**IL-1 beta Monoclonal Antibody (1400.24.17)**

**Catalog Number** MM425B

**Product data sheet**

### Details

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<tr>
<th>Specification</th>
<th>Value</th>
</tr>
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<tr>
<td>Size</td>
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</tr>
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<tr>
<td>Type</td>
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<tr>
<td>Immunogen</td>
<td>Recombinant mouse IL-1 beta</td>
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<td>Concentration</td>
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<td>Purification</td>
<td>Protein A</td>
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<td>Storage buffer</td>
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<td>Storage Conditions</td>
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### Species Reactivity

- **Species reactivity**: Human, Mouse
- **Published species**: Mouse, Not Applicable

### Tested Applications

- **ELISA (ELISA)**: Assay-dependent
- **Western Blot (WB)**: 1 µg/mL

### Published Applications

- **Western Blot (WB)**: See 1 publications below
- **ELISA (ELISA)**: See 8 publications below
- **Immunohistochemistry (IHC)**: See 2 publications below
- **Neutralization (Neu)**: See 3 publications below

* 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.

### Background/Target Information

IL-1 beta (IL-1 beta) is a proinflammatory cytokine expressed by monocytes, macrophages, and dendritic cells. IL-1 beta is synthesized in response to inflammatory stimuli as a 31 kDa inactive pro-form that accumulates in the cytosol. Cleavage of pro-IL-1 beta into the active 17 kDa protein requires the activation of inflammasomes, which are multi-protein complexes that respond to pathogens, stress conditions, and other danger signals. Inflammasome activation triggers the processing of the caspase-1 precursor into its active form, which in turn cleaves pro-IL-1 beta. IL-1 beta lacks a signal sequence peptide for classical ER/Golgi pathway and is secreted alongside caspase-1 via an alternate and incompletely understood mechanism. Although IL-1 beta is most often secreted in its active form, secretion of the uncleaved protein may be detectable under some biological conditions. IL-1 beta signals through two receptors, IL-1R1 and IL-1R1I, both of which are shared with IL-1 alpha. IL-1 beta activity can be moderated by IL-1 Receptor Antagonist (IL-1RA), a protein produced by many cell types that blocks receptor binding through competitive inhibition. IL-1 beta play an important role in innate host defense by triggering the production of other proinflammatory cytokines in target cells and initiating acute-phase responses to infection and injury. Elevated levels of IL-1 beta have been associated with many chronic inflammatory conditions IL-1 beta neutralizing antibodies potential therapeutic value.

**For Research Use Only. Not for use in diagnostic procedures. Not for resale without express authorization.**
IL-1 beta Antibody (MM425B)

Altered expression of proteins upon cell treatment demonstrates antibody specificity. Western blot using IL-1 beta Monoclonal Antibody (1400.24.17) (Product # MM425B), shows an induction of expression in RAW 264.7 upon treatment with Lipopolysaccharide. (TM)

IL-1 beta Antibody (MM425B) in WB

Western blot was performed using Anti-IL-1 beta Monoclonal Antibody (1400.24.17) (Product # MM425B) and a 35 kDa band corresponding to Interleukin-1 beta was observed in RAW 264.7, upon treatment with Lipopolysaccharide. Whole cell extracts (30 µg lysate) of RAW 264.7 (Lane 1), RAW 264.7 (Lipopolysaccharide (100 ng/mL), 24 hours) (Lane 2), THP-1 (Lane 3) were electrophoresed using NuPAGE™ 12% Bis-Tris Protein Gel (Product # NP0342BOX). Resolved proteins were then transferred onto a Nitrocellulose membrane (Product # IB23001) by iBlot® 2 Dry Blotting System (Product # IB21001). The blot was probed with the primary antibody (1 µg/mL) and detected by chemiluminescence with Goat anti-Mouse IgG (H+L) Superclonal™ Recombinant Secondary Antibody, HRP (Product # A28177, 1:4000) using the iBright FL 1000 (Product # A32752). Chemiluminescent detection was performed using Novex® ECL Chemiluminescent Substrate Reagent Kit (Product # WP20005).
MM425B was used in Western Blotting to identify that dexamethasone improved wound healing in frostbitten skin and demonstrated both anti-inflammatory effects and stimulation of vasculogenesis in mice.

**Mouse / Not Cited**

**"Dexamethasone Improves Wound Healing by Decreased Inflammation and Increased Vasculogenesis in Mouse Skin Frostbite Model."**

Author(s): Tu H, Zhang D, Barksdale AN, Wadam MC, Muellemann RL, Li YL

PubMed Article URL: [http://dx.doi.org/10.1016/j.wem.2020.07.003](http://dx.doi.org/10.1016/j.wem.2020.07.003)

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MM425B was used in ELISA to investigate the changes of host defense and inflammatory response to Aspergillus fumigatus in steroid-induced immunosuppressed mice.

**Mouse / Not Cited**

**"Kinetic study of host defense and inflammatory response to Aspergillus fumigatus in steroid-induced immunosuppressed mice."**

Author(s): Duong M, Ouellet N, Simard M, Bergeron Y, Olivier M, Bergeron MG

PubMed Article URL: [http://dx.doi.org/10.1086/314425](http://dx.doi.org/10.1086/314425)

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MM425B was used in ELISA to study the role of interferon gamma in LPS-induced interleukin 1 beta in primary murine macrophages.

**Mouse / Not Cited**

**"IFN-gamma inhibits lipopolysaccharide-induced interleukin-1 beta in primary murine macrophages via a Stat1-dependent pathway."**

Author(s): De Boer ML, Hu K, Kalvakolanu DV, Hasday JD, Cross AS

PubMed Article URL: [http://dx.doi.org/10.1098/rspb.1999.0853](http://dx.doi.org/10.1098/rspb.1999.0853)

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MM425B was used in ELISA to study the role of TLR2 in the interferon-gamma responses.

**Mouse / Not Cited**

**"Inhibition of vagally mediated immune-to-brain signaling by vanadyl sulfate speeds recovery from sickness."**

Author(s): Johnson DR, O’Connor JC, Dantzer R, Freund GG

PubMed Article URL: [http://dx.doi.org/10.1073/pnas.05071911102](http://dx.doi.org/10.1073/pnas.05071911102)

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MM425B was used in ELISA to assess the interleukin-1beta production in transfected P388D1 cells.

**Mouse / Not Cited**

**"Adenoviral vector-mediated overexpression of IL-4 in the knee joint of mice with collagen-induced arthritis prevents cartilage destruction."**


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MM425B was used in ELISA to study the effect of exogenous interleukin 4 on the cartilage repairment.

**Mouse / Not Cited**

**"The CY domain of the Fcgamma Ria alpha-chain (CD64) alters gamma-chain tyrosine-based signaling and phagocytosis."**

Author(s): Edberg JC, Qin H, Gibson AW, Yee AM, Redecha PB, Indik ZK, Schreiber AD, Kimberly RP

PubMed Article URL: [http://dx.doi.org/10.1074/jbc.M207835200](http://dx.doi.org/10.1074/jbc.M207835200)

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MM425B was used in Western Blotting to identify that dexamethasone improved wound healing in frostbitten skin and demonstrated both anti-inflammatory effects and stimulation of vasculogenesis in mice.

**Mouse / Not Cited**

**"Extravascular gelation shrinkage-derived internal stress enables tumor starvation therapy with suppressed apoptosis and eventually realizing starvation therapy of malignancies."**


PubMed Article URL: [http://dx.doi.org/10.1038/s41467-019-13151-3](http://dx.doi.org/10.1038/s41467-019-13151-3)

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MM425B was used in ELISA assay to establish an extravascular gelation shrinkage-derived internal stress strategy for squeezing and narrowing blood vessels, occluding blood & nutrition supply, reducing vascular density, inducing hypoxia and apoptosis and eventually realizing starvation therapy of malignancies.

**Mouse / Not Cited**

**"Kinetic study of host defense and inflammatory response to Aspergillus fumigatus in steroid-induced immunosuppressed mice.""**

Author(s): Duong M, Ouellet N, Simard M, Bergeron Y, Olivier M, Bergeron MG

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PubMed Article URL: [http://dx.doi.org/10.1038/s41467-019-13151-3](http://dx.doi.org/10.1038/s41467-019-13151-3)
MM425B was used in ELISA to investigate the mechanism for the innate immune response to lipopolysaccharide.

**Mouse / Not Cited**

**Journal of immunology (Baltimore, Md. : 1950) (Sep 2002; 169: 2536)**

"IL-18 levels and the outcome of innate immune response to lipopolysaccharide: importance of a positive feedback loop with caspase-1 in IL-18 expression."

Author(s): Joshi VD, Kalvakolanu DV, Hasday JD, Hebel RJ, Cross AS

PubMed Article URL: http://dx.doi.org/10.4049/jimmunol.169.5.2536

**MM425B was used in ELISA to study the role of caspase 1 in septic responses**

**Mouse / Not Cited**

**Infection and immunity (Dec 2002; 70: 6896)**

"Role of caspase 1 in murine antibacterial host defenses and lethal endotoxemia."

Author(s): Joshi VD, Kalvakolanu DV, Hebel JR, Hasday JD, Cross AS


### 2 Immunohistochemistry References

<table>
<thead>
<tr>
<th>Species / Dilution</th>
<th>Summary</th>
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<td><strong>Mouse / Not Cited</strong></td>
<td>MM425B was used in immunohistochemistry to study the effect of interleukin 1 beta on protection against Staphylococcus aureus</td>
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</table>


"Inflammasome-mediated production of IL-1beta is required for neutrophil recruitment against Staphylococcus aureus in vivo."


PubMed Article URL: http://dx.doi.org/10.4049/jimmunol.179.10.6933

**MM425B was used in immunohistochemistry to develop a neurocysticercosis animal model**

**Mouse / Not Cited**


"Development of an animal model for neurocysticercosis: immune response in the central nervous system is characterized by a predominance of gamma delta T cells."

Author(s): Cardona AE, Restrepo BI, Jaramillo JM, Teale JM


### 3 Neutralization References

<table>
<thead>
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<th>Summary</th>
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<tbody>
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<td><strong>Mouse / Not Cited</strong></td>
<td>MM425B was used in blocking/activating experiment to investigate the effect of photodynamic therapy on peripheral blood neutrophilia</td>
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</tbody>
</table>

**Cancer letters (Sep 2002; 183: 43)**

"Mediators of peripheral blood neutrophilia induced by photodynamic therapy of solid tumors."

Author(s): Cecic I, Korbelik M

PubMed Article URL: http://dx.doi.org/10.1016/s0304-3835(02)00092-7

**MM425B was used in blocking/activating experiment to investigate the effect of interleukin 1 beta inhibition for the therapy of arthritis in DBA/1 mice**

**Mouse / Not Cited**

**Clinical and experimental rheumatology (Feb 1994; 11: 515)**

"Neutralization of interleukin-1 beta activity in vivo with a monoclonal antibody alleviates collagen-induced arthritis in DBA/1 mice and prevents the associated acute-phase response."


**MM425B was used in blocking or activating experiment to study the protective effect of photodynamic therapy against bacterial arthritis and the mechanism involved**

**Mouse / Not Cited**

**PloS one (Jan 2013; 7: )**

"Photodynamic therapy can induce a protective innate immune response against murine bacterial arthritis via neutrophil accumulation."


PubMed Article URL: http://dx.doi.org/10.1371/journal.pone.0039823