# Recombinant Human Macrophage Migration Inhibitory Factor, Avi (rHuMIF, Avi)

## ChemWhat Technical Data Sheet (TDS)

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| **Catalog Number:** | 601-03D |
| **Source:** | *Escherichia coli.* |
| **Molecular Weight:** | Approximately 14.3 kDa, a single non-glycosylated polypeptide chain containing 130 amino acids, with Avi tag at the C-terminus. |
| **Quantity:** | 10μg/100μg/500μg |
| **AA Sequence:** | MPMFIVNTNV PRASVPDGFL SELTQQLAQA TGKPPQYIAV HVVPDQLMAF GGSSEPCALC SLHSIGKIGG AQNRSYSKLL CGLLAERLRI SPDRVYINYY DMNAANVGWN NSTFAGLNDI FEAQKIEWHE |
| **Purity:** | > 97 % by SDS-PAGE and HPLC analyses. |
| **Biological Activity:** | Fully biologically active when compared to standard. The specific activity is determined by binding rhCD74 in a functional ELISA. |
| **Physical Appearance:** | Sterile Filtered White lyophilized (freeze-dried) powder. |
| **Formulation:** | Lyophilized from a 0.2 μm filtered concentrated solution in PBS, pH 7.0, 5 % Trehalose, 0.02 % Tween-20. |
| **Endotoxin:** | Less than 1 EU/μg of rHuMIF, Avi as determined by LAL method. |
| **Reconstitution:** | We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute in sterile distilled water or aqueous buffer containing 0.1 % BSA to a concentration of 0.1-1.0 mg/mL. Stock solutions should be apportioned into working aliquots and stored at ≤ -20 °C. Further dilutions should be made in appropriate buffered solutions. |
| **Shipping:** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage:** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 3 months, -20 to -70 °C under sterile conditions after reconstitution. |
| **Usage:** | **ChemWhat Limited in UK offers this branded product for research, development or further** evaluation purposes. **NOT FOR HUMAN USE.** |

### *Human Macrophage Migration Inhibitory Factor*

Migration Inhibitory Factor (MIF) is a secreted protein without a cleavable signal sequence and is secreted via a specialized, nonclassicalpathway. It is secreted by macrophages upon stimulation by bacterial lipopolysaccharide (LPS), or by M.tuberculosis antigens. MIF consists of two α-helices and six β-strands, four of which form a β-sheet. The two remaining β-strands interact with other MIF molecules, creating a trimer. Structure-function studies suggest MIF is bifunctional with segregated topology. The N- and C-termini mediate enzyme activity (in theory). Phenylpyruvate tautomerase activity (enol-to-keto) has been demonstrated and is dependent upon Pro at position 1. Amino acids 50-65(a.a.) have also been suggested to contain thiol-protein oxidoreductase activity. MIF has proinflammatory cytokine activity centered around 49 - 65(a.a.). On fibroblasts, MIF induces, IL-1, IL-8 and MMP expression; on macrophages, MIF stimulates NO production and TNF-α release folllowing IFN-γ activation. MIF apparently acts through CD74 and CD44, likely in some form of trimeric interaction. Human MIF is active on mouse cells. Human MIF is 90 %, 94 %, 95 %, and 90 % a.a. identical to mouse, bovine, porcine and rat MIF, respectively.