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DAkkS Deutsche Akkreditierungsstelle D-ML-13455-01-00
Accredited according to DIN EN ISO 15189:2014

Physician:

Dr. M. Jaksch
Freiburg Medical Lab

Laboratory Report Online Version

Report Date: 05.05.2022

Patient Name: UAE/GCC/M.E. Risk Profile
Gender: Male
Date of Birth: 01.02.1933
Nationality:
Your ID:

Test Request Code: 2801
Sample ID:
Patient IDNo: 2501049

Sampling Date / Time: 05.05.2022 / 09:00
Receipt Date / Time: 05.05.2022 / 16:04

Remarks: Sample Report

Insurance:

Analysis	Result	Flag	Units	Reference Range
Haematology				
CBC (EDTA blood)				
WBC	**5.1**		10^3/µl	4.0 - 10.0
RBC	**4.3**	**low**	10^6/µl	4.5 - 5.5
HGB	**14.0**		g/dl	13.0 - 17.0
HCT	**43.0**		%	42 - 52
MCV	**100.2**		fl	83.0 - 101.0
MCH	**32.6**	**high**	pg	27.0 - 32.0
MCHC	**32.6**		g/dl	31.5 - 36.0
PLT	**219**		10^3/ul	150 - 450
Differential Count (automatic)				
Neutrophils	**24.0**	**low**	%	50 - 70
Lymphocytes	**64.0**	**high**	%	20 - 40
Monocytes	**9.0**		%	4 - 12
Eosinophils	**3.0**		%	0 - 4
Basophils	**0.0**		%	0 - 2
Neutrophils absolute	**1.20**	**low**	10^3/µl	2.0 - 7.0
Lymphocytes absolute	**3.30**		10^3/µl	0.8 - 4.0
Monocytes absolute	**0.50**		10^3/µl	< 1.2

This report was technically validated

Note:
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Daily internal Quality Control within the required range (according to Rili-BÄK).
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^ non-accredited parameter
"This parameter is affected by Biotin intake of >5 mg (RDI = 0.03mg)
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Techn. Validation by Med. Technologist (Supervisor of the Department) — **Dr. Nehmat ElBanna Specialist Clinical Pathology (DHA- 84548-001)** — **PD Dr. med. habil. M. Jaksch Associate Professor Medical Director (DHA-LS-240710)**

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Differential Count (automatic), Continuation				
Eosinophils absolute	**0.20**		10^3/µl	<0.4
Basophils absolute	**0.00**		10^3/µl	0.0 - 0.1
Coagulation (Citrated Plasma)				
PT (COAG)	**61**	**low**	%	70 - 130
INR (CALC)	**1.29**	**high**	ratio	0.85 - 1.20
Proteins/Metabolites (NaF-Plasma)				
Glucose (Recommendation of the Amerian Diabetes Association)				
Glucose fasting (PHO)	**104**	**high**	mg/dl	70 - 99

Please note that we have adjusted our reference ranges according to the recommendations of the American Diabetes Association:
Glucose Level
70-99 Normal fasting glucose
100-125 Impaired fasting glucose (pre-diabetes)
> 126 Suspicion of diabetes
Sodium-fluoride (NaF) is a glycolysis inhibitor and is the most used additive for Glucose measurements in the medical laboratory. However, glycolysis inhibition is not complete in uncentrifuged NaF blood tubes. The American Diabetes Association (ADA) recommends to consider higher Glucose values in the patient, if using NaF blood tubes which cannot be centrifuged immediately.
Glucose values decrease in NaF uncentrifuged blood tubes:
- up to 5% in the first hour
- up to 7% in the second hour
- up to 9% in the 3rd hour

Source: Montagnana and Lippi. Preanalytical issues for diagnosing diabetes. Ann Transl Med 2017;5(12):257

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Analysis	Result	Flag	Units	Reference Range
Proteins/Metabolites (NaF-Plasma), Continuation				
Glucose fasting (PHO)	**5.8**	**high**	mmol/l	3.9 - 5.5
Proteins/Metabolites (Serum)				
Lipid Studies in mg/dl (Recommendations for Adults from the American Heart Association)				
Cholesterol, total (PHO)	**119**		mg/dl	100 - 199
Normal: 100 - 199, Desirable: < 200, Borderline: 200 - 239, High Risk: >240				
Triglycerides (PHO)	**74**		mg/dl	< 150
Normal: < 150, Borderline: 150 - 199, High: 200 - 499, Very High: >500				
HDL Cholesterol, direct (PHO)	**39.9**	**low**	mg/dl	> 50
Increased Risk Men: < 40, Increased Risk Women: < 50, Normal: 50 - 60, Optimal: > 60				
LDL Chol., Friedewald (CALC)	**64**		mg/dl	< 100
Optimal: < 100, Near Optimal: 100 - 129, Borderline: 130 - 159, High: 160 - 189, Very High: > 190				
VLDL (CALC)	**14.8**		mg/dl	< 30.0
Cholesterol/HDL (CALC)	**3.0**		Ratio	2.0 - 4.4
Normal: 2.0 - 4.4, Desirable: < 4.5, Borderline: 4.5 - 6.0, Increased Risk: > 6.0				
Non-HDL Cholesterol (CALC)	**79**		mg/dl	see text

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Analysis	Result	Flag	Units	Reference Range

Recommendations for treatment - secondary targets:

Risk category:	non-HDL-Cholesterol:
Individuals at very high total CV-risk	< 100 mg/dl
Individuals at high total CV-risk	< 130 mg/dl
Individuals at moderate CV-risk	< 145 mg/dl

Reference:
2016 ESC/EAS Guidelines for the Management of Dyslipidemias.
European Heart Journal, 2016.

Proteins/Metabolites (Serum)

Lipid Studies in mmol/l (Recommendations for Adults from the American Heart Association)

Cholesterol, total (PHO)	**3.1**		mmol/l	2.6 - 5.1

Normal: 2.6 - 5.1, Desirable: < 5.2, Borderline: 5.2 - 6.2, High Risk: >6.2

Triglycerides (PHO)	**0.8**		mmol/l	< 1.7

Normal: < 1.7, Borderline: 1.7 - 2.2, High: 2.2 - 5.6, Very High: >5.6

HDL Cholesterol, direct (PHO)	**1.0**	**low**	mmol/l	>1.3

Increased Risk Men: < 1.0, Increased Risk Women: < 1.3, Normal: 1.3 - 1.6, Optimal: > 1.6

LDL Chol., Friedewald (CALC)	**1.7**		mmol/l	< 2.6

Optimal: < 2.6, Near Optimal: 2.6 - 3.3, Borderline: 3.4 - 4.1, High: 4.2 - 4.9, Very High: > 4.9

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Analysis	Result	Flag	Units	Reference Range
Proteins/Metabolites (Serum), Continuation				
VLDL (CALC)	**0.38**		mmol/l	<0.77
Proteins/Metabolites (EDTA-Plasma)				
Homocysteine (PHO)	**12.8**		umol/l	<16.0

Please note:
We are using the cut-off value of 12 umol/l, which is used in European laboratories. In most of the U.S. laboratories, 15 umol/l is used as the cut-off value for normal levels of Homocysteine in adults.

A significantly increased level of homocysteine is considered an arteriosclerotic risk factor.
Various studies have shown that the risk of mortality will not be increased by results below 10; results from 10 to 15 increase the risk factor up to 1.9 times;
results from 15 to 20 up to 2.8 times; results >20 up to 4.5 times.
A combined folic acid, vitamin B6 and vitamin B12 supplementation followed by homocysteine level monitoring is recommended.
Please note, that the reference range is valid only for serum/plasma which was separated within one hour after blood collection.

Proteins/Metabolites (Serum)				
Albumin (PHO)	**4.0**		g/dl	3.5 - 5.0
Total Bilirubin (PHO)	**0.64**		mg/dl	0.2 - 1.1
Bilirubin direct (PHO)	**0.3**		mg/dl	< 0.3
Ferritin (TURB)"	**170.3**		ng/ml	30.0 - 400.0

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Please note that Ferritin is an acute phase protein and is increased in inflammatory disorders.

Lipoprotein (a) (TURB)	**195.6**	**high**	nmol/l	< 75.0

Elevated lipoprotein (a) increases the risk for CHD in combination with other CHD risk factors. A moderately strong association of Lp (a) with CHD has been established independently of the classical vascular risk factors.

The risk of angina pectoris is increased with high concentration of Lp (a) and it is more significant if accompanied by high LDL-C concentration.

Treatment with Niacin reduces Lp (a) levels by 30-40% and yields other potential beneficial effects by reducing LDL cholesterol, total cholesterol, triglycerides, remnant cholesterol and by raising HDL cholesterol.

Ref: Borge G. Nordestgaard, M. John Chapman, Kausik Ray et al. for the European Atherosclerosis Society Consensus Panel: Lipoprotein (a) as a cardiovascular risk factor: current status.
Source: European Heart Journal: 2010; 31:2844-2853

Total Protein (PHO)	**7.3**	g/dl	6.4 - 8.3
Uric Acid (PHO)	**4.5**	mg/dl	2.6 - 7.2

2012 American College of Rheumatology
Guidelines for Management of Gout

- Serum urate level should be lowered sufficiently to durably improve

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signs and symptoms of gout, with the target <6 mg/dl at a minimum, and often <5mg/dl
- The task force panel recommended that the goal of urate lowering therapy is to achieve a serum urate level target at a minimum of 6 mg/dl in all gout case scenarios (evidence A).
- Moreover, the task force panel recommended that the target serum urate level should be lowered sufficiently to durably improve signs and symptoms of gout, including palpable and visible tophi detected by physical examination, and this may involve therapeutic serum urate level lowering to below 5 mg/dl (evidence B).

Source: Kanna D et al, Arthritis Care & Research 2012, 64, 1431 - 1446

Proteins/Metabolites (EDTA blood)				
HbA1c acc. to IFCC (HPLC)	**39**		mmol/mol	29 - 42
HbA1c acc. DCCT/NGSP (HPLC)	**5.7**		%	4.8 - 6.0
Estimated avg. Glucose (CALC)	**118**		mg/dl	92 -127

The American Diabetes Association (ADA) suggests an HbA1c level of 7% DCCT (53mmol/mol IFCC) and below (reflecting an average glucose level of 154mg/dl)as the therapeutic target. However, more or less stringent glycemic goals may be appropriate for each individual (please refer to the ADA website: www.diabetes.org).
ADA defines the cut-off point for HbA1c in the diagnosis of diabetes at 6.5% DCCT (48 mmol/mol IFCC).

Please note that we have adjusted the unit according to the recommendation of the IFCC. Reference HbA1c (IFCC/NGSP). Source: www.ngsp.org/docs/IFCCstd.pdf

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Please note: Any condition that decreases mean erythrocyte age or increases Red Blood Cells turnover will affect the HbA1c test results regardless of the assay method used.In such cases, HbA1c should be interpreted with caution and alternative forms of testing should be considered.				
Enzymes (Serum)				
ALT/GPT (PHO)	**15**		U/l	< 42
AST/GOT (PHO)	**21**		U/l	< 39
Alk. Phosphatase (PHO)	**45**		IU/L	41-137
Source: Hay W.W., Levin M.J., Sondheimer J.M. and Deterding R.R. Current pediatric diagnosis and treatment (19th edition) 2009. New York: Lange Medical Books/McGraw Hill.				
GGT (PHO)	**22**		IU/l	10 - 66
LDH (PHO)	**165**		U/l	135 - 225
Endocrinology (Serum)				
Insulin/fasting (ECL)"	**12.5**		µIU/ml	1.9 - 23.0
HOMA Index (CALC)	**3.21**	**high**	index	see text

Interpretation:
HOMA: < 2.0 normal insulin response
HOMA: > 2.5 increased insulin resistance
The homeostasis model assessment (HOMA) is an index of insulin resistance, calculated using fasting Glucose and fasting Insulin.It is considered a useful method, not only for assessing insulin resistance but also for monitoring the

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treatment in Diabetes mellitus type 2.
Source (first description of HOMA): Matthews DR et al. Diabetologia 28:412-419 ; 1985
Please note that 12 hours fasting is recommended.

Endocrinology (Serum)				
TSH (ECL)"	**3.20**		mIU/l	0.30 - 4.20

Important note:
Revised TSH levels:
The American Association of Clinical Endocrinologists (AACE), www.aace.com and the American Thyroid Association (ATA), www.thyroid.org have released guidelines to lower the TSH reference range to 0.3 - 3.0 mIU/l in order to not miss any latent hypothyreosis. The discussion is still controversal, however Freiburg Medical Laboratory recommends to consider TSH levels from 3.0 - 4.2 mIU/l as greyzone (borderline increased TSH) and definitely elevated TSH levels >4.2 mIU/l.

TSH shows Circadian Variability and Individual Variation, maximal levels are seen in the early morning and the lowest level in the late afternoon to mid-evening. These variations might mask a subclinical hypothyroidism. (source:Biochemical Testing of the Thyroid:TSH is the Best and, Oftentimes, Only Test Needed; Clinical Medicine & Research
Volume 14, Number 2: 83-92- 2016)

Vitamins (Serum, light-protected)				
Vitamin B12 (ECL)"	**520**		pg/ml	200 - 1000

200 - 350 pg/ml borderline

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>350 - 400 pg ml acceptable
>400 pg/ml normal

We recommend the following procedure:

Vitamin B12	holoTC	MMA	Interpretation
>400 pg/ml	-	-	B12 deficiency excluded
<400 pg/ml	normal	normal	still normal B12 status
<400 pg/ml	decreased	normal	B12 deficiency (early phase)
<400 pg/ml	decreased	increased	functional B12 deficiency

holoTC = Holotranscobalamin
MMA = Methylmalonic acid

Source:
Carmel R, Green R, Rosenblatt DS, Watkins.: Update on cobalamin, folate and homocysteine.
Hematology Am Soc Hematol Educ Program. 2003:62-81

Vitamin D (25OH), total(ECL)"	**47.9**	ng/ml	40 - 80

Deficient:<30 Borderline: 30 - 40 Desirable >40

Source:Wacker and Holick, Vitamin D.Effects on Skeletal and Extraskeletal Health and the Need for

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PD Dr. med. habil. M. Jaksch Associate Professor Medical Director (DHA-LS-240710)

Freiburg Medical Laboratory Middle East (L.L.C.)
P.O. Box: 3068, Dubai - UAE, Tel: 04 396 2227, Fax: 04 396 2228
E-mail: info@fml-dubai.com, Website: www.fml-dubai.com

DAkkS Deutsche Akkreditierungsstelle D-ML-13455-01-00
Accredited according to DIN EN ISO 15189:2014

Physician:

Dr. M. Jaksch
Freiburg Medical Lab

Laboratory Report Online Version

Report Date: 05.05.2022

Patient Name: UAE/GCC/M.E. Risk Profile
Gender: Male
Date of Birth: 01.02.1933
Nationality:
Your ID:

Test Request Code: 2801
Sample ID:
Patient IDNo: 2501049

Sampling Date / Time: 05.05.2022 / 09:00
Receipt Date / Time: 05.05.2022 / 16:04

Remarks: Sample Report

Insurance:

Analysis	Result	Flag	Units	Reference Range

Supplementation
Nutrients 2013;5:111-148.

Important note:
The two most important forms for detecting Vitamin D deficiency are 25-OH-Vitamin D3 and 25-OH-Vitamin D2. Vitamin D3 ("human or animal form", cholecalciferol) is mainly produced in the skin after sun exposure but can also be taken up through food; Vitamin D2 ("plant form", ergocalciferol) can be obtained only from fortified foods and supplements. Both forms are metabolized in the liver to the inactive form 25-OH-Vitamin D and stored until needed, at which point 25-OH-Vitamin D is converted in the kidney to the active 1.25-(OH)2-Vitamin D. Please note that this active form does not reflect Vitamin D deficiency as it is tightly regulated by PTH, Calcium and Phosphate. Therefore 1.25-(OH)2-Vitamin D testing is indicated in kidney disorders only (insufficiency, dialysis etc.).

The concentration of 25-OH-Vitamin D in serum reflects the stored supply of all Vitamin D (D3 and D2) and gives a good indication of the Vitamin D deficiency status of the patient. Normally, more than 95% of the measured 25-OH-Vitamin D is D3; Vitamin D2 can only be measured if Vitamin D2 supplements are being taken. Our newly evaluated test, compared with liquid chromatography/mass spectrometry (LCMS), measures the serum concentration of total 25-OH-Vitamin D (immunological method). Should you require a separate measurement of D3 and D2 levels, this can be done through our partners in Germany using LCMS.

Microbiology (Stool)				
H. pylori Ag (EIA)	**negative**		qualitative	negative

Using monoclonal antibodies, this test is highly sensitive and specific.

Serology: Hepatitis B (Serum)				
Hepatitis Bs Ag (ECL)"	**0.50**		COI	< 0.90

Note:
Our reference values are adjusted to age and gender.
Daily internal Quality Control within the required range (according to Rili-BÄK).
External Quality Control available on request.
^ non-accredited parameter
"This parameter is affected by Biotin intake of >5 mg (RDI = 0.03mg)
* This investigation has been performed in a collaborating accredited laboratory (Germany).

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Analysis	Result	Flag	Units	Reference Range
No sign of Hepatitis B infection.				
Serology: Hepatitis C (Serum)				
HCV Abs (ECL)"	**0.04**		S/CO	<1.00
No sign of Hepatitis C infection.				
Autoimmune Diagnostics (Serum)				
Thyroid Antibodies				
TPO Abs (ECL)"	**9.1**		IU/ml	0 - 34

Detection frequency of TPO Abs.:

Disease	TPO Abs. positive
Hashimoto Thyroiditis	60 - 90 %
Primary Myxoedema	40 - 70 %
Morbus Basedow	60 - 70 %
Postpartum Thyroiditis	50 - 70 %
Cytokine induced Thyroiditis	30 - 40 %
Subacute Thyroiditis de Quervain	< 5 %
Autonomy of the thyroid gland	approx. 5 %
Healthy Person	approx. 5 %

Thyroglobulin Abs (ECL)"	**12.0**		IU/ml	< 115

Detection frequency of TG Abs.:

Disease	TG Abs positive

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Insurance:

Analysis	Result	Flag	Units	Reference Range
Hashimoto Thyroiditis				30 - 40 %
Primary Myxoedema				20 - 30 %
Morbus Basedow				10 - 20 %
Postpartum Thyroiditis				20 - 40 %
Cytokine induced Thyroiditis				10 - 20 %
Subacute Thyroiditis de Quervain				0 - 20 %
Autonomy of the thyroid gland				approx. 5 %
Healthy Person				approx. 5 %

This report was technically validated

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