0000002334472

Name:	ABC	**Age/Gender**	40 years 11 months 1 day/Female
Referred By	N.A	**Client Name**	FM Diagnostics
Collection Date:	07-04-2021 14:47:00	**Report Release Time**	17-04-2021 19:27:27

Section	Details	Section Id
Section 1	Neurotransmitter Metabolism	R1

* The analyte is not in the lab scope.
CRM No :2334472
Sample Received Time: 07-04-2021 15:00:40
Report Release Date: 17-04-2021 19:21:57
Patient Name: ABC
Patient ID: 2334472

Authorized Signatory
Dr. Pramod Ingale
MD (Biochemistry)

Authorized Signatory
Dr. Mahesh Hampe
MD (Biochemistry)

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Report Summary

Sr.No	CONDITION		STATUS		
R.1 3	Inhibitory Neurotransmitters	○ Sufficient	● Mild	○ Deficient	

High Glycine excretion may be due to cofactor deficiency, especially riboflavin (B2), pyridoxime (B6), folate or pantothenic acid (B5). Supplementation with these vitamins can help control glycine levels and alter its function as a neurotransmitter. Glycine is a primary and secondary marker of folate deficiency and reflects the catabolic state. It has been proposed as a marker of iron deficiency. Therefore, individual supplementation with iron and folate and high-quality protein may be helpful in controlling these levels. Please note that glycine levels rise when ingesting gelatin-based foods, bacterial infection, hemolysis, or anticonvulsant treatment (valproate).

R.1 4	excitatory neurotransmitters	○ Sufficient	● Mild	○ Deficient	

Glutamate and Aspartate are the principal excitatory neurotransmitter in brain. Glutamic acid is in a metabolic pool with -ketoglutaric acid and glutamine. A large fraction of the glutamate released from nerve terminals probably is taken up into glial cells, where it is converted into glutamine. Glutamate can be neurotoxic through an agonist effect on NMDA, AMPA, kainate or Group I metabotropic receptors. However it is noted that susceptibility to excitotoxic cell death via glutaminergic pathways is under genetic control in a variety of ways.

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Interpretation R.1 -Neurotransmitter Metabolism

Sr.No	CONDITION	STATUS					
R.1 1	Catecholamine Metabolism	●	Sufficient	○	Mild	○	Severe
R.1 2	Tryptophan Metabolism	●	Sufficient	○	Mild	○	Deficient
R.1 3	Inhibitory Neurotransmitters	○	Sufficient	●	Mild	○	Deficient
R.1 4	excitatory neurotransmitters	○	Sufficient	●	Mild	○	Deficient

Section R.1-Neurotransmitter Metabolism

Intercellular communication in the brain requires precise control over the duration and intensity of neurotransmitter release at specific sites. After their release at the synapse, they activate pre-and post-synaptic receptors. To terminate synaptic transmission, neurotransmitters are in turn, inactivated by either enzymatic degradation or active transport in neuronal cells by neurotransmitter transporters. Epinephrine, also called adrenaline is mainly synthesized in adrenal medulla and stored in chromaffin granules and released during acute stress and crisis. Therefore epinephrine and norepinephrine are released in response to flight, fight, fright, exercise and hypoglycemia. Epinephrine is catabolised to metanephrine and similarly norepinephrine is catabolised to normetanephrine. Both are then acted upon by mono amine oxidase (MAO) to form end product vanillylmandelic acid (VMA). Dopamine oxidatively deaminated to Homovanillic acid (HVA). HVA and VMA both are classical indicators of mental stress and anxiety. Impaired tryptophan pathway results in elevated Quinolinate generation. It is a dicarboxylic acid with potent neurotoxicity involved in mood disorders. Kynurenate is a normal breakdown product of tryptophan. It acts as anti-excitotoxic and anticonvulsant owing to its antagonistic action towards several excitatory amino acid receptors. Defective Tryptophan metabolism due to B6 deficiency may raise Kynurenate while excess tryptophan metabolism produces 5-hydroxyindole acetic acid (5HIAA). Glutamate and Aspartate are acidic non-essential amino acid neurotransmitters involved in neuronal excitation while Gamma amino bytyrate (GABA) and Glycine are inhibitory neurotransmitters.

Sr.No	Investigation	Observed Value	Reference Range	Risk Graph
	Neurotransmitter Metabolism			
	Blood Markers	Unit - nmol/ml		
1	Aspartic acid	8.6	0.00 - 7.00	

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Sr.No	Investigation	Observed Value	Reference Range	Risk Graph

Neurotransmitter Metabolism

Blood Markers

2	Glutamic Acid	108.74	13.00 - 113.00	
3	Glycine	521.64	126.00 - 490.00	
4	GABA	0.0740	0.00 - 100.00	

Urinary Markers

Unit - mmol/mol Cr

1	HVA	3.96	0.08 - 5.17	
2	VMA	0.08	0.03 - 2.96	
3	kynurate	0.02	0.0 - 4.48	
4	Qinolinate	0.02	0.0 - 3.6	
5	5HindoleAA	0.01	0.0 - 0.1	

End Of Report

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Understanding your report

In the technical report section, you will see the graphic representation of all metabolic markers in the scope of the test conducted on your sample(s) and interpreted by our metabolic experts. The metabolic markers have been clubbed under various classes like - Carbohydrate Metabolism, Fatty Acid Metabolism, Vitamins Metabolism, Muscles Catabolism etc.

Definitions

Metabolites - Metabolites in your blood/urine samples are the Markers of Metabolism and act as the ' health indicators'. They characterize your state of metabolism and help make inferences in case of non-specific health conditions which can be an outcome of problems with your metabolism. Tracking the levels of these metabolites is important to ensure that early signals of diabetes related complications can be picked up.

Control Values - The 'Normal Limit' within which the value of a metabolic marker should ideally fall.

Observed *(your)* Value - The 'Actual Value' of a Metabolic Marker in your sample.

Understanding the Risk-Bar

Risk Bar - The horizontal bar as a pictorial representation of the observed values of the metabolic markers against the control values.

Safe Zone *(Green Color)*- If the value of markers measured in your sample fall in this region *(signified by the green zone)*, you can relax and maintain the lifestyle you have.

Risk Zone *(Red Color)* - If the value of marker(s) measured in your sample falls in this region *(signified by the red zone)*, it will be a matter of concern. You must consult your family physician or a metabolism expert.

Medium Zone *(color transition zone)* - If the value of a marker measured in your sample falls in this region *(signified by the color transition from green to red)*, you may need to bring in changes in your lifestyle, diet or medication, depending on the particular case. Any modifications, however, have to be routed through a medical practitioner.

ND - Non Detected. This implies that the marker was not detected; and hence not to be considered in the Risk Zone.

Pointer - The 'blue dot' on the risk bar. It represents the actual value of a particular metabolic marker found in your sample.

Metabolite	Control Value	Observed Value	Representation
Phenylalanine	0.000 - 4.934	1.23	Safe Zone / Medium Zone / Risk Zone

Observed value

Metabolite	Control Value	Observed Value	Representation
Leucine	48.00 - 324	1.23	Risk Zone / Medium Zone / Risk Zone

The "Risk-Bars" have multiple color codes.
A. Green *(safe)* Zone on left and Red *(Risk)* Zone on right end implies that the normal values of your metabolic marker should be on left side of the risk bar. Higher values imply risk.
B. Red *(Risk)* Zone on both ends imply that the normal value of your metabolic marker should be in the middle part of risk bar. Lower than control value or higher than control value, will both imply a risk.

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We welcome all questions and concerns. The questions pertaining to your analysis shall be answered by our experts (medical / nutritional).

You may post your queries on - info@preventine.com. Please mention your Name, Date of Birth and the Customer ID in the query.

Customer satisfaction is our core goal. It is important for us to learn about what our customers think about our service and how we can improve it. If you have any suggestion or complaint, whatsoever, we request you to contact us and report it on:

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Notes: