Monoclonal Antibody X-4

Monoclonal Antibody To Human Macrophages Possibly Recognizing A Scavenger Receptor

Monoclonal antibody X-4, together with X-14, and PM-2K, forms a particular group of macrophage specific antibodies which were tested at the Vth Leukocyte Typing Workshop held in Boston in 1993. The X-4 antigen was initially suspected to function as a scavenger receptor. However, experiments with CHO cells expressing Macrophage Scavenger Receptor (MSR) AI or AII showed that they were not recognized by this antibody.

TECHNICAL CHARACTERISTICS

Clone: X-4
Host species, isotype: Mouse IgG1
Quantity: 100μg

Format: Affinity purified, lyophilized
Reconstitute by adding 0.5ml distilled water. This stock solution contains 0.2mg/ml IgG, phosphate buffered saline pH 7.2 (PBS), 10mg/ml bovine serum albumin (BSA) as a stabilizer and 0.01% thimerosal as a preservative.

Stability: Original vial: 1 year at 4° - 8°C
Stock solution or aliquots thereof: 1 year at -20°C. Avoid repeated thawing and freezing.

Applications: Tested for immunohistochemistry (IHC).

Approximate working dilution for IHC:
Frozen sections: 2μg/ml (1:100)
Paraffin sections: not tested.

Optimal dilutions should be determined by the end user.

Suggested positive control: Human placenta.

Immunogen: Cultured human monocytes.

Antigen, epitope: The antigen is a protein of 100kDa as determined by immunoprecipitation. It is found on the cytoplasmic membranes of macrophages. The epitope has not been determined.
**Antigen distribution: Isolated cells:** Positive on peritoneal macrophages and on cultivated macrophages with serum supplementation. Positive in AML but not on blast cells. Negative under serum-free conditions, on freshly isolated monocytes and on fMLP activated neutrophils. U937 cells show increased antigen expression after TNFα and GM-CSF treatment.

**Tissue sections:** X-4 is positive on macrophages, Kupffer cells, mesangial cells and Hoffbauer cells. It is positive on intrafollicular and paracortical dendritic and spindle macrophages and with macrophages and foamy cells in Xathoma disseminatum but negative in sarcoid granuloma and histiocytosis X.

**Specificity:**

**Human:** Macrophages.

**Other species:** positive with rabbit, cat, dog, goat, pig, horse, monkey, weak on guinea pig, negative with bovine and rat.

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**Comparison of Staining Patterns of X-4, X-14a and PM-2Kb on different cell types**

<table>
<thead>
<tr>
<th></th>
<th>X-4</th>
<th>X-14</th>
<th>PM-2K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lymph nodes</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>tingible body macrophages</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Brain</td>
<td>-</td>
<td>+</td>
<td>+</td>
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<tr>
<td>microglial cells</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Blood monocytes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24h culture</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

+= positive, ± = weakly positive, - = negative

a: Product T-1050
b: Product T-1051

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**Selected references**


For in vitro research only. Caution: this product contains thimerosal, a poisonous and hazardous substance.
T-1049 X-4 7.4.2006

Species: Mouse
Class/Subclass: IgG1
Purity: Purified from culture supernatant
Physical State: Lyophilized
Quantity: 100µg
Buffer: Phosphate buffered saline pH 7.2
Stabilizer: 10mg/ml bovine serum albumin
Preservative: 0.01% Thimerosal
Reconstitute in: 0.5ml distilled water (= stock solution)
Storage: unreconstituted: 4°C for 1 year
after reconstitution: aliquot and freeze at -20°C or lower
do not freeze working dilutions.
Stability of stock solution: approx. 1 year at -70°C
Approximate working dilution: 2µg/ml (1:100) freshly prepared
Fixation: Acetone (5 minutes at 4°C)

Caution: this product contains Thimerosal, a poisonous and hazardous substance. For laboratory use and research purposes only.

SELECTED REFERENCES


BIOLoICAL CHARACTERISTICS

SPECIFICITY

Human: macrophages (main cellular reactivity)
Animal: positive with rabbit, cat, dog, goat, pig, horse, monkey, weak on guinea pig,
negative with bovine and rat

**BIOCHEMISTRY**

The antigen is a protein of 100kD as determined by immunoprecipitation. It is found on the cytoplasmic membranes of macrophages.

**ANTIGEN DISTRIBUTION**

**Isolated cells:**
- Positive on peritoneal macrophages
- Positive on cultivated macrophages under serum supplementation
- Negative under serum-free conditions
- Negative on freshly isolated monocytes
- Positive in AML but not on blast cells
- Negative on fMLP activated neutrophils

**Cell Lines:**
- U937 show increased antigen expression after TNFα and GM-CSF treatment

**Tissue sections:**
- X-4 is positive on macrophages, Kupffer cells, mesangial cells and Hoffbauer cells. It is positive on intrafollicular and paracortical dendritic and spindel macrophages and with macrophages and foamy cells in Xanthoma disseminatum but negative in sarcoid granuloma and histiocytosis X.

**Comparison of Staining Patterns of X-4, X-14 and PM-2K**

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<th>PM-2K</th>
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<tr>
<td>Lymph nodes</td>
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<td>Macrophages</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brain (microglial cells)</td>
<td>±</td>
<td>-</td>
<td>±</td>
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T-1049     X-4                      21.3.2002