

PRODUCT INFORMATION AND MANUAL

***Human IL-8/NAP-1
Matched Antibody Pairs
for ELISA***

BMS204/3MST

Module Set for the development of an enzyme-linked immunosorbent assay for quantitative detection of human IL-8/NAP-1.

For research use only.

Not for diagnostic or therapeutic procedures.



**Human IL-8/NAP-1
BMS204/3MST**

Bender MedSystems GmbH
Campus Vienna Biocenter 2
A-1030 Vienna, Austria, Europe

READ BEFORE OPENING

- **Some vials contain small quantities of material, therefore centrifuge before use.**
- **This set of reagents is intended for use by persons experienced in the use of immunoassays. It is not suitable for use by inexperienced personnel.**
- **A sample protocol is included but please note that the protocol provided is a guideline. The type of substrate as well as all other reagents not included in the Module Set may influence assay performance.**

1 Reagents Provided

- 1 vial (5.5 ml) monoclonal **Coating Antibody** to human IL-8/NAP-1 (100 µg/ml)
- 1 vial (55 µl) **Biotin-Conjugate** anti-human IL-8/NAP-1 polyclonal antibody
- 1 vial (11 µl) **Streptavidin-HRP**
- 1 vial (30 µl) human IL-8/NAP-1 **Standard** protein, 200 ng/ml
- 2 vials (50 ml) **Sample Diluent**

2 Storage Instructions

Store kit components at -20 °C. Immediately after use remaining reagents should be returned to -20 °C storage, respectively. Avoid multiple freeze-thaw cycles. Aliquot reagents for repeated use at later dates. Reagents are labeled with expiration date.

Samples should be aliquoted and must be stored frozen at -20 °C to avoid loss of bioactive human IL-8/NAP-1.

3 Reagents and Materials Not Provided

Buffers and solutions can be prepared (see chapter 5) or ordered at Bender MedSystems. We recommend the use of Bender MedSystems reagents to ensure a high quality assay performance.

Reagents and materials can be ordered as

- **Support Pack Standard** (BMS412), which includes buffers and solutions for 10 assays (listed at the table below, plates excluded);
- **Support Pack Plus** (BMS414), which includes buffers, solutions and plates for 10 assays (listed at the table below);
- separate items (for BMS Order Numbers see table below);

Reagents and Materials	BMS Order Numbers
Phosphate Buffered Saline (PBS)	BMS410.0010, 20x (10 ml)
Assay Buffer	BMS407.0050, 20x (50 ml)
Wash Buffer	BMS408.0500, 20x (500 ml)
Substrate Solution	BMS406.0100, ready to use (100 ml)
Stop Solution	BMS409.0100, ready to use (100 ml)
Microwell plate (We recommend F8 Immuno Modules Maxisorb, NUNC Order Number 268667.)	BMSPLATE

4 Precautions for Use

All reagents should be considered as potentially hazardous. We therefore recommend that this product is handled only by those persons who have been trained in laboratory techniques and that it is used in accordance with the principles of good laboratory practice. Wear suitable protective clothing such as laboratory overalls, safety glasses and gloves. Care should be taken to avoid contact with skin or eyes. In the case of contact with skin or eyes wash immediately with water. See material safety data sheet(s) for specific advice.

5 Preparation of Buffers and Solutions

Please note: The **quality of BSA** is a critical parameter for the test performance. We recommend Probumin™ Media Grade (e.g.: Millipore Order Number 81-068) or the use of the Bender MedSystems reagents (see chapter 3).

5.1 Phosphate Buffered Saline (PBS)

NaCl	8.00 g
KCl	0.20 g
Na ₂ HPO ₄ x 12 H ₂ O	2.85 g
KH ₂ PO ₄	0.20 g
H ₂ O _{dest}	adjust to 1 liter

5.2 Wash Buffer

Add 0.5 ml Tween 20 to 1 liter of PBS and mix well.

5.3 Assay Buffer

Bovine Serum Albumin (BSA)	5 g
Tween 20	0.5 ml
PBS	adjust to 1 liter

5.4 Fixing Buffer

Sucrose	75 g
PBS	adjust to 500 ml

5.5 Substrate Solution

1:2 mixture of H₂O₂ and Tetramethylbenzidine

5.6 Stop Solution

1M Phosphoric Acid (H₃PO₄)

6 Preparation of the Microwell Plate

6.1 Coating

Coating antibody final concentration is 5 µg/ml; 100 µl of the coating solution is added to each well. Dilute the coating antibody as following for one microtiter plate:

10.45 ml	PBS
0.55 ml	coating antibody (100 µg/ml)
<hr/>	
11.00 ml	coating solution (5 µg/ml)

Immediately after coating, seal the plate with an adhesive film and store at 2-8°C over night, allowing the binding process to take place. Aspirate the contents of the wells and wash once with 400 µl of Wash Buffer according the washing procedure described in the test protocol below (see 8.a).

6.2 Blocking and Fixing

6.2.1 Blocking

Add 250 µl of Assay Buffer to each well and incubate at room temperature for 2 hours. Alternatively the plate may be blocked over night at 2-8°C. Blocked plates can be stored at 2-8°C for up to one week.

6.2.2 Fixing

To store the coated plates for longer than one week aspirate Assay Buffer and add 150 µl Fixing Buffer to each well. Incubate for 1 hour at room temperature. Aspirate Fixing Buffer and dry plates over night at 28°C. When sealed with desiccant, the plates can be stored at 2-8°C for 2 months.

7 Preparation of Immunological Reagents

Please note: Centrifuge vials before opening to collect contents.

7.1 Preparation of Standard:

The concentrated **human IL-8/NAP-1 standard** must be diluted 1:100 with Assay Buffer just prior to use in a clean plastic test tube according to the following dilution scheme:

3 μ l	conc. Standard Protein (200 ng/ml)
297 μ l	Assay Buffer
<hr/>	
300 μ l	Standard Protein (2000 pg/ml)

Shake gently to mix. After usage remaining diluted standard cannot be stored and has to be discarded.

Aliquot the concentrated standard and store at -20 °C.

7.2 Preparation of Biotin-Conjugate:

Dilute conc. **Biotin-Conjugate** 1:1000 with Assay Buffer t before use. Use within 30 min after preparation. For one microwell plate dilute the stock reagents as follows:

5.5 μ l	conc. Biotin-Conjugate
5494.5 μ l	Assay Buffer
<hr/>	
5.5 ml	Biotin-Conjugate

7.3 Preparation of Streptavidin-HRP:

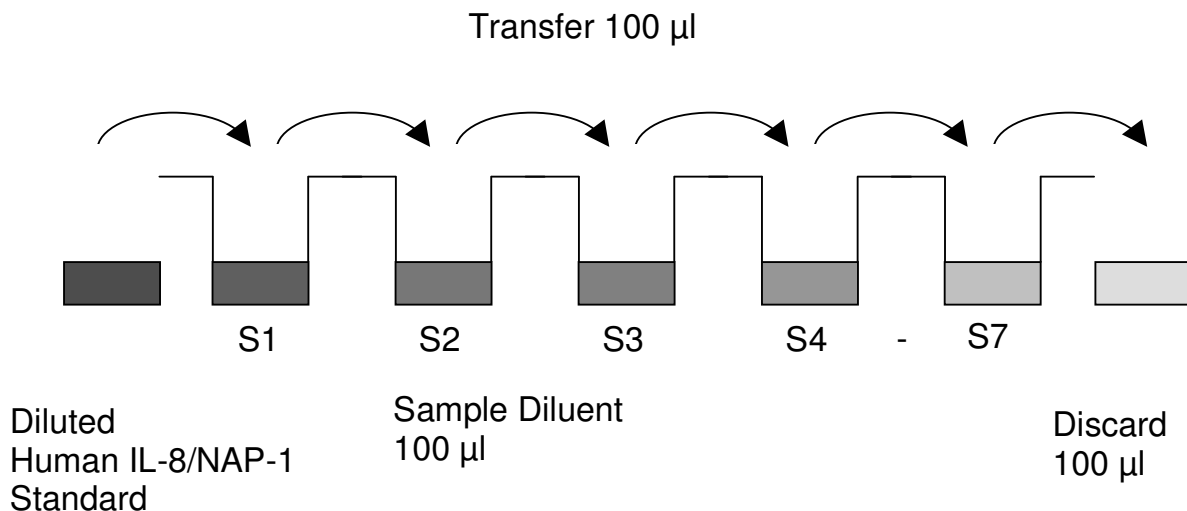
Dilute conc. **Streptavidin-HRP** 1:10000 with Assay Buffer before use. Use within 30 min after preparation. For one microwell plate dilute the stock reagents as follows:

1.1 μ l	conc. Streptavidin-HRP
10998.9 μ l	Assay Buffer
<hr/>	
11.0 ml	Streptavidin-HRP

8 Test Protocol

- a. Wash blocked or blocked and fixed plates twice with approximately 400 μl **Wash Buffer** per well, with thorough aspiration of microwell contents between washes. Allow the Wash Buffer to sit in the wells for about **10 – 15 seconds** before aspiration. Take care not to scratch the surface of the microwells. After the last wash step, empty wells and tap microwell strips on absorbent pad or paper towel to remove excess Wash Buffer. Use the microwell plate immediately after washing. Alternatively microwell plate can be placed upside down on a wet absorbent paper for no longer than 15 minutes. **Do not allow wells to dry.**
- b. Add 100 μl of Sample Diluent in duplicate to all **standard wells**. Pipette 100 μl of diluted **standard** (see 7.1), (concentration = 2000.0 ng/ml) in duplicate into well A1 and A2. Mix the contents of wells A1 and A2 by repeated aspiration and ejection (concentration of standard 1, S1 = 1000.0 ng/ml), and transfer 100 μl to wells B1 and B2, respectively (see Figure 1). Take care not to scratch the surface of the microwells. Continue this procedure 5 times, creating two serially diluted columns of human IL-8/NAP-1 standard dilutions ranging from 1000.0 to 15.6 ng/ml. Discard 100 μl from the last microwells (G1, G2). Final volume in all wells is 100 μl .

Figure 1



- c. Add 100 μl of **Sample Diluent** in duplicate to **blank wells**.
- d. Add 50 μl of **Sample Diluent** to the **sample wells**.
- e. Add 50 μl of each **sample** in duplicate to the **sample wells**.
- f. Prepare **Biotin-Conjugate** (see 7.2)
- g. Add 50 μl of prepared **Biotin-Conjugate** to all wells.
- h. Cover with an adhesive film and incubate at room temperature (18 to 25°C) for 2 hours, on a microplate shaker set at 100 rpm if available.
- i. Prepare **Streptavidin-HRP** (see 7.3).
- j. Remove adhesive film and empty wells. **Wash** microwells 3 times according to point a. of the test protocol. Proceed immediately to the next step.
- k. Add 100 μl of diluted **Streptavidin-HRP** to all wells, including the blank wells.
- l. Cover with an adhesive film and incubate at room temperature (18° to 25°C) for 1 hour, on a microplate shaker set at 100 rpm if available.
- m. Remove adhesive film and empty wells. **Wash** microwells 3 times according to point a. of the test protocol. Proceed immediately to the next step.
- n. Pipette 100 μl of **Substrate Solution** to all wells.
- o. Incubate the microwell strips at room temperature (18° to 25°C) for about 10 min. Avoid direct exposure to intense light.

Monitor the colour development on the plate. The substrate reaction should be stopped (see next point of this protocol) before positive wells are no longer properly recordable. Determination of the ideal time period for colour development has to be done individually for each assay.

Add the stop solution when the highest standard has developed a dark blue colour. Alternatively the colour development can be monitored on a plate reader at 620 nm. The substrate reaction should be stopped as soon as Standard 1 has reached an OD of 0.9 – 0.95.

- p. Stop the enzyme reaction by quickly pipetting 100 μ l of **Stop Solution** into each well. It is important that the Stop Solution is spread quickly and uniformly throughout the microwells to completely inactivate the enzyme. Results must be read immediately after the Stop Solution is added, or within one hour if the microwell strips are stored at 2 - 8 °C in the dark.
- q. Read absorbance of each microwell on a spectro-photometer using 450 nm as primary wave length (you can use 620 nm as reference wave length; 610 nm to 650 nm is acceptable). Blank the plate reader according to the manufacturer's instructions by using the blank wells. Determine the absorbance of both the samples and the human IL-8/NAP-1 standards.

9 Calculation of Results

- Calculate the average absorbance values for each set of duplicate standards and samples. Duplicates should be within 20 per cent of the mean value.
- Create a standard curve by plotting the mean absorbance for each standard concentration on the y-axis, against the human IL-8/NAP-1 concentration on the x-axis. Draw a best fit curve through the points of the graph (a 5-parameter curve fit is recommended).
- To determine the concentration of soluble human IL-8/NAP-1 for each sample, first calculate the mean absorbance value for the duplicate wells of the sample, then extend a horizontal line from this point on the y-axis to the standard curve. At the point of intersection, extend a vertical line to the x-axis and read the corresponding human IL-8/NAP-1 concentration.
- **If instructions in this protocol have been followed samples have been diluted 1:2 (50 µl sample + 50 µl Sample), the concentration read from the standard curve must be multiplied by the dilution factor (x 2).**
- **Calculation of samples with a concentration exceeding that of standard 1 may result in inaccurate, low human IL-8/NAP-1 levels. Such samples require further external predilution according to expected human IL-8/NAP-1 values with Sample Diluent in order to precisely quantitate the actual human IL-8/NAP-1 level.**
- Each testing facility should establish a control sample of known human IL-8/NAP-1 concentration and run this additional control with each assay. If the values obtained are not within the expected range of this control, the assay results may be invalid.

A basic understanding of immunoassay development and technical experience in ELISA performance are conditional for the successful use of this Module Set.

The protocol provided is just a guideline. The type of substrate as well as all other reagents not included in the Module Set may influence the test characteristics.

10 Human IL-8/NAP-1 Module Set Characteristics

10.1 Specificity

The assay detects both natural and recombinant human IL-8/NAP-1. The cross reactivity of circulating factors of the immune system with high homology to IL-8/NAP-1 (18) was evaluated by spiking these proteins at physiologically relevant concentrations (up to 1000 ng/ml) into a human IL-8/NAP-1 positive serum.

There was no cross reactivity detected with connective tissue activating peptide 3, platelet factor 4 and neutrophil activating peptide 2 as well as IL-6, IL-2R, rhTNF- β and CD8.

10.2 Expected Values

Panels of 40 serum as well as EDTA and heparin plasma samples from randomly selected apparently healthy donors (males and females) were tested for human IL-8/NAP-1.

Elevated human IL-8/NAP-1 levels depend on the type of immunological disorder. The levels measured may vary with the sample collection used. For detected human IL-8/NAP-1 levels see Table 1.

Table 1

Sample Matrix	Number of Samples Evaluated	Range (pg/ml)	% Detectable	Mean of Detectable (pg/ml)
Serum	40	34.8 - 666.4	22.5	114.0
Plasma (EDTA)	40	nd *- 97.4	2.5	--
Plasma (Heparin)	40	nd *- 34.8	2.5	--

* n.d. = non-detectable, samples measured below the lowest standard point are considered to be non-detectable.

11 Additionally available Components

Additional components of the human IL-8/NAP-1 MST Kit are available:

- Standard Protein (S): BMS204/3MSTS (for 10 assays) or BMS204/3S (for 1 assay)
- Coating Antibody (CA): BMS204/3MSTCA
- Sample Diluent (SD): BMS204/3MSTSD
- Biotin-Conjugate (BK): BMS204/3MSTBK
- Streptavidin-HRP (PK): BMS204/3MSTPK

Please contact Bender MedSystems at techserv@bendermedsystems.com or your local distributor.

12 Ordering Information

+ Europe

Bender MedSystems GmbH
Campus Vienna Biocenter 2
A-1030 Vienna, Austria, Europe
phone: +43 1 796 40 40 ext. 114
fax: +43 1 796 40 40 ext. 400

order@bendermedsystems.com

technical information:

techserv@bendermedsystems.com

+ USA

eBioscience, Inc.
10255 Science Center Drive
San Diego, CA 92121
phone: +1(888) 999 1371
fax: +1(858) 642 2046

contact@ebioscience.com

technical information:

tech@ebioscience.com

www.bendermedsystems.com

www.ebioscience.com