Fast Mouse G-CSF ELISA

For the quantitation of mouse G-CSF concentrations in cell culture supernates, serum, and plasma.

INTRODUCTION

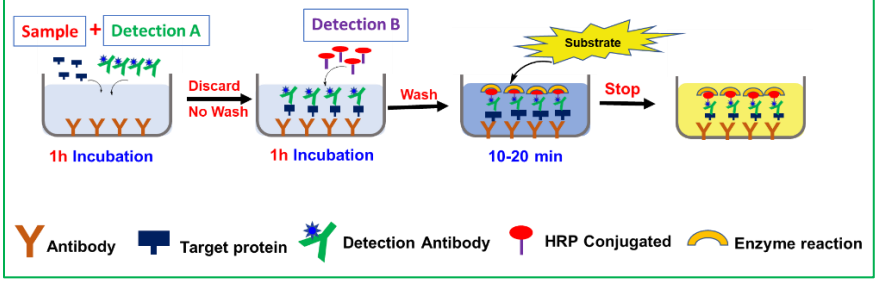
Mouse granulocyte-colony stimulating factor (G-CSF) is a 24-25 kDa monomeric glycoprotein that regulates the proliferation, differentiation, and activation of hematopoietic cells. G-CSF is produced primarily by monocytes and macrophages upon activation by endotoxin, TNF-α or IL-1. Other cell types, including fibroblasts, endothelial cells, astrocytes and bone marrow stroma cells, can also secrete G-CSF after activation. In addition, various tumor cells express G-CSF constitutively. G-CSF is an important regulator for granulopoiesis in vivo.

The Fast Mouse G-CSF ELISA is a solid phase ELISA designed to measure mouse G-CSF levels in cell culture supernates, serum, and plasma. The main feature is that the kit uses our novel proprietary approaches to combine samples and detections into a one-step instead of the complicated multiple steps in traditional methods. It makes the assay simple, easy, accurate and fast. The measurement can be finished in 1 hours, not need 4-5 hours (Fig. 1). The detection range is from 8 to 2000 pg/mL. The levels of mouse G-CSF samples are parallel to the standard curves obtained using the kit standards linearly. These results indicate that this kit can be used to determine relative mass values for natural mouse G-CSF protein.

PRINCIPLE OF THE ASSAY

This assay employs our novel proprietary sandwich enzyme immunoassay techniques (See Fig. 1). A monoclonal antibody specific for mouse G-CSF was pre-coated onto a microplate. Standards or samples and Detection Antibody are pipetted into the wells, and concurrently incubated for 1hour. Then, just aspirate each well, no wash, directly add Streptavidin-HRP, incubate the complex. Following a wash to remove any unbound antibody and samples, an ultra-sensitive TMB substrate solution is added to the wells for color develops. The color intensity is in proportion to the amount of G-CSF bound in the initial step. The intensity of the color is measured by plate read at 450 nm.

Fig. 1 Simple Assay Procedures



KIT CONTENT AND STORAGE CONDITIONS FOR 3 PLATES

PART	PART#	DESCRIPTION	STORAGE OF OPENED/ RECONSTITUTED
Mouse G-CSF Capture	TBS3080A	96 well microplate (12 strips of 8 wells) coated with a capture antibody against mouse G-CSF.	The unused wells can be stored the sealed foil pouch containing the desiccant pack for up to 1 month at 2-8 °C.
Mouse G-CSF Standard	TBS3080B	20 µl of Recombinant mouse G-CSF protein (100ng/mL).	Aliquot and store at -20 °C for up to 1 month in a manual defrost freezer. Avoid repeated freeze-thaw cycles.
Detection A	TBS3080C	2.1 mL of mouse G-CSF antibody-Biotin.	May be stored for up to 3 months at 2-8 °C.*
Detection B	TBS3080D	240 µl of Streptavidin-HRP (50x)	
Assay Diluent	TBS3000E	20 ml of a buffered protein base with preservatives.	
10x Wash Buffer	TBS3000W	12 ml of concentrated solution (10x).	
TMB Substrate	TBS3000T	12 ml of ultra-sensitive TMB substrate.	
Stop Solution	TBS3000S	6 ml of 2 N sulfuric acid.	

Store the unopened kit at 2-8 ℃. Do not use past kit expiration date.

PRECAUTIONS

Wear protective gloves, clothing, eye, and face protection. Wash hands thoroughly after handling.

REAGENT PREPARATION

Bring all reagents to room temperature before use. ***The Following Reagent preparation is for 1x96-well plate.***

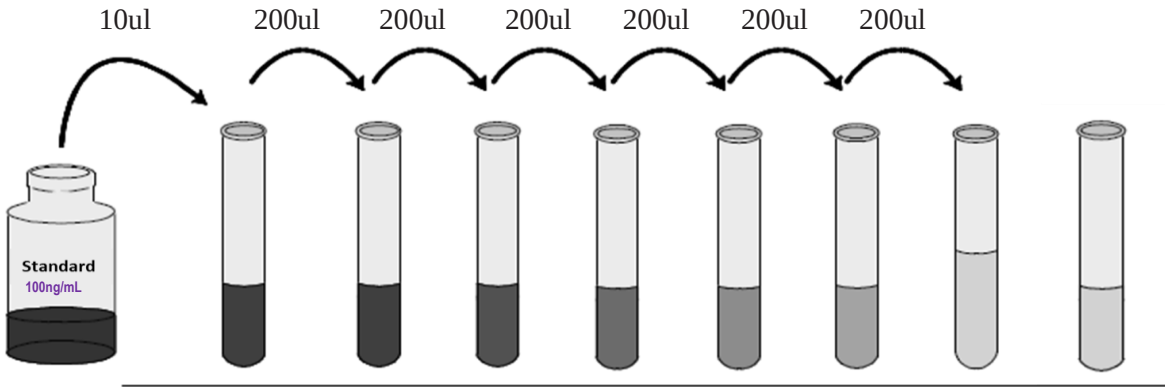
Wash Buffer: Add 10 mL of Wash Buffer Concentrate (10x) to 90 mL of deionized distilled water to prepare 100 mL of Wash Buffer (If crystals have formed in the concentrate, warm to room temperature and mix gently until the crystals have completely dissolved.).

Detection B: Dilute 200 µL Detection B stock with Assay Diluent to 10mL as a working solution of Detection B.

Mouse G-CSF Standard Preparation:

1. Label test tubes as #1 through #8. Pipet 490 µL of 1x Assay Diluent into tube #1, and 200 µL into tubes #2 to #8 **as diagram below.**
2. Add 10 µL of the Mouse G-CSF Standard stock solution (100ng/mL) to tube #1 (2000pg/mL) and mix.
3. Make 2x serial dilutions of the standard using the 2000pg/mL standard solution from tube #2 through #7 with sequential transfer of 200 µL to the next concentration from the previous one. Mix each tube thoroughly before the next transfer. The standard concentration in tube 1 through 7 will be 2000, 1000, 500, 250, 125, 62.5, and 31.25pg/mL. Tube# 8 is Standard 0.

Fig. 2 Diagram for Mouse G-CSF standard preparation



	Std1	Std2	Std3	Std4	Std5	Std6	Std7	Std8
Assay Buffer (µL)	**490**	200	200	200	200	200	200	200
Addition	Stock	Std1	Std2	Std3	Std4	Std5	Std6	
Addition Vol. (µL)	10	200	200	200	200	200	220	0
Final Conc. (pg/ml)	2000	1000	500	250	125	62.5	31.25	0

ASSAY PROCEDURE

Bring all reagents and samples to room temperature before use. It is recommended that all standards, controls, and samples be assayed in duplicate.

1. Add 80 µL of standard, sample, or control per well.
2. Add 20 µL of **Detection A** to the above standard and sample of each well, thoroughly mix. Cover with the adhesive sealer. Incubate at **RT for 1hour.**
3. Aspirate each well (***no wash***). Invert the plate and blot it against clean paper towels.
4. Add 100 µL of **Detection B** to each well. Incubate at **RT for 1hour.**
5. Aspirate each well, and wash for 3 times by filling each well with 200 µL Wash Buffer (*Complete removal of liquid at each step is essential to good performance*). After the last wash, remove any remaining Wash Buffer by aspirating or decanting. Invert the plate and blot it against clean paper towels.
6. Add 100 µL of **TMB Substrate** to each well. Incubate **at RT for 10-20min** (*Protect from light*). The color becomes blue. If the color is light, the incubation time can be longer.
7. Add 50 µL of **Stop Solution** to each well. The color in the well should change from blue to yellow (gently tap the plate to ensure thorough mixing).
8. Determine the optical density of each well within 5 minutes, using a microplate reader at 450 nm. If wavelength correction is available, set to 540 nm or 570 nm. If wavelength correction is not available, subtract readings at

540 nm or 570 nm from the readings at 450 nm. This subtraction will correct for optical imperfections in the plate. Readings made directly at 450 nm without correction may be higher and less accurate.

CALCULATION OF RESULTS

Average the duplicate readings for each standard, control, and sample subtract the average zero standard optical density (O.D.).

Create a standard curve using computer software capable of generating a four-parameter logistic (4-PL) curve-fit. As an alternative, construct a standard curve by plotting the mean absorbance for each standard on the Y-axis against the concentration on the X-axis and draw a best fit curve through the points on the graph. The data may be linearized by plotting the log of the mouse G-CSF concentrations versus the log of the O.D. and the best fit line can be determined by regression analysis. This procedure will produce an adequate but less precise fit of the data.

TYPICAL DATA

This standard curve(R2=0.9997) is provided for demonstration only. A standard curve should be generated for each set of samples assayed. Fig. 3 is an example of typical data.

SENSITIVITY

The minimum detectable dose (MOD) of mouse G-CSF is typically 12 pg/ml.

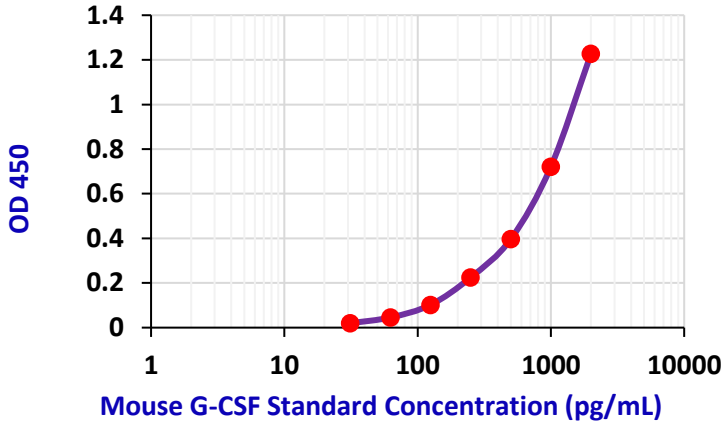
The Intra-assay CV is 5.45% the Inter-assay CV is 8.6%.

SPECIFICITY

This assay recognizes natural and recombinant mouse G-CSF. No cross reaction with other cytokines.

RELATIVE PRODUCTS

TBS3030	Fast Mouse IL-1β ELISA
TBS3031	Fast Mouse IL-2 ELISA
TBS3032	Fast Mouse IL-4 ELISA
TBS3040	Fast Mouse IL-6 ELISA
TBS3044	Fast Mouse IL-10 ELISA
TBS3047	Fast Mouse IL-12 p70 ELISA
TBS3049	Fast Mouse IL-13 ELISA
TBS3050	Fast Mouse TNF-α ELISA
TBS3060	Fast Mouse KC ELISA
TBS3070	Fast Mouse NGF ELISA
TBS3079	Fast Mouse GM-CSF ELISA
TBS3084	Fast Mouse IFN-γ ELISA
TBS3085	Fast Mouse TGF ELISA
TBS3086	Fast Mouse MCPT-1 ELISA
TBS3090	Fast Mouse IL-17AF ELISA
TBS3091	Fast Mouse IL-19 ELISA
TBS3092	Fast Mouse IL-21 ELISA
TBS3093	Fast Mouse IL-22 ELISA
TBS3094	Fast Mouse IL-23 ELISA
TBS3095	Fast Mouse IL-27 ELISA
TBS3096	Fast Mouse IL-28B ELISA
TBS3097	Fast Mouse IL-33 ELISA
TBS3098	Fast Mouse Insulin ELISA



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