Integrated Genetic Solutions

Blood Lab Results - For Licensed Healthcare Practitioners Only

Patient Name	SANDERS, LISA	Date of Birth	3/10/1983	Weight	235	Lab Collection Date	2017/07/24 04:43:56am
Gender	Female	Age	32	Lab ID	1508123230		

Hormones / Pre-Hormones / Binding-Globulins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	RX Rec	Unit/Frequency	Rec	120 lbs (est)	160 lbs (est)	200 lbs (est)
DHEA Sulfate	ug / dL	118.70	23.00 - 266.00	203.00 - 225.00	DHEA	mg / day	**20**	*10*	*15*	*20*
Testosterone (Total)	ng / dL	29.00	8.00 - 60.00	52.00 - 57.00	Testosterone (Topical)	mg / morning	**4.60**	*2.40*	*3.10*	*3.90*
T3 (Free Triiodothyronine)	pg / mL	2.80	2.30 - 4.20	3.90 - 4.10	T3	mcg / day	**25**	*15*	*15*	*20*
T4 (Free Thyroxine)	ng / dL	1.18	0.90 - 1.76	1.46 - 1.56	T4	mcg / day	**50**	*30*	*30*	*40*
Sex Hormone Binding Globulin	nmol / L	72.30	18.00 - 144.00	43.00 - 56.00	DIM	mg / day	**170**	*90*	*120*	*150*
					Phosphatidylserine	mg / day	**130**	*70*	*90*	*110*

Summary: This report is designed to assist licensed healthcare practitioners in identifying potential body chemistry imbalances and to provide suggested treatment recommendations based on those potential imbalances. Licensed healthcare practitioners should conduct a thorough patient history prior to using this report. All recommendations within this report are suggested. Healthcare practitioners, in conjunction with performing a thorough patient history, may choose to ignore, increase, or decrease any included recommendations.

Normal Range: For general analysis, each lab result is shown relative to the patient's age, gender, and phase-of-cycle adjusted normal range (when specific data is available). The normal ranges incorporated in this report are representative of the laboratories responsible for performing all individual lab tests.

Target Range: For each lab test, an associated "target range" is provided. This target range is generally based on the 60th to 80th percentile of a lab test's normal range. The target range, in many cases, is aggregated from multiple healthcare resources and may not be directly correlated to the specific normal range shown in the report. This target range is used to calculate a suggested recommendation in the event a healthcare practitioner would like to increase or decrease a specific blood serum, plasma, or RBC level.

Phase of Cycle: Estradiol and progesterone serum levels fluctuate based upon a woman's phase of cycle. This report contains the normal range, target range, and recommendations for each different phase of cycle. For pre-menopausal patients with a normal cycle, please determine how many days into a cycle the lab collection occurred and then match with the appropriate phase.

Patient Weight / Recommendations: All recommendations are adjusted by patient weight (RX). If patient weight is missing, multiple recommendations are provided based on a range of estimated weights.

Genetics: All adjustments referenced in the Genetics Summary page are already reflected in the provided recommendations.

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Hormones / Pre-Hormones / Binding-Globulins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	RX Rec	Unit/Frequency	Rec	120 lbs (est)	160 lbs (est)	200 lbs (est)
Cycle	Pre-Menopausal: Follicular - Estimated Days 1 through 10 of Cycle									
Estradiol (E2)	pg / mL	62.00	19.00 - 144.00	79.00 - 86.00	Estradiol (Topical)	mg / morning (days of cycle: 1 - 14)	**0.10**	*0.10*	*0.10*	*0.10*
Progesterone	ng / mL	0.21	0.00 - 1.40	1.10 - 1.20	Progesterone (Topical)	mg / evening (days of cycle: 15 - 27)	**260**	*130*	*170*	*220*
Cycle	Pre-Menopausal: Mid-Follicular - Estimated Days 11 through 14 of Cycle									
Estradiol (E2)	pg / mL	62.00	64.00 - 357.00	276.00 - 306.00	Estradiol (Topical)	mg / morning (days of cycle: 1 - 14)	**1.00**	*1.00*	*1.00*	*1.00*
Progesterone	ng / mL	0.21	0.00 - 1.40	1.10 - 1.20	Progesterone (Topical)	mg / evening (days of cycle: 15 - 27)	**260**	*130*	*170*	*220*
Cycle	Pre-Menopausal: Luteal - Estimated Days 15 through 28 of Cycle									
Estradiol (E2)	pg / mL	62.00	56.00 - 214.00	231.00 - 254.00	Estradiol (Topical)	mg / morning (days of cycle: 1 - 14)	**1.00**	*1.00*	*1.00*	*1.00*
Progesterone	ng / mL	0.21	3.40 - 25.60	19.40 - 21.90	Progesterone (Topical)	mg / evening (days of cycle: 15 - 27)	**300**	*300*	*300*	*300*
Cycle	Post-Menopausal: Applies to peri-menopause, amenohrria, hysterectomy, post-pregnancy/pre-normal cycle									
Estradiol (E2)	pg / mL	62.00	0.00 - 32.00	22.40 - 25.60	Estradiol (Topical)	See dosing frequency note	**Patient's lab value exceeds target level. Reduce current baseline (Intake) by 25%**			
Progesterone	ng / mL	0.21	0.00 - 0.73	0.56 - 0.64	Progesterone (Topical)	See dosing frequency note	**110**	*50*	*70*	*90*

Dosing Frequency Note for premenopausal women with an abnormal cycle (Perimenopausal or Amenorrhea):
Such patients typically dose Estradiol during what is considered the first half of normal cycle – the Follicular and Mid-Follicular phases (or ~days 1 – 14) and typically dose progesterone during what is considered the second half of a normal cycle – the Luteal phase (or ~days 15 – 27). A practitioner's recommended dosing frequencies may differ based on patient-specific symptoms and objectives.

Dosing Frequency Note for women who no longer have a normal menstrual cycle (Menopause, Postmenopause, or Hysterectomy):
Such patients typically take Estradiol and Progesterone daily (often mornings and evenings) throughout what is considered a normal cycle. A practitioner's recommended dosing frequencies may differ based on patient-specific symptoms and objectives.

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Gender	Female	Age	32	Lab ID	1508123230		

Fat-Soluble Vitamins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	RX Rec	Unit/Frequency	Rec	120 lbs (est)	160 lbs (est)	200 lbs (est)
Vitamin A (Retinol)	mcg / dL	40.00	38.00 - 98.00	64.00 - 69.00	Vitamin A	IU / day	**8,000.00**	*4,100.00*	*5,500.00*	*6,800.00*
Vitamin D (25-Hydroxy)	ng / mL	42.00	33.00 - 100.00	62.00 - 70.00	Vitamin D	IU / day	**9,600.00**	*4,900.00*	*6,500.00*	*8,200.00*
Vitamin E (Alpha)	mg / L	8.40	5.70 - 19.90	13.60 - 14.70	Vitamin E	IU / day	**1,050.00**	*500.00*	*700.00*	*850.00*
Vitamin K (K1)	pg / mL	753.00	80.00 - 1,160.00	836.00 - 944.00	Vitamin K	mcg / day	**100.00**	*100.00*	*100.00*	*100.00*

Water-Soluble Vitamins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	RX Rec	Unit/Frequency	Rec	120 lbs (est)	160 lbs (est)	200 lbs (est)
Vitamin B6	ng / mL	20.50	2.10 - 21.70	15.80 - 17.80	Vitamin B6	mg / day	**Patient's lab value exceeds target level. Reduce current baseline (Intake) by 25%**			
Vitamin B12	pg / mL	4,184.00	211.00 - 911.00	694.00 - 767.00	Vitamin B12	mcg / day	**Patient's lab value exceeds target level. Reduce current baseline (Intake) by 25%**			
Folate, RBC	ng / mL	1,160.00	280.00 - 791.00	638.00 - 689.00	Vitamin B9 (Folate)	mcg / day	**Patient's lab value exceeds target level. Reduce current baseline (Intake) by 25%**			
Vitamin C (Ascorbic Acid)	mg / dL	0.10	0.20 - 1.50	1.10 - 1.20	Vitamin C	mg / day	**1,600.00**	*800.00*	*1,100.00*	*1,400.00*
Genetic Mutation: MTHFR	N/A	N/A	N/A	N/A	L-Methylfolate	mcg / day	**2,700.00**	*1,400.00*	*1,800.00*	*2,300.00*

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Minerals

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	RX Rec	Unit/Frequency	Rec	120 lbs (est)	160 lbs (est)	200 lbs (est)
Calcium, Serum	mg / dL	9.40	8.00 - 10.70	9.70 - 9.90	Calcium	mg / day	**800.00**	*400.00*	*550.00*	*700.00*
Magnesium, RBC	mg / dL	4.10	4.00 - 6.40	6.00 - 6.40	Magnesium	mg / day	**280.00**	*140.00*	*190.00*	*240.00*
Potassium, Serum	mEq / L	4.10	3.50 - 5.50	4.70 - 4.90	Potassium	mg / day	**60.00**	*30.00*	*40.00*	*50.00*
Zinc, RBC	mcg / dL	940.00	794.00 - 1,470.00	1,420.00 - 1,470.00	Zinc	mg / day	**40.00**	*40.00*	*40.00*	*40.00*

Blood Characteristics

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	RX Rec	Unit/Frequency	Rec	120 lbs (est)	160 lbs (est)	200 lbs (est)
Hemoglobin (A1C)	%	4.90	4.20 - 5.60	5.00 - 5.50	Chromium	mcg / day	**0.00**	*0.00*	*0.00*	*0.00*
					Chromium is recommended to help reduce pre-diabetic and diabetic A1C levels above 6.0					

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Genetic Mutation Summary

Genetic Mutation	Test Result	Description	RX Impact
Cytochrome P450 2C9	Negative	The Cytochrome P450 system is a family of genes that play a crucial role in the synthesis and breakdown (or metabolizing) of hormone molecules in addition to the breakdown of toxic compounds (including common pharmaceutical medications). When a specific Cytochrome P450 gene tests positive for a variation, it can mean that a gene is either: 1. An intermediate or poor metabolizer - breaking down a hormone or drug too slowly, potentially increasing the risk of adverse side effects due to longer duration and higher concentrations within the body. This includes CYP 450 genes: 2C9, 2D6, 3A4, and 3A5. 2. A rapid or ultra-rapid metabolizer - breaking down a hormone or drug too quickly and potentially decreasing hormone or drug efficacy. This includes CYP 450 gene: 2C19.	IGS recommends that practitioners evaluate all current medications that may be affected by one or more Cytochrome P450 gene variations; specifically those associated with an increased risk for adverse side effects and reactions. In general, for patients with a 3A4 and/or 3A5 gene variation(s), practitioners should be aware of all “narrow therapeutic index” (NTI) medications, where small differences in dose or blood concentrations can lead to serious side effects or adverse drug reactions. Alternative pharmaceutical recommendations or a reduced dose adjustment may be required. Examples of “narrow therapeutic index” drugs include warfarin, lithium, and levothyroxine. NTI drugs exist in several pharmaceutical treatment categories; including anticoagulants, organ rejection, thyroid, bipolar disorder, anti-seizure, cardiac arrhythmia, and respiratory disease.
Cytochrome P450 2D6	Negative		
Cytochrome P450 2C19	Negative		
Cytochrome P450 3A4	Negative		
Cytochrome P450 3A5	Positive		
Factor II	Negative	The Factor II and Factor V genes are associated with the production of proteins in the formation of blood clots; a critical process in the body's response to injury. A POSITIVE Factor II and/or Factor V variation (or mutation) is associated with the overproduction of these essential clot forming proteins; increasing the adverse risk of abnormally large blood clots. Individuals who are positive for a Factor II and/or Factor V mutation and currently on oral contraceptives or high doses of hormone replacement therapy have a significantly higher risk for clotting, stroke, or heart attack events.	No RX Impact as there no positive test for either Factor II or Factor V mutation
Factor V	Negative		

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Genetic Mutation Summary

Genetic Mutation	Test Result	Description	RX Impact
MTHFR	Positive	The MTHFR gene provides instructions for the production of critical enzymes that convert (or methylate) folate into active folate (or L-Methylfolate). This folate conversion process is an essential process involved in supporting immune response, detoxification, DNA synthesis, and several other functions. Positive variation(s) of certain MTHFR gene types can result in a 40% to 70% reduction in the conversion of folate into active folate.	For patients with a variation(s) of certain MTHFR gene types: 1) Vitamin B9 (folate) recommendations are increased 5% to 10%. 2) L-Methylfolate is recommended (based on the number of MTHFR gene variations and patient weight).
COMT	Positive	The COMT gene directs enzyme production that is critical for degrading (or methylating) important neurotransmitters (i.e. dopamine). A COMT mutation can lead to increased hormone concentrations that can slow down this methylation process, resulting in higher levels of stress, anxiety, mood swings, and potentially dangerous cardiac events. If a patient is positive for both an MTHFR and COMT variation, large doses of L-Methylfolate can disrupt several critical methylation processes, in turn negatively affecting any pre-existing stress or anxiety levels.	If a patient is positive for both MTHFR and COMT variations, any recommendation for L-Methylfolate is reduced by half (50%).
DRD2	Negative	The DRD2 gene plays a critical role encoding proteins that help form dopamine receptors in the brain. A positive DRD2 variation can indirectly lead to an increased risk for depression, anxiety, panic attacks, and obsessive-compulsive disorder (OCD). SSRI medications (i.e. antidepressants) can significantly increase the psychological disorders associated with a DRD2 variation, including suicidal thoughts and suicide risk.	When a patient is positive for a DRD2 variation, the health care practitioner should assess any potential psychological symptoms associated with the variation and evaluate the continued use of and efficacy of any SSRI medications. Any recommendation for the weight management pharmaceutical Contrave (a partial SSRI) will be removed.

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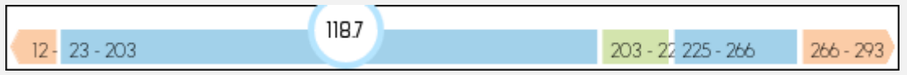
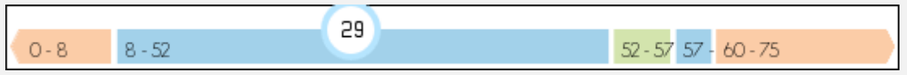
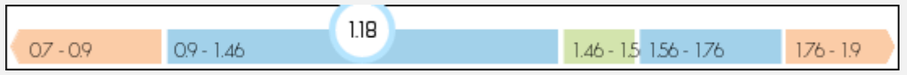
Hormones / Pre-Hormones / Binding-Globulins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	Range-O-Meter
DHEA Sulfate	ug / dL	118.70	23.00 - 266.00	203.00 - 225.00	
Testosterone (Total)	ng / dL	29.00	8.00 - 60.00	52.00 - 57.00	
T3 (Free Triiodothyronine)	pg / mL	2.80	2.30 - 4.20	3.90 - 4.10	
T4 (Free Thyroxine)	ng / dL	1.18	0.90 - 1.76	1.46 - 1.56	
Sex Hormone Binding Globulin	nmol / L	72.30	18.00 - 144.00	43.00 - 56.00	

Summary: This report is designed to assist licensed healthcare practitioners in identifying potential body chemistry imbalances. All analyses and recommendations provided in this report are intended for a licensed healthcare practitioner only. Non-medical individuals should not conduct any self-diagnosis or self-treatment based on this report.

Normal Range: For general analysis, each lab result is shown relative to the patient's age, gender, and phase-of-cycle adjusted normal range (when specific data is available). The normal ranges incorporated in this report are representative of the laboratories responsible for performing all individual lab tests.

Target Range: For each lab test, an associated "target range" is provided. This target range is generally based on the 60th to 80th percentile of a lab test's normal range. The target range, in many cases, is aggregated from multiple healthcare resources and may not be directly correlated to the specific normal range shown in the report. This target range is used to calculate a suggested recommendation in the event a healthcare practitioner would like to increase or decrease a specific blood serum, plasma, or RBC level.

Phase of Cycle: Estradiol and progesterone serum levels fluctuate based upon a woman's phase of cycle. This report contains the normal range and target range for each different phase of cycle. For pre-menopausal patients with a normal cycle, please determine how many days into a cycle the lab collection occurred and then match with the appropriate phase.

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Fermina Mazzella, M.D.
Laboratory Director

CLIA No: 33D1057336

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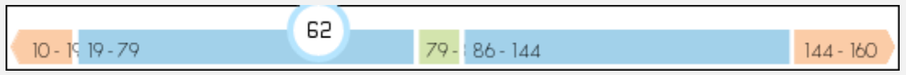
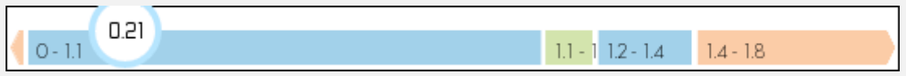
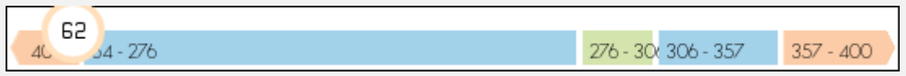
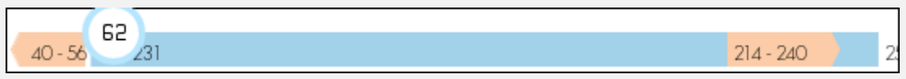
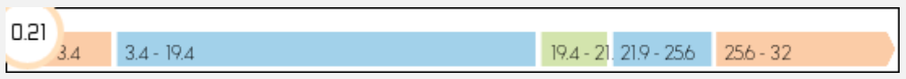
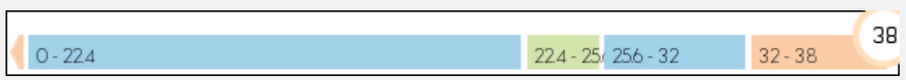
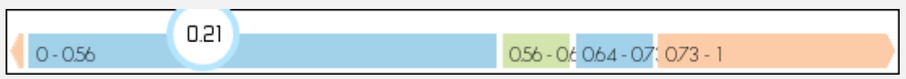
Hormones / Pre-Hormones / Binding-Globulins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	Range-O-Meter
Cycle	Pre-Menopausal: Follicular - Estimated Days 1 through 10 of Cycle				
Estradiol (E2)	pg / mL	62.00	19.00 - 144.00	79.00 - 86.00	
Progesterone	ng / mL	0.21	0.00 - 1.40	1.10 - 1.20	
Cycle	Pre-Menopausal: Mid-Follicular - Estimated Days 11 through 14 of Cycle				
Estradiol (E2)	pg / mL	62.00	64.00 - 357.00	276.00 - 306.00	
Progesterone	ng / mL	0.21	0.00 - 1.40	1.10 - 1.20	
Cycle	Pre-Menopausal: Luteal - Estimated Days 15 through 28 of Cycle				
Estradiol (E2)	pg / mL	62.00	56.00 - 214.00	231.00 - 254.00	
Progesterone	ng / mL	0.21	3.40 - 25.60	19.40 - 21.90	
Cycle	Post-Menopausal: Applies to peri-menopause, amenohrria, hysterectomy, post-pregnancy/pre-normal cycle				
Estradiol (E2)	pg / mL	62.00	0.00 - 32.00	22.40 - 25.60	
Progesterone	ng / mL	0.21	0.00 - 0.73	0.56 - 0.64	

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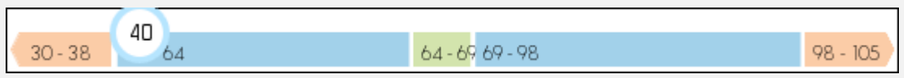
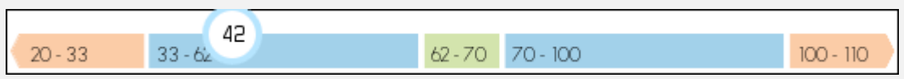
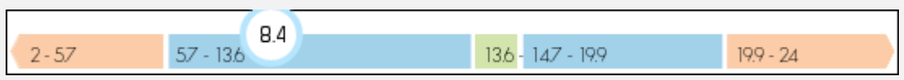
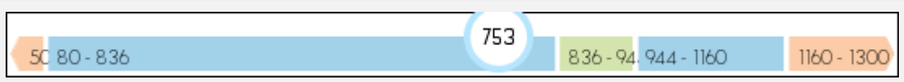
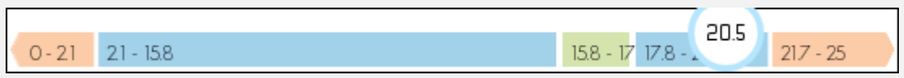
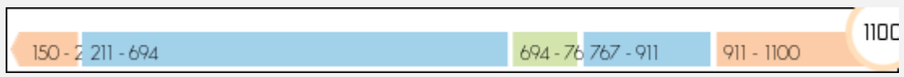
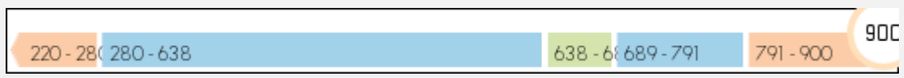
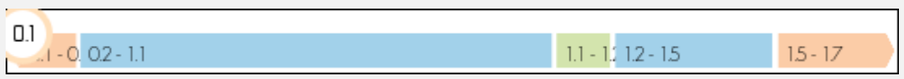
Fat-Soluble Vitamins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	Range-O-Meter
Vitamin A (Retinol)	mcg / dL	40.00	38.00 - 98.00	64.00 - 69.00	
Vitamin D (25-Hydroxy)	ng / mL	42.00	33.00 - 100.00	62.00 - 70.00	
Vitamin E (Alpha)	mg / L	8.40	5.70 - 19.90	13.60 - 14.70	
Vitamin K (K1)	pg / mL	753.00	80.00 - 1,160.00	836.00 - 944.00	

Water-Soluble Vitamins

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	Range-O-Meter
Vitamin B6	ng / mL	20.50	2.10 - 21.70	15.80 - 17.80	
Vitamin B12	pg / mL	4,184.00	211.00 - 911.00	694.00 - 767.00	
Folate, RBC	ng / mL	1,160.00	280.00 - 791.00	638.00 - 689.00	
Vitamin C (Ascorbic Acid)	mg / dL	0.10	0.20 - 1.50	1.10 - 1.20	

Empire City Laboratories
229 49th Street | Brooklyn, NY 11220 | (718)788-3840

Fermina Mazzella, M.D.
Laboratory Director

CLIA No: 33D1057336

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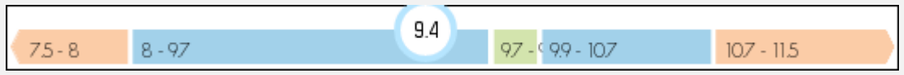
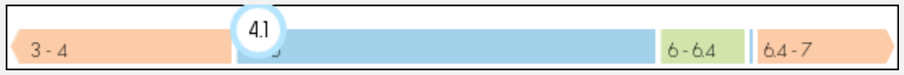
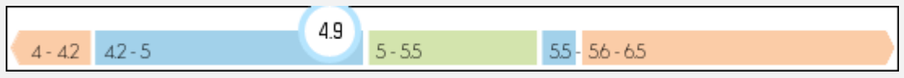
For Patient Reference Only - Recommendations will be provided by a doctor and patient should not attempt any medication

Patient Name	SANDERS, LISA	Date of Birth	3/10/1983	Weight	235	Lab Collection Date	2017/07/24 04:43:56am
Gender	Female	Age	32	Lab ID	1508123230		

Minerals

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	Range-O-Meter
Calcium, Serum	mg / dL	9.40	8.00 - 10.70	9.70 - 9.90	
Magnesium, RBC	mg / dL	4.10	4.00 - 6.40	6.00 - 6.40	
Potassium, Serum	mEq / L	4.10	3.50 - 5.50	4.70 - 4.90	
Zinc, RBC	mcg / dL	940.00	794.00 - 1,470.00	1,420.00 - 1,470.00	

Blood Characteristics

Lab Test	Unit / Measure	Lab Level	Normal Range	Target Range	Range-O-Meter
Hemoglobin (A1C)	%	4.90	4.20 - 5.60	5.00 - 5.50	

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Integrated Genetic Solutions

Genetic Mutation Summary

Genetic Mutation	Test Result	Description	RX Impact
Cytochrome P450 2C9	Negative	The Cytochrome P450 system is a family of genes that play a crucial role in the synthesis and breakdown (or metabolizing) of hormone molecules in addition to the breakdown of toxic compounds (including common pharmaceutical medications). When a specific Cytochrome P450 gene tests positive for a variation, it can mean that a gene is either: 1. An intermediate or poor metabolizer - breaking down a hormone or drug too slowly, potentially increasing the risk of adverse side effects due to longer duration and higher concentrations within the body. This includes CYP 450 genes: 2C9, 2D6, 3A4, and 3A5. 2. A rapid or ultra-rapid metabolizer - breaking down a hormone or drug too quickly and potentially decreasing hormone or drug efficacy. This includes CYP 450 gene: 2C19.	IGS recommends that practitioners evaluate all current medications that may be affected by one or more Cytochrome P450 gene variations; specifically those associated with an increased risk for adverse side effects and reactions. In general, for patients with a 3A4 and/or 3A5 gene variation(s), practitioners should be aware of all “narrow therapeutic index” (NTI) medications, where small differences in dose or blood concentrations can lead to serious side effects or adverse drug reactions. Alternative pharmaceutical recommendations or a reduced dose adjustment may be required. Examples of “narrow therapeutic index” drugs include warfarin, lithium, and levothyroxine. NTI drugs exist in several pharmaceutical treatment categories; including anticoagulants, organ rejection, thyroid, bipolar disorder, anti-seizure, cardiac arrhythmia, and respiratory disease.
Cytochrome P450 2D6	Negative		
Cytochrome P450 2C19	Negative		
Cytochrome P450 3A4	Negative		
Cytochrome P450 3A5	Positive		
Factor II	Negative	The Factor II and Factor V genes are associated with the production of proteins in the formation of blood clots; a critical process in the body's response to injury. A POSITIVE Factor II and/or Factor V variation (or mutation) is associated with the overproduction of these essential clot forming proteins; increasing the adverse risk of abnormally large blood clots. Individuals who are positive for a Factor II and/or Factor V mutation and currently on oral contraceptives or high doses of hormone replacement therapy have a significantly higher risk for clotting, stroke, or heart attack events.	No RX Impact as there no positive test for either Factor II or Factor V mutation
Factor V	Negative		

Integrated Genetic Solutions

Genetic Mutation Summary

Genetic Mutation	Test Result	Description	RX Impact
MTHFR	Positive	The MTHFR gene provides instructions for the production of critical enzymes that convert (or methylate) folate into active folate (or L-Methylfolate). This folate conversion process is an essential process involved in supporting immune response, detoxification, DNA synthesis, and several other functions. Positive variation(s) of certain MTHFR gene types can result in a 40% to 70% reduction in the conversion of folate into active folate.	For patients with a variation(s) of certain MTHFR gene types: 1) Vitamin B9 (folate) recommendations are increased 5% to 10%. 2) L-Methylfolate is recommended (based on the number of MTHFR gene variations and patient weight).
COMT	Positive	The COMT gene directs enzyme production that is critical for degrading (or methylating) important neurotransmitters (i.e. dopamine). A COMT mutation can lead to increased hormone concentrations that can slow down this methylation process, resulting in higher levels of stress, anxiety, mood swings, and potentially dangerous cardiac events. If a patient is positive for both an MTHFR and COMT variation, large doses of L-Methylfolate can disrupt several critical methylation processes, in turn negatively affecting any pre-existing stress or anxiety levels.	If a patient is positive for both MTHFR and COMT variations, any recommendation for L-Methylfolate is reduced by half (50%).
DRD2	Negative	The DRD2 gene plays a critical role encoding proteins that help form dopamine receptors in the brain. A positive DRD2 variation can indirectly lead to an increased risk for depression, anxiety, panic attacks, and obsessive-compulsive disorder (OCD). SSRI medications (i.e. antidepressants) can significantly increase the psychological disorders associated with a DRD2 variation, including suicidal thoughts and suicide risk.	When a patient is positive for a DRD2 variation, the health care practitioner should assess any potential psychological symptoms associated with the variation and evaluate the continued use of and efficacy of any SSRI medications. Any recommendation for the weight management pharmaceutical Contrave (a partial SSRI) will be removed.