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# ELISA for quantification of macrophage-colony stimulating factor (M-CSF) in human serum or plasma.

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- 1 An anti-human macrophage-colony stimulating factor (M-CSF) coating antibody is adsorbed onto the microwells by incubation overnight at 4°C with carbonate-bicarbonate buffer.
- 2 Add 50 µl of human serum or plasma. M-CSF present in the serum sample binds to antibodies adsorbed into the microwells.

- 3 The microplate is blocked with 3% non-fat milk-PBS buffer and later wash to remove unbound proteins.
- 4 Fifty (50)  $\mu$ l of biotin-conjugated anti-M-CSF antibody is added. The optimal dilution must be investigated.
- 5 The microplate is rewashed with PBS-Tween 20 buffer, pH 7.4.
- 6 One hundred  $\mu$ l of streptavidin-HRP conjugate is added and it binds to the biotin-conjugated anti-M-CSF antibody.
- 7 The plate is washed following incubation to remove the unbound Streptavidin-HRP conjugate.
- 8 Add 100  $\mu$ l of 3,3',5,5'-tetramethylbenzidine (TMB; Sigma-Aldrich) into each well.
- 9 Incubate the microwells in the dark for 15 min.
- 10 A colored product is formed in proportion to the quantity of M-CSF present in the sample or standard.
- 11 The reaction is terminated by addition of 100  $\mu$ l 3M H<sub>2</sub>SO<sub>4</sub> and the absorbance is measured at 450 nm.
- 12 A standard curve is made from 7 human M-CSF standard dilutions and the human M-CSF sample concentration is determined.
- 13 For better results place the microplate on a microplate shaker in every incubation.