### Overview

<table>
<thead>
<tr>
<th><strong>Product name</strong></th>
<th>Anti-Heparan Sulfate Proteoglycan 2 antibody [A7L6]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Rat monoclonal [A7L6] to Heparan Sulfate Proteoglycan 2</td>
</tr>
<tr>
<td><strong>Host species</strong></td>
<td>Rat</td>
</tr>
<tr>
<td><strong>Specificity</strong></td>
<td>Recognizes domain IV of heparan sulphate proteoglycan 2 / perlecan. The reactivity is independent of the galactosaminoglycan moieties. Therefore, the epitope is not sensitive to heparitinase treatment.</td>
</tr>
<tr>
<td><strong>Tested applications</strong></td>
<td>Suitable for: ICC, IHC-P, IHC-Fr, IP, WB</td>
</tr>
<tr>
<td><strong>Species reactivity</strong></td>
<td>Reacts with: Mouse, Rat, Cow, Human, Pig, Fish</td>
</tr>
<tr>
<td><strong>Immunogen</strong></td>
<td>High molecular mass material derived from the Engelbreth-Holm-Swarm (EHS) tumor matrix containing laminin, entactin and HSPG. The antibody was raised against the total Heparan Sulphate Proteoglycan protein; no epitope mapping was ever performed.</td>
</tr>
</tbody>
</table>

### General notes

Proteoglycans are macromolecules consisting of a variety of core proteins with covalently attached one or several polysaccharide chains of the glycosaminoglycan type (heparan sulphate, heparin, chondroitin sulphate, dermatan sulphate or keratan sulphate). At least two forms of basement membrane heparan sulphate proteoglycan (HSPG) have been identified. One with a large core protein (> 400 kD) and one with a small core protein (30 kD). The large HSPG is probably the most abundant basement membrane proteoglycan. It is located predominantly in the lamina lucida, where it forms clustered aggregates and interacts with other basement membrane components to form the matrix. In addition, it also plays a critical role in attachment of cells to the basal membrane via integrin receptors.

### Properties

<table>
<thead>
<tr>
<th><strong>Form</strong></th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Storage instructions</strong></td>
<td>Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.</td>
</tr>
<tr>
<td><strong>Storage buffer</strong></td>
<td>Preservative: 0.02% Sodium azide Constituents: PBS, 50% Glycerol, 0.1% BSA</td>
</tr>
<tr>
<td><strong>Purity</strong></td>
<td>Protein A purified</td>
</tr>
</tbody>
</table>
Proteoglycans are macromolecules consisting of a variety of core proteins with covalently attached one or several polysaccharide chains of the glycosaminoglycan type (heparan sulphate, heparin, chondroitin sulphate, dermatan sulphate or keratan sulphate). At least two forms of basement membrane heparan sulphate proteoglycan (HSPG) have been identified. One with a large core protein (> 400 kD) and one with a small core protein (30 kD). The large HSPG is probably the most abundant basement membrane proteoglycan. It is located predominantly in the lamina lucida, where it forms clustered aggregates and interacts with other basement membrane components to form the matrix. In addition, it also plays a critical role in attachment of cells to the basal membrane via integrin receptors.

Clonality
Monoclonal

Clone number
A7L6

Myeloma
x63-Ag8.653

Isotype
IgG2a

Applications

Our Abpromise guarantee covers the use of ab2501 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHC-P</td>
<td>Use at an assay dependent dilution. Perform enzymatic antigen retrieval before commencing with IHC staining protocol. Use amplification with ABC (avidin biotin complex).</td>
<td></td>
</tr>
<tr>
<td>IHC-Fr</td>
<td>Use at an assay dependent dilution. PubMed: 16055495Use amplification with ABC (avidin biotin complex).</td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td>Use at an assay dependent dilution.</td>
<td></td>
</tr>
<tr>
<td>WB</td>
<td>1/100 - 1/1000.</td>
<td></td>
</tr>
</tbody>
</table>

Target

Function
Integral component of basement membranes. Component of the glomerular basement membrane (GBM), responsible for the fixed negative electrostatic membrane charge, and which provides a barrier which is both size- and charge-selective. It serves as an attachment substrate for cells. Plays essential roles in vascularization. Critical for normal heart development and for regulating the vascular response to injury. Also required for avascular cartilage development. Endorepellin in an anti-angiogenic and anti-tumor peptide that inhibits endothelial cell migration, collagen-induced endothelial tube morphogenesis and blood vessel growth in the chorioallantoic membrane. Blocks endothelial cell adhesion to fibronectin and type I collagen. Anti-tumor agent in neovascularization. Interaction with its ligand, integrin alpha2/beta1, is required for the anti-angiogenic properties. Evokes a reduction in phosphorylation of receptor tyrosine kinases via alpha2/beta1 integrin-mediated activation of the tyrosine phosphatase, PTPN6. The LG3 peptide has anti-angiogenic properties that require binding of calcium ions for full activity.
Tissue specificity
Found in the basement membranes.

Involvement in disease
Defects in HSPG2 are the cause of Schwartz-Jampel syndrome (SJS1) [MIM:255800]; a rare autosomal recessive disorder characterized by permanent myotonia (prolonged failure of muscle relaxation) and skeletal dysplasia, resulting in reduced stature, kyphoscoliosis, bowing of the diaphyses and irregular epiphyses.
Defects in HSPG2 are the cause of dyssegmental dysplasia Silverman-Handmaker type (DDSH) [MIM:224410]. The dyssegmental dysplasias are rare, autosomal recessive skeletal dysplasias with anisospondyly and micromelia. There are two recognized types: the severe, lethal DDSH and the milder Rolland-Desbuquois form. Individuals with DDSH also have a flat face, micrognathia, cleft palate and reduced joint mobility, and frequently have an encephalocele. The endochondral growth plate is short, the calcospherites (which are spherical calcium-phosphorus crystals produced by hypertrophic chondrocytes) are unfused, and there is mucoid degeneration of the resting cartilage.

Sequence similarities
Contains 4 EGF-like domains.
Contains 22 Ig-like C2-type (immunoglobulin-like) domains.
Contains 11 laminin EGF-like domains.
Contains 3 laminin G-like domains.
Contains 3 laminin IV type A domains.
Contains 4 LDL-receptor class A domains.
Contains 1 SEA domain.

Post-translational modifications
Proteolytic processing produces the C-terminal angiogenic peptide, endorepellin. This peptide can be further processed to produce the LG3 peptide.
N- and O-glycosylated; contains three heparan sulfate chains. The LG3 peptide contains at least three and up to five potential O-glycosylation sites but no N-glycosylation.

Cellular localization
Secreted > extracellular space > extracellular matrix > basement membrane.

Images
IHC image on a frozen section of human colon showing strong reactivity in the extracellular matrix and basement membrane.

Immunohistochemistry (Frozen sections) - Anti-Heparan Sulfate Proteoglycan 2 antibody [A7L6] (ab2501)
Immunohistochemistry on frozen section of Human kidney showing strong reactivity in the extracellular matrix and basement membrane.

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