

 **ABOUT US**



**Julie Sands-Donaldson, CMTA, LMT**  
Head Metabolic Healing Consultant



**Michael McEvoy, FDN, CNC, CMTA**  
Founder & CEO Metabolic Healing, Inc



**Adon Newman, CTO**  
Technical & Marketing Director



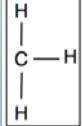
 **What Is  
Methylation?**

 **What Is Methylation?**

- A biochemical process taking place in every cell of the body, continuously
- The addition of a methyl group (CH<sub>3</sub>) to a substrate

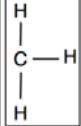
**Methylation is Essential For**

- Genetic expression
- DNA & RNA synthesis and repair
- Biosynthesis of active form of B-12 (methylcobalamin)
- Biosynthesis of active form of Folate (5-methyltetrahydrofolate)
- Neurotransmitter synthesis
- Detoxification/biotransformation: Glutathione synthesis, SOD synthesis, processing of heavy metal & chemical toxins, estrogen methylation
- Myelination of nerves, lipid methylation
- Cardiovascular & endothelial health: synthesis & removal of homocysteine, nitric oxide synthesis/urea cycle function
- Immune cell synthesis: NK cells, T cells
- Blood clotting
- Healthy pregnancy



 **Common Issues Which May Involve  
Methylation**

- Birth defects
- Estrogen dominance
- Autoimmune conditions and immune disorders
- Heart disease or genetic heart disease history
- Anxiety, autism, depression, bipolar, schizophrenia, OCD, ADD/ADHD, etc
- Environmental chemical toxicity and/or intolerance
- History of toxic metal poisoning
- Cancer
- Viral infections
- Diabetes
- Neurological inflammatory conditions: lyme, MS, ALS, Parkinson's, Alzheimer's, Huntington's, Wilson's





**Metabolic Healing  
Nutrigenomics Report**

Evaluation of genes and genetic SNPs

## Methylation Genetics: Assessing The Genes That Regulate Genes

**Methylation — MTHFR, MTR & MTRR**

Gene	SNP	Allele	Call	Risk	Gene	SNP	Allele	Call	Risk	Gene	SNP	Allele	Call	Risk										
MTHFR	r16101131	TT	G	WT	MTHFR	r1286C	TT	G	WT	MTR	r171937	TT	G	WT	MTRR	r1726G	TT	G	WT					
MTHFR	r16101133	GG	G	WT	MTHFR	r1726C	TT	G	WT	MTR	r171937	GG	G	WT	MTRR	r1726G	GG	G	WT					
MTHFR	r17397504	AA	A	WT	MTHFR	r1512G	GG	A	WT	MTR	r171937	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r20596915	GG	A	WT	MTHFR	r171937	GG	A	WT	MTR	r171937	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r20596919	GG	A	WT	MTHFR	r171937	GG	A	WT	MTR	r171937	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r16100507	AG	G	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r16100509	AG	G	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r16102030	AA	A	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r16102031	AA	A	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r16102039	GG	G	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r16102040	GG	G	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r3776447	AA	G	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
MTHFR	r9332	GG	G	WT	MTR	r171936	GG	A	WT	MTR	r171936	GG	A	WT	MTRR	r1726G	GG	A	WT					
<b>MTR</b>				<b>Gene</b>		<b>SNP</b>		<b>Allele</b>		<b>Call</b>		<b>Risk</b>		<b>Gene</b>		<b>SNP</b>		<b>Allele</b>		<b>Call</b>		<b>Risk</b>		
MTR	r6599	AA	G	WT	MTR	r6599	AA	G	WT	MTR	r6599	AA	G	WT	MTR	r6599	AA	G	WT	MTR	r6599	AA	G	WT
MTR	r6769224	GA	G	WT	MTR	r6769224	GA	G	WT	MTR	r6769224	GA	G	WT	MTR	r6769224	GA	G	WT	MTR	r6769224	GA	G	WT
MTR	r64932	TT	T	WT	MTR	r64932	TT	T	WT	MTR	r64932	TT	T	WT	MTR	r64932	TT	T	WT	MTR	r64932	TT	T	WT
MTR	r64960	AA	A	WT	MTR	r64960	AA	A	WT	MTR	r64960	AA	A	WT	MTR	r64960	AA	A	WT	MTR	r64960	AA	A	WT
<b>MTRR</b>				<b>Gene</b>		<b>SNP</b>		<b>Allele</b>		<b>Call</b>		<b>Risk</b>		<b>Gene</b>		<b>SNP</b>		<b>Allele</b>		<b>Call</b>		<b>Risk</b>		
MTRR	r20718119	CT	C	WT	MTRR	r20718119	CT	C	WT	MTRR	r20718119	CT	C	WT	MTRR	r20718119	CT	C	WT	MTRR	r20718119	CT	C	WT
MTRR	r16101933	GG	G	WT	MTRR	r16101933	GG	G	WT	MTRR	r16101933	GG	G	WT	MTRR	r16101933	GG	G	WT	MTRR	r16101933	GG	G	WT
MTRR	r7925545	AA	G	WT	MTRR	r7925545	AA	G	WT	MTRR	r7925545	AA	G	WT	MTRR	r7925545	AA	G	WT	MTRR	r7925545	AA	G	WT
MTRR	r16101940	AG	G	WT	MTRR	r16101940	AG	G	WT	MTRR	r16101940	AG	G	WT	MTRR	r16101940	AG	G	WT	MTRR	r16101940	AG	G	WT
MTRR	r1078991	CT	C	WT	MTRR	r1078991	CT	C	WT	MTRR	r1078991	CT	C	WT	MTRR	r1078991	CT	C	WT	MTRR	r1078991	CT	C	WT
MTRR	r2226025	AG	A	WT	MTRR	r2226025	AG	A	WT	MTRR	r2226025	AG	A	WT	MTRR	r2226025	AG	A	WT	MTRR	r2226025	AG	A	WT
MTRR	r1734971	CT	C	WT	MTRR	r1734971	CT	C	WT	MTRR	r1734971	CT	C	WT	MTRR	r1734971	CT	C	WT	MTRR	r1734971	CT	C	WT
MTRR	r6922986	GG	G	WT	MTRR	r6922986	GG	G	WT	MTRR	r6922986	GG	G	WT	MTRR	r6922986	GG	G	WT	MTRR	r6922986	GG	G	WT
MTRR	r803429	GG	G	WT	MTRR	r803429	GG	G	WT	MTRR	r803429	GG	G	WT	MTRR	r803429	GG	G	WT	MTRR	r803429	GG	G	WT

**MTHFR**

**Methylene Tetra Hydro Folate Reductase (MTHFR)**

- Gene/enzyme central to methylation
- Necessary to make the active form of folate (5-methylfolate)
- More than 5,000 published studies on MTHFR gene
- Associated with a number of health risks (cardiovascular disease, cancer, birth defects, stroke)
- 10% of US population is +/- for MTHFR C677T

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## What Else Requires Methylation? Estrogen

**Estrogen Methylation**

- Necessary to detoxify/biotransform hydroxy estrogens
- Inactivates potentially harmful estrogens such as 4OHE1 and 4OHE2
- Methoxy estrogens are anti-cell proliferative & possibly therapeutic

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graph TD
    E1OrE2[E1 or E2] --> OHEs[OHE's]
    OHEs --> COMT[COMT Methylation]
    COMT --> MethylatedEstrogen[Methoxy E-]
    BAMG[BAMG] --> OHEs
    SAMe[SAMe] --> COMT
    
```

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## Testing Methylation Activity

- Vitamin Diagnostics methylation blood test
- Doctor's Data methylation blood test
- Whole blood histamine
- Assessment of promoters & cofactors: OAT testing, amino acid testing

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## The Problem with "Treating" Methylation & Genetics

- Take this supplement for this gene (doesn't work in practice)
- Inherited genes don't change, but expression can
- Must treat the whole person, not just the individual parts
- There is a time to promote methylation, and certain instances when you don't want to

**SOLUTION:**

- A comprehensive, individualized & holistic approach

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## The MTHFR, Methylation & Biochemistry Master Course

- Simplification of complex concepts
- Lab Test interpretation
- Understanding methylation & genetics from a clinical perspective
- 3 modules, 16 hours of in-depth content
- Additional bonuses: talk to us at the table outside

