



Omnignostix GmbH & Co KG  
Reagents & Recycling  
Donaustraße 137  
A-3421 Höflein / Danube  
AUSTRIA



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## Instructions for use

# MDA-LDL-IgG ELISA

**REF**

**OX 10-4400**



**IVD**



## MDA-LDL-IgG ELISA

Enzyme immunoassay for the quantitative determination of IgG-antibodies directed against oxidised LDL (malondialdehyde modified low density lipoprotein) in serum

### 1. Principle of the test

The detection of IgG antibodies is accomplished in diluted serum samples. MDA-LDL-IgG binds to MDA-LDL coated microtiter wells and are detected by a protein A - peroxidase conjugate using TMB as the substrate. The enzyme reaction is measured at 440 nm.

### 2. Storage and stability

Store the reagents at 2 - 8 °C until expiration date. Do not use components beyond the expiry date indicated on the kit labels.

### 3. Contents of the kit

|                  |                        |                                  |              |                                                                           |
|------------------|------------------------|----------------------------------|--------------|---------------------------------------------------------------------------|
| <b>BA D-0024</b> | <b>DILUTION-PLATE</b>  | <b>Dilution Plate</b>            | 1 x 96 wells | ready for use                                                             |
| <b>BA D-0090</b> | <b>FOILS</b>           | <b>Adhesive Foil</b>             | 1 x 4        | ready for use                                                             |
| <b>BA E-0030</b> | <b>WASH-CONC 50x</b>   | <b>Wash Buffer Concentrate</b>   | 1 x 20 mL    | concentrate, dilute content with dist. water to a final volume of 1000 mL |
| <b>BA E-0055</b> | <b>SUBSTRATE</b>       | <b>Substrate</b>                 | 1 x 12 mL    | ready for use, containing a solution of tetramethylbenzidine (TMB)        |
| <b>BA E-0080</b> | <b>STOP-SOLN</b>       | <b>Stop Solution</b>             | 1 x 12 mL    | ready for use, containing 0.25 M H <sub>2</sub> SO <sub>4</sub>           |
| <b>DM E-4413</b> | <b>ASSAY-BUFF</b>      | <b>Assay-Buffer</b>              | 1 x 50 mL    | ready for use                                                             |
| <b>DM E-4431</b> | <b>MLDL-MIT-STRIPS</b> | <b>MDA-LDL Microtiter Strips</b> | 1 x 96 wells | 12 strips, 8 wells each, break apart, pre-coated                          |
| <b>DM E-4440</b> | <b>CONJUGATE</b>       | <b>Conjugate</b>                 | 1 x 12 mL    | ready for use                                                             |
| <b>DM E-4501</b> | <b>STANDARD A</b>      | <b>Standard A</b>                | 1 x 0.5 mL   | ready for use                                                             |
| <b>DM E-4502</b> | <b>STANDARD B</b>      | <b>Standard B</b>                | 1 x 0.5 mL   | ready for use                                                             |
| <b>DM E-4503</b> | <b>STANDARD C</b>      | <b>Standard C</b>                | 1 x 0.5 mL   | ready for use                                                             |
| <b>DM E-4504</b> | <b>STANDARD D</b>      | <b>Standard D</b>                | 1 x 0.5 mL   | ready for use                                                             |
| <b>DM E-4505</b> | <b>STANDARD E</b>      | <b>Standard E</b>                | 1 x 0.5 mL   | ready for use                                                             |
| <b>DM E-4551</b> | <b>CONTROL 1</b>       | <b>Control 1</b>                 | 1 x 0.5 mL   | ready for use                                                             |
| <b>DM E-4552</b> | <b>CONTROL 2</b>       | <b>Control 2</b>                 | 1 x 0.5 mL   | ready for use                                                             |

### 4. Additional materials and equipment required but not provided in the kit

- Calibrated variable precision micropipettes (e.g. 10-100 µL /100-1000 µL)
- Microtiter plate washing device
- ELISA reader capable of reading absorbance at 440 nm and 620 or 650 nm
- Shaker (shaking amplitude 3mm; approx. 600 rpm)
- Absorbent material (paper towel)
- Distilled water
- Vortex mixer

### 5. Sample collection and storage

Serum or EDTA plasma samples can be used with this kit.

Haemolytic and especially lipemic samples should not be used with this assay.

Storage: up to 1 week at 2 - 8°C; for longer periods (up to 6 months) at - 20°C.

Repeated freezing and thawing should be avoided.

## 6. Test procedure

Allow all reagents and samples to reach room temperature prior to use.  
The measurement in duplicates is recommended.

### 6.1 Preparation of reagents

#### Wash Buffer

Dilute the 20 mL Wash Buffer Concentrate with distilled water to a final volume of 1000 mL.  
Storage: up to 6 months 2–8°C

### 6.2 Predilution of samples

|                                                                         |                                                                                                 |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1.                                                                      | Pipette <b>10 µL</b> of <b>samples</b> into the respective wells of the <b>Dilution Plate</b> . |
| 2.                                                                      | Add <b>200 µL</b> of <b>Assay Buffer</b> into all wells.                                        |
| 3.                                                                      | Add <b>200 µL</b> of <b>distilled water</b> into all wells and shake carefully.                 |
| <b>50 µL</b> of the prediluted sample are needed for the <b>ELISA</b> . |                                                                                                 |

### 6.2 MDA-LDL-IgG ELISA

|                                                                                     |                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.                                                                                  | Pipette <b>50 µL</b> of the <b>standards, controls</b> and <b>prediluted samples</b> into the wells of the <b>MDA-LDL Microtiter Strips</b> .                                                    |
| 2.                                                                                  | Pipette <b>200 µL</b> of the <b>Assay Buffer</b> into all wells.                                                                                                                                 |
| 3.                                                                                  | Incubate <b>2 hours</b> at <b>RT</b> (20-25°C) on a shaker (approx. 600 rpm).                                                                                                                    |
| 4.                                                                                  | Discard or aspirate the contents of the wells and <b>wash</b> each well <b>4 times</b> thoroughly with <b>300 µL Wash Buffer</b> . Blot dry by tapping the inverted plate on absorbent material. |
| 5.                                                                                  | Pipette <b>100 µL</b> of the <b>Conjugate</b> into all wells.                                                                                                                                    |
| 6.                                                                                  | Incubate for <b>30 min</b> at <b>RT</b> (20-25°C) on a shaker (approx. 600 rpm).                                                                                                                 |
| 7.                                                                                  | Discard or aspirate the contents of the wells and <b>wash</b> each well <b>4 times</b> thoroughly with <b>300 µL Wash Buffer</b> . Blot dry by tapping the inverted plate on absorbent material. |
| 8.                                                                                  | Pipette <b>100 µL</b> of the <b>Substrate</b> into all wells.                                                                                                                                    |
| 9.                                                                                  | Incubate for <b>30 ± 2 min</b> at <b>RT</b> (20-25°C) on a shaker (approx. 600 rpm).                                                                                                             |
|  | <b>Avoid exposure to direct sun light!</b>                                                                                                                                                       |
| 10.                                                                                 | Add <b>100 µL</b> of the <b>Stop Solution</b> to each well and shake the microtiter plate to ensure a homogeneous distribution of the solution.                                                  |
| 11.                                                                                 | <b>Read</b> the absorbance of the solution in the wells within 10 minutes, using a microtiter plate reader set to <b>450 nm</b> and a reference wavelength between 620 nm and 650 nm.            |

## 7. Calculation of results

| Standard          | Concentration of the standards |    |     |     |      |
|-------------------|--------------------------------|----|-----|-----|------|
|                   | A                              | B  | C   | D   | E    |
| MDA-LDL-IgG [U/L] | 18                             | 60 | 180 | 600 | 1800 |

The calibration curve is obtained by plotting the absorbance readings (calculate the mean absorbance) of the standards (linear, y-axis) against the corresponding standard concentrations (logarithmic, x-axis).

Use a non-linear regression for curve fitting (e.g. spline, 4- parameter, akima).

The concentrations can be read directly from the standard curve.

### 7.1 Quality control

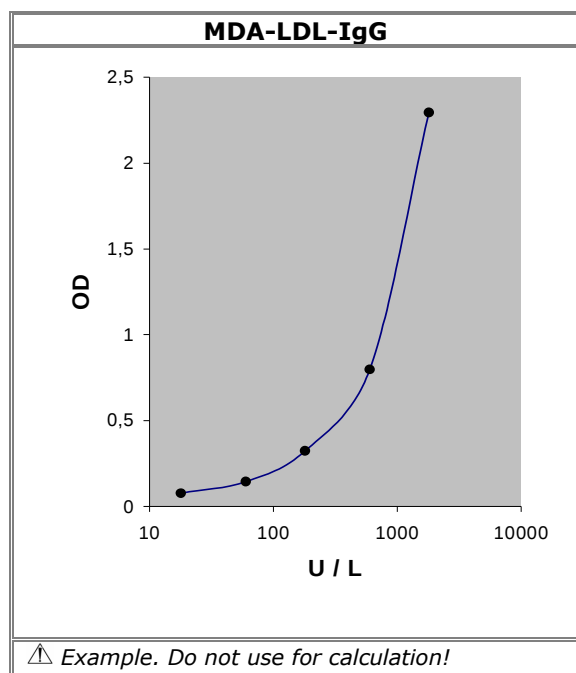
It is recommended to use control samples according to state and federal regulations. Use controls at both normal and pathological levels. The kit, or other commercially available controls should fall within established confidence limits. The confidence limits of the kit controls are printed on the QC-Report.

## 7.2 Calibration

The binding of the antisera and the enzyme conjugates and the activity of the enzyme used are temperature dependent, and the extinction values may vary if a thermostat is not used. The higher the temperature, the higher the extinction values will be. The extinction values also depend on the incubation times. The optimal temperature during the Enzyme Immunoassay is between 20-25°C.

⚠ In case of overflow, read the absorbance of the solution in the wells within 10 minutes, using a microplate reader set to 405 nm

## 7.3 Typical calibration curve



## 7. Assay characteristics

|                                                |                                   |                    |                                             |                       |                          |                     |        |
|------------------------------------------------|-----------------------------------|--------------------|---------------------------------------------|-----------------------|--------------------------|---------------------|--------|
| Expected values                                | MDA-LDL-IgG                       |                    |                                             | <1000 U/L             |                          |                     |        |
| Analytical Sensitivity<br>(Limit of Detection) | Mean signal (Zero-Standard) - 2SD |                    |                                             |                       |                          |                     |        |
|                                                | MDA-LDL-IgG                       |                    | 20 U/L                                      |                       |                          |                     |        |
| Analytical Specificity ( Cross Reactivity )    |                                   |                    | The Test is measuring specific MDA-LDL-IgG! |                       |                          |                     |        |
| Precision                                      |                                   |                    |                                             |                       |                          |                     |        |
| Intra-Assay                                    |                                   |                    |                                             | Inter-Assay           |                          |                     |        |
|                                                | Sample                            | Mean ± SD (mmol/L) | CV (%)                                      |                       | Sample                   | Mean ± SD (mmol/LI) | CV (%) |
| MDA-LDL-IgG                                    | 1                                 | 305 ± 18           | 5.9                                         | MDA-LDL-IgG           | 1                        | 312 ± 22            | 7.1    |
|                                                | 2                                 | 1000 ± 87          | 8.7                                         |                       | 2                        | 1056 ± 91           | 8.6    |
| Linearity                                      |                                   |                    | Range                                       | Serial dilution up to |                          | Range (%)           |        |
|                                                |                                   | MDA-LDL-IgG        | 100 – 1500 U/L                              | 1:10                  |                          | 93 – 120            |        |
| Recovery                                       |                                   | Mean (%)           | Range (%)                                   |                       | % Recovery after spiking |                     |        |
|                                                | MDA-LDL-IgG                       | 100                | 89 – 119                                    |                       |                          |                     |        |

## 9. **Advice on handling the test**

### 9.1 **Reliability of the test results**

In order to assure a reliable evaluation of the test results it must be conducted according to the instructions included and in accordance with current rules and guidelines (GLP, RILIBÄK, etc.). Special attention must be paid to control checks for precision and correctness during the test; the results of these control checks have to be within the norm range. In case of significant discrepancies between the pre-set assay characteristics of this test and the actual results please contact the manufacturer of the test kit for further instructions.

It is recommended that each laboratory establishes its own reference intervals. The values reported in this test instruction are only indicative.

The results obtained with this test kit should not be taken as the sole reason for any therapeutic consequence but have to be correlated to other diagnostic tests and clinical observations.

### 9.2 **Complaints**

In case of complaints please submit to the manufacturer a written report containing all data as to how the test was conducted, the results received and a copy of the original test printout. Please contact the manufacturer to obtain a reclamation form and return it completely filled in to the manufacturer.

### 9.3 **Warranty**

This test kit was produced according to the latest developments in technology and subjected to stringent internal and external quality control checks. Any alteration of the test kit or the test procedure as well as the usage of reagents from different charges may have a negative influence on the test results and are therefore not covered by warranty. The manufacturer is not liable for damages incurred in transit.

### 9.4 **Disposal**

Residual substances and/or all remaining chemicals, reagents and ready for use solutions, are special refuse. The disposal is subject to the laws and regulations of the federation and the countries. About the removal of special refuse the responsible authorities or refuse disposal enterprises inform. The disposal of the kit must be made according to the national official regulations. Legal basis for the disposal of special refuse is the cycle economic- and waste law.

The appropriate safety data sheets of the individual products are available on the homepage. The safety data sheets correspond to the standard: ISO 11014-1.

### 9.5 **Interference**

Do not mix reagents and solutions from different lots. Consider different transport and storage conditions. Inappropriate handling of test samples or deviations from the test regulation can the results affect. Use no kit components beyond the expiration date. Avoid microbiological contamination of the reagents and the washing water. Consider incubation periods and wash references.

### 9.6 **Precautions**

Observe the incubation periods and washing instructions. Never pipette by mouth and avoid contact of reagents and specimens with skin. No smoking, eating or drinking in areas where samples or kit test tubes are handled. When working with kit components or samples, always wear protective gloves and wash your hand thoroughly as soon as you have finished the work. Avoid spraying of any kind. Avoid any skin contact with reagents. Use protective clothing and disposable gloves. All steps have to be performed according to the protocol. Optimal test results are only obtained when using calibrated pipettes. Sodium azide could react with lead and copper tubes and may form highly explosive metal azide. When clearing up, rinse thoroughly with large volumes of water to prevent such formation.

All reagents of this testkit which contain human or animal serum or plasma have been tested and confirmed negative for HIV I/II, HbsAg and HCV by FDA approved procedures.

All reagents, however, should be treated as potential biohazards in use and for disposal.



**Actual literature, information about clinical significance or any other information about the test are available on the homepage or contact the manufacturer directly.**

## **Symbols:**

|                                                                                     |                                   |                                                                                     |              |                                                                                       |                              |
|-------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------|------------------------------|
|  | Contains sufficient for <n> tests |  | Manufacturer |  | Storage temperature          |
|  | Catalogue number                  |  | Batch code   |  | Expiry date                  |
|  | For in-vitro diagnostic use only! |  | Content      |  | Consult instructions for use |
|  | For research use only!            |  | Caution      |                                                                                       |                              |