ProductInformation

PARC, BIOTIN CONJUGATE
Human

Product Number **P 2367**
Storage Temperature –20 °C

Synonyms: Pulmonary and activation-regulated chemokine, AMAC-1, CCL-18, MIP-4, dendritic cell-derived CC chemokine-1, DC-CK1, SCYA18

Product Description
Human PARC is a synthetic protein composed of 69 amino acid residues with a calculated molecular mass of 7,855 Da.[1]

Chemokines comprise a group of small, structurally-related molecules that are chemoattractants for leukocytes. As such, they regulate cell trafficking of leukocytes and the development, homeostasis, and function of the immune system. Chemokines are expressed in many cell types, including cells of the central nervous system, bone marrow, major organs, endothelial linings, as well as in many transformed cell lines.

Chemokines are divided into two major subfamilies based on the arrangement of the first two conserved cysteines. In the CC (β) subfamily these cysteines are adjacent to each other; and in the CXC (α) subfamily the first two cysteines are separated by a single amino acid. CXC chemokines are further subdivided into ELR and non-ELR types based on the presence or absence of a glu-leu-arg sequence preceding the CXC motif in the amino terminal region.[2] ELR-containing chemokines are chemotaxic for neutrophils. Most mature chemokines consist of approximately 70 amino acid residues and have internal disulfide bonds. All known α chemokines share 25-90% sequence homology and most have a four exon, three intron structure. Their genes cluster on human chromosome 4q12-q21. All known β chemokines share 25-70% sequence homology and have a three exon, two intron structure. Their genes cluster on human chromosome 17.

PARC is expressed at high levels in lung and placenta, and its expression is induced in macrophages, monocytes, and dendritic cells of blood and lymphoid tissues by various internal and external stimuli.[3-8] The amino acid sequence of PARC is approximately 60% identical to that of macrophage inflammatory protein-1α (MIP-1α). Its gene has been mapped to chromosome 17q11.2. The absence of a PARC homolog in mouse indicates that generation of the PARC gene likely occurred after the diversification of rodents and primates.[1,4,5]

PARC is chemotactic for both naive[6] and activated ($CD3^+$) T cells[4] as well as for naïve B cells.[8] PARC is not chemotactic for monocytes or granulocytes.[5]

Although PARC is closely related to MIP-1α, its expression pattern is opposite that of MIP-1α. Expression of MIP-1α is induced by classical macrophage activators, such as lipopolysaccharide (LPS), and is inhibited by interleukin 4 (IL-4) and glucocorticoids In contrast, PARC expression is induced in macrophages by IL-4, IL-13, and IL-10. Expression of PARC is inhibited by interferon γ, while glucocorticoids exert a positive synergistic effect in combination with IL-4.[1]

Reagents
PARC is provided as a lyophilized powder.

Preparation Instructions
Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing 0.1% human or bovine serum albumin. Prepare a stock solution of no less than 20 µg/ml. Vortex thoroughly.

Storage/Stability
PARC is stable for at least 12 months when stored at –20 °C. The stock solution should be stored at –20 °C in single-use aliquots. Avoid repeated freeze-thaw cycles to prevent denaturing of the protein. Do not store in a frost-free freezer.

Product Profile
The activity of biotinylated PARC is measured by its ability to induce chemotaxis in T-lymphocytes. The ED_{50} for this effect ranges from 0.5 to 2.0 µg/ml.

Note: In order to obtain the best results using different techniques and preparations we recommend determining the optimal working concentration by titration.

References

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