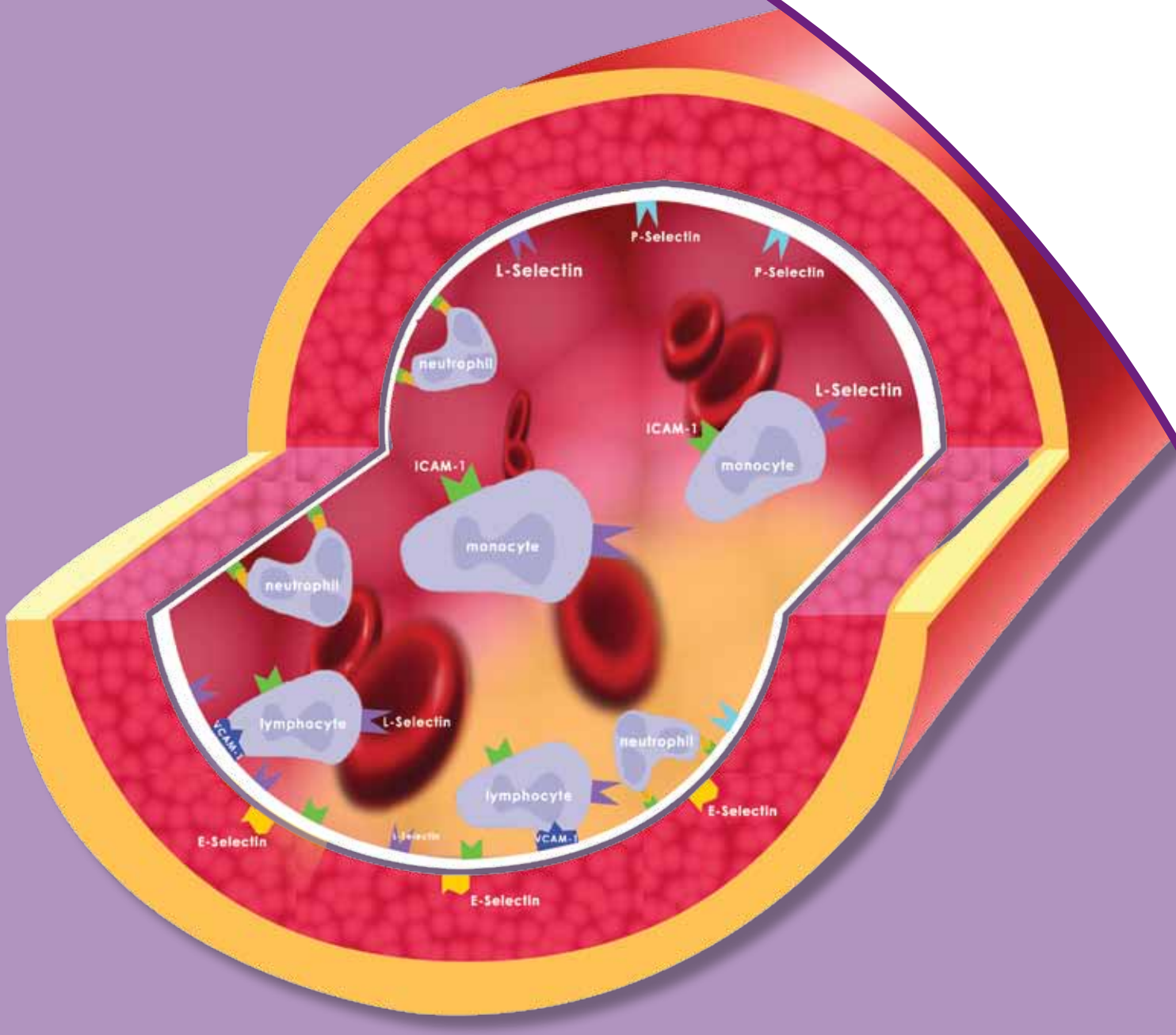
RANDOX

# Adhesion Molecules Array

## Determination of five soluble adhesion molecules in a single sample



# Adhesion Molecules Array

Simultaneously and quantitatively detects five soluble adhesion molecules in a single patient sample

Adhesion molecules are complex membrane proteins that have an important role in many cellular processes. They are grouped into four major families: the Selectins, the Immunoglobulins (Ig) superfamily, Integrins and Cadherins. Adhesion molecules are involved in a wide range of physiological processes and can be found in the cell membrane or as soluble forms in circulation after shedding from the cell surface. Altered levels of adhesion molecules are involved in conditions and diseases such as cardiovascular disease, stroke, cancer, diabetes and many more. Increased knowledge of these changes in the levels of the soluble adhesion molecules would help to progress the understanding of their physiological role and pathological significance.

## E-SELECTIN

E-Selectin is a member of the selectin family. E-Selectin is only expressed on endothelial cells and only after activation by inflammatory cytokines or endotoxin. Its expression is transitory and reaches a maximum two to six hours after cell activation. It is then shed into the circulation where it may activate neutrophils and acts as a pro-inflammatory agent.

## L-SELECTIN

Unlike the other members of the selectin family, L-Selectin is not expressed on endothelial cells but has only been found on leukocytes. A number of different ligands for L-Selectin on endothelial cells have been identified.

## P-SELECTIN

P-Selectin is a member of the selectin family. P-Selectin is associated with the 2-granules in resting platelets and is also found in a preformed state in the Weibel-Palade bodies of endothelial cells. Upon activation or stimulation it is rapidly moved to the cell surface.

## INTERCELLULAR ADHESION MOLECULE-1 (ICAM-1)

ICAM-1 is a member of the Immunoglobin (Ig) like superfamily of adhesion molecules. It is expressed in endothelial cells, as well as other cell types such as lymphocytes and monocytes. ICAM-1 plays an important role in inflammatory processes and in the T-cell mediated host defence system.

## VASCULAR CELL ADHESION MOLECULE-1 (VCAM-1)

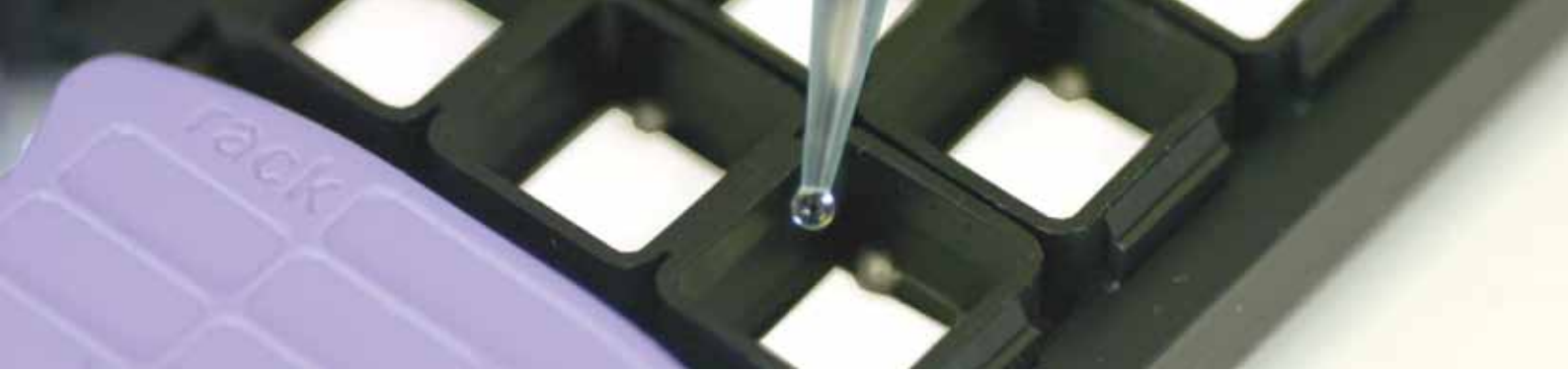
VCAM-1 is also a member of the Immunoglobin (Ig) like superfamily of adhesion molecules. As well as being expressed on endothelial cells, VCAM-1 is expressed on smooth muscle cells, fibroblasts, dendritic cells and macrophages.

## KEY BENEFITS

- Multiple test results
- Suitable for human serum and plasma samples
- Small sample volume – measure all five analytes using just 2.5µl of neat sample per biochip (25µl of diluted sample)
- Applicable to fully automated and semi-automated Evidence analysers
- Excellent assay performance
- Quick time to results
- Biochips are ready-to-use

## ADHESION MOLECULES ARRAY ANALYTES

- E-Selectin
- L-Selectin
- P-Selectin
- Intercellular Adhesion Molecule-1 (ICAM-1)
- Vascular Cell Adhesion Molecule-1 (VCAM-1)



# ADHESION MOLECULES ARRAY PERFORMANCE ON THE EVIDENCE INVESTIGATOR ANALYSER

| Analyte | Calibration Range[a] ng/ml | Sensitivity[b] ng/ml (neat sample) |
|---|---|---|
| E-Selectin | 0-25 | 0.1 |
| L-Selectin | 0-350 | 3.2 |
| P-Selectin | 0-120 | 1.9 |
| ICAM-1 | 0-100 | 1.7 |
| VCAM-1 | 0-330 | 4.1 |

05/396/272

[a] Calibration range may vary slightly with batch of calibrators

[b] Sensitivity defined as the concentration two standard deviations from zero (multiplied by 10 to account for sample dilution)

| Analyte | Intra-Assay Precision (n=20) | | | Inter-Assay Precision (n=20) | | |
|---|---|---|---|---|---|---|
| | Level 1 %CV | Level 2 %CV | Level 3 %CV | Level 1 %CV | Level 2 %CV | Level 3 %CV |
| E-Selectin | 7.0 | 7.4 | 5.2 | 7.5 | 8.0 | 8.6 |
| L-Selectin | 6.2 | 6.1 | 9.1 | 8.7 | 7.7 | 13.4 |
| P-Selectin | 6.5 | 6.1 | 9.6 | 5.7 | 4.8 | 7.2 |
| ICAM-1 | 6.4 | 8.4 | 9.4 | 3.5 | 7.9 | 8.3 |
| VCAM-1 | 7.7 | 8.1 | 9.2 | 5.9 | 9.6 | 7.5 |

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## RESEARCH APPLICATIONS FOR ADHESION MOLECULES ARRAY

The Adhesion Molecules Array has been used in a number of studies with independent publications as shown in the table below.

| Condition | Research application | References |
|---|---|---|
| Obese young men compared with lean men | Effect of resistance exercise on the serum concentration of adhesion molecules | Petridou, A. *et al.* (2007) *Br. J. Sports. Med.* 41: 76-79 |
| Participants of the "Spartathlon" Race 2004 | Effect of prolonged brisk exercise on the circulating levels of adhesion molecules | Bartzeliotou, A.I. *et al.* (2007) *Clin. Biochem.* 40: 765 - 770 |
| Nasal polyposis | Investigate concentrations of adhesion molecules in peripheral blood in patients with nasal polyposis | Corsi, M.M. *et al.* (2008) *Int. J. Biol. Markers* 23: 115 - 120 |
| Acute coronary syndromes | Risk stratification and links with ovarian cancer | Kavsak, P.A. *et al.* (2008) *Clin. Chem. Acta* 387: 133-138<br>Kavsak, P.A. *et al.* (2008) *Clin. Biochem.* 41: 436-439 |
| Study on 70 year old individuals (n=943) | Association and relative importance of inflammatory biomarkers in relation to metabolic syndrome and insulin resistance | Ingelsson, E. *et al.* (2008) *Eur. J. Clin. Invest.* 38: 502-509 |
| Pancreatitis | Evaluation of the adhesion molecules time course in the early phases of acute pancreatitis | Pezzilli, R. *et al.* (2008) *Pancreas* 37: 36-41 |
| Cushing's syndrome | Investigate levels of adhesion molecules before and after cure | Ermetici, F. *et al.* (2008) *J. Edocrinol. Invest.* 31: 389-392 |
| Metastatic disease | Clinical response to treatment | Kavsak, P.A. *et al.* (2009) *Clin. Biochem.* 42: 1162-1165 |
| Study on 70 year old individuals (n=264) | Investigate the association between serum fatty acid composition and various inflammatory and endothetial function markers | Pettersson, H. *et al.* (2009) *Atherosclerosis* 203: 292-303 |
| Study on 70 year old individuals (n=1016) | Measurement of inflammatory mediators to assess inflammation | Sakthivel, P. *et al.* (2010) *Scand. J. Clin. Lab. Invest.* 70: 237-243 |
| Hypertensive non-diabetic patients with abdominal obesity | To study the effect of antihypertensive drugs on adipose tissue with respect to insulin resistance | Palming, J. *et al* (2011) *Horm. Metab. Res.* 43:319-324 |
| Alzheimer disease | Characterisation of inflammatory molecules and relationship with cognitive decline | Corsi, M.M. *et al.* (2011) *Biogerontology* 12: 451-454 |

# BIOCHIP SYSTEMS


## —evidence— EVOLUTION

• Large laboratories • High throughput
• Random access, fully automated • Clinical/ research testing


## —evidence— INVESTIGATOR

• Medium size laboratories • Medium throughput
• Semi-automated • Clinical/research testing

| | |
|---|---|
| Adhesion Molecules Array | EV3519 |


## evidence

• Large laboratories • High throughput
• Fully automated • Clinical/research testing

| | |
|---|---|
| Adhesion Molecules Array | EV3530 (360 Biochips)<br>EV3572 (180 Biochips) |
| Adhesion Molecules Calibrators | EV3568 |
| Adhesion Molecules Controls | EV3569 |

The Adhesion Molecules Array is for research purposes only.

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