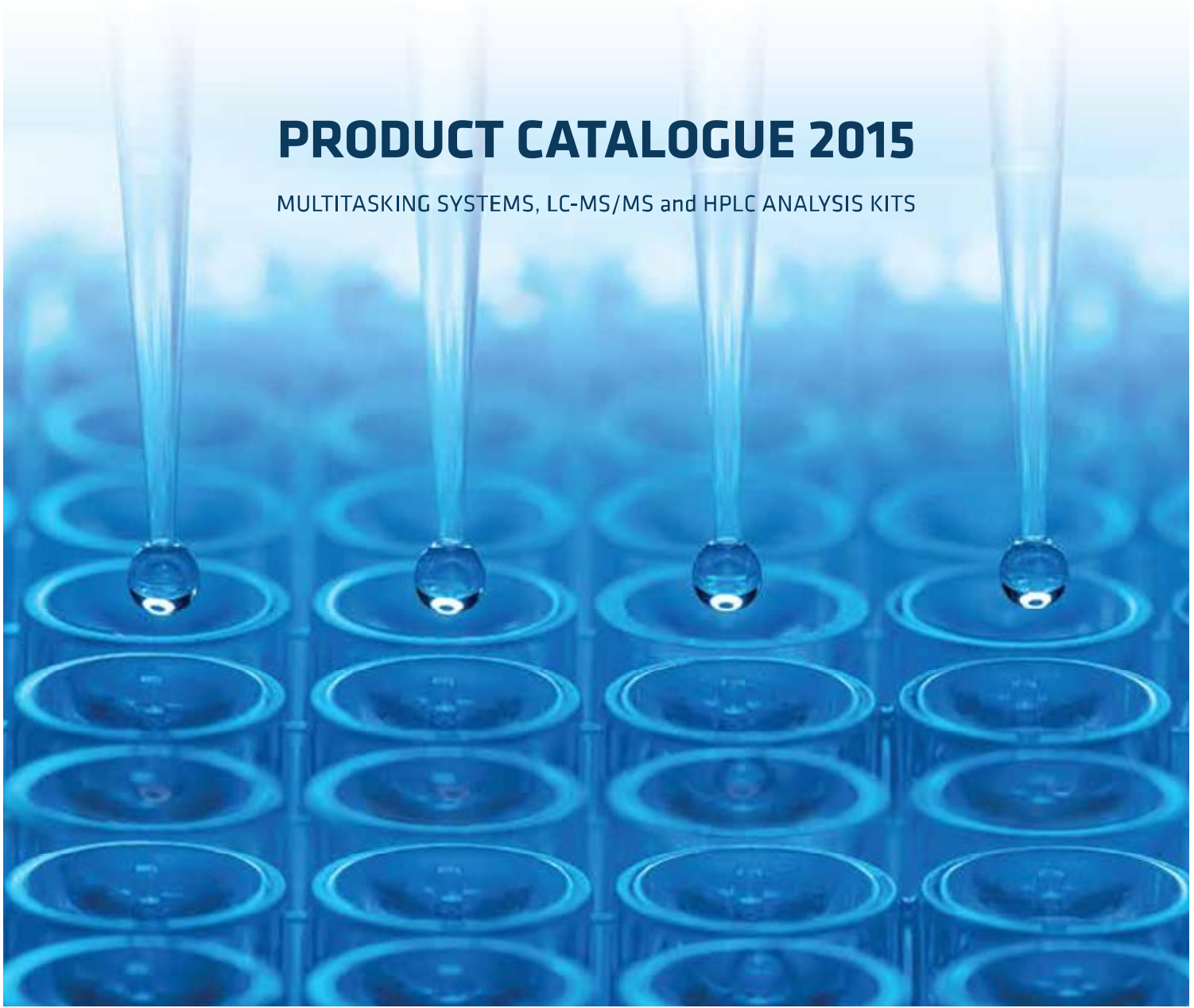
ZIVAK®
TECHNOLOGIES

PRODUCT CATALOGUE 2015

MULTITASKING SYSTEMS, LC-MS/MS and HPLC ANALYSIS KITS



CE IVD

Main methods and procedures that have been selected are based on **EN ISO 14971**, **EN ISO 13485** and **98/79/EC.**

ZIVAK® TECHNOLOGIES

+90 212 210 62 15 +90 212 210 62 14 info@zivak.com www.zivak.com

ZIVAK TECHNOLOGIES Eski Besiktas Cad. No 44, 34400 ISTANBUL - TURKEY

About Zivak® Technologies

Zivak® Technologies is an international special company providing ready to use LC-MS/MS and HPLC analysis kits in the clinical diagnostic field.

Zivak® Technologies supplies also its own fully automated sample preparation and injection system which enables laboratories around the globe to make efficient use of their LC-MS/MS instruments as well as HPLC instruments in a fast, accurate and cost efficient way.

Zivak® Technologies' Head Office is in Istanbul/Turkey.
Sales and marketing activities are carried out in more than 70 countries, either directly by the headquarter or via distributors.

Zivak® Technologies' product portfolio is divided into three main areas:

- Automation of processes in laboratories
- HPLC and LC-MS/MS analysis kits
- Consumables

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TECHNOLOGIES
www.zivak.com

Table of Contents

MULTITASKING SYSTEMS

LC-MS/MS ANALYSIS KITS

Table of Contents

Table of Contents

MULTITASKING SYSTEMS

Multitasking System
of Vitamin D2/D3 LC-MS/MS Analysis

Multitasking System
of Immunosuppressants LC-MS/MS Analysis

Flexible Multitasking System
of LC-MS/MS and HPLC Analysis

ZIVAK®
TECHNOLOGIES
www.zivak.com

Now Multitasking System
of Vitamin D2/D3
LC-MS/MS Analysis available

A unique combination !

100 serum sample results in 170 minutes

NIST* 2014
Accuracy 96%!

Suitable for all LC-MS/MS instruments

receive results
fully automated
in 1.7 minutes

*Tested by NIST with an accuracy of 96%

CE-IVD certified !

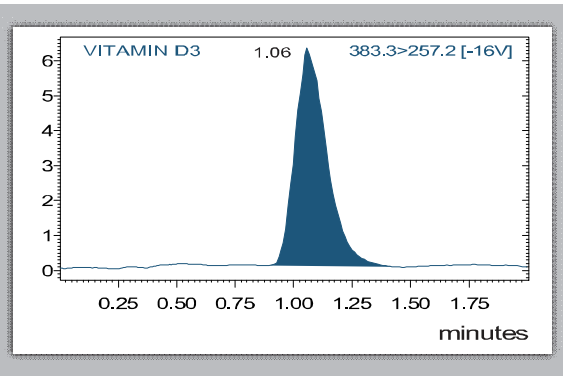
Now Multitasking System
of Vitamin D2/D3
LC-MS/MS Analysis available

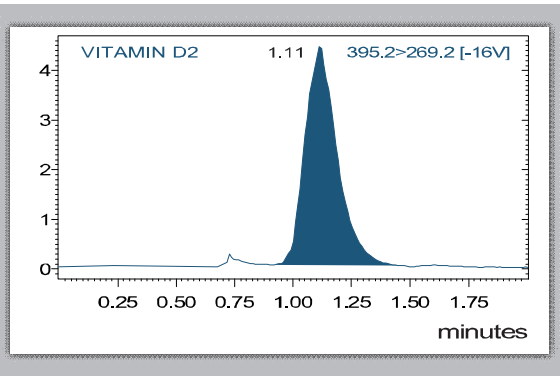
- ✓ Sample Preparation
- ✓ Sample Injection
- ✓ Analysis Run Time

All 3 steps in 1.7 minutes

Sample Chromatograms and Validation Results

Sample chromatograms are for serum calibrator of Zivak® 25-OH Vitamin D2/D3 LC-MS/MS Analysis Kit





25-OH Vitamin D3		
LOD	(µg/L)	0.51
LOQ	(µg/L)	1.53
Accuracy	(%)	98.5
Precision Intra-Assay	(%CV)	3.4
Precision Inter-Assay	(%CV)	4.4
Linearity (R^2)	(0-200 µg/L)	0.998

25-OH Vitamin D2		
LOD	(µg/L)	0.50
LOQ	(µg/L)	1.50
Accuracy	(%)	97.6
Precision Intra-Assay	(%CV)	2.6
Precision Inter-Assay	(%CV)	3.5
Linearity (R^2)	(0-200 µg/L)	0.998

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Now Multitasking System
of Immunosuppressants
LC-MS/MS Analysis available

All in ONE !

Place **blood collection tube** with

closed lid into

Zivak® - Multitasker

and **receive results**

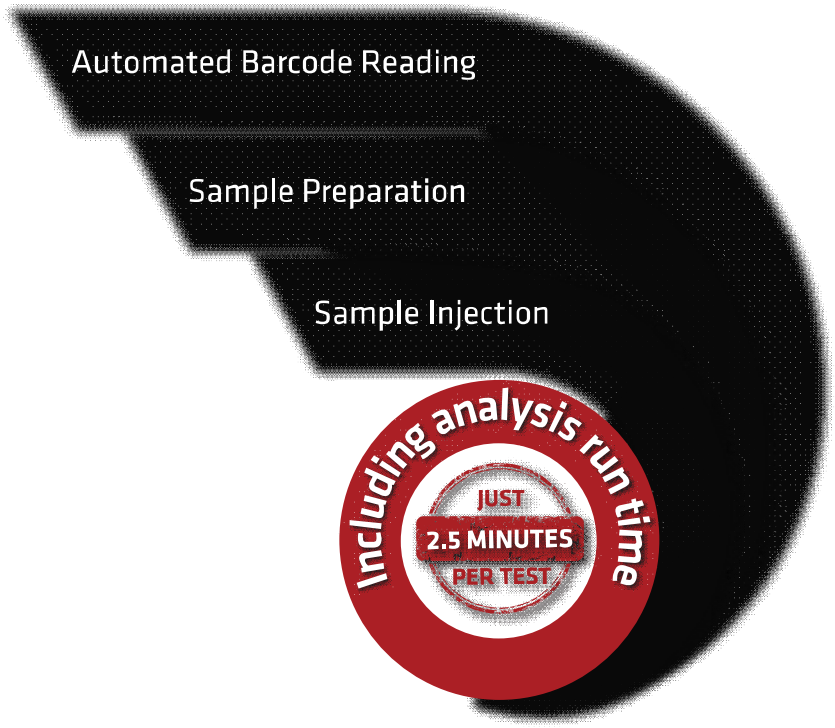
fully automated

in 2.5 minutes

CE-IVD certified !

Now Multitasking System
of Immunosuppressants
LC-MS/MS Analysis available

Full Automated - All in ONE !



Validation Results

Tacrolimus		
LOD	(µg/L)	0.11
LOQ	(µg/L)	0.34
Accuracy	(%)	96.5
Precision Intra-Assay	(%CV)	4.7
Precision Inter-Assay	(%CV)	5.4
Linearity	(R^2)	0.998

Cyclosporine A		
LOD	(µg/L)	0.56
LOQ	(µg/L)	1.85
Accuracy	(%)	96.5
Precision Intra-Assay	(%CV)	4.6
Precision Inter-Assay	(%CV)	5.1
Linearity	(R^2)	0.997

Sirolimus		
LOD	(µg/L)	0.19
LOQ	(µg/L)	0.65
Accuracy	(%)	98.4
Precision Intra-Assay	(%CV)	3.2
Precision Inter-Assay	(%CV)	3.8
Linearity	(R^2)	0.999

Everolimus		
LOD	(µg/L)	0.16
LOQ	(µg/L)	0.50
Accuracy	(%)	95.7
Precision Intra-Assay	(%CV)	3.7
Precision Inter-Assay	(%CV)	4.3
Linearity	(R^2)	0.997

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Suitable for all LC-MS/MS instruments

Zivak® Flexible Systems

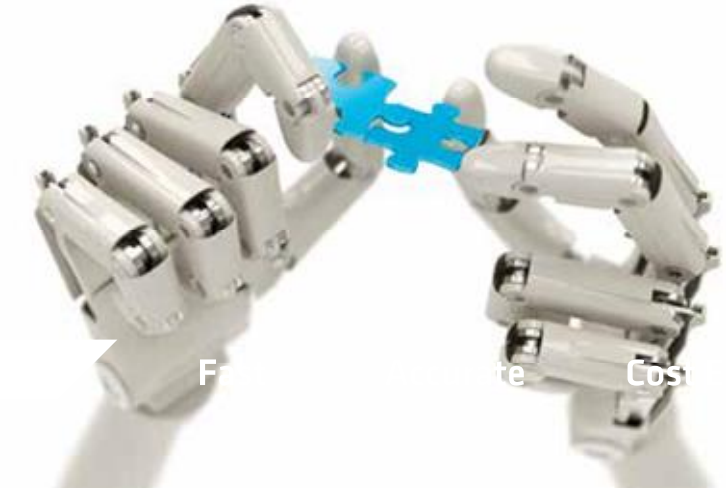
for LC-MS/MS and HPLC Analysis

Customise your Zivak® Flexible Multitasker with optional modules !

"ONE FOR ALL YOUR ANALYSES"

Suitable for any
LC-MS/MS AND HPLC Systems

- ✓ Several Detector Options
- ✓ Add-on and/or Removable Preparation Modules
- ✓ Different Valve Configurations

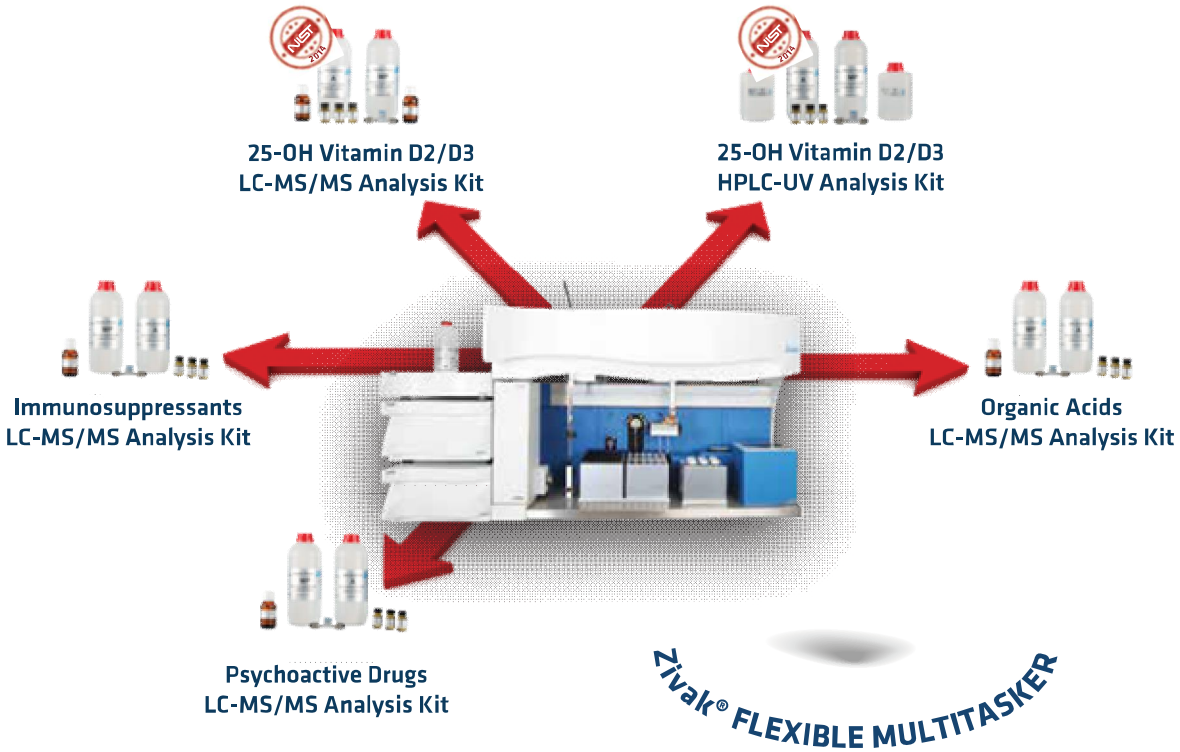


CE-IVD certified !

Zivak® Flexible Systems

for LC-MS/MS and HPLC Analysis

Zivak® Full Automated Analysis Kits



"ONE FOR ALL YOUR ANALYSES"

Manual LC-MS/MS Analysis Kits

- **25-OH Vitamin D2/D3** in Human Serum Samples
- **Immunosuppressants** in Whole Blood Samples
- **Organic Acids** in Human Urine Samples
- **Quantitative Amino Acids** in Biological Fluids Samples
- **Psychoactive Drugs** in Human Urine Samples
- **Neonatal Screening** for Dried Blood Spots Samples
- **Catecholamines** in Human Urine Samples
- **Metanephrines** in Human Urine Samples
- **VMA, 5-HIAA, HVA** in Human Urine Samples
- **Total Homocysteine** in Human Plasma Samples
- **Quantitative Determination of PKU** in Human Serum & Plasma Samples

Manual HPLC-UV Analysis Kits

- **25-OH Vitamin D2/D3** in Human Serum Samples
- **Quantitative Determination of PKU** in Human Serum & Plasma Samples

CE-IVD certified !

LC-MS/MS ANALYSIS KITS

25-OH Vitamin D2/D3
in Human Serum Samples

Immunosuppressants
in Human Whole Blood Samples

Organic Acids
in Human Urine Samples

Amino Acids
in Biological Fluids

Neonatal Screening
in Dried Blood Spots

Catecholamines
in Human Urine Samples

Metanephrines
in Human Urine Samples

VMA, HVA, 5-HIAA
in Human Urine Samples

Psychoactive Drugs
in Human Urine Samples

Total Homocysteine
in Human Plasma Samples

Quantitative Determination of PKU
in Human Serum & Plasma and
Dried Blood Samples

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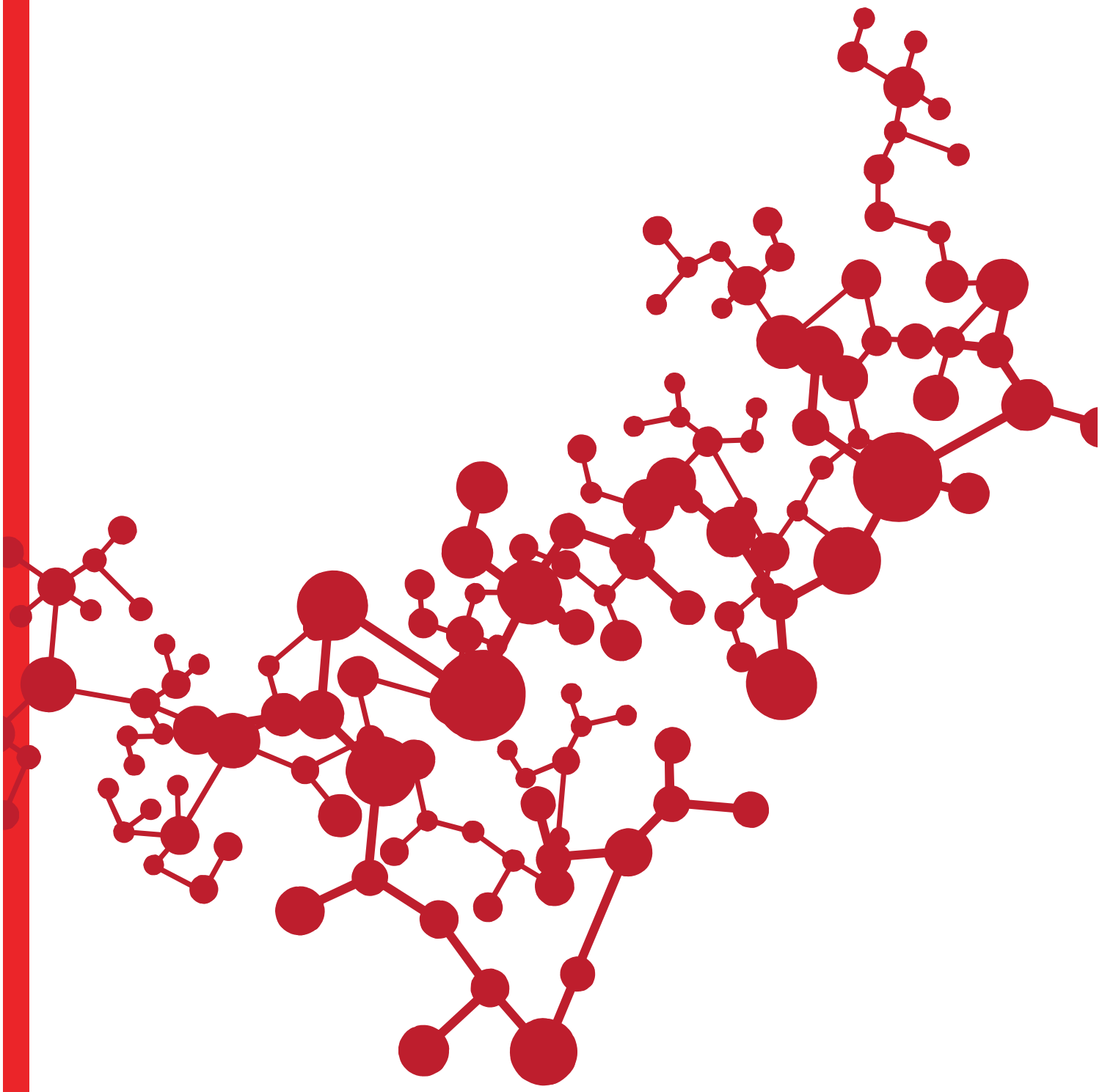


25-OH Vitamin D2/D3 LC-MS/MS Analysis Kit

in Human Serum Samples

LC-MS/MS analysis with high accuracy and quantitative detection

Suitable for any
LC-MS/MS System

Main methods and procedures that have been selected are based on EN ISO 13485 and 98/79/EC.

Properties of the analysis kit

- Also *available* with Zivak® Multitasker Full Automated Sample Preparation AND Injection System
- 1.7 minutes analysis time
- Sensitive separation with Zivak® 25-OH Vitamin D UHPLC column
- Approximately 1000 analysis with one column

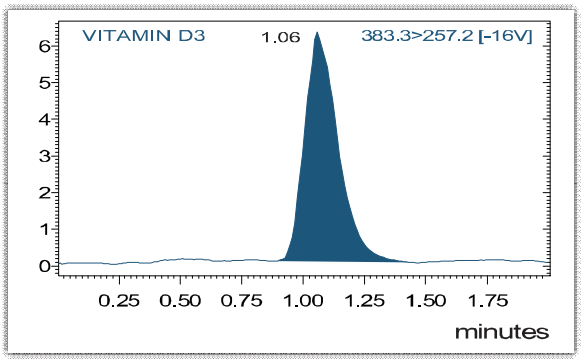
*Reference upon request

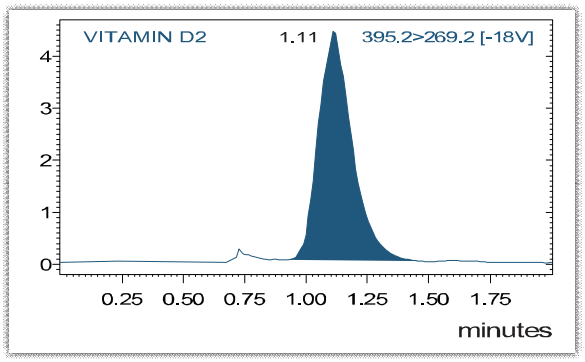
25-OH Vitamin D2/D3 LC-MS/MS Analysis Kit

in Human Serum Samples

Sample Chromatograms and Validation Results

Sample chromatograms are for serum calibrator of Zivak® 25-OH Vitamin D2/D3 LC-MS/MS Analysis Kit





25-OH Vitamin D3		
LOD	(µg/L)	0.51
LOQ	(µg/L)	1.53
Accuracy	(%)	98.5
Precision Intra-Assay	(%CV)	3.4
Precision Inter-Assay	(%CV)	4.4
Linearity (R^2)	(0-200 µg/L)	0.998

25-OH Vitamin D2		
LOD	(µg/L)	0.50
LOQ	(µg/L)	1.50
Accuracy	(%)	97.6
Precision Intra-Assay	(%CV)	2.6
Precision Inter-Assay	(%CV)	3.5
Linearity (R^2)	(0-200 µg/L)	0.998

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Tested by NIST* with an accuracy of 96%

Immunosuppressants LC-MS/MS Analysis Kit

in Human Whole Blood Samples

Highly sensitive and selective analysis with an ***online SPE method*** and deuterated internal standards

Suitable for any **LC-MS/MS System**

Main methods and procedures that have been selected are based on EN ISO 13485 and 98/79/EC.

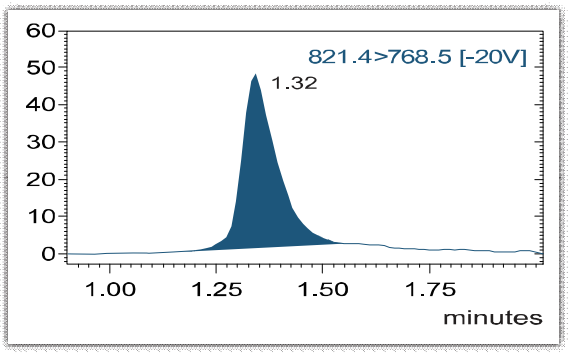
Properties of the analysis kit

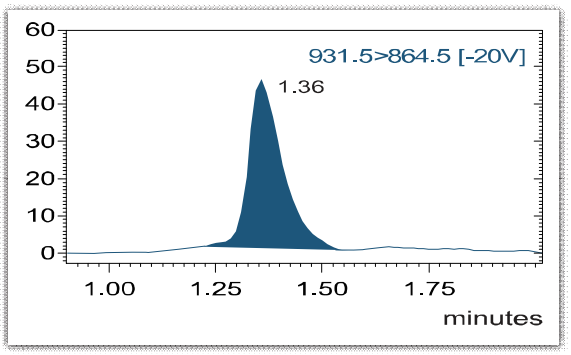
- Also *available* with Zivak® Multitasker Full Automated Sample Preparation AND Injection System
- 2 minutes analysis time
- Sensitive separation with Zivak® Immunosuppressants HPLC column
- Deuterated internal standards
- Approximately 1000 analysis with one column

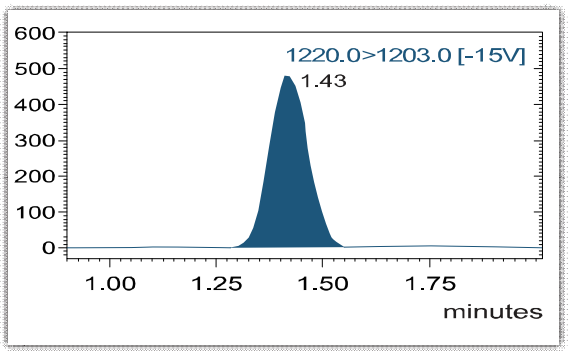
Immunosuppressants LC-MS/MS Analysis Kit
in Human Whole Blood Samples

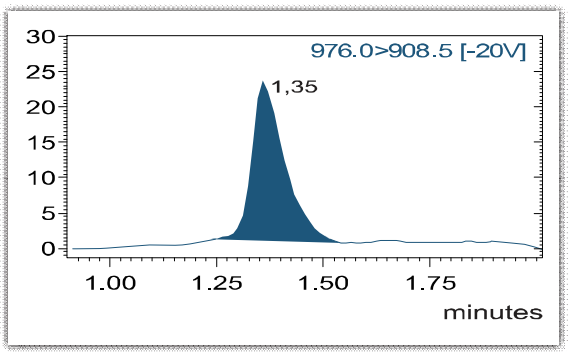
Sample Chromatograms and Validation Results

Sample chromatograms are for whole blood standard of Zivak® Immunosuppressants LC-MS/MS Analysis Kit









Tacrolimus		
LOD	(µg/L)	0.11
LOQ	(µg/L)	0.34
Accuracy	(%)	96.5
Precision Intra-Assay	(%CV)	4.7
Precision Inter-Assay	(%CV)	5.4
Linearity	(R^2)	0.998

Sirolimus		
LOD	(µg/L)	0.19
LOQ	(µg/L)	0.65
Accuracy	(%)	98.4
Precision Intra-Assay	(%CV)	3.2
Precision Inter-Assay	(%CV)	3.8
Linearity	(R^2)	0.999

Cyclosporine A		
LOD	(µg/L)	0.56
LOQ	(µg/L)	1.85
Accuracy	(%)	96.5
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Linearity	(R^2)	0.997

Everolimus		
LOD	(µg/L)	0.16
LOQ	(µg/L)	0.50
Accuracy	(%)	95.7
Precision Intra-Assay	(%CV)	3.7
Precision Inter-Assay	(%CV)	4.3
Linearity	(R^2)	0.997

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Organic Acids LC-MS/MS Analysis Kit
in Human Urine Samples

Minimal sample preparation with rapid, sensitive and ***quantitative*** detection of 55 organic acids in ***20 minutes***

Suitable for any
LC-MS/MS System

Main methods and procedures that have been selected are based on EN ISO 13485 and 98/79/EC.

Properties of the analysis kit

- Also *available* with Zivak® Multitasker Full Automated Sample Preparation AND Injection System
- 20 minutes analysis time
- Sensitive separation with Zivak® Organic Acids HPLC column
- Quantitative analysis of 55 major organic acids
- Between 1500-2000 analysis with one column
- No derivatisation, evaporation or SPE process

Validation Results

No	Analyte	LOD (mg/L)	LOQ (mg/L)	Accuracy (%)	Precision Intra-Assay (%CV)	Precision Inter-Assay (%CV)	Linearity (R^2)
1	2-3-pyridine carboxylic	0.020	0.066	95.7	4.34	5.32	0.998
2	2-me-hippuric	0.002	0.006	94.3	3.21	5.24	0.995
3	2-phe-propionic	0.002	0.005	96.5	4.78	5.36	0.997
4	3,4-dihydroxy-hidrocinnamic	0.002	0.006	92.3	2.18	6.13	0.996
5	3-indoleacetic	0.017	0.055	93.5	3.17	5.19	0.995
6	3-me-hippuric acid	0.003	0.011	94.6	4.18	5.26	0.998
7	3-OH-3-me glutaric	0.033	0.110	92.8	5.25	7.16	0.996
8	4-OH-benzoic	0.003	0.011	93.6	4.54	5.20	0.985
9	4-me hippuric	0.002	0.006	96.5	3.46	5.36	0.994
10	4-OH-phenylacetic	0.018	0.058	91.6	4.37	5.09	0.997
11	5-OH-indole-3-acetic	0.013	0.044	96.4	4.38	6.32	0.996
12	Adipic	0.013	0.044	98.2	3.26	5.46	0.994
13	AKBM	0.007	0.022	97.6	3.52	5.42	0.984
14	AKIC	0.003	0.011	96.2	6.74	7.34	0.997
15	AKIV	0.002	0.006	98.4	3.49	4.47	0.996
16	Alpha-OH-butyric acid	0.017	0.055	94.1	4.38	5.23	0.994
17	Alpha-Ketoglutaric	0.013	0.041	95.4	5.27	5.30	0.997
18	Arabitol	0.067	0.220	96.5	3.46	5.36	0.996
19	Benzoic	0.007	0.022	94.7	5.61	6.51	0.994
20	Beta-OH-butyric	0.020	0.066	95.5	4.23	5.30	0.998
21	Beta-OH-isovaleric	0.033	0.110	98.4	3.77	5.47	0.984
22	Glucaric	0.017	0.055	93.4	4.39	5.19	0.993
23	Cis-aconitic	0.167	0.550	98.3	3.86	5.46	0.994
24	Citramalic	0.013	0.044	100.2	5.84	7.81	0.998
25	Citric	1.667	5.500	96.7	3.43	5.37	0.993
26	Ethylmalonic	0.017	0.055	95.2	3.25	5.29	0.994
27	Formiminoglutamic	0.002	0.006	97.5	3.61	5.41	0.997
28	Fumaric	0.007	0.022	93.2	4.28	5.18	0.996
29	Hippuric	0.039	0.129	94.4	3.27	5.25	0.991
30	Homovanillic	0.017	0.055	95.5	4.51	5.31	0.995
31	Isocitric	0.039	0.129	93.7	3.58	6.56	0.997
32	Kynurenic	0.007	0.022	94.5	7.53	9.37	0.993
33	Lactic	0.018	0.058	97.5	3.27	6.44	0.994
34	Malic	0.005	0.017	92.5	5.74	6.35	0.996
35	Mandelic	0.001	0.004	97.4	4.50	6.50	0.991
36	Methylmalonic	0.007	0.022	99.2	4.27	5.61	0.995
37	Orotic	0.002	0.006	93.8	3.76	5.78	0.997
38	Phenylacetic	0.003	0.011	92.4	6.25	7.16	0.993
39	Phenylglyoxylic	0.002	0.006	94.6	4.23	5.77	0.994
40	Picolinic	0.002	0.006	90.5	4.65	5.88	0.996
41	Pyroglutamic	0.067	0.220	91.6	4.27	5.09	0.994
42	Pyruvic	0.033	0.110	92.7	3.24	5.15	0.984
43	Suberic	0.017	0.055	90.9	4.35	5.05	0.991
44	Succinic	0.018	0.058	91.7	5.46	6.56	0.993
45	Tartaric	0.018	0.058	94.6	3.29	5.25	0.985
46	Tricarballyl	0.007	0.022	89.8	4.57	6.51	0.997
47	Vanilmandelic	0.013	0.044	94.5	4.17	5.25	0.992
48	Xanthurenic	0.002	0.006	96.2	4.38	5.35	0.996
49	Glycolic Acid	0.012	0.036	94.2	3.94	4.20	0.994
50	Glyceric Acid	0.055	0.155	95.8	4.21	5.15	0.996
51	Succinyl Aceton	0.048	0.152	96.7	6.54	7.16	0.997
52	Propyonil Glycine	0.010	0.030	94.8	5.67	6.50	0.995
53	Iso-Valeryl Glycine	0.002	0.006	94.6	4.35	5.47	0.984
54	Glutaric Acid	0.072	0.212	97.5	4.54	5.30	0.997
55	Sebacic Acid	0.022	0.066	95.1	4.43	6.15	0.996

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Amino Acids
LC-MS/MS Analysis Kit
in Biological Fluids

Accurate, sensitive
rapid and quantitative
analysis of
42 free amino acids
in a single run
within **20 minutes**

Suitable for any
LC-MS/MS System

Main methods and procedures that have been selected are based on EN ISO 13485 and 98/79/EC.

Properties of the analysis kit

- 20 minutes analysis time
- Available in Biological Fluids:
  Plasma, Serum, Urine, Cerebrospinal Fluid
- Sensitive separation with Zivak® AA HPLC column
- Deuterated internal standards
- Approximately 2000 analysis with one column

Amino Acids LC-MS/MS Analysis Kit

in Biological Fluids

Validation Results

No	Analyte	LOD (µmol/L)	LOQ (µmol/L)	Accuracy (%)	Precision Intra-Assay (%CV)	Precision Inter-Assay (%CV)	Linearity (R^2)
1	3-methyl-histidine (3-MeHIS)	1.99	6.57	90.9	4.23	5.1	0.994
2	Alanine (ALA)	0.78	2.57	91.7	4.85	5.1	0.996
3	Alpha-aminoadipic acid (AAA)	1.50	4.95	95.1	5.21	6.3	0.994
4	Alpha-aminobutyric acid (ABA)	0.83	2.74	96.3	5.01	5.3	0.997
5	Alpha-aminopimelic acid (APA)	1.20	3.96	97.4	4.76	5.4	0.985
6	Anserine (ANS)	1.65	5.45	95.6	6.47	7.4	0.994
7	Arginine (ARG)	1.25	4.13	91.7	4.25	5.1	0.984
8	Argininosuccinic acid (ARG-SUC)	2.10	6.93	94.6	4.16	5.3	0.993
9	Asparagine (ASN)	0.87	2.87	89.8	4.12	5.0	0.997
10	Aspartic Acid (ASP)	0.66	2.18	94.5	5.14	6.2	0.996
11	Beta alanine (BALA)	0.66	2.18	96.2	5.28	5.4	0.985
12	Beta-aminoisobutyric acid (BAIB)	2.33	7.69	95.6	4.75	5.3	0.994
13	Citrulline (CIT)	1.17	3.86	94.3	6.84	7.2	0.984
14	Cystathionine (CTH)	2.32	7.66	96.4	3.45	4.4	0.997
15	Cysteine (CYS)	0.83	2.74	92.2	4.72	5.1	0.993
16	Cystine (C-C)	0.35	0.86	97.5	4.53	5.2	0.997
17	Gamma-aminobutyric acid (GABA)	3.30	10.9	94.6	4.21	5.3	0.995
18	Glutamic Acid (GLU)	1.33	4.39	92.8	5.42	6.4	0.994
19	Glutamine (GLN)	0.99	3.27	93.6	4.13	5.2	0.998
20	Glycine (GLY)	1.65	5.45	96.4	4.57	5.4	0.989
21	Histamine (HISTA)	0.83	2.74	91.5	4.26	5.1	0.986
22	Histidine (HIS)	2.30	7.59	96.3	4.75	5.4	0.994
23	Hydroxylysine (HYL)	0.66	2.18	98.2	6.14	7.7	0.997
24	Hydroxyproline (HYP)	2.10	6.93	94.8	4.56	5.3	0.993
25	Homocystine (HC-HC)	0.32	0.95	96.7	4.12	5.2	0.985
26	Homocysteine (HCYS)	0.25	0.58	94.8	4.78	5.5	0.999
27	Isoleucine (ILEU)	0.83	2.74	93.3	5.01	5.2	0.996
28	Leucine (LEU)	1.25	4.13	95.6	4.86	5.3	0.987
29	Lysine (LYS)	0.33	1.09	91.3	4.12	5.1	0.994
30	Methionine (MET)	1.94	6.40	92.5	4.76	5.1	0.997
31	1-methyl-histidine (1-MeHIS)	0.83	2.74	93.6	6.76	7.2	0.993
32	Ornithine (ORN)	1.94	6.40	91.8	5.43	6.4	0.994
33	Phenylalanine (PHE)	0.33	1.09	92.6	3.56	4.2	0.994
34	Proline (PRO)	0.87	2.87	95.6	4.25	5.3	0.996
35	Sarcosine (SAR)	1.26	4.16	90.7	5.47	6.2	0.985
36	Serine (SER)	0.60	1.98	95.5	3.56	4.4	0.994
37	Serotonin (SRTN)	1.33	4.39	97.2	4.72	5.5	0.991
38	Thiaproline (THPR)	2.09	6.90	91.9	4.56	5.7	0.992
39	Threonine (THR)	0.78	2.57	90.6	5.26	6.0	0.994
40	Tryptophan (TRP)	0.65	2.15	92.7	3.57	4.7	0.996
41	Tyrosine (TYR)	0.85	2.81	88.7	2.59	3.8	0.993
42	Valine (VAL)	0.95	3.14	89.8	3.04	3.2	0.997

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Neonatal Screening
LC-MS/MS Analysis Kit
in Dried Blood Spots

1.5 MINUTES

Diagnosis of over 30 metabolic disorders with sensitive and quantitative detection

Suitable for any
LC-MS/MS System

Accurate calculation is not an issue anymore in combination with Zivak® Tandem Gold LC-MS/MS Instrument*

Properties of the analysis kit

- **1.5 minutes analysis time**
- **Isotope dilution method with deuterated internal standards**
- **Quantitation of selected amino acids and carnitines**
- **Approximately 1000 analysis with one pre-filter**

IVD CE

**Zivak® Tandem Gold LC-MS/MS Instrument offered as a cost competitive leasing model via kit supply*

Neonatal Screening LC-MS/MS Analysis Kit
in Dried Blood Spots

Validation Results

No	Analyte	LOD (μmol/L)	LOQ (μmol/L)	Accuracy (%)	Precision Intra-Assay	Precision Inter-Assay	Linearity (R^2)
1	Glycine	0.29	0.87	97.9	3.23	4.1	0.994
2	Alanine	0.40	1.20	95.1	2.21	3.3	0.994
3	Valine	0.25	0.75	97.4	2.73	3.5	0.985
4	Leucine	0.65	1.95	94.7	3.15	4.1	0.984
5	Ornithine	0.97	2.91	94.6	1.26	2.3	0.993
6	Methionine	0.53	1.59	96.2	2.18	3.3	0.985
7	Phenylalanine	0.77	2.31	95.3	3.64	4.2	0.984
8	Arginine	0.53	1.59	94.2	2.52	3.1	0.993
9	Citrulline	0.25	0.75	97.5	3.43	4.5	0.997
10	Tyrosine	0.45	1.35	95.6	2.23	3.1	0.998
11	Aspartic Acid	0.43	1.29	95.5	3.24	4.3	0.986
12	Glutamic Acid	0.36	1.08	98.2	4.34	5.4	0.997
13	C0 Carnitine	0.02	0.07	96.7	4.02	5.2	0.985
14	C2 Carnitine	0.04	0.13	93.3	3.21	4.1	0.996
15	C3 Carnitine	0.02	0.07	98.3	2.32	3.3	0.994
16	C4 Carnitine	0.05	0.16	98.6	4.46	5.1	0.993
17	C5 Carnitine	0.02	0.07	97.6	3.36	4.3	0.994
18	C4OH Carnitine	0.05	0.14	95.6	3.22	4.1	0.996
19	C6 Carnitine	0.04	0.12	95.5	2.46	3.2	0.994
20	C5OH Carnitine	0.02	0.07	97.2	3.52	4.2	0.991
21	C8 Carnitine	0.09	0.26	96.9	2.46	3.5	0.992
22	C3DC Carnitine	0.07	0.20	92.7	1.27	2.5	0.996
23	C10 Carnitine	0.09	0.26	92.7	1.39	2.7	0.993
24	C5DC Carnitine	0.08	0.23	96.8	1.54	2.6	0.997
25	C12 Carnitine	0.07	0.20	93.5	2.26	3.5	0.996
26	C6DC Carnitine	0.05	0.14	95.6	3.45	4.6	0.997
27	C14 Carnitine	0.07	0.20	95.4	2.14	3.7	0.994
28	C16 Carnitine	0.08	0.23	94.5	3.57	4.6	0.993
29	C18:1 Carnitine	0.10	0.29	93.4	2.18	3.6	0.997
30	C18 Carnitine	0.08	0.23	96.4	3.45	4.2	0.993

The test results have been validated with a Zivak Tandem Gold LC-MS/MS instrument in Nov. 2014.

Catecholamines
LC-MS/MS Analysis Kit
in Human Urine Samples

Good NEWS:

You don't have to deal with
the problems of ECD anymore !

Robust, sensitive and
quantitative analysis
of Catecholamines
NOW AVAILABLE
in 16 minutes

Suitable for any
LC-MS/MS System

Main methods and procedures that have been selected are based on EN ISO 13485 and 98/79/EC.

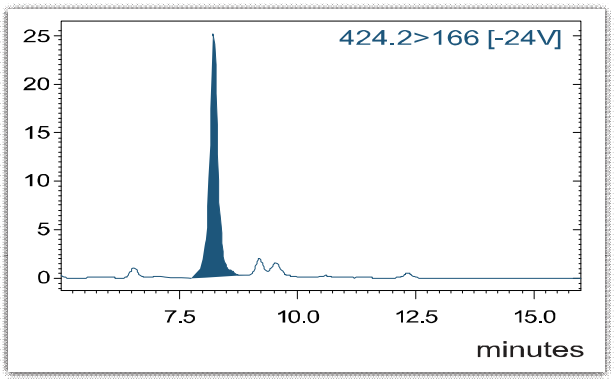
Properties of the analysis kit

- **16 minutes analysis time**
- **Sensitive separation with Zivak® Catecholamines HPLC column**
- **Deuterated internal standards**
- **No evaporation or SPE process**
- **Approximately 1000 analysis with one column**

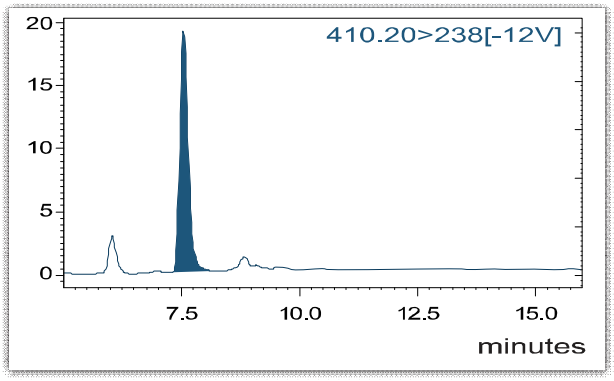
Catecholamines
LC-MS/MS Analysis Kit
in Human Urine Samples

Sample Chromatograms and Validation Results

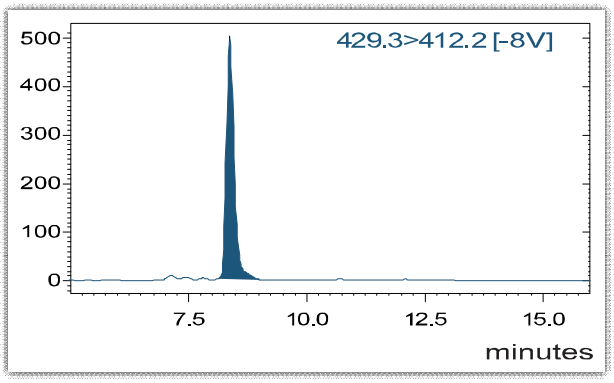
Sample chromatograms are for urine calibrator of Zivak® Catecholamines LC-MS/MS Analysis Kit



Adrenaline		
LOD	(µmol/L)	0.4
LOQ	(µmol/L)	1.2
Accuracy	(%)	97.5
Precision Intra-Assay	(%CV)	2.1
Precision Inter-Assay	(%CV)	3.2
Linearity	(R^2)	0.9989



Noradrenaline		
LOD	(µmol/L)	0.6
LOQ	(µmol/L)	1.8
Accuracy	(%)	98.5
Precision Intra-Assay	(%CV)	1.7
Precision Inter-Assay	(%CV)	2.6
Linearity	(R^2)	0.9990



Dopamine		
LOD	(µmol/L)	0.3
LOQ	(µmol/L)	0.9
Accuracy	(%)	98.3
Precision Intra-Assay	(%CV)	1.6
Precision Inter-Assay	(%CV)	2.4
Linearity	(R^2)	0.9985

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.

Metanephrines
LC-MS/MS Analysis Kit
in Human Urine Samples

Good NEWS:

You don't have to deal with
the problems of ECD anymore !

Robust, sensitive and
quantitative analysis
of Metanephrines
NOW AVAILABLE
in 13 minutes

Suitable for any
LC-MS/MS System

Main methods and procedures that have been selected are based on EN ISO 13485 and 98/79/EC.

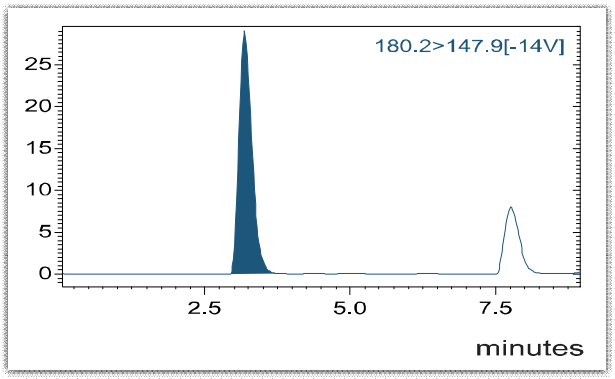
Properties of the analysis kit

- **13 minutes analysis time**
- **Sensitive separation with Zivak® Metanephrines HPLC column**
- **Deuterated internal standards**
- **No evaporation or SPE process**
- **Approximately 1000 analysis with one column**

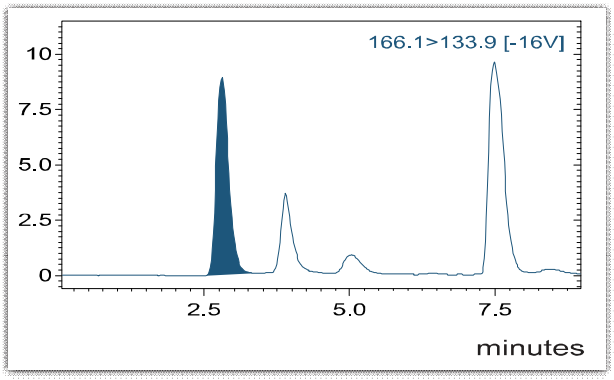
Metanephrines LC-MS/MS Analysis Kit
in Human Urine Samples

Sample Chromatograms and Validation Results

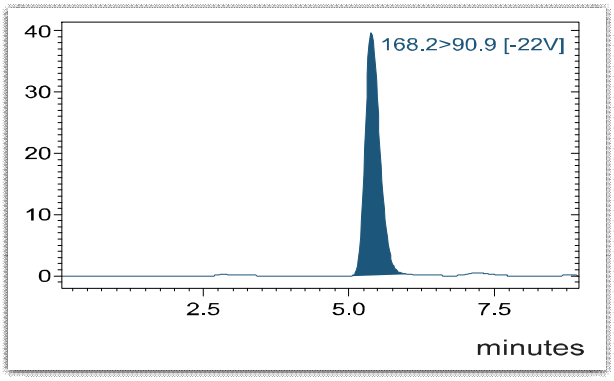
Sample chromatograms are for urine control level 2 of Zivak® Metanephrines LC-MS/MS Analysis Kit



Metanephrine		
LOD	(µg/L)	2.6
LOQ	(µg/L)	7.8
Accuracy	(%)	98.3
Precision Intra-Assay	(%CV)	1.7
Precision Inter-Assay	(%CV)	2.5
Linearity	(R^2)	0.9989



Normetanephrine		
LOD	(µg/L)	2.9
LOQ	(µg/L)	9.1
Accuracy	(%)	97.9
Precision Intra-Assay	(%CV)	2.1
Precision Inter-Assay	(%CV)	3.1
Linearity	(R^2)	0.9990



3-MT		
LOD	(µg/L)	1.12
LOQ	(µg/L)	3.38
Accuracy	(%)	98.20
Precision Intra-Assay	(%CV)	3.8
Precision Inter-Assay	(%CV)	4.6
Linearity	(R^2)	0.9967

The test results have been validated with an AB Sciex API 4000 LC-MS/MS instrument in Nov. 2014.