NeuroLab
A Division of Sanesco International

SAMPLE REPORT

The foremost reference laboratory for the measurement of biomarkers associated with HPA-T axis function.

HPA Profile (1) (Hypothalamic-Pituitary-Adrenal Axis)

Anita Doc
ID#: 301458
Gender: F Age: 51

Will Fiksu, MD
123 Serotonin Pathway
Sanesco, NC 00001

Date Reported
09/07/2015

Date Collected
08/23/2015

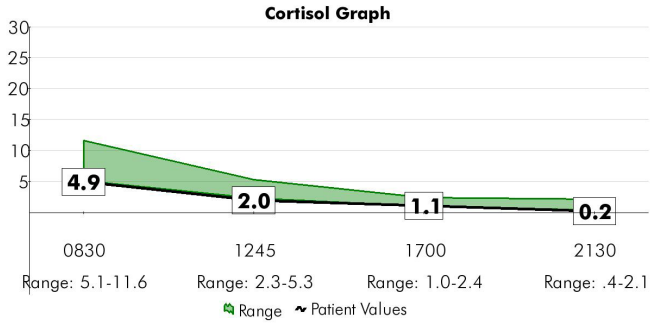
Date Received
08/29/2015

Lab Final
09/03/2015

Report Final
09/07/2015

Marker	Values	Optimal	Reference
INHIBITORY NEUROTRANSMITTERS			
SEROTONIN	42.5 (L)	125 - 260 mcg/g Cr	50-250 mcg/g Cr
GABA	137.2 (L)	600 - 1100 mcg/g Cr	150-700 mcg/g Cr
EXCITATORY NEUROTRANSMITTERS			
DOPAMINE	104.7 (L)	250 - 400 mcg/g Cr	100-350 mcg/g Cr
NOR-EPINEPHRINE	27.0 (L)	30 - 50 mcg/g Cr	13-70 mcg/g Cr
EPINEPHRINE	4.1 (L)	10 - 15 mcg/g Cr	3-20 mcg/g Cr
GLUTAMATE	20.3 (H)	5 - 10 mg/g Cr	2-12 mg/g Cr
ADRENAL ADAPTATION INDEX			
NOREPI/EPI RATIO	6.6	n/a	<13
ADRENAL HORMONES			
CORTISOL (0830)	4.9 (L)	n/a	5.1-11.6 nM
CORTISOL (1245)	2.0 (L)	n/a	2.3-5.3 nM
CORTISOL (1700)	1.1	n/a	1.0-2.4 nM
CORTISOL (2130)	0.2 (L)	n/a	.4-2.1 nM
DHEA-s (0830)	1.1	n/a	1.0-3.0 ng/ml
DHEA-s (1700)	1.4	n/a	1.0-3.0 ng/ml
OTHER MARKERS			
CREATININE, URINE	100.0	n/a	mg/dL

Creatinine is used to calculate results and is not intended to be used diagnostically.
(L) & (H) are based on optimal range intervals.



Results Processed By COLA # 24550, NeuroLab Asheville, NC

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CORRELATION ANALYSIS REPORT

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The CSM And Your Patient

The Communication System Management Model is designed to give you an analysis of neurotransmitter and adrenal hormone values and an observation of how they affect one another. This approach targets the underlying cause of chronic symptoms by addressing the root imbalance. In the next section we will observe trends in the lab values, correlating those with the symptoms that were marked by the patient.

Insufficient levels of serotonin and GABA may be contributing to the patient's symptoms of anxiety, depression, and insomnia/poor sleep due to the role of these neurotransmitters in the modulation of mood and sleep. Additionally, as the inhibitory system also prevents excitatory over-expression when functioning optimally, the low levels of serotonin and GABA may also be associated with the up-regulated glutamate reading. To initiate the balancing of HPA axis function, support for serotonin and GABA may be introduced, along with a comprehensive sleep support formula. As chronic high glutamate is neurotoxic and may be damaging to neuronal health, consider assessing this patient's diet for exogenous sources of glutamate (MSG, aspartame, glutamine, and/or processed foods). The patient's fatigue/decreased stamina concerns may be attributed to the low cortisol readings, which suggest adrenal exhaustion in this patient; therefore, adrenal support may be introduced. Although low normal dopamine may also be linked to depression concerns, catecholamine support may be delayed at this time to first allow the restoration of inhibitory function. To achieve optimal HPA axis function, retesting is suggested in nine weeks, as changes in lab values and symptoms may warrant the need for protocol modification, such as the introduction of catecholamine support.

ADRENAL HORMONES		
CORTISOL (0830)	4.9 (L)	5.1-11.6 nM
CORTISOL (1245)	2.0 (L)	2.3-5.3 nM
CORTISOL (1700)	1.1	1.0-2.4 nM
CORTISOL (2130)	0.2 (L)	.4-2.1 nM
DHEA-s (0830)	1.1	1.0-3.0 ng/ml
DHEA-s (1700)	1.4	1.0-3.0 ng/ml

Adrenal Comments

Adrenal fatigue is indicated in this patient with low cortisol levels throughout the majority of the day. Consider long-term stressors in the past with the patient having passed through the first two phases of Dr. Hans Selyes General Adaptation Syndrome (GAS) e.g. the alarm phase and the adaptation phase. This patient might be considered in the final phase of the GAS, that is, the exhaustion phase or near exhaustion phase. Low cortisol levels can affect the conversion of norepinephrine to epinephrine, resulting in an elevated norepinephrine to epinephrine ratio. Anxiety, burnout, and poor blood sugar control are contributors to adrenal fatigue.

Normal DHEA suggests this patient is in the adaptive phase of Selyes General Adaptation Syndrome, however, if the patient is under chronic stressors overtime hormone production will be shunted to cortisol at the expense of DHEA and lower DHEA levels will result

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(maladaptive phase). During a sustained stress response, which requires continual cortisol secretion, the individual will begin to adapt - that is, begin to feel that the elevated levels of cortisol and catecholamines are normal. As time goes on, and if the stressors continue, the adrenals will start to lose their ability to compensate (maladaptive phase) and testing will usually show increased cortisol and decreased DHEA.

Patient checked FATIGUE/DECREASED STAMINA on the questionnaire. Chronic fatigue can be caused by numerous conditions, the most common of which are 1) inadequate sleep (consider sleep pathologies), 2) low or high blood sugar, 3) hypothyroidism, and 4) adrenal fatigue, usually demonstrated by inadequate cortisol, particularly low morning levels (87% of patients indicating fatigue of moderate or severe intensity measure low a.m. cortisol). Low stores of excitatory neurotransmitters, such as norepinephrine, epinephrine, and glutamate, can also influence energy levels. Other reasons for fatigue involve inadequate dietary protein or B vitamins, dysregulation of mitochondrial function, anemia, depression, acute or chronic illnesses, heavy metal toxicity as well as acute and chronic environmental toxins, and certainly many medications. Assessment of thyroid, iron status, blood sugar, diet and adrenal function are all warranted.

*The following are additional recommendations to assist in recovery from or to prevent adrenal fatigue: Adequate nutrient intake including multivitamin/multimineral, B-vitamin (Pantothenic Acid), Vitamin C, Magnesium, and Omega 3 Fatty Acids. Consider hormone support if necessary for DHEA, Pregnenalone, Progesterone, as well as adrenal support. Supportive lifestyle factors include structuring proper sleep hygiene with 8-10 hours per night; avoid stimulants and limit coffee, soda, nicotine, and caffeine; eat a balanced diet of small meals interspersed throughout the day and include lean protein, unprocessed carbohydrates, and healthy fats; increase water consumption to at least 64 oz per day; gentle exercise; make time for quietude.

Neurotransmitter Comments

Marker	Values	Optimal	Reference Range
INHIBITORY NEUROTRANSMITTERS			
SEROTONIN	42.5 (L)	125 - 260 mcg/g Cr	50-250 mcg/g Cr
GABA	137.2 (L)	600 - 1100 mcg/g Cr	150-700 mcg/g Cr

Inhibitory Neurotransmitters

Patient indicated ANXIETY, which may be the result of low/low-normal levels of the inhibitory neurotransmitters serotonin and GABA, and/or the elevation of one or more excitatory neurotransmitters/hormones (glutamate, norepinephrine, epinephrine, cortisol). As GABA is the primary inhibitory neurotransmitter, it can be thought of as "the great balancer" of the nervous system. Also, serotonin often functions as a modulator of GABA activity. However, depletion of GABA alone may cause anxiety, even when serotonin is within normal range and despite high levels showing up in the urine; GABA should be supported. Upon retesting, GABA levels will frequently be normal and even low, despite aggressive support. Research indicates that inositol supplementation may be beneficial for those suffering from anxiety, especially acute anxiety and panic disorders. Avoid supporting excitatory neurotransmitter function before restoring serotonin and GABA levels.

The patient has indicated problems with SLEEP. The low serotonin is likely contributory because adequate levels of serotonin are necessary for restful sleep. In addition, serotonin is the biochemical precursor to melatonin, another very important sleep hormone. GABA levels must also be adequate since serotonin serves as a modulator for GABA at the receptor level. That is, without adequate GABA, serotonin cannot function optimally. Most of the new generation sleep medications are GABA receptor agonists. In cases of SAD (seasonal affective disorder), serotonin is being utilized at a much higher rate to produce melatonin due to the shorter days and less daylight. Serotonin stores deplete more quickly during the winter months. Serotonin support in this patient, as well as melatonin support, may be warranted.

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NOR-EPINEPHRINE	27.0	30 - 50 mcg/g Cr	13-70 mcg/g Cr
EPINEPHRINE	4.1	10 - 15 mcg/g Cr	3-20 mcg/g Cr
GLUTAMATE	20.3 (H)	5 - 10 mg/g Cr	2-12 mg/g Cr

Excitatory Neurotransmitters

Patient indicated DEPRESSION with exhaustion. Low serotonin in conjunction with low dopamine and/or low norepinephrine levels is associated with depressions that involve lack of adequate drive, ambition, focus or energy and typically present with lethargy, fatigue, excess sleep and lowered HPA function. In cases of low serotonin, together with either low dopamine or norepinephrine or both, supporting both serotonin and catecholamine pathways will be the most efficacious.

Thyroid status should always be assessed in treating depression. Low thyroid can reduce serotonin function. We know that in animals with hypothyroidism, serotonin synthesis is decreased and that the administration of T3 increases the brain levels of serotonin. Specifically, thyroid hormones increase the sensitivity of 5-HT2 receptors and also decrease the sensitivity of serotonin 1A autoreceptors that regulate neuronal activity. Lastly, thyroid function must be adequate for anti-depressants to work effectively.

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THERAPEUTIC RECOMMENDATIONS

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Patient is in: Initial Phase

The following therapeutic protocol is based on conclusions derived from patient lab results, gender, age, and symptoms listed on the patient questionnaire. The goal of this protocol is to help the doctor begin the three phase process of restoring balance to the HPA axis, while also improving patient symptoms. The Initial Phase is the beginning of the rebalancing process. Here, targeted nutritional therapy (TNT) is introduced to help move the patient's lab values in the right direction. Please note, leaving the patient on the Initial protocol longer than suggested may perpetuate imbalance. Retesting initiates the Restoration Phase. Retesting provides a two-fold value in that it serves as a guide for the practitioner in adjusting or fine-tuning the TNT. In addition, it provides the patient and practitioner with a touchstone to correlate the lab values with improving symptoms.

Overall Summary and Recommendations

Prolent™	***x 1 in the PM; increase to 2 after 5 days*** ***Contains 5HTP, Suntheanine, glycine, and B6***
Lentra™	***x 1 twice daily for GABA support*** ***Contains GABA-A agonists: magnesium taurate, Suntheanine, and Lactium***
SomniTR™	***x 1 before bed to improve the quality of sleep*** ***Please allow 8 hours for sleep when using SomniTR*** ***Contains delayed-release melatonin, Lactium, and Coleus forskohlii***
Adaptacin™	***After 7-10 days, add x 1 in the AM for adrenal support*** ****Do not take after 2 PM as it may disrupt sleep.*** ***Contains Bovine Adrenal Cortex, adaptogens, and vitamin cofactors***

Retesting is an important part of this process. NT levels need to be monitored. Retesting for this patient is recommended in 9 weeks.

Additional Recommendations

* It is recommended that all patients on a program to balance HPA axis function should also supplement with B complex, a multi-mineral and multi-vitamin as well as EPA/DHA.

Disclaimers

* These statements have not been evaluated by the Food and Drug Administration. These products are not intended diagnose, treat, cure, or prevent any disease.
*The statements above are recommendations to the clinician. All final therapeutic decisions are the responsibility of the treating physician.
* Please call Sanesco International at 866-670-5705 with your technical and clinical questions. For further reading and references, please refer to Sanesco's Technical guide and Clinical guide.

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Patient Questionnaire

Patient Information
all information is required for reporting

Is this your first laboratory test with Sanesco?
[x] Yes [ ] No

DOB 23 09 1957 (D D M M Y Y Y Y)

First Name: Anita | Middle Initial: A | Last Name: Doc | Gender: [ ] Male [x] Female

Weight (lb): 139 | Height (ft,in): 5 5 | Doctor's Name: Dr. Fiksu md | State: TX

Preferred Phone (xxx-xxx-xxxx): 401-277-4637 | Email: anita@me.com

Lifestyle Factors

Caffeine: # of cups/bottles per day: 1 | Alcohol: # of drinks 2 days before test: 1 | [x] Smoke [ ] Excercise Regularly

[ ] Vegetarian [ ] Vegan [x] Stressful Lifestyle [ ] Regular use of soda or energy drinks [ ] Irregular sleep schedule

Medical Diagnosis

[ ] ADD/ADHD [ ] Autism [ ] Bipolar [ ] Anorexia [ ] Bulimia [ ] Psychosis [ ] Elevated Homocysteine [ ] Pregnant or Breast Feeding

Blood Pressure [ ] Celiac
[ ] Low [x] High

Medications | Indicate the number of months on the medication

ADD/ADHD Meds.		Anti-Inflammatory		Cancer Treatment		Parkinson's Meds	
Adrenal Glandular		Anti-Psychotic Meds.		Diabetes Meds.		Sleep Meds.	23
Allergy Meds.	100+	Birth Control Pills		Hormones		Seizure Meds	
Anti-anxiety Meds.		Blood Pressure Meds.	31	MAO Inhibitors		Thyroid Meds	9
Anti-depressant		Cardiac Meds.		Pain Meds		Kidney Meds	

Nutritional Supplements & Herbs

[ ] Contegra™	[ ] Prolent™	[ ] GABA	[ ] St. Johns Wort	[ ] 5HTP
[ ] Lentra™	[ ] SomniTR™	[ ] Glutamine	[ ] Theanine	[ ] Kava Kava
[ ] MethylMax™	[ ] Tranquilent™	[ ] Melatonin	[ ] Trytophan	[ ] Pass. Flower
[ ] Plenus™	[ ] Adaptacin™	[ ] Phosphatidylserine	[ ] Tyrosine	[ ] Magnesium
[ ] Procite-D™	[ ] DHEA	[ ] SAMe	[ ] Phenylalanine	[x] Probiotics

IMPORTANT
Completely fill out your sample collection times below

Urine Collection	1st saliva	2nd saliva	3rd saliva	4th saliva
Date: 8/23	Date: 8/23	Date: 8/23	Date: 8/23	Date: 8/23
Time: 9:15	Time: 9:03	Time: 1:09	Time: 5:03	Time: 10:23

THERE IS A REVERSE SIDE

Please check symptoms below based on the severity they cause you currently

1 - (mild) 2 - (moderate) 3 - (severe) 4 - (profound) - choose no more than 10 symptoms

1	2	3	4		1	2	3	4		1	2	3	4	
				Addictive behavior					Depression (with nervousness)					Joint Pain
				Andropause symptoms					Headaches					Arthritis
		x		Anxiety					Migraines					Lack of Focus
				Apathy					Hot Flashes					Obsessive/Compulsive behavior
				Appetite (excessive)					Night Sweats					Pain (general)
				Allergies (seasonal)					IBS Constipation Dominant					PMS
				Cold Extremities					IBS Diarrhea Dominant					Poor Memory
				Decreased Libido					Insomnia					Salt Cravings
	x			Decreased Stamina				x	Poor Sleep					Shakiness when meal is skipped
		x		Fatigue					Irritability					Hand Tremors
		x		Depression (with exhaustion)					Nervousness					Sugar Cravings
				Abdominal Weight Gain					General Weight Gain					Unintentional Weight Loss

List the name, dosage, and frequency of the medications checked on the front side

Levoxl 75mcg daily
intermezzo - 3.5mg daily
Klonopin - as needed

List the name, dosage, and frequency of the supplements and/or herbs checked on the front side

Additional Comments and Other Important Clinical Information

Privacy Statement

"I certify that the information provided in this questionnaire is accurate to the best of my knowledge. I understand that the information contained in this questionnaire may be used for the processing and release of your healthcare services to your provider as detailed in the enclosed notice of privacy practices of Sanesco International Inc. My signature indicates that I have received, reviewed, and understand the above information."

Signature Anita Doc

Official Use