

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Connexin 43/GJA1. Stains human Connexin 43/GJA1 transfectants but not irrelevant transfectants in flow cytometry.
<b>Source</b>	Monoclonal Mouse IgG <sub>2A</sub> Clone # 578618
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	Mouse myeloma cell line NS0 transfected with human Connexin 43/GJA1 Accession # P17302
<b>Conjugate</b>	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

#### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. *General Protocols* are available in the *Technical Information* section on our website.

	<b>Recommended Concentration</b>	<b>Sample</b>
<b>Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	Human T regulatory cells

#### PREPARATION AND STORAGE

**Shipping** The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** **Protect from light. Do not freeze.**

- 12 months from date of receipt, 2 to 8 °C as supplied.

#### BACKGROUND

Connexin43 (Cx43; also gap junction  $\alpha$ -1 protein) is a 41 - 44 kDa member of the connexin family,  $\alpha$ -type subfamily, of transmembrane proteins. It is the most common type of connexin in cardiac muscle cells, and also occurs in hepatocytes, astrocytes and ovary granulosa cells. It is a 4-transmembrane protein 382 amino acids (aa) in length that contains two cytoplasmic tails. One is 12 aa in length at the N-terminus and the second is 151 aa in length at the C-terminus. Human and rat Cx43 are 98% aa identical over the entire length of the molecule. Connexins form gap junctions (GJs) which are intercellular channels between cells. Each adjacent cell contributes to a functional channel. The fundamental unit is a "connexon", or hemi-channel, which is composed of six connexins in a sliding subunit hexamer configuration. The hexamer may be either homomeric or heteromeric. The connexon arrangement provides for the opening and closing of an intersubunit space (or pore) that allows diffusion of molecules 1 kDa or less. It is suggested that the extended C-terminus of each connexin may interact with multiple docking proteins and serve as a plug during closure. Connexons on adjacent cells interact via their extracellular loops to form a GJ channel. When open, these channels allow for the transit of small hydrophilic molecules such as ATP, glucose, IP3 and Ca<sup>++</sup>. Connexons (or hemi-channels) that do not interact with adjacent cells are also suggested to allow for small molecule transit under unusual circumstances. Cx43 activity is regulated by phosphorylation. The exact effects, however, may be context-specific. In one case, PKC phosphorylation of S368 has been found to decrease GJ channel permeability to select small molecular weight solutes. Alternatively, PKA has been suggested to be the mediator of Cx43 phosphorylation of S365, S368, S369 and S373. In this case, phosphorylation promotes channel activity.

#### References:

1. Sohl, G. and K. Willecke (2004) *Cardiovasc. Res.* **62**:228.
2. Willecke, K. *et al.* (2002) *Biol. Chem.* **383**:725.
3. Giepmans, B.N.G. (2004) *Cardiovasc. Res.* **62**:233.
4. Vinken, M. *et al.* (2006) *Cell. Signal.* **18**:592.
5. Stout, C. *et al.* (2004) *Curr. Opin. Cell Biol.* **16**:507.
6. Bao, X. *et al.* (2004) *Am. J. Physiol. Cell. Physiol.* **286**:C647.
7. Yogo, K. *et al.* (2006) *J. Reprod. Dev.* **52**:321.

#### PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc. and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.