

## Certificate of Analysis

### Description: Recombinant Tumor Necrosis Factor-alpha (Human)

Expiry Date: 05-14-2016

Cat #: HETNP-0101c

Lot #: D10301061

Size: 1.0 mg/vial

Test Parameters	Specification	Result
Purity <sup>1</sup>	Sample must exhibit >98% purity.	98.96%
Biological Activity <sup>2</sup>	The ED <sub>50</sub> must be less than 0.05 ng/mL, corresponding to a specific activity of >2.0 x 10 <sup>7</sup> IU/mg.	2.88 x 10 <sup>7</sup> IU/mg
Molecular Weight <sup>3</sup>	Sample must have a molecular weight of 17.5± 1.8 kDa.	Pass
Endotoxin <sup>4</sup>	Results must show ≤ 1.0 EU/μg.	≤ 0.01 EU/μg
Physical Appearance	Sample must have a white, lyophilized powder appearance.	Pass

#### Notes:

1. The sample is assayed for purity by SDS-PAGE and HPLC analyses.
2. The ED<sub>50</sub> is determined by a cell proliferation assay using Murine L929 cells.
3. The sample is tested for molecular weight using SDS-PAGE.
4. The sample is tested for endotoxin contamination with LAL test.



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May 15, 2014