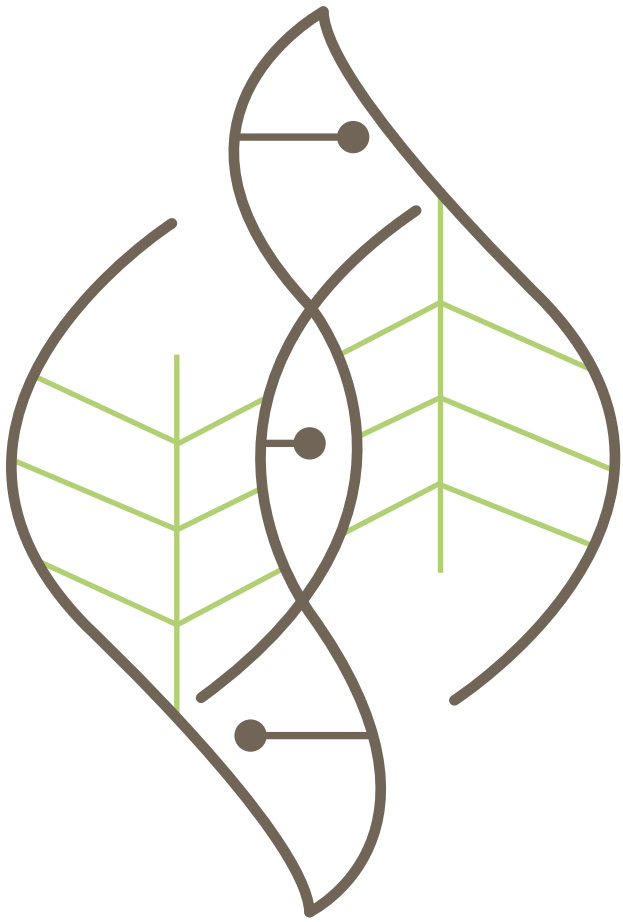

CONCEPTS
FOR HEALTH

DNA ANALYSIS AND REPORT

Analysis Report

Business

Name
Address

Patient

Patient:
Name
Address

Date of Analysis:
Gender:
Age:
Blood Type:

SNIP	rsiD	Risk Allele	Your Allele	Results	Category	Kinesiology Challenge
AANAT	rs11077820	T	CT	-+	Sleep	Serotonin
ACAT1	rs3741049	A	GG	--	Cardiovascular/Energy	Pyruvate, Glucose, Acetyl Co A, Cholesterol, Lactic Acid, Ethanol
ACE	rs4343	G	AG	-+	Cardovascular	Angiotensin I
ADIPOQ	rs17366568	A	AG	+-	Obesity/Appetite	Adiponectin
ADH1B	rs1229984	A	CT	--	Detox/Alcohol	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs2238151	T	CT	-+	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs4648328	T	CC	--	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs441	C	TT	--	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs968529	C	CC	++	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs4646778	A	CC	--	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs671	A	GG	--	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH2	rs16941667	T	CC	--	Detox/Aldehydes	Ethanol, Aldehyde, Formaldehyde
ALDH3	rs72547564	A	GG	--	Detox/Aldehydes	Aldehyde, Formaldehyde, Lipid Peroxide
ALDH3	rs72547566	T	CC	--	Detox/Aldehydes	Aldehyde, Formaldehyde, Lipid Peroxide
ALDH3	rs72547575	G	AA	--	Detox/Aldehydes	Aldehyde, Formaldehyde, Lipid Peroxide
APOA2	rs5082	C	AA	--	Obesity/Appetite	Ghrelin
BCMO1	rs12934922	T	AA	--	Vitamin A absorption	Beta Carotene
BCMO1	rs4889294	C	TT	--	Vitamin A absorption	Beta Carotene
BCMO1	rs7501331	T	CC	--	Vitamin A absorption	Beta Carotene
BHMT	rs651852	T	TT	++	Energy	Trimethylglycine , Glycine , Homocysteine
BHMT	rs6875201	G	AA	--	Energy	Trimethylglycine , Glycine , Homocysteine
BHMT	rs567754	T	TT	++	Energy	Trimethylglycine , Glycine , Homocysteine
BHMT	rs3733890	A	GG	--	Energy	Trimethylglycine , Glycine , Homocysteine
CAT	rs1049982	T	TT	++	Free Radical Damage	H2O2, Citrulline, NF-Kappa B, Nitric Oxide, Peroxynitrite, Superoxide
CAT	rs480575	G	GG	++	Free Radical Damage	H2O2, Citrulline, NF-Kappa B, Nitric Oxide, Peroxynitrite, Superoxide

CAT	rs11032703	T	CC	--	Free Radical Damage	H2O2, Citrulline, NF-Kappa B, Nitric Oxide, Peroxynitrite, Superoxide
CAT	rs2300181	T	CC	--	Free Radical Damage	H2O2, Citrulline, NF-Kappa B, Nitric Oxide, Peroxynitrite, Superoxide
CBS	rs706209	A	AA	++	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
CBS	rs706208	A	GG	--	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
CBS	rs12613	T	CC	--	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
CBS	rs1801181	A	AA	++	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
CBS	rs4920037	A	GG	--	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
CBS	rs234706	A	GG	--	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
CBS	rs2851391	T	CT	-+	Detox	Ammonia , Toxic Metals, Taurine, Cortisol, Sulfates/sulfites, Angiotensin II, Chemicals/hydrocarbons, Homocysteine , Methyl Donors (SAMe, TMG, DMG) , Lactose
COMT	rs2020917	T	CC	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs737866	C	TT	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs737865	G	AA	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs1544325	A	AA	++	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs5993883	T	TT	++	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs4646312	C	TT	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs6269	A	AA	++	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs4633	T	TT	++	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs2239393	G	AA	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs740601	T	TT	++	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol

						Dopamine, Insulin
COMT	rs4680	A	AA	++	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs769224	A	AG	+-	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs4646316	T	CT	-+	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs165774	A	GG	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs174696	C	CT	+-	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs174699	C	TT	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs9332377	T	CC	--	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
COMT	rs165599	A	AG	+-	Brain Chemistry	Adrenaline, Noradrenaline, Estrogens, Cortisol, Dopamine, Insulin
CTH	rs10889869	A	GG	--	Detox	Cystathionine
CTH	rs681475	C	CC	++	Detox	Cystathionine
CTH	rs1145920	A	GG	--	Detox	Cystathionine
CTH	rs12723350	C	TT	--	Detox	Cystathionine
CTH	rs663649	T	GG	--	Detox	Cystathionine
CTH	rs515064	G	AA	--	Detox	Cystathionine
CTH	rs1021737	T	TT	++	Detox	Cystathionine
CYP1A1	rs1048943	C	TT	--	Estrogen Biosynthesis	Estrogens (Estradiol, Estriol, Estrone)
CYP1A1	rs1799814	T	GG	--	Estrogen Biosynthesis	Estrogens (Estradiol, Estriol, Estrone)
CYP1B1	rs1800440	T	TT	++	Detox/Hormones	Estrogen (Estriol, Estrone, Estradiol), Chemicals/hydrocarbons, Hormone disruptors, Glyphosates
CYP1B1	rs1056836	C	CG	+-	Detox/Hormones	Estrogen (Estriol, Estrone, Estradiol), Chemicals/hydrocarbons, Hormone disruptors, Glyphosates
CYP1B1	rs10012	G	--	--	Detox/Hormones	Estrogen (Estriol, Estrone, Estradiol), Chemicals/hydrocarbons, Hormone disruptors, Glyphosates
DAO	rs2070586	A	GG	--	Allergy/Leaky Gut	Histamine, Methylhistamine, Gluten, Lactose
DAO	rs3741775	C	AA	--	Allergy/Leaky Gut	Histamine, Methylhistamine, Gluten, Lactose
DAO	rs6539460	G	GG	++	Allergy/Leaky Gut	Histamine, Methylhistamine, Gluten, Lactose
DAO	rs3918347	G	AA	--	Allergy/Leaky Gut	Histamine, Methylhistamine, Gluten, Lactose
DBH	rs1611115	T	TT	++	Brain Chemistry	Dopamine
DBH	rs2007153	T	TT	++	Brain Chemistry	Dopamine
DBH	rs2519155	T	TT	++	Brain Chemistry	Dopamine
DBH	rs1108580	A	AA	++	Brain Chemistry	Dopamine
DBH	rs1108581	G	AA	--	Brain Chemistry	Dopamine
DBH	rs2873804	T	TT	++	Brain Chemistry	Dopamine
DBH	rs5324	A	GG	--	Brain Chemistry	Dopamine
DBH	rs1611123	T	CC	--	Brain Chemistry	Dopamine
DBH	rs1611125	T	CC	--	Brain Chemistry	Dopamine
DBH	rs4531	T	GG	--	Brain Chemistry	Dopamine
DBH	rs2519152	C	TT	--	Brain Chemistry	Dopamine
DBH	rs1541332	A	AG	+-	Brain Chemistry	Dopamine
DBH	rs2519154	C	CT	+-	Brain Chemistry	Dopamine

DBH	rs2797853	T	CT	-+	Brain Chemistry	Dopamine
DBH	rs2283123	T	CC	--	Brain Chemistry	Dopamine
DBH	rs77905	A	AG	+-	Brain Chemistry	Dopamine
DBH	rs2097628	A	AG	+-	Brain Chemistry	Dopamine
DDC	rs2242041	G	CG	-+	Brain Chemistry	L-Dopa
DDC	rs11575542	T	CC	--	Brain Chemistry	L-Dopa
DDC	rs732215	C	AA	--	Brain Chemistry	L-Dopa
DDC	rs1451371	C	TT	--	Brain Chemistry	L-Dopa
DDC	rs2167364	T	CT	-+	Brain Chemistry	L-Dopa
DDC	rs1470750	G	CC	--	Brain Chemistry	L-Dopa
DDC	rs6263	C	TT	--	Brain Chemistry	L-Dopa
DDC	rs3735273	T	CT	-+	Brain Chemistry	L-Dopa
DDC	rs998850	C	CG	+-	Brain Chemistry	L-Dopa
DDC	rs10499695	C	CT	+-	Brain Chemistry	L-Dopa
DDC	rs1451375	A	AC	+-	Brain Chemistry	L-Dopa
DDC	rs921451	T	CT	-+	Brain Chemistry	L-Dopa
DDC	rs3829897	G	GT	+-	Brain Chemistry	L-Dopa
DHFR	rs1650697	A	AG	+-	Methylation	Folic Acid
DMGDH	rs479405	C	AA	--	Energy	DMG
DMGDH	rs532964	A	GG	--	Energy	DMG
DRD1	rs686	A	AG	+-	Addictions	
DRD1	rs4532	C	CT	+-	Addictions	
DRD1	rs5326	T	CC	--	Addictions	
DRD1	rs265981	A	AG	+-	Addictions	
DRD2	rs2234689	G	CG	-+	Addictions	
DRD2	rs2242592	G	AG	-+	Addictions	
DRD2	rs6277	A	AG	+-	Addictions	
DRD2	rs1076560	A	CC	--	Addictions	
DRD2	rs2283265	A	CC	--	Addictions	
DRD2	rs2734838	G	GG	++	Addictions	
DRD2	rs2440390	C	CC	++	Addictions	
DRD2	rs1079727	C	TT	--	Addictions	
DRD2	rs1076563	A	CC	--	Addictions	
DRD2	rs1079597	T	CC	--	Addictions	
DRD2	rs1125394	T	TT	++	Addictions	
DRD2	rs2471857	T	CC	--	Addictions	
DRD2	rs4436578	T	TT	++	Addictions	
DRD2	rs4620755	A	GG	--	Addictions	
DRD2	rs11214606	T	CC	--	Addictions	
DRD2	rs4648318	C	TT	--	Addictions	
DRD2	rs4648319	G	GG	++	Addictions	
DRD2	rs17529477	A	AG	+-	Addictions	
DRD2	rs4245146	C	TT	--	Addictions	
DRD2	rs4936270	T	CC	--	Addictions	
DRD2	rs4274224	G	GG	++	Addictions	
DRD2	rs4581480	C	TT	--	Addictions	
DRD2	rs7131056	A	CC	--	Addictions	
DRD2	rs4648317	A	GG	--	Addictions	
DRD2	rs4938019	C	TT	--	Addictions	
DRD2	rs1799978	C	TT	--	Addictions	
DRD2	rs12364283	G	AA	--	Addictions	
DRD3	rs9824856	A	AA	++	Addictions	
DRD3	rs9288993	G	AA	--	Addictions	
DRD3	rs3773678	G	GG	++	Addictions	
DRD3	rs2630349	G	GG	++	Addictions	
DRD3	rs2630351	A	GG	--	Addictions	
DRD3	rs167771	A	AA	++	Addictions	
DRD3	rs324029	A	AG	+-	Addictions	
DRD3	rs10934256	A	AC	+-	Addictions	

DRD3	rs1486009	A	AA	++	Addictions	
DRD3	rs6280	T	CT	-+	Addictions	
DRD4	rs3758653	C	TT	--	Novelty Seeking	Dopamine Receptors
DRD4	rs916457	T	CC	--	Novelty Seeking	Dopamine Receptors
DRD4	rs1800443	G	TT	--	Novelty Seeking	Dopamine Receptors
DRD4	rs11246226	A	AC	+-	Novelty Seeking	Dopamine Receptors
FTO	rs17817449	G	GT	+-	Obesity/Appetite	Ghrelin, Glucose
FTO	rs9939609	A	AT	+-	Obesity/Appetite	Ghrelin, Glucose
FUT2	rs492602	G	AG	-+	Gut Health	TH17, Fucose
FUT2	rs281377	T	CT	-+	Gut Health	TH17, Fucose
FUT2	rs1047781	T	AA	--	Gut Health	TH17, Fucose
FUT2	rs601338	A	AG	+-	Gut Health	TH17, Fucose
FUT2	rs602662	A	AA	++	Gut Health	TH17, Fucose
G6PD	rs1050757	T	T	+-		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs72554664	T	C	--		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs2071429	A	--	--		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs2230037	A	G	--		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs2230036	T	C	--		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs5030868	A	G	--		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs1050829	C	T	--		Glucose, Glucose 6 Phosphate, Insulin
G6PD	rs1050828	T	C	--		Glucose, Glucose 6 Phosphate, Insulin
GAD1 & 2	rs12185692	A	AC	+-	Neurological	Glutamate, Copper
GAD1 & 2	rs3791878	T	GG	--	Neurological	Glutamate, Copper
GAD1 & 2	rs3749034	A	AG	+-	Neurological	Glutamate, Copper
GAD1 & 2	rs2241165	C	CT	+-	Neurological	Glutamate, Copper
GAD1 & 2	rs3828275	T	CT	-+	Neurological	Glutamate, Copper
GAD1 & 2	rs2058725	C	CT	+-	Neurological	Glutamate, Copper
GAD1 & 2	rs769407	C	GG	--	Neurological	Glutamate, Copper
GAD1 & 2	rs3791851	C	TT	--	Neurological	Glutamate, Copper
GAD1 & 2	rs701492	C	CC	++	Neurological	Glutamate, Copper
GAD1 & 2	rs3791850	A	AG	+-	Neurological	Glutamate, Copper
GAD1 & 2	rs2236418	A	AG	+-	Neurological	Glutamate, Copper
GAD1 & 2	rs8190612	T	CC	--	Neurological	Glutamate, Copper
GAD1 & 2	rs8190646	G	AA	--	Neurological	Glutamate, Copper
GAD1 & 2	rs2368160	G	AG	-+	Neurological	Glutamate, Copper
GAMT	rs17851582	A	GG	--	Energy/Brain/Muscle	SAMe, DMG, Glycine, Methionine
GAMT	rs55776826	T	CT	-+	Energy/Brain/Muscle	SAMe, DMG, Glycine, Methionine
GPx1	rs1050450	T	GG	--	Free Radical Damage	H2O2, Lipid peroxide
GPx1	rs1800668	C	GG	--	Free Radical Damage	H2O2, Lipid peroxide
HDC	rs2073440	G	TT	--	Allergy/Leaky Gut	Histidine
HDC	rs16963486	G	AA	--	Allergy/Leaky Gut	Histidine
HDC	rs854158	G	AG	-+	Allergy/Leaky Gut	Histidine
HFE	rs2794719	G	TT	--	Iron Toxicity	Iron, Transferrin, Ferritin
HFE	rs1799945	G	CG	-+	Iron Toxicity	Iron, Transferrin, Ferritin
HFE	rs1800730	T	AA	--	Iron Toxicity	Iron, Transferrin, Ferritin
HFE	rs2071303	C	CT	+-	Iron Toxicity	Iron, Transferrin, Ferritin
HFE	rs1800562	A	GG	--	Iron Toxicity	Iron, Transferrin, Ferritin
HLA DQA1	rs2187668	A	CT	--	Autoimmune/Gluten	Gluten, Zonulin, Histamine
HNMT	rs1378321	A	AA	++	Allergy/Leaky Gut	Histamine, Gluten, N-Methylhistamine, Zonulin, IgE
HNMT	rs1050891	G	AA	--	Allergy/Leaky Gut	Histamine, Gluten, N-Methylhistamine, Zonulin, IgE
IDO	rs35099072	A	GG	--	Brain Chemistry	Tryptophan, Gluten, Lactose, Kynurenine

IDO	rs3739972	A	GG		Brain Chemistry	Lactose , Kynurenine, Quinolinic Acid
MAO-A	rs5953210	G	A	--	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-A	rs5906883	C	C	+-	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-A	rs909525	C	T	--	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-A	rs6323	G	T	--	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-A	rs2235186	A	G	--	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-A	rs2072743	C	C	+-	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-A	rs1137070	T	C	--	Brain Chemistry	Serotonin, Dopamine, Norepinephrine, Tryptophan, 5HTP
MAO-B	rs1799836	C	T	--	Brain Chemistry/Allergy	Dopamine, Histamine, N-Methylhistamine, Phenylethylamine
MAT1A	rs1985908	G	GG	++	Methylation	Methionine , Homocysteine, N-Methylhistamine
MAT1A	rs2993763	A	GG	--	Methylation	Methionine , Homocysteine, N-Methylhistamine
MAT1A	rs4934028	A	GG	--	Methylation	Methionine , Homocysteine, N-Methylhistamine
MAT2B	rs4869089	G	AG	-+	Methylation	Methionine , Homocysteine, N-Methylhistamine
MMAB	rs7134594	C	CT	+-	Energy	Malonic Acid , Acetyl Co-A, Cholesterol, Lactic Acid, Pyruvate, Methionine
MMAB	rs12314392	A	AA	++	Energy	Malonic Acid , Acetyl Co-A, Cholesterol, Lactic Acid, Pyruvate, Methionine
MTHFD	rs1667627	C	TT	--	Methylation	Folic Acid
MTHFD	rs11754661	G	GG	++	Methylation	Folic Acid
MTHFD	rs17349743	C	CT	+-	Methylation	Folic Acid
MTHFD	rs803422	A	GG	--	Methylation	Folic Acid
MTHFD	rs6922269	A	AA	++	Methylation	Folic Acid
MTHFD	rs1076991	C	CT	+-	Methylation	Folic Acid
MTHFD	rs2236225	A	AG	+-	Methylation	Folic Acid
MTHFR	rs4846048	G	AA	--	Methylation	Folic Acid
MTHFR	rs4846049	G	GG	++	Methylation	Folic Acid
MTHFR	rs2274976	T	CC	--	Methylation	Folic Acid
MTHFR	rs1476413	T	CC	--	Methylation	Folic Acid
MTHFR	rs17037390	G	GG	++	Methylation	Folic Acid
MTHFR	rs17367504	G	AA	--	Methylation	Folic Acid
MTHFR	rs2066470	A	GG	--	Methylation	Folic Acid
MTHFR	rs13306560	T	CC	--	Methylation	Folic Acid
MTHFR	rs3737964	A	CC	--	Methylation	Folic Acid
MTR	rs10925235	T	CT	-+	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs12060264	A	AG	+-	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs12060570	G	CG	-+	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs2789352	A	AC	+-	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs2275568	T	CT	-+	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs10925250	G	AA	--	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs3768142	T	GT	-+	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs10925257	G	AA	--	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine

MTR	rs1805087	G	AA	--	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs2275566	G	AG	-+	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs2275565	T	GG	--	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs3820571	G	GT	+-	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTR	rs11799670	G	AA	--	Methylation/Energy	Cyanocobalamin, Folic Acid , Homocysteine
MTRR	rs1801394	G	AG	-+	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs326121	C	CT	+-	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs3776467	G	AG	-+	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs1532268	T	CC	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs7703033	A	AG	+-	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs162031	T	CC	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs10064631	G	CC	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs162036	G	AG	-+	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs3815743	G	AA	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs2287779	A	GG	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs3776455	T	CC	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs1802059	A	GG	--	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs9332	A	AG	+-	B12 Activation	Homocystiene, Cyanocobalamin
MTRR	rs8659	A	TT	--	B12 Activation	Homocystiene, Cyanocobalamin
MUT	rs6458690	G	GG	++	Energy/Krebs Cycle	Malonic Acid, Methionine
NAT1	rs4986782	A	GG	--	Detox	Coffee
NAT2	rs1805158	T	CC	--	Detox	Coffee, Ethanol
NAT2	rs1801279	A	GG	--	Detox	Coffee, Ethanol
NAT2	rs1041983	T	TT	++	Detox	Coffee, Ethanol
NAT2	rs1801280	C	TT	--	Detox	Coffee, Ethanol
NAT2	rs1799929	T	CC	--	Detox	Coffee, Ethanol
NAT2	rs1799930	A	AA	++	Detox	Coffee, Ethanol
NAT2	rs1208	G	AA	--	Detox	Coffee, Ethanol
NAT2	rs1799931	A	GG	--	Detox	Coffee, Ethanol
NDUFS7	rs2332496	A	AG	+-	Energy/Neurological	NADH, FADH, Acetyl Co-A, Lactic acid, Oxylates, Pyruvate
NDUFS7	rs1142530	T	TT	++	Energy/Neurological	NADH, FADH, Acetyl Co-A, Lactic acid, Oxylates, Pyruvate
NDUFS7	rs7258846	T	--	--	Energy/Neurological	NADH, FADH, Acetyl Co-A, Lactic acid, Oxylates, Pyruvate
NDUFS7	rs809359	G	AA	--	Energy/Neurological	NADH, FADH, Acetyl Co-A, Lactic acid, Oxylates, Pyruvate
NDUFS8	rs999571	A	GG	--	Energy/Neurological	NADH, FADH, Acetyl Co A, Lactic Acid, Oxylates, Pyruvate
NDUFS8	rs2075626	T	TT	++	Energy/Neurological	NADH, FADH, Acetyl Co A, Lactic Acid, Oxylates, Pyruvate
NDUFS8	rs1051806	T	CC	--	Energy/Neurological	NADH, FADH, Acetyl Co A, Lactic Acid, Oxylates, Pyruvate
NDUFAB1	rs459894	A	AA	++	Energy/Neurological	NADH, FADH, Acetyl Co A, Lactic Acid, Oxylates, Pyruvate
NOS1	rs2293054	A	AG	+-	Immune	Arginine , Superoxide, Citrulline, Peroxynitrite, Infections, NF Kappa B, nNOS

NOS1	rs2293052	A	AG	+-	Immune	Arginine , Superoxide, Citrulline, Peroxynitrite, Infections, NF Kappa B, nNOS
NOS1	rs7298903	C	CT	+-	Immune	Arginine , Superoxide, Citrulline, Peroxynitrite, Infections, NF Kappa B, nNOS
NOS2	rs2297518	A	GG	--	Neuron Communication	Arginine, Superoxide, Citrulline, Peroxynitrite, Infections, NF Kappa B, iNOS, Calmodulin
NOS2	rs2274894	T	GT	-+	Neuron Communication	Arginine, Superoxide, Citrulline, Peroxynitrite, Infections, NF Kappa B, iNOS, Calmodulin
NOS2	rs2248814	A	AG	+-	Neuron Communication	Arginine, Superoxide, Citrulline, Peroxynitrite, Infections, NF Kappa B, iNOS, Calmodulin
NOS3	rs1800783	T	AA	--	Cardiovascular	Nitric Oxide , Superoxide, Ammonia , Citrulline, Peroxynitrite, Infections, NF Kappa B, eNOS
NOS3	rs1800779	A	GG	--	Cardiovascular	Nitric Oxide , Superoxide, Ammonia , Citrulline, Peroxynitrite, Infections, NF Kappa B, eNOS
NOS3	rs3918188	A	CC	--	Cardiovascular	Nitric Oxide , Superoxide, Ammonia , Citrulline, Peroxynitrite, Infections, NF Kappa B, eNOS
OXTR	rs237887	A	AG	+-	Brain Chemistry/Empathy	Oxytocin
OXTR	rs4686302	T	CC	--	Brain Chemistry/Empathy	Oxytocin
PEMT	rs7946	T	CC	--	Liver	Phosphatylethanolamine
PEMT	rs4646406	T	TT	++	Liver	Phosphatylethanolamine
PEMT	rs4244593	T	TT	++	Liver	Phosphatylethanolamine
PNMT	rs876493	A	AA	++	Brain Chemistry	Noradrenalin (Norepinephrine)
PNMT	rs5638	G	AA	--	Brain Chemistry	Noradrenalin (Norepinephrine)
PON1	rs662	T	CC	--	Free Radical Damage	Glyphosates, Lipid Peroxides
SOD2	rs2758331	A	AA	++	Free Radical Damage	Super Oxide, Nitric Oxide, Peroxinitrite, Citrulline, NF-Kappa B
SOD3	rs2855262	C	CC	++	Free Radical Damage	Super Oxide, Nitric Oxide, Peroxynitrite, Citrulline, NF-Kappa B
SULT	rs296366	C	CC	++	Detox	Sulfates, Sulfites, Acetaminophen
SULT	rs11569679	T	CC	--	Detox	Sulfates, Sulfites, Acetaminophen
SULT	rs4149452	T	CT	-+	Detox	Sulfates, Sulfites, Acetaminophen
SULT	rs4149449	T	CC	--	Detox	Sulfates, Sulfites, Acetaminophen
SULT	rs2547231	A	AA	++	Detox	Sulfates, Sulfites, Acetaminophen
TCN2	rs526934	A	AG	+-	Methylation	Homocysteine, Cyanocobalamin
TCN2	rs9606756	G	AA	--	Methylation	Homocysteine, Cyanocobalamin
TCN2	rs1801198	G	CC	--	Methylation	Homocysteine, Cyanocobalamin
TH	rs2070762	G	GG	++	Brain Chemistry	Tyrosine
TH	rs28934580	T	CC	--	Brain Chemistry	Tyrosine
TH	rs28934581	G	TT	--	Brain Chemistry	Tyrosine
TH	rs6356	T	CT	-+	Brain Chemistry	Tyrosine
TPH2	rs4570625	G	GG	++		Tryptophan , 5HTP
TPH2	rs4565946	T	TT	++		Tryptophan , 5HTP
TPH2	rs11179002	C	CC	++		Tryptophan , 5HTP
UGT	rs887829	T	TT	++	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen
UGT	rs4148323	A	GG	--	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen

UGT	rs72551341	A	TT	--	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen
UGT	rs6742078	T	TT	++	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen
UGT	rs4148325	T	TT	++	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen
UGT	rs62625011	A	GG	--	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen
UGT	rs72551351	G	AA	--	Detox/Hormones	Bilirubin, Acetaminophen, Estrogen
VDR	rs3847987	A	CC	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs739837	G	GT	+-	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs7975232	A	AC	+-	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs757343	T	CC	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs2239185	A	AG	+-	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs2239182	C	CT	+-	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs2107301	A	GG	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs1540339	T	CC	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs12717991	T	CC	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs886441	G	AG	-+	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs2189480	T	GT	-+	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs3819545	G	AA	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs3782905	C	GG	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs2239186	G	AA	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs2238136	T	CC	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs11168287	G	AG	-+	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine

VDR	rs4334089	G	AA	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs3890733	T	CC	--	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR	rs7299460	T	TT	++	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR (BSM)	rs1544410	T	CT	-+	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR (FOK)	rs2228570	A	AG	+-	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
VDR (Taq)	rs731236	A	AG	+-	Immune/Mineral Balance	T Cells , Vitamin D , Infections (Bacteria, virus etc.), Insulin, L. Dopa, Lactose, Phenylalanine, Tryptophan, Tyrosine
MTHFR A1298C	rs1801131	G	TT	--	Methylation	Folic Acid
MTHFR C677T	rs1801133	A	AG	+-	Methylation	Folic Acid

Analysis

The following information is associated with the genetic variants that show up on your report. This means that the enzymes encoded by these genes that you inherited (one from mom and one from dad) are a variation from normal and as such will not function at a normal rate. If one of the genes is a variant or risk allele (heterozygous, yellow), the function of that gene is reduced by about 30% if both are variants or risk alleles (homozygous, red), it can be reduced by as much as 70%. This decrease in normal function can affect how your body functions and may lead to imbalances. As your genes do not change, the supplement support program is suggested for long term. This will support your genes functioning closer to a normal rate.

If there is duplication of nutrient recommendations in several places, this does not mean that you should double up on the recommended nutrients. The nutrient suggestions are made to support optimal health and well-being.

Please contact a health care provider who has been trained in the Wholistic Methylation system to get a more accurate idea of your genetically associated health care picture.

ALDH2	Heterozygous: 1	Homozygous: 1

Description

(Aldehyde Dehydrogenase 2) This enzyme is involved in the conversion of ethanol to aldehyde. Mutations in the genes are manifested by slow acetaldehyde removal, with low alcohol tolerance, leading to a lower frequency of alcohol dependence.

ALDH2 variants may contribute to non-homeostatic function of: cardiovascular, blood sugar, nerves, blood clotting, and free radical production. ALDH2 variants are also associated with anemia, discomfort, low bone density, and unhealthy aging. When high levels of acetaldehyde occur in the blood, facial flushing, light headedness, palpitations, nausea, and general “hangover” symptoms occur. These symptoms are indicative of alcohol flush reaction, also known as “Asian Flush”, as the genetic variant is common in persons with Asian ancestry.

People with the homozygous mutation have almost no ALDH2 activity, and those heterozygous for the mutation have reduced activity. Homozygous variants have reduced activity of the enzyme to about 8% of the normal allele. This mutation is common in Japan, where 41% of a non-alcoholic control group were ALDH2 deficient, and only 2–5% of an alcoholic group were ALDH2 deficient. The deficiency is manifested by slow acetaldehyde removal, with low alcohol tolerance perhaps leading to a lower frequency of alcohol dependence.

The ALDH2 allele contributes to esophageal and oropharyngolaryngeal free radical situations. Aldehyde dehydrogenase inhibition has been associated with non-homeostatic nerve health as well.

Dietary and Lifestyle

OK, I know you don’t want to hear this…Don’t Drink Alcohol!

Kinesiology Challenge

Ethanol	Aldehyde	Formaldehyde		

Products

BioStress-B	Zinc-S	Total Alpha lipoic acid	Co-Q-10-Plus	Molybdenum Chelate

Nutrients

Thiamine	Zinc	Lipoic Acid	Co Q10	Acetyl-L-Carnitine
Molybdenum				

BHMT	Heterozygous: 0	Homozygous: 2

Description

(Betaine Homocystiene Methyl Transferase) This enzyme catalyzes the conversion of betaine and homocysteine to dimethylglycine

(Betaine Homocysteine Methyl Transferase) This enzyme catalyzes the conversion of betaine and homocysteine to dimethylglycine and methionine. Variants may result in higher ammonia levels under stress. SNiP's appear to increase norepinephrine conversion to dopamine. Anomalies in homocysteine metabolism have been implicated in scenarios ranging from vascular imbalances and mental imbalance to neural tube issues. Editor's note: These genetic variants benefit from general methylation pathway balance with nutrients that contain methyl groups.

Variants are associated with:

Muscle fatigue

Low energy

Attention issues/hyperactivity

Brain fatigue

Dietary and Lifestyle

Restricting methionine groups in the diet has been shown to be beneficial for persons with genetic variants in the BHMT gene. Brazil nuts, beef, lamb, cheese, turkey, chicken, pork, and fish have the highest levels of methionine.

Kinesiology Challenge

Trimethylglycine	Glycine	Homocysteine		

Products

Manganese-GC	Pro-Cortisol Balance	Total Arginine	Complete Brain Charge	Zinc-S
Homocysteine Redux				

Nutrients

Dimethylglycine (DMG)	Phosphatidyl Serine	Phosphatidyl Choline	Glycine and Arginine	Methionine
Zinc (cofactor)	Methyl B12	Methyl Folate		

CAT	Heterozygous: 0	Homozygous: 2

Description

Catalase is an enzyme that catalyzes the breakdown of hydrogen peroxide (H2O2) to water and oxygen. It is critical in protecting the cell from oxidative damage by reactive oxygen species (ROS). Hydrogen peroxide is a harmful by-product of many normal metabolic processes, however, to avoid damage to cells and tissues, it must be quickly converted into other, less dangerous substances through the action of the catalase enzyme.

A shortage of this enzyme can allow hydrogen peroxide to build up to toxic levels in certain cells. For example, hydrogen peroxide produced by bacteria in the mouth may accumulate and damage soft tissues, leading to mouth ulcers and gangrene.

A buildup of hydrogen peroxide may also damage beta cells of the pancreas (that produce insulin), leading to a risk of non-homeostatic blood sugar imbalances. Variants may also lead to arterial pressure imbalance, skin pigmentation issues, bone density issues, and imbalance of cholesterol and other fats (lipids) in the blood, which can lead to imbalances in heart health and clotting.

Dietary and Lifestyle

Increase consumption of high antioxidant foods such as berries, citrus, and brightly colored vegetables.

Kinesiology Challenge

H2O2	Citrulline	NF-Kappa B	Nitric Oxide	Peroxynitrite
Superoxide				

Products

S.O.D. Lozenge	Super-Ox	NAC Renew	Phyto Renew powder or Greens Renew powder

Nutrients

Superoxide Dismutase	Antioxidants	NAC

CBS	Heterozygous: 1	Homozygous: 2

Description

(Cystathione Beta Synthase) This enzyme converts homocysteine to cysteine and glutathione. The variant is an upregulation defect; CBS regulates the enzymes that help to convert homocysteine into glutathione, a major antioxidant. Mutations in the CBS genes will produce more sulfur end products from the methylation cycle. In particular, individuals who have the CBS (+/+, or +/-) the homozygous or heterozygous variants may want to limit intake of sulfur-containing foods (like garlic, and supplements, such as MSM) as well as medications (like DMPS.) Even cruciferous vegetables contain sulfur. Both the CBS homozygous and heterozygous mutations also have a higher risk for ammonia detoxification issues. This mutation can also indirectly affect an enzyme called G6PDH, which has negative effects on blood sugar metabolism, red blood cell formation, and blood vessel stability, leading to easy bruising, bleeding, and broken blood vessels along with vascular imbalances.

Variants are associated with low energy, brain fog, headaches, blood sugar imbalance, immune attack, anxiety, and insomnia (from increased cortisol). This defect can also lead to a depletion of SAMe (S-adenosyl-methionine, the major methyl donor) and a subsequent increase in histamine in the body.

It has also been observed that BH4 can also become depleted with a CBS upregulation. BH4 helps regulate neurotransmitters and mood. COMT +/+ and or VDR -/- individuals will have higher dopamine and BH4 levels and may get ill less frequently, but will be more sensitive to methyl cycle intermediates, which could increase dopamine too much, causing irritability/erratic behavior. For other mutations (such as MTHFR A1298C), chronic immune assaults and aluminum can also lead to low BH4 levels. Lack of BH4 can lead to mast cell degranulation and issues with mast cell activation.

Note: When utilizing methyl donors, it is a good idea to integrate synergy and make sure that blocked pathways, such as CBS, are cleared. Methylation is a good thing, and it will increase detoxification, so you want to make sure your detox pathways are clear to get rid of the waste, toxins, and metals getting dumped. Other synergistic nutrients, such as N-acetyl cysteine (which detoxifies metals and toxins), will help cover these "blocked pathways". Green tea can also be helpful. Identify other "blocked" pathways where there is a genetic variant, and concentrating on the nutrition for that blocked pathway will relieve pressure there. CBS will do its job of detoxifying efficiently and gently. If there is also a SUOX SNiP, it is very important that this pathway get balanced (molybdenum supplementation may be necessary).

Dietary and Lifestyle

Be aware of sulfur containing foods such as garlic, onions, and cruciferous vegetables (broccoli, cauliflower, kale etc.) until the pathway is cleared. Avoid sulfites in foods (preservatives).

Kinesiology Challenge

Ammonia	Toxic Metals	Taurine	Cortisol	Sulfates/sulfites
Angiotensin II	Chemicals/hydrocarbons	Homocysteine	Methyl Donors (SAMe, TMG, DMG)	Lactose

Products

Met-Tox	Molybdenum Chelate	NAC Renew	Pantothenic Acid	Niacin B-6
Phyto Renew	Super-Ox	Selenium Chelate	Zinc-S	Total L-Carnitine
Manganese-GC	Phyto-Renew			

Nutrients

Pantothenic Acid	Niacin	Manganese	Heavy metal detox support	Zinc
Supplementation with molybdenum to stimulate SUOX - high doses may be necessary. Homogenized dairy products contain xanthine oxidase, which further depletes molybdenum, and should be avoided if molybdenum levels are low.	GABA may help neutralize excitotoxin activity when there is excessive alpha-keto-glutarate being produced.			

COMT | Heterozygous: 4 | Homozygous: 6

Description

(Catechol-O- Methyl Transferase) The COMT enzyme helps break down neurotransmitters and maintain appropriate levels of these neurotransmitters in the brain. Mutations in the COMT gene can lead to high levels of dopamine, norepinephrine (noradrenalin) and epinephrine (adrenalin). High levels of dopamine have been associated with intelligence, however high levels can lead to more difficulty with attention and increased levels of irritation, anxiety and anger. COMT variants have also been shown to be implicated in anxiety , novelty seeking behavior, aggression, and personality imbalance

In addition, COMT variants have also been shown to be associated with estrogen dominant conditions including free radical attack due to the decreased breakdown of the catechol estrogens.

Dietary and Lifestyle

Avoiding stress is a big help for this pathway. If you have a homozygous variant here, breaking down stress hormones is especially difficult for you. This makes you more susceptible to anxiety, especially after a traumatic event. Learning to incorporate rest and stress reduction activities is especially important here. Meditation can be very beneficial, and avoiding caffeine and stimulants is helpful as well.

Kinesiology Challenge

Adrenaline	Noradrenaline	Estrogens	Cortisol	Dopamine
Insulin				

Products

Aspartic-Multi-Min	Complete MG	Trace Min Plus	Iodine Rescue	Total Boron
Core Level Bone Matrix	Manganese-GC	Total Thyroid #2	Core Level Thyro	Vitamin B2 (Total Alpha-Lipoic Acid)
Cal/Mag 1:1	Serene Renew	SLP Renew	Pro-Cortisol Balance	Magnesium Chelate

Nutrients

Magnesium	Manganese	Minerals	Boron	Calcium synergistic blends
Thyroid support	Iodine			

CTH | Heterozygous: 0 | Homozygous: 2

Description

(Cystathione Hydroxylase) This is the enzyme that converts cystathione into cysteine. Glutathione synthesis is critical in detoxification in the liver and is dependent upon the availability of cysteine. Mutations in this gene contribute to non-homeostatic arterial pressure. Homocysteine imbalance has been associated with variants in the CTH gene. This imbalance in turn has been associated with various non-homeostatic cardiovascular functions.

This enzyme can also slow down the adverse effects of the CBS mutations (slows down excessive detoxification due to variants in the CBS gene).

Dietary and Lifestyle

Kinesiology Challenge

Cystathionine

Products

Pyridoxyl-5-Phosphate

Nutrients

Vitamin B6	Pyridoxyl-5-Phosphate

CYP1B1 | Heterozygous: 1 | Homozygous: 1

Description

(Cytochrome P450 1B1) Cytochrome P450 enzymes are the primary enzymes of the Phase I detox pathways. This enzyme (1B1) is associated with the breakdown and excretion of estrogens primarily. As such, they are implicated in estrogen dominance.

Enzymes produced from the cytochrome P450 genes are involved in the formation and breakdown of hormones, toxins, neurotransmitters and chemicals within cells. They play a role in the synthesis of steroid hormones, certain fats (cholesterol and other fatty acids), and acids used to help digest fats (bile acids). They also metabolize medications and toxins that are formed within cells.

The CYP enzymes are mainly found in liver cells but are also located in cells throughout the body. Some are in the endoplasmic reticulum and the mitochondria.

Common polymorphisms in cytochrome P450 genes are mostly noticed in the breakdown of medications. Depending on the gene and the polymorphism, drugs can be metabolized quickly or slowly. If a cytochrome P450 enzyme metabolizes a drug slowly, the drug stays active longer and less is needed to get the desired effect. A drug that is quickly metabolized is broken down sooner and a higher dose might be needed to be effective. Problems caused by mutations in cytochrome P450 genes typically involve the buildup of substances in the body that are harmful in large amounts or that prevent other necessary molecules from being produced.

Dietary and Lifestyle

Avoiding estrogenic compounds is imperative. Soy products, or pesticides, herbicides, and other hormone disruptors such as bisphenols (xenoestrogens) may be particularly damaging. Eating organic foods is especially important for this variant and the PON1 variant.

Kinesiology Challenge

Estrogen (Estriol, Estrone, Estradiol)	Chemicals/hydrocarbons	Hormone disruptors	Glyphosates	

Products

Methyl B-12 Lozenges	Hydroxo B-12 lozenge	Methyl Renew	Homocysteine Redux	DIM Renew
#3 GB LIV	Total Liver D-Tox			

Nutrients

Methyl Donors (Methyl B12, Methyl Folate)	Di-indole methane (DIM)	Calcium D-Glucarate	Milk thistle	Vitamins A, C, E, selenium, zinc

DAO	Heterozygous: 0	Homozygous: 1

Description

(Diamine Oxidase) This enzyme helps to break down histamine. Histamine intolerance results from an inability to degrade histamine. Certain foods are higher in histamines than others. Normally, dietary histamine can be rapidly detoxified by amine oxidases, whereas persons with low amine oxidase activity are at risk of histamine toxicity. Diamine oxidase (DAO) is the main enzyme for the metabolism of ingested histamine.

Alcohol, especially red wine, is rich in histamine and is a potent inhibitor of DAO. Sneezing, flushing, headache, wheezing, and other anaphylactoid reactions can be associated with reduced levels of the DAO enzyme. Other ingredients in wine such as tyramine and sulfites may be culprits as well.

Dietary and Lifestyle

Reduce high histamine foods until this variant is balanced. The following foods contain high levels of histamines:

Kinesiology Challenge

Histamine	Methylhistamine	Gluten	Lactose	

Products

Whole System Histo-Zym	Methyl Renew	B-Complex	5-MTH folate	Hydroxo B-12 Lozenge
Methyl B-12 Lozenges	Zinc-S	SAMe 200		

Nutrients

Diamine Oxidase Enzyme	Methyl B12	Methyl Folate	Calcium	Copper
Zinc	SAMe			

DBH	Heterozygous: 5	Homozygous: 5

Description

(Dopamine Beta Hydroxylase) This enzyme converts dopamine into norepinephrine, which leads to the formation of epinephrine (adrenaline) by the enzyme phenylethanolamine-N-methyl transferase (PNMT). Homozygous variants tend to get dizzy when standing too quickly. In addition, blood sugar levels can become unbalanced.

Studies have also shown certain variations in the DBH gene are associated with attention issues. DBH genetic variants are also thought to be associated with outbursts in people with mental imbalance or depression. An increase in stress following a trauma has been shown in persons with DBH polymorphisms.

Polymorphisms in the DBH gene are also associated with severe headaches.

Dietary and Lifestyle

Kinesiology Challenge

Dopamine				

Products

Sago-C-500	Core Level Kidney	Pyridoxyl-5-phosphate		

Nutrients

Vitamin C	Copper	Vitamin B6 (P5P)		

DRD2	Heterozygous: 4	Homozygous: 6

Description

(Dopamine Receptor 2) Variants in this enzyme are associated with development of mood imbalance, eating issues, anxiety, increased nicotine dependence and non-homeostatic arterial pressure. This variant is associated with involuntary jerks and dystonic movements and postures alleviated by alcohol. This variant may cause problems with short term memory issues. Variants of the DRD2 gene have also been associated with cocaine, nicotine and opioid dependence, weight imbalance and gambling. It is hypothesized that the DRD2 is a reinforcement or reward gene. The DRD2 gene has been implicated in involuntary movements, stress-induced issues after trauma, and mood imbalance. Further, DRD2 variants have been implicated in non-homeostatic nerve function and in iatrogenically-induced movement scenarios, as well as in migraine headaches. Variants are also associated with non-homeostatic glucose metabolism in the brain of subjects who carry the DRD2 A1 allele. High homocysteine levels negatively impact the function of this enzyme.

Dietary and Lifestyle

Kinesiology Challenge

Products

Nutrients

DRD3	Heterozygous: 3	Homozygous: 5

Description

(Dopamine Receptor 3) This dopamine receptor is located mainly in the limbic areas of the brain, which are associated with cognitive, emotional, and endocrine functions. Genetic variation in this gene may be associated with non-homeostatic motor movement, social interaction/communication difficulty, mood imbalance, and addictions. It has also been shown to be significantly associated with the tendency to be an entrepreneur.

Dietary and Lifestyle

Kinesiology Challenge

Products

Nutrients

FUT2	Heterozygous: 3	Homozygous: 1

Description

(Fucosyltransferase 2) The FUT enzyme mediates the transfer of fucose to glycoproteins and glycolipids. Fucose is a sugar found in the gut. It is induced there by the presence of bacteria. Fucose can have a supportive role in both gut-centered and systemic imbalances. In addition to acting as a food source for beneficial gut flora, it has a beneficial effect on certain gut pathogens, including H. Pylori and the one responsible for rotavirus gastroenteritis (this scenario was virtually absent among persons who had a genetic polymorphism that inactivates FUT2 expression on the intestinal epithelium.)

Variations in the FUT2 gene interact with intestinal flora, influencing its composition and also affecting the gut microbiota during pregnancy and may lead to altered infant gut flora colonization, including lower levels of Bifidobacterium.

Research shows that FUT2 mutations are strongly associated with small intestinal imbalance as well as non-homeostatic blood sugar levels. The presence of the eNOS variant with the FUT2 variant may increase susceptibility to colon irritability and other digestive problems.

Dietary and Lifestyle

Because carriers of the FUT2 gene have genetically altered gut flora, eating cultured foods with every meal can be beneficial. It would be beneficial to supplement with a high-quality probiotic that contains plenty of bifidobacteria. Adding sources of fucose may be helpful, such as reishi mushroom and bladderwrack.

Kinesiology Challenge

TH17	Fucose			

Products

Total Probiotics	Total Arginine	Glycan Renew	Total Leaky Gut	Nitric Oxide Support

Nutrients

Prebiotics: Fiber, Fucose, Inulin, Jerusalem Artichoke	Oligosaccharide 2'-fucosyllactose	Mannose, Galactose, Fucose combinations	Nitric Oxide support: Cranberry, Beet Juice, Citruline	Wakame (edible seaweed; excellent source of the fucose)
Bladderwrack	Reishi mushroom	Bifidobacterium		

GAD1 & 2	Heterozygous: 8	Homozygous: 1

Description

Glutamic acid decarboxylase is a genetic variant associated with autoimmune activation when insulin levels are not normal. The enzyme is responsible for the production of gamma-aminobutyric acid (GABA) from L-glutamic acid (glutamate). This gene may also play a role in “stiff man” syndrome. Deficiency in this enzyme has been shown to lead to non-homeostatic motor control. Glutamate is an important amino acid, and one of the amino acids in the glutathione molecule (glutathione is necessary for detoxification). However, deficiency in the GAD enzyme leads to excess glutamate in the body. Excess free glutamate that is out of proportion to the other amino acids can be associated with neuron damage and destruction through excitotoxin excess.

Dietary and Lifestyle

Persons with this variant should be very careful to avoid excitotoxins especially MSG, aspartame, and excess glutamate.

Kinesiology Challenge

Glutamate	Copper			

Products

Selenium Chelate	Zinc-S	Pyridoxyl-5-phosphate		

Nutrients

Selenium	Zinc	Activated vitamin B-6 (pyridoxyl-5-		

Selenium Zinc (pyridoxyl-5-phosphate)

HNMT	Heterozygous: 0	Homozygous: 1

Description

(Histamine-N-Methyltransferase) is one of two enzymes involved in the metabolism of histamine, the other one is diamine oxidase (DAO). This enzyme catalyzes the methylation of histamine using S-adenosylmethionine (SAM) and then forming N-methylhistamine. If high levels of histamines are still showing up with the methylation pathways balanced, generally it means more methyl groups are required. High levels of histamine are associated with increased zonulin and leaky gut. Once this enzyme is balanced, you will see leaky gut issues clear up rapidly. Challenging with the food allergy kit can be illuminating to understanding how much is affected by genetic variants in the methylation pathways.

Genetic variants are associated with: stomach irritation, allergic reactions,non-homeostasis in breathing, nasal polyps and ecaema.

Dietary and Lifestyle

Avoid or reduce eating canned foods and ready meals (processed foods)

Avoid or reduce eating ripened and fermented foods (older cheeses, alcoholic drinks, products containing yeast, stale fish)

Avoid leftovers, eat fresh foods as much as possible

Avoid high histamine foods such as alcohol, pickled or canned foods, sauerkrauts, matured cheeses, smoked meat products – salami, ham, sausages...., shellfish, beans and pulses (chickpeas, soy beans, peanuts), walnuts, cashews, chocolate, vinegar

Kinesiology Challenge

Histamine	Gluten	N-Methylhistamine	Zonulin	IgE

Products

Methyl Renew	B-Complex	Hydroxo B-12 Lozenge	5 MTH Folate	SAMe 200
Methyl B-12 Lozenges	Whole System Histo-zyme			

Nutrients

Methyl B12	Methyl Folate	SAMe

MAT1A	Heterozygous: 0	Homozygous: 1

Description

(Methionine Adenosyl Transferase) Both the alpha and beta forms of methionine adenosyltransferase help break down methionine. It leads to transferring methyl groups to other compounds. Variants in the MAT gene have been associated with low levels of SAMe and therefore, low levels of methylation. This lack of methylation can lead to various issues due to the processes that depend on methylation to keep working.

Genetic variants are associated with:

Hypermethionemia

Bad breath, urine and body odor

Non-homeostatic motor movements

Delayed motor skills

Muscle weakness

And non-homeostatic function of:

Liver health

Mental health

Learning processes

Dietary and Lifestyle

Persons with genetic variants in the MAT genes might benefit from a low methionine diet. Brazil nuts, lamb, beef, turkey, chicken, pork, fish, chicken and cheese are all high in methionine.

Kinesiology Challenge

Methionine	Homocysteine	N-Methylhistamine		

Products

Methyl B-12 Lozenges	Hydroxo B-12 Lozenge	Methyl Renew	Homocysteine Redux	B-Complex
SAMe 200				

Nutrients

Methyl B12	Hydroxo B12	Methyl Folate	SAMe

MMAB	Heterozygous: 1	Homozygous: 1

Description

(methylmalonic aciduria (cobalamin deficiency)type B) The MMAB gene provides instructions for making an enzyme that is involved in the formation of adenosylcobalamin, a form of vitamin B-12. This nutrient (adenosylcobalamin) is necessary for the normal function of another enzyme, methylmalonyl CoA mutase (MUT). This enzyme helps break down proteins, fats, and cholesterol to produce energy in the Krebs cycle.

The MMAB enzyme is active in mitochondria and energy production. Mutations in these enzymes may lead to a nonfunctioning enzyme version and result in adenosylcobalamin not being made well. This deficiency allows toxic levels of methylmalonic acid compounds to build up in the body's organs and tissues, causing non-homeostasis of nerve function, cognitive function, motor movement, or psychiatric health.

Improper breakdown of the amino acids isoleucine, threonine, methionine, and valine results in sufferers developing a carnitine deficiency. Carnitine supplementation assists in the removal of acyl-CoA (buildup of which is common in low-protein diets) by

deficiency. Carnitine supplementation assists in the removal of acyl CoA (buildup of which is common in low protein diets) by converting it into acyl-carnitine which can be excreted in urine.

Dietary and Lifestyle

A low protein diet may be helpful for those with this variant.

Kinesiology Challenge

Malonic Acid	Acetyl Co-A	Cholesterol	Lactic Acid	Pyruvate
Methionine				

Products

Total L-Carnitine	Adenosylcobalamin	Hydroxo-B12 Lozenge	5-MTH Folate	Methyl Renew
Homocysteine Redux	B-Complex			

Nutrients

Carnitine	Adenosyl B12	Methyl Folate	Methyl B12

MTHFD — Heterozygous: 3 — Homozygous: 2

Description

(Methylenetetrahydrofolate Dehydrogenase) This gene helps convert tetrahydrofolate to methyltetrahydrofolate. MTHFD1 variants interfere with production of active folate needed for developing cells and can disrupt homeostasis at birth.

Genetic variants are associated with progression from cell-cycle aberrants to invasive free radical situations. Signs of free radical attack of the colon and rectum include colon polyps and colon wall thickening; genetic family history plays a role. The combination of MTHFD1 SNPs and a folate poor diet can cause a buildup of spots on the colon. Dysfunctional MTHFD1 is related to DNA damage in progressive non-homeostatic function of the nerves and nervous system. In addition, deficiencies in the MTHFD1 gene can result in low levels of choline which can further lead to fat build up in the liver, as choline is necessary for the function, transport and metabolism of fats. http://www.pnas.org/content/102/44/16025.short

Dietary and Lifestyle

Add folate rich foods to the diet. Green leafy vegetables, beans, lentils, spinach, asparagus, avocado, broccoli, mango, and oranges are all rich in folate. Include sources of choline in the diet such as eggs and salmon.

Kinesiology Challenge

Folic Acid

Products

Methyl B-12 Lozenges	5-MTH Folate	Hydroxo B-12 Lozenge	Methyl Renew	Homocysteine Redux
Complete Brain Charge				

Nutrients

Methyl B12	Methyl Folate	Choline

MTHFR — Heterozygous: 0 — Homozygous: 2

Description

(Methylenetetrahydrofolate) The MTHFR gene provides instructions for making an enzyme called methylenetetrahydrofolate reductase. This enzyme converts a molecule called 5,10-methylenetetrahydrofolate to a 5-methyltetrahydrofolate. This reaction is required for the conversion of homocysteine to methionine. The body uses methionine to make proteins and other important compounds.

Possibilities with this genetic variant include:

Free radical situations

DNA damage evident at birth

Weak capillaries, especially during pregnancy

Social Interaction/communication difficulty

Non-homeostatic arterial pressure during pregnancy

Low energy, fatigue

Depression

Anxiety

Colon irritability

Headache

Acetylcholine related brain health issues

Dopamine related brain health issues

Accumulation of cholesterol in the arteries

Low energy/fatigue

High histamine/allergies/discomfort

High zonulin/leaky gut

And non-homeostatic function of:

Nerve

Cognition

Undermethylation

Heart health

Arterial pressure

Dietary and Lifestyle

Add folate rich foods to the diet, such as green leafy vegetables, beans, lentils, spinach, asparagus, avocado, broccoli, mango, and oranges. Avoid added synthetic forms of folic acid in processed foods. Read those labels! Unmetabolized folic acid may convert to glutamate and affect nerve health.

Kinesiology Challenge

Folic Acid

Products

B-Complex	5-MTH Folate	Hydroxo B-12Lozenge	Methyl B-12 Lozenges	Methyl Renew
Homocysteine Redux				

Nutrients

B Vitamins	Methyl Folate	Methyl B12

MUT	Heterozygous: 0	Homozygous: 1

Description

(Methylmalonyl Coenzyme A mutase) is an enzyme that converts methylmalonyl-CoA to succinyl-CoA and is involved in the Krebs cycle. This enzyme requires adenosylcobalamin (active vitamin B-12) to function correctly. Mutations in the MUT gene can lead to methylmalonic academia (measured in the blood). If the enzyme dysfunctions due to an inherited mutation, methylmalonyl Co-A levels build up in the central nervous system (CNS). It then forms methylmalonic acid, a neurotoxic acid in the CNS, leading to nerve health imbalances.

Dietary and Lifestyle

Making sure to get high quality sources of meat in the diet is imperative for those with genetic variants in the MUT gene. Defects will greatly compromise the absorption of vitamin B-12 so it is critical to include those sources in the diet. Make sure your sources are grass fed, and hormone free.

Kinesiology Challenge

Malonic Acid	Methionine

Products

Total L-Carnitine	Adenosyl B-12 Lozenge

Nutrients

L-Carnitine	Adenosyl B12

NAT2	Heterozygous: 0	Homozygous: 2

Description

(N-Acetyl Transferase) This is one of the main enzymes involved in detoxification of chemicals and drugs. Polymorphisms in NAT2 are associated with higher incidences of free radical scenarios and drug toxicity. Variants in the NAT2 combined with smoking and alcohol are associated with non-homeostatic colon health.

A variant of NAT2 is associated with non-homeostatic metabolic function, including insulin receptor function and blood sugar, insulin and triglyceride levels.

Dietary and Lifestyle

Avoid caffeine

Avoid alcohol

Avoid cigarette smoke

Kinesiology Challenge

Coffee	Ethanol

Products

NAC Renew	#3 GB-LIV	Total Liver D-Tox	LV Renew	GB-Plus
Core Level Bile				

Nutrients

N-Acetyl Cysteine	Milk Thistle

NDUFS7	Heterozygous: 1	Homozygous: 1

Description

(NADH:ubiquinone oxidoreductase.) The NDUF protein is involved with the production of lipoic acid. Mutations in this gene are associated with non-homeostatic nerve health function, including a scenario that results in bilaterally symmetrical tissue accumulations in subcortical brain regions. It is also associated with disruption of the homeostasis in brain white matter, brain cells, heart size, muscle strength, muscle tone, liver health, eye health (hereditary), eye movement, dopamine-related scenarios, motor consistency, motor control, coordination, weakness, and swallowing.

Dietary and Lifestyle

Kinesiology Challenge

NADH	FADH	Acetyl Co-A	Lactic acid	Oxylates
Pyruvate				

Products

Co-Q-10-Plus	Total L-Carnitine	Total Alpha Lipoic Acid

Nutrients

Co Q 10	Carnitine	Alpha Lipoic Acid

NDUFS8	Heterozygous: 0	Homozygous: 1

Description

(Also known as ACP or Acyl carrier protein) Acyl carrier proteins in the mitochondria help synthesize lipoic acid. This gene encodes one of the iron-sulfur protein components of mitochondrial NADH: ubiquinone oxidoreductase.

Mutations in this gene are associated with non-homeostatic nerve health function, including a scenario that results in bilaterally symmetrical tissue accumulations in subcortical brain regions. It is also associated with disruption of the homeostasis in brain white matter, brain cells, heart size, muscle strength, muscle tone, liver health, eye health (hereditary), eye movement, dopamine related scenarios, motor consistency, motor control, coordination, weakness, and swallowing.

Dietary and Lifestyle

Kinesiology Challenge

NADH	FADH	Acetyl Co A	Lactic Acid	Oxylates
Pyruvate				

Products

Co-Q-10-Plus	Total L-Carnitine	Total Alpha Lipoic Acid

Nutrients

Co Q 10	Carnitine	Alpha Lipoic Acid

NDUFAB1	Heterozygous: 0	Homozygous: 1

Description

(NADH:ubiquinone oxidoreductase) Acyl carrier proteins in the mitochondria help synthesize lipoic acid. Mutations in this gene are associated with nerve health dysfunction, including a scenario that results in bilaterally symmetrical tissue accumulations in subcortical brain regions. It is also associated with disruption of the homeostasis in brain white matter, brain cells, heart size, muscle strength, muscle tone, liver health, eye health (hereditary), eye movement, dopamine related scenarios, motor consistency, motor control, coordination, weakness, and swallowing.

Dietary and Lifestyle

Kinesiology Challenge

NADH	FADH	Acetyl Co A	Lactic Acid	Oxylates
Pyruvate				

Products

Co-Q-10-Plus	Total L-Carnitine	Total Alpha Lipoic Acid

Nutrients

Co Q 10	Carnitine	Alpha Lipoic Acid

PEMT	Heterozygous: 0	Homozygous: 2

Description

(Phosphatidylethanolamine N-methyltransferase) converts phosphatidylethylamine into phosphatidylcholine. It is crucial for maintaining cell membrane integrity, and produces more than half of cell membrane phospholipids and cellular lipid content. When the body is short on methyl donors due to compromised methylation (e.g., low folate, low vitamin B-12, etc.), cell membranes are often sacrificed as a source of methyl groups. This compromises cell membranes, bile production, etc. PEMT controls homocysteine levels, by helping to reduce homocysteine to methionine. Genetic variants are associated with gallbladder imbalances and inability to digest fat.

Production of acetylcholine depends on proper functioning of the PEMT enzyme. Acetylcholine is the most important neurotransmitter of the musculoskeletal system. Variants are associated with muscle fatigue and exercise intolerance.

Phosphatidyl Choline and Choline have many important functions, including:

Main cell membrane component of the human body

It is an antioxidant

Helps form neurotransmitters such as acetylcholine

Helps produce bile

Methylation reactions - More than half of all methylation reactions involve phospholipids

Integrity of the intestinal mucosal barrier

Growth and development in infants and children.

Fertility

Healthy uterus lining

Transport of fat in the liver

Dietary and Lifestyle

Eggs are high in choline which can help balance out variants in this gene. Beef liver, grass fed raw dairy and cruciferous vegetables also have high levels of choline. Low levels of saturated fats can help ease the load on this enzyme.

Kinesiology Challenge

Phosphatylethanolamine

Products

Pro-Cortisol Balance	Complete Brain Charge	Complete Synapse	GH-Choline	

Nutrients

Choline	Phosphatidylcholine

PNMT	Heterozygous: 0	Homozygous: 1

Description

(phenylethanolamine N-methyltransferase) This enzyme is involved in the production of adrenal hormones (stress hormones). Specifically, it is important in the production of adrenaline. Genetic variants can lead to chronic low adrenal gland function, low energy and stamina.

Variants are also associated with loss of self-tolerance in the immune system and chronic immune attacks, anemia, malaise, weakness, and non-homeostatic function of the liver, spleen and lymph systems.

Dietary and Lifestyle

For persons with this variant it is important to reduce stress levels and support the adrenal glands as much as possible.

Kinesiology Challenge

Noradrenalin (Norepinephrine)

Products

SAMe 200	Manganese GC	BioStress-B	5-MTH Folate	Pro-Cortisol Balance
Pantothenic Acid	Core Level Adrenal	Adreno-Lyph 80	Adreno-Plus	DSF

Nutrients

SAMe	Manganese	Thiamine	Methyl folate	Pantothenic acid

SOD2	Heterozygous: 0	Homozygous: 1

Description

(Superoxide dismutase) This gene is a member of the iron/manganese superoxide dismutase family. SOD2 breaks down the superoxide free radicals. SOD binds to the superoxide byproducts of oxidative phosphorylation and converts them to hydrogen peroxide and oxygen. Superoxide is produced as a by-product of oxygen metabolism and, if not regulated, causes many types of cell damage. SOD1 is a copper-zinc containing version, whereas SOD2 is a manganese dependent enzyme. Mutations in this gene have been associated with free radical imbalances and non-homeostatic heart health, aging, and motor neuron movement.

Variants in the SOD gene are associated with non-homeostatic:

Nerve health

Cell cycle regulation

Arterial vessel function

Lung function

Prostate cell cycle function

Calcium deposits on cornea

Free radical production

Heart health

Dietary and Lifestyle

Avoid free radical damage (radiation, smoking, etc.) and consume antioxidant rich foods such as berries and organic green leafy vegetables.

Kinesiology Challenge

Super Oxide	Nitric Oxide	Peroxinitrite	Citrulline	NF-Kappa B

Products

S.O.D. Lozenge	Super-Ox	Zinc-S	NAC Renew	Manganese-GC

Nutrients

Zinc	Selenium	Manganese	Vitamin A	Vitamin C

SOD3	Heterozygous: 0	Homozygous: 1

Description

(Superoxide Dismutase) (SOD) Superoxide dismutase enzymes are antioxidant enzymes that convert superoxide radicals into hydrogen peroxide and oxygen. This enzyme helps reduce oxidative stress in the brain, lungs, and other tissues. A mutation in this gene may be associated with non-homeostatic heart health and arterial pressure function. SOD3 is associated with asbestosis, fatty deposits in the liver, and non-homeostatic nerve function and blood sugar levels.

Superoxide dismutase 3 (SOD3) has the potential to affect diet-induced weight imbalance and associated complications. Overexpression of the SOD3 gene has been known to have a favorable effect on the expression of genes that regulate a consistent, calm cellular environment in adipose tissue.

Dietary and Lifestyle

Foods high in antioxidants make sense here. A low-fat diet would also reduce the increase of lipid peroxide molecules in the body.

Kinesiology Challenge

Super Oxide	Nitric Oxide	Peroxynitrite	Citrulline	NF-Kappa B

Products

S.O.D. Lozenge	Super-Ox	Zinc-S	NAC Renew	Manganese-GC

Nutrients				
Zinc	Selenium	Manganese	Vitamin A	Vitamin C

SULT	Heterozygous: 1	Homozygous: 2

Description

(Sulfur transferase) The SULT enzymes are responsible for adding a sulfate molecule onto hormones such as estrogens, DHEA and cholesterol in the process of inactivating them. The SULT enzyme is also responsible for xenobiotic detoxification and myelin sheath health. In addition, it provides support to produce chondroitin and glucosamine sulfate which are important in cellular and connective tissue maintenance. Lack of sunshine depletes sulfate molecules in the blood stream as cholesterol sulfate is created in the process. Genetic variants in the SULT gene will cause excess sulfates to appear in the urine.

SULT1 is the best known of the sulfotransferase genes. It has been found in platelets, liver, breast, and the gastrointestinal tract, as well as the brain. The SULT1A subclass variant appears to be most associated with social interaction/communication difficulty. Decreased expression of SULT1A in both platelets and the gastrointestinal tract has also been observed in individuals with these difficulties along with increased levels of neurotransmitters and catechols, which are substrates for sulfation. Acetaminophen is also cleared by sulfation.

SULT1B conjugates thyroid hormones, SULT1C targets xenobiotics, and SULT1E targets estrogenic steroids. The SULT2 enzymes sulfonate cholesterol and the derived hydroxysteroids, such as pregnenolone, DHEA, and other neurosteroids. SULT3 catalyzes the formation of sulfamates, while SULT4 and SULT5 have not been fully studied.

Children exhibiting difficulty in social interaction and communication generally had low sulfate levels, typically about 10-15% of the control values.

SULT variants are associated with:

Social interaction/communication difficulty

Toxicity

EMF Sensitivity

Joint discomfort

Chronic cough

Estrogen dominance

Acne

Dietary and Lifestyle

Avoiding high sulfur foods and drinks can really help reduce the load on these enzymes. High sulfur foods include: garlic, onions, cruciferous vegetables, wine, beer, coconut, and eggs.

Kinesiology Challenge				
Sulfates	Sulfites	Acetaminophen		

Products				
Molybdenum Chelate and Selenium Chelate (together)	Hydroxo B-12 Lozenge	B-Complex	5-MTH Folate	Pyridoxyl-5-Phosphate
SAMe 200	Methyl Renew			

Nutrients			
Molybdenum	Selenium	B Vitamins	Methylfolate

TH	Heterozygous: 1	Homozygous: 1

Description

(Tyrosine Hydroxylase) this enzyme is involved in the conversion of tyrosine to dopamine and important in the production of adrenal gland hormones. Mutations in this gene have been associated with non-homeostatic nerve health. Tyrosine hydroxylase (TH) deficiency can affect movement, and range from mild to severe effects.

This enzyme is up regulated by vitamin D (this is the mechanism by which vitamin D increases dopamine). Melatonin may help upregulate TH enzyme and may be useful in supporting dopaminergic neurons in the brain.

Symptoms associated with genetic variants:

Low adrenal function

Non-homeostatic motor neuron movement

Low Dopamine

Depression

Dietary and Lifestyle

Avoid or reduce tyrosine containing foods and supplements. Foods high in tyrosine include: cheese, soybeans, beef, lamb, pork, fish, chicken, nuts, seeds, eggs, dairy, beans, and whole grains.

Kinesiology Challenge
Tyrosine

Products				
Complete K	Vitamin A Emulsion	Complete Hi D3	BioStress-B	Sago C
Hemolyph	Iodine	5-MTH Folate	Magnesium Chelate	

Nutrients				
Vitamin K	Vitamin A	Vitamin D	Thiamine	Vitamin C
Iron	Iodine	Methyl Folate	Magnesium	

TPH2	Heterozygous: 0	Homozygous: 3

Description

Tryptophan hydroxylase (TPH) is an enzyme involved in the synthesis of serotonin. Tyrosine hydroxylase, phenylalanine hydroxylase, and tryptophan hydroxylase are all dependent on proper methylation. In addition, they are upregulated by vitamin D.

TPH1 is expressed in the body, but not the brain. Variations in the TPH1 gene are associated with affected personality traits and influences on neural/mental health. One variation of TPH1, A218C is highly associated with a non-homeostatic personality. Iron is required as a cofactor for this enzyme to function.

TPH2 Variants lead to high levels of tryptophan. Hypertryptophanemia can cause a wide variety of effects. Musculoskeletal effects include: joint contractures of the elbows and interphalangeal joints of the fingers and thumbs (specifically the distal phalanges), pes planus (fallen arches), an ulnar drift affecting the fingers of both hands (an unusual, yet correctible feature where the fingers slant toward the ulnar side of the forearm), joint laxity, and adduction of the thumbs (where the thumb appears drawn into the palm, related to contracture of the adductor pollicis).

Variants are associated with:

Anxiety, compulsions, attention issues, personality imbalance, depression, depression, and joint laxity. Other symptoms include hypersexuality, perceptual hypersensitivity, emotional lability (mood), aggression; hypertelorism (widely-set eyes), optical strabismus (misalignment) and myopia. Tryptophan metabolites interfere with and inhibit mitochondrial and thyroid function.

Dietary and Lifestyle

Avoid foods high in tryptophan including eggs, cheese, pineapples, tofu, salmon, nuts, seeds, and turkey.

Kinesiology Challenge

Tryptophan	5HTP			

Products

BioStress-B	Pyridoxal-5-Phosphate	Hemo-lyph	Complete K	Vitamin A Emulsion
Complete Hi D3	Adenosyl B-12 Lozenge	Ferrous-Fumero Chelate	E-Tocotrienols	Sago-C-500
Niacin B-6	C.A.C. Factor-S			

Nutrients

Thiamine	Vitamin B6	Vitamin D	Vitamin K	Vitamin E
Niacin	Iron	Adenosyl B12		

UGT	Heterozygous: 0	Homozygous: 3

Description

(UDP Glucuronosyl Transferase) enzyme is involved in detoxification of chemicals and drugs in the phase II liver detox pathways. It also converts the toxic form of bilirubin (unconjugated) to its nontoxic form (conjugated bilirubin). It is one of the main enzymes responsible for the clearance of (UDP Glucuronosyl Transferase)estrogens, therefore, it is implicated in estrogen dominance imbalances.

It is also the main enzyme responsible for clearance of acetaminophen. The expression of individual UGT enzymes is subject to genetic polymorphism and these enzymes can be inhibited or induced by xenobiotics.

Variants are associated with:

Chest discomfort

Free radical attacks of the lungs

Diarrhea

Drug toxicity reactions

High bilirubin levels

Neonatal Jaundice

Neutropenia

Thrombocytopenia

And non-homeostatic functions of:

Heart health

Female genital health

Liver health

Dietary and Lifestyle

Kinesiology Challenge

Bilirubin	Acetaminophen	Estrogen		

Products

Methyl B-12 Lozenges	Hydroxo B-12 Lozenge	5-MTH Folate	Methyl Renew	B-Complex
Total Protect	DIM Renew	Phyto Renew		

Nutrients

Methylcobalamin	Methylfolate	Di-Indolemethane	Calcium d Glucarate

VDR	Heterozygous: 7	Homozygous: 1

Description

(Vitamin D Receptor) The calcitriol receptor is also known as the vitamin D receptor. Genetic variants in the VDR can interfere with the ability to absorb Vitamin D. Low vitamin D levels are implicated in many non-homeostatic scenarios. The immune system is

the ability to absorb Vitamin D. Low Vitamin D levels are implicated in many non-homeostatic scenarios. The immune system is dependent on adequate Vitamin D levels, therefore variants in the VDR genes can lead to low immune function. In addition, variants are implicated in scenarios where the immune system has lost tolerance.

Low function of the VDR can lead to low levels of dopamine, serotonin and adrenal hormones. Low levels of these hormones and neurotransmitters can lead to fatigue, non-homeostatic memory function and depression. Stress is known to decrease expression of VDR, which is expressed in most tissues of the body. It also regulates intestinal transport of calcium, iron and other minerals. Low expression of the VDR is implicated in bone density issues.

VDR variants are associated with:

Low Vitamin D Levels

Loss of self-tolerance

Bone density issues

Teeth/jaw issues

Low dopamine depression and apathy

Free radical attack

High blood calcium levels

Cravings and addictive behavior

Alopecia

Proteinuria

Esophagitis

Keloids

Distance sight

Kidney stones

Itchy skin

And non-homeostatic function of:

Blood sugar

Spine health and alignment

Joint health

Immune health

Heart health

Intervertebral discs

Arterial health

Colon health

Syringomyelia

Prostate health

Kidney health

Lung health

Bone health

Blood sugar and eye health

Blood sugar and kidney health

Endothelium immune response

Arterial pressure

Weight balance

Dietary and Lifestyle

Getting sunlight is the best way to increase VDR activity. Use Dr. J's Healthy Rays to make sure you don't block those beneficial rays but avoid burning the skin!

Kinesiology Challenge

T Cells	Vitamin D	Infections (Bacteria, virus etc.)	Insulin	L. Dopa
Lactose	Phenylalanine	Tryptophan	Tyrosine	

Products

Complete K	Vitamin A Emulsion	Vitamin D-400	Complete Hi D3	Complete Immuno D3
Core Level Bone Matrix	Trace Min Plus	Magnesium Chelate	Total Boron	Total Calcium
Cal/Mag 1:1	Manganese-GC	Complete Omega-3 Essentials 2:1	Super E-P-A	

Nutrients

Vitamin K2	Vitamin A	Vitamin D	Magnesium	Boron
Calcium	Manganese			