, Armstrong, SP, Storchan, GB, Chow, CC, Simons, SS
PubMed Article URL:http://dx.doi.org/10.1021/bi9900178

MA1-510 was used in western blot to investigate the role of the seven amino acids (547-553) of rat glucocorticoid receptor during the steroid and hsp90 binding

Biochemistry (Mar 2014; 53: 1753)
"A kinase-independent activity of Cdk9 modulates glucocorticoid receptor-mediated gene induction."
Author(s): Zhu, R, Lu, X, Pradhan, M, Armstrong, SP, Storchan, GB, Chow, CC, Simons, SS
PubMed Article URL:http://dx.doi.org/10.1021/bi5000178

MA1-510 was used in western blot to study the influence of gender on the effects of fluoxetine treatment on mitochondrial glucocorticoid receptor phosphorylation in different brain regions of stressed rats

Psychoneuroendocrinology (Dec 2013; 38: 2914)
"Brain region- and sex-specific modulation of mitochondrial glucocorticoid receptor phosphorylation in fluoxetine treated stressed rats: effects on energy metabolism."
Author(s): Adzic, M, Lukic, I, Mitic, M, Djordjevic, J, Elakovi, I, Djordjevic, A, Krstic-Demonic, M, Mati, G, Radojcic, M
PubMed Article URL:http://dx.doi.org/10.1016/j.psyneuen.2013.07.019

MA1-510 was used in western blot to investigate the effect of methylene blue-induced HSP70 inhibition on protein functions and degradation

The Journal of biological chemistry (May 2010; 285: 15714)
"Inhibition of hsp70 by methylene blue affects signaling protein function and ubiquitination and modulates polyglutamine protein degradation."
Author(s): Wang, AM, Morishima, Y, Clamp, KM, Peng, HM, Pratt, WB, Gestwicki, JE, Osawa, Y, Lieberman, AP
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M109.098806

MA1-510 was used in western blot to study the mechanism for hormone-induced nucleosome positioning in the mouse mammary tumor virus promoter in Xenopus oocytes

The EMBO journal (Jun 2001; 20: 2802)
"Hormone-induced nucleosome positioning in the MMTV promoter is reversible."
Author(s): Belyakov, S, Gelius, B, Wrangle, O
PubMed Article URL:http://dx.doi.org/10.1093/emboj/20.11.2802

MA1-510 was used in western blot to study the possible involvement of Hip in glucocorticoid receptor-hsp90 heterocomplex assembly

Biochemistry (Nov 2000; 39: 14314)
"hsp70 interacting protein Hip does not affect glucocorticoid receptor folding by the hsp90-based chaperone machinery except to oppose the effect of BAG-1."
Author(s): Kanelakis, KC, Murphy, PJ, Galigniana, MD, Morishima, Y, Takayama, S, Reed, JC, Toft, DO, Pratt, WB
PubMed Article URL:http://dx.doi.org/10.1021/bi001671c

MA1-510 was used in western blot to study the dynamics of the macrophage activation process.

Molecular endocrinology (Baltimore, Md.) (Oct 2005; 19: 2466)
"A Nuclear Receptor Atlas: macrophage activation."
Author(s): Barish, GD, Downes, M, Alaynick, WA, Yu, RT, Ocampo, CB, Bookout, AL, Mangelsdorf, DJ, Evans, RM
PubMed Article URL:http://dx.doi.org/10.1210/me.2004-0529
<table>
<thead>
<tr>
<th>Species</th>
<th>Concentration</th>
<th>Experiment Description</th>
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<tbody>
<tr>
<td>Mouse</td>
<td>0.2 µg/mL</td>
<td>MA1-510 was used in western blot to assess the effect of glucocorticoid receptor overexpression on emotional responsiveness</td>
</tr>
<tr>
<td>Mouse</td>
<td>2 µg/mL</td>
<td>MA1-510 was used in western blot to study the role of p23 during the formation of the GR.hsp90 heterocomplex</td>
</tr>
<tr>
<td>Cat</td>
<td>1:6000</td>
<td>The Journal of biological chemistry (Aug 1997; 272: 21213) &quot;Folding of the glucocorticoid receptor by the heat shock protein (hsp) 90-based chaperone machinery. The role of p23 is to stabilize receptor.hsp90 heterocomplexes formed by hsp90.p60.hsp70.&quot; Author(s):Dittmar KD,Demady DR,Stancato LF, Krishna P,Pratt WB PubMed Article URL:<a href="http://dx.doi.org/10.1074/jbc.272.34.21213">http://dx.doi.org/10.1074/jbc.272.34.21213</a></td>
</tr>
<tr>
<td>Rat</td>
<td>/ 15,000</td>
<td>Neurotoxicology (Oct 2012; 33: 1188) &quot;Enhanced stimulus sequence-dependent repeated learning in male offspring after prenatal stress alone or in conjunction with lead exposure.&quot; Author(s):Cory-Slechta DA,Virgolini MB,Liu S,Weston D PubMed Article URL:<a href="http://dx.doi.org/10.1016/j.neuro.2012.06.013">http://dx.doi.org/10.1016/j.neuro.2012.06.013</a></td>
</tr>
<tr>
<td>Rat</td>
<td>/ 1:5,000</td>
<td>The Journal of biological chemistry (Oct 1994; 269: 25621) &quot;Metal oxyanion stabilization of the rat glucocorticoid receptor is independent of thiols.&quot; Author(s):Hawle P,Siepmann M,Harst A,Siderius M,Reusch HP,Obermann WM PubMed Article URL:<a href="http://dx.doi.org/10.1128/MCB.02188-05">http://dx.doi.org/10.1128/MCB.02188-05</a></td>
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<tr>
<td>Human</td>
<td>/ 8385</td>
<td>Molecular and cellular biology (Nov 2006; 26: 8385) &quot;The middle domain of Hsp90 acts as a discriminator between different types of client proteins.&quot; Author(s):Harrell JM,Kurek I,Breiman A,Radanyi C,Renoir JM,Pratt WB,Galigniana MD PubMed Article URL:<a href="http://dx.doi.org/10.1021/bi020073q">http://dx.doi.org/10.1021/bi020073q</a></td>
</tr>
<tr>
<td>Human</td>
<td>/ Not Cited</td>
<td>The Journal of biological chemistry (Jul 2000; 275: 22597) &quot;The molecular chaperones Hsp90 and Hsc70 are both necessary and sufficient to activate hormone binding by glucocorticoid receptor.&quot; Author(s):Hawle P,Siepmann M,Harst A,Siderius M,Reusch HP,Obermann WM PubMed Article URL:<a href="http://dx.doi.org/10.1128/MCB.02188-05">http://dx.doi.org/10.1128/MCB.02188-05</a></td>
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<tr>
<td>Human</td>
<td>/ Not Cited</td>
<td>Biochemistry (Apr 2002; 41: 5581) &quot;All of the protein interactions that link steroid receptor.hsp90.immunophilin heterocomplexes to cytoplasmic dynein are common to plant and animal cells.&quot; Author(s):Hawle P,Siepmann M,Harst A,Siderius M,Reusch HP,Obermann WM PubMed Article URL:<a href="http://dx.doi.org/10.1128/MCB.02188-05">http://dx.doi.org/10.1128/MCB.02188-05</a></td>
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<td>The Journal of biological chemistry (Aug 1997; 272: 21213) &quot;Folding of the glucocorticoid receptor by the heat shock protein (hsp) 90-based chaperone machinery. The role of p23 is to stabilize receptor.hsp90 heterocomplexes formed by hsp90.p60.hsp70.&quot; Author(s):Dittmar KD,Demady DR,Stancato LF, Krishna P,Pratt WB PubMed Article URL:<a href="http://dx.doi.org/10.1074/jbc.272.34.21213">http://dx.doi.org/10.1074/jbc.272.34.21213</a></td>
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<table>
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<th>Dilution</th>
<th>Matrix</th>
<th>Products Used</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>Mouse</td>
<td>1/500</td>
<td>Endocrinology (Jan 2004; 145: 418)</td>
<td>MA1-510 was used in western blot to detect the expression of GR protein in wild-type, heterozygous, and GRko mice.</td>
<td></td>
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<td></td>
<td>0.25 µg/mL</td>
<td>The Journal of biological chemistry (Sep 2003; 278: 34764)</td>
<td>MA1-510 was used in western blot to study the assembly mechanism of a glucocorticoid receptor and Hsp70 complex.</td>
<td></td>
</tr>
<tr>
<td>Rabbit</td>
<td>1/200</td>
<td>Endocrinology (Jan 2004; 145: 418)</td>
<td>MA1-510 was used in western blot to study the antiapoptotic effect of melatonin on glucocorticoid-treated thymocytes.</td>
<td></td>
</tr>
<tr>
<td>Mouse</td>
<td>0.25 µg/mL</td>
<td>Journal of neurochemistry (Nov 2010; 115: 716)</td>
<td>MA1-510 was used in western blot to investigate the expression of GR protein in wild-type, heterozygous, and GRko mice.</td>
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<th>Species</th>
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<tbody>
<tr>
<td>Rat</td>
<td>1:5,000</td>
<td>MA1-510 was used in western blot to determine the importance of the AF-1 and AF-2 domains for the regulatory activity of GRs, TIF2, and Ubc9.</td>
</tr>
<tr>
<td>Yeast</td>
<td>Not Cited</td>
<td>MA1-510 was used in western blot to detect the accumulation of GR</td>
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<tr>
<td>Mouse</td>
<td>2 µg/mL</td>
<td>MA1-510 was used in western blot to study the interaction between glucocorticoid receptor and hsp90</td>
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<tr>
<td>Mouse</td>
<td>0.25 µg/mL</td>
<td>MA1-510 was used in western blot to study the mechanism for heme-dependent activation of apo-neuronal nitric-oxide synthase.</td>
</tr>
<tr>
<td>Human</td>
<td>Not Cited</td>
<td>MA1-510 was used in western blot to demonstrate the regulation of hippocampal glucocorticoid receptor gene transcription and protein expression in vivo</td>
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<td>MA1-510 was used in western blot to study the interaction between glucocorticoid receptor and hsp90</td>
</tr>
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<td>Yeast</td>
<td>Not Cited</td>
<td>MA1-510 was used in western blot to study the conservation of Hsp90 in budding yeast</td>
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<tr>
<td>Rat</td>
<td>Not Cited</td>
<td>MA1-510 was used in western blot to investigate the different roles of the hsp70-binding protein BAG-1 during glucocorticoid receptor folding</td>
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<tr>
<td>Mouse</td>
<td>2 µg/mL</td>
<td>MA1-510 was used in western blot to determine the importance of the AF-1 and AF-2 domains for the regulatory activity of GRs, TIF2, and Ubc9.</td>
</tr>
<tr>
<td>Human</td>
<td>Not Cited</td>
<td>MA1-510 was used in western blot to study the effect of paxillin on androgen receptor in prostate cancer cell lines</td>
</tr>
<tr>
<td>Mouse</td>
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**Products**

- **MA1-510** was used in western blot to demonstrate the regulation of hippocampal glucocorticoid receptor gene transcription and protein expression in vivo.
- **MA1-510** was used in western blot to study the interaction between glucocorticoid receptor and hsp90.
- **MA1-510** was used in western blot to study the mechanism for heme-dependent activation of apo-neuronal nitric-oxide synthase.

**PubMed Article URLs**

- [PubMed Article](http://dx.doi.org/10.1210/endo-120-2-629) by Hendry WJ, Danzo BJ, Harrison RW
- [PubMed Article](http://dx.doi.org/10.1128/MCB.17.1.318) by Chang HC, Lindquist S
- [PubMed Article](http://dx.doi.org/10.1074/jbc.274.48.34134) by Kanelakis KC, Morishima Y, Dittmar KD, Galigniana MD, Takayama S, Reed JC, Pratt WB
- [PubMed Article](http://dx.doi.org/10.1210/me.2004-0134) by Kanelakis KC, Morishima Y, Dittmar KD, Galigniana MD, Takayama S, Reed JC, Pratt WB
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- [PubMed Article](http://dx.doi.org/10.1074/jbc.274.48.34134) by Kanelakis KC, Morishima Y, Dittmar KD, Galigniana MD, Takayama S, Reed JC, Pratt WB
- [PubMed Article](http://dx.doi.org/10.1074/jbc.M403864200) by Billecke SS, Draganov DI, Morishima Y, Murphy PJ, Dunbar AY, Pratt WB, Osawa Y
MA1-510 was used in western blot to investigate TIF2 regions involved in the interaction of coactivators and corepressors with glucocorticoid and progesterone receptors.

Biochemistry (Jul 2007; 46: 8036)
“Amino-terminal domain of TIF2 is involved in competing for corepressor binding to glucocorticoid and progesterone receptors.”
Author(s):Wang D.Wang Q.Awasthi S.Simons SS
PubMed Article URL:http://dx.doi.org/10.1021/bi7004575

MA1-510 was used in western blot to demonstrate that the two chaperone proteins cooperate with each other to open up the steroid binding site.

The Journal of biological chemistry (Aug 2001; 276: 30092)
“Stoichiometry, abundance, and functional significance of the hsp90/hsp70-based multiprotein chaperone machinery in reticulocyte lysate.”
Author(s):Murphy PJ,Kanelakis KC,Galigniana MD,Morishima Y,Pratt WB
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M103773200

MA1-510 was used in western blot to characterize glucocorticoid receptor hormone binding domain using thiol-specific derivatizing agent N-iodoacetetyl-3-[125I]iodotyrosine.

The Journal of biological chemistry (Apr 1996; 271: 8831)
“Use of the thiol-specific derivatizing agent N-iodoacetetyl-3-[125I]iodotyrosine to demonstrate conformational differences between the unbound and hsp90-bound glucocorticoid receptor hormone binding domain.”
Author(s):Stancato LF,Silverstein AM,Gitter C,Groner B,Pratt WB
PubMed Article URL:http://dx.doi.org/10.1074/jbc.271.15.8831

MA1-510 was used in Western Blotting to show that nuclear import of GR was impaired, whereas GR nuclear export was enhanced.

Journal of cell science (Jun 2020; 133: )
“Nucleocytoplasmic shuttling of the glucocorticoid receptor is influenced by tetratricopeptide repeat-containing proteins.”
Author(s):Mazaira GI,Echeverria PC,Galigniana MD
PubMed Article URL:http://dx.doi.org/10.1242/jcs.238873

MA1-510 was used in Western Blotting to determine the effect of developmental Pb ± PS exposures on glucocorticoid-related epigenetic profiles in brain mesocorticolimbic regions.

Toxicological sciences : an official journal of the Society of Toxicology (Jun 2018; 163: 478)
“Developmental Lead Exposure and Prenatal Stress Result In Sex-Specific Reprogramming of Adult Stress Physiology and Epigenetic Profiles in Brain.”
Author(s):Sobolewski M,Varma G,Adams B,Anderson DW, Schneider JS,Cory-Slechta DA
PubMed Article URL:http://dx.doi.org/10.1093/toxsci/kfy046

MA1-510 was used in Western Blotting to study the expression of the hsp90-associated immunophilin FKBP51 in squirrel monkeys and its effect on glucocorticoid receptor.

The Journal of clinical endocrinology and metabolism (Feb 1999; 84: 663)
“Glucocorticoid resistance in the squirrel monkey is associated with overexpression of the immunophilin FKBP51.”
Author(s):Reynolds PD,Ruan Y,Smith DF,Scammell JG
PubMed Article URL:http://dx.doi.org/10.1210/jcem.84.2.5429

MA1-510 was used in Western Blotting to study the roles of PRL, corticosterone (CORT), and their receptors in PS-induced anxiety-like behavior in dams and their offspring and investigate whether chewing during maternal stress could prevent PS-induced harmful consequences.

The Journal of endocrinology (Jul 2007; 195: 35)
“Glucocorticoid resistance in the squirrel monkey is associated with overexpression of the immunophilin FKBP51.”
Author(s):Reynolds PD,Ruan Y,Smith DF,Scammell JG
PubMed Article URL:http://dx.doi.org/10.1210/jcem.84.2.5429

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MA1-510 was used in Western Blotting to study the roles of PRL, corticosterone (CORT), and their receptors in PS-induced anxiety-like behavior in dams and their offspring and investigate whether chewing during maternal stress could prevent PS-induced harmful consequences.
MA1-510 was used in western blot to research induction of robust depressive-like behavior and reduced BDNF levels in mice due to a disruption of the HPA-axis through corticosterone-release pellets.

**Neuroscience letters** (Jul 2016; 626; 119)  
"Disruption of the HPA-axis through corticosterone-release pellets induces robust depressive-like behavior and reduced BDNF levels in mice."  
Author(s): Demuyser T, Bentea E, Deneyer L, Albertini G, Massie A, Smolders I  
PubMed Article URL: http://dx.doi.org/10.1016/j.neulet.2016.05.026

**Rat / Not Cited**

MA1-510 was used in western blot to study the in vivo interaction between Ydj1 and Hsp90 client proteins.

**Molecular biology of the cell** (Dec 2008; 19: 5249)  
"Farnesylation of Ydj1 is required for in vivo interaction with Hsp90 client proteins."  
Author(s): Flom GA, Lemieszek M, Fortunato EA, Johnson JL  
PubMed Article URL: http://dx.doi.org/10.1010/mbc.e08-04-0435

**Human / Not Cited**

MA1-510 was used in western blot to investigate the role of calreticulin during the nuclear export of the glucocorticoid receptor.

**The Journal of biological chemistry** (Sep 2003; 278: 37858)  
"Nuclear export of the glucocorticoid receptor is accelerated by cell fusion-dependent release of calreticulin."  
Author(s): Walther RF, Lamprecht C, Ridsdale A, Groulx I, Lee S, Lefebvre YA, Haché RJ  
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M306356200

**Human / 1:600**

MA1-510 was used in western blot to study the effect of glucocorticoid receptor on beta-casein gene transcription.

**Molecular endocrinology** (Baltimore, Md.) (Feb 2001; 15: 228)  
"Cooperative effects of STAT5 (signal transducer and activator of transcription 5) and C/EBPbeta (CCAAT/enhancer-binding protein-beta) on beta-casein gene transcription are mediated by the glucocorticoid receptor."  
Author(s): Wyszomierski SL, Rosen JM  
PubMed Article URL: http://dx.doi.org/10.1210/mend.15.2.0597

**Human / 0.05-0.1 µg/mL**

MA1-510 was used in western blot to study the important roles of intramolecular disulfides in the structure and function of native rat GR.

**The Journal of biological chemistry** (Jan 1994; 269: 503)  
"Absence of intramolecular disulfides in the structure and function of native rat glucocorticoid receptors."  
Author(s): Opoku J, Simons SS  

**Yeast / Not Cited**

MA1-510 was used in western blot to study the role of the Hsp90-based chaperone system during the neuronal nitric-oxide synthase.

**The Journal of biological chemistry** (Jan 1999; 274: 1472)  
"Neuronal nitric-oxide synthase is regulated by the Hsp90-based chaperone system in vivo."  
Author(s): Bender AT, Silverstein AM, Demady DR, Kanelakis KC, Noguchi S, Pratt WB, Osawa Y  
PubMed Article URL: http://dx.doi.org/10.1074/jbc.274.3.1472

**Human / Not Cited**

MA1-510 was used in western blot to compare the function of human and Drosophila Hop.

**The Journal of biological chemistry** (Mar 2005; 280: 8906)  
"Functional comparison of human and Drosophila Hop reveals novel role in steroid receptor maturation."  
Author(s): Carrigan PE, Riggs DL, Chinkers M, Smith DF  
PubMed Article URL: http://dx.doi.org/10.1074/jbc.M414254200

**6 Immunohistochemistry References**

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MA1-510</strong> was used in immunohistochemistry to study the effect of corticosterone administration on glucocorticoid receptor expression and fear responses in high- and low-anxiety rats.</td>
<td></td>
</tr>
</tbody>
</table>

**Neuroscience letters** (Jan 2013; 533: 17)  
"Corticosterone modulates fear responses and the expression of glucocorticoid receptors in the brain of high-anxiety rats."  
Author(s): Wisowska-Stanek A, Lehner M, Skorzewska A, Maciejak P, Szyndler J, Turzyska D, Sobolewska A, Panik A  
PubMed Article URL: http://dx.doi.org/10.1016/j.neulet.2012.11.012


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### 12 ChIP assay References

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<td><strong>Mouse / 1:500</strong></td>
<td>MA1-510 was used in Immunohistochemistry to imply that stress hormone-dependent functions of central MR/GR contribute to “precognitive” sound processing in the cochlea.</td>
</tr>
<tr>
<td><strong>Yeast / 5 µg/mL</strong></td>
<td>Biology of reproduction (Jan 2010; 82: 35) &quot;HSD11B1, HSD11B2, PTGS2, and NR3C1 expression in the peri-implantation ovine uterus&quot; Author(s): Simons RM, Satterfield MC, Welsh TH, Bazer FW, Spencer TE PubMed Article URL: <a href="http://dx.doi.org/10.1095/biolreprod.109.079608">http://dx.doi.org/10.1095/biolreprod.109.079608</a></td>
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<tr>
<td><strong>Mouse / Not Cited</strong></td>
<td>MA1-510 was used in Immunohistochemistry to investigate the mechanism for the effect of anthrax lethal toxin on glucocorticoid receptor transactivation</td>
</tr>
<tr>
<td><strong>Mouse / Not Cited</strong></td>
<td>Molecular and cellular endocrinology (Sep 2005; 241: 21) &quot;Anthrax lethal toxin represses glucocorticoid receptor (GR) transactivation by inhibiting GR-DNA binding in vivo.&quot; Author(s): Webster JI, Sternberg EM PubMed Article URL: <a href="http://dx.doi.org/10.1016/j.mce.2005.03.011">http://dx.doi.org/10.1016/j.mce.2005.03.011</a></td>
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<td><strong>Mouse / Not Cited</strong></td>
<td>MA1-510 was used in Immunohistochemistry to study the reversibility of neuronal cytoskeletal alterations induced by betamethasone in fetal sheep</td>
</tr>
<tr>
<td><strong>Sheep / 1:60</strong></td>
<td>American journal of obstetrics and gynecology (Jun 2007; 196: 553.e1) &quot;Betamethasone-related acute alterations of microtubule-associated proteins in the fetal sheep brain are reversible and independent of age during the last one-third of gestation.&quot; Author(s): Antonow-Schlorke I, Müller T, Brodhun M, Wicher C, Schubert H, Nathanielsz PW, Witte OW, Schwab M PubMed Article URL: <a href="http://dx.doi.org/10.1016/j.ajog.2006.10.898">http://dx.doi.org/10.1016/j.ajog.2006.10.898</a></td>
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<td>MA1-510 was used in Immunohistochemistry to study the role of glucocorticoids and progestins for CBP recruitment and histone acetylation in differential gene induction</td>
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<tr>
<td><strong>Human / Not Cited</strong></td>
<td>Molecular endocrinology (Baltimore, Md.) (Jun 2003; 17: 1085) &quot;CBP recruitment and histone acetylation in differential gene induction by glucocorticoids and progestins.&quot; Author(s): Lambert JR, Nordean SK PubMed Article URL: <a href="http://dx.doi.org/10.1016/j.mec.2005.03.011">http://dx.doi.org/10.1016/j.mec.2005.03.011</a></td>
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<td><strong>MA1-510 was used in ChIP assay to study the molecular mechanism underlying neurotrophic-priming of glucocorticoid receptor function</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Rat / Not Cited</strong></td>
<td>Proceedings of the National Academy of Sciences of the United States of America (Dec 2015; 112: 15737) &quot;Neurotrophic-priming of glucocorticoid receptor signaling is essential for neuronal plasticity to stress and antidepressant treatment.&quot; Author(s): Arango-Lievano M, Lambert WM, Bath KG, Garabedian MJ, Chao MV, Jeanneteau F PubMed Article URL: <a href="http://dx.doi.org/10.1073/pnas.1509045112">http://dx.doi.org/10.1073/pnas.1509045112</a></td>
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<td><strong>Rat / 3 µg/time</strong></td>
<td>MA1-510 was used in ChIP assay to study the mechanism by which elevated glucocorticoid levels transcriptionally regulate hypothalamic corticotropin-releasing hormone production</td>
</tr>
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</table>

MA1-510 was used in ChIP assay to study the role of the ZFP36L RNA binding protein in glucocorticoid-induced early burst-forming unit-erythroid progenitor self-renewal.

Mouse / Not Cited

Nature (Jul 2013; 499: 92)
"ZFP36L2 is required for self-renewal of early burst-forming unit erythroid progenitors."
Author(s): Zhang L, Prak L, Rayon-Estrada V, Thiru P, Flygare J, Lim B, Lodish HF
PubMed Article URL:http://dx.doi.org/10.1038/nature12215

MA1-510 was used in ChIP assay to investigate the temporal hepatic expression of glucocorticoid receptor target genes in response to feeding.

Mouse / Not Cited

Cell reports (Nov 2021; 37:)
"Impaired glucocorticoid receptor expression in liver disrupts feeding-induced gene expression, glucose uptake, and glycogen storage."
Author(s): Præstholm SM, Correia CM, Goitea VE, Siersbaek MS, Jørgensen M, Havelund JF, Pedersen TÅ, Færgeman NJ, Grentved L
PubMed Article URL:http://dx.doi.org/10.1016/j.celrep.2021.109938

MA1-510 was used in Chromatin immunoprecipitation to characterise the effects of late glucocorticoid treatment, and elucidate the mechanism of action.

Mouse / Not Cited

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"Anti-Inflammatory Chromatinlandscape Suggests Alternative Mechanisms of Glucocorticoid Receptor Action."
Author(s): Oh KS, Patel H, Gottschalk RA, Lee WS, Baek S, Fraser ID, Hager GL, Sung MH
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MA1-510 was used in ChIP assay to study the effect of pulsatile hormone stimulations on gene and regulatory element activation.

Mouse / Not Cited

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"Dynamics of chromatin accessibility and long-range interactions in response to glucocorticoid pulsing."
PubMed Article URL:http://dx.doi.org/10.1101/gr.184168.114

MA1-510 was used in Chromatin immunoprecipitation to uncover mechanisms controlling hepatic postprandial gene expression.

Mouse / Not Cited

PLoS biology (Dec 2018; 16:)
"Insulin signaling and reduced glucocorticoid receptor activity attenuate postprandial gene expression in liver."
Author(s): Kalvisa A, Siersbaek MS, Præstholm SM, Christensen LJJ, Nielsen R, Stohr O, Vettorazzi S, Tuckermann J, White M, Mandrup S, Grentved L
PubMed Article URL:http://dx.doi.org/10.1371/journal.pbio.2006249

MA1-510 was used in Chromatin immunoprecipitation to demonstrate that glucocorticoid addition to mouse bone-marrow-derived macrophages produces very rapid chromatin unfolding at loci associated with glucocorticoid receptor binding.

Mouse / Not Cited

Cell reports (Dec 2017; 21: 3022)
"Glucocorticoid Receptor Binding Induces Rapid and Prolonged Large-Scale Chromatin Decompaction at Multiple Target Loci."
Author(s): Jubb AW, Boyle S, Hume DA, Bickmore WA
PubMed Article URL:http://dx.doi.org/10.1016/j.celrep.2017.11.053

MA1-510 was used in ChIP assay and western blot to show how forkhead box A3 mediates glucocorticoid receptor function in adipose tissue.

Mouse / Not Cited

Proceedings of the National Academy of Sciences of the United States of America (Mar 2016; 113: 3377)
"Forkhead box A3 mediates glucocorticoid receptor function in adipose tissue."
Author(s): Ma X, Xu L, Mueller E
PubMed Article URL:http://dx.doi.org/10.1073/pnas.1601281113

MA1-510 was used in ChIP assay to study the effect of DNA methylation on cell type-specific enhancer activity.

Mouse / 15 µg

The EMBO journal (Jun 2011; 30: 3028)
"DNA methylation status predicts cell type-specific enhancer activity."
PubMed Article URL:http://dx.doi.org/10.1038/emboj.2011.210


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PubMed Article URL:http://dx.doi.org/10.1038/nature12215
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The Journal of biological chemistry (Jan 2013; 288: 42)
"PA1 protein, a new competitive decelerator acting at more than one step to impede glucocorticoid receptor-mediated transactivation."
Author(s):Zhang Z,Sun Y,Cho YW,Chow CC,Simons SS
PubMed Article URL:http://dx.doi.org/10.1074/jbc.M112.427740

19 Immunoprecipitation References

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<tr>
<td><strong>Rat / 2 µg/time</strong></td>
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MA1-510 was used in immunoprecipitation to investigate the effect of BDNF and glucocorticoids on CRH regulation in the hypothalamus.

**Rat / Not Cited**
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"BDNF and glucocorticoids regulate corticotrophin-releasing hormone (CRH) homeostasis in the hypothalamus."
Author(s):Jeanneteau FD,Lambert WM,Ismaili N,Bath KG,Lee FS,Garabedian MJ,Chao MV
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**Species / Dilution**

**Summary**
MA1-510 was used in immunohistochemistry - frozen section to study the involvement of corticosterone in orofacial mechanical hypersensitivity induced by maternal separation.

**Rat / Not Cited**
Journal of dental research (Sep 2016; 95: 1191)
"Maternal Separation Induces Orofacial Mechanical Allodynia in Adulthood."
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**Species / Dilution**

**Summary**
MA1-510 was used in immunohistochemistry - paraffin section to study the involvement of corticosterone in orofacial mechanical hypersensitivity induced by maternal separation.

**Human / Not Cited**
Cancer management and research (Dec 2015; 7: 361)
"Development and validation of an immunohistochemistry assay to assess glucocorticoid receptor expression for clinical trials of mifepristone in breast cancer."
Author(s):Baker GM,Murphy T,Block T,Nguyen D,Lynch FJ
PubMed Article URL:http://dx.doi.org/10.2147/CMAR.S91546

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**Species / Dilution**

**Summary**
MA1-510 was used in flow cytometry to identify the role of the glucocorticoid receptor in liver failure by hepatitis B.

**Human / Not Cited**
Digestive diseases and sciences (Sep 2011; 56: 2605)
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"Corticosteroids but not pimecrolimus affect viability, maturation and immune function of murine epidermal Langerhans cells."
Author(s):Hoetzenecker W,Meingassner JG,Ecker R,Stingl G,stuetz A,Elbe-Bürger A


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Mouse / Not Cited

European journal of immunology (Nov 2005; 35: 3287)

"TCR signaling inhibits glucocorticoid-induced apoptosis in murine thymocytes depending on the stage of development."

Author(s): Erlacher M, Knoflach M, Stec IE, Böck G, Wick G, Wiegers GJ

PubMed Article URL: http://dx.doi.org/10.1002/eji.200526279

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Species / Dilution | Summary
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International immunology (Aug 1999; 11: 1217)

"Glucocorticoid-mediated regulation of thymic dendritic cell function."

Author(s): Sacedon R, Vicente A, Varas A, Jiménez E, Muñoz JJ, Zapata AG

PubMed Article URL: http://dx.doi.org/10.1093/immunol/11.8.1217

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Endocrinology (Nov 2006; 147: 5452)

"Melatonin inhibits glucocorticoid receptor nuclear translocation in mouse thymocytes."

Author(s): Presman DM, Hoijman E, Ceballos NR, Galigiania MD, Pecci A

PubMed Article URL: http://dx.doi.org/10.1210/en.2006-0252

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"Regulation of growth hormone-releasing hormone receptor messenger ribonucleic acid expression by glucocorticoids in MIT-S cells and in the pituitary gland of fetal rats."


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"Early maturation of T-cell progenitors in the absence of glucocorticoids."

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Pediatrics (Feb 2004; 113: 313)
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Author(s): Kanelakis KC, Shewach DS, Pratt WB
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Author(s): Huss JM, Wang SI, Astrum A, McQuiddy P, Kasper CB
PubMed Article URL: http://dx.doi.org/10.1073/pnas.93.10.4666
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Molecular endocrinology (Baltimore, Md.) (Mar 2001; 15: 458)
"Heterodimerization between the glucocorticoid receptor and the unrelated DNA-binding protein, Xenopus glucocorticoid receptor accessory factor."
Author(s):Morin B,Woodcock GR,Nichols LA,Holland LJ
PubMed Article URL:http://dx.doi.org/10.1210/mend.15.3.0607

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"Androgen and glucocorticoid receptors interact with insulin degrading enzyme."
Author(s):Kupfer SR,Wilson EM,French FS

### 2 ELISA References

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<td>Rat / Not Cited</td>
<td>MA1-510 was used in ELISA to study the effect of acoustic stress on the expression of glucocorticoid receptor protein in the cochlear</td>
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Hearing research (Feb 1995; 82: 135)
"Effect of stress on cochlear glucocorticoid protein: acoustic stress."
Author(s):Rarey KE,Gerhardt KJ,Curtis LM,ten Cate WJ
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