Genetic Interpretation Cassie Roqica

Overview

I have processed your 23andMe results with a piece of custom software which extracts SNPs (Single Nucleotide Polymorphisms) related to Methylation (more detail on this later), Detoxification, Immune system response, and some other potentially interesting SNPs.

It should be understood that the presence of a certain genetic “defect” or variant doesn't necessarily lead to an actual functional defect. One reason for this is that the body may be able to compensate without harm through different mechanisms, some of which may not yet be known by science.

This said, it is quite common that potential genetic bottle necks identified through genetic testing are relevant to a person’s health and what he or she needs to do to get healthy and to stay healthy. Personally, I think that the more we are exposed to environmental stressors such as from bad diets or toxic exposures, the more our genetic weaknesses may become problematic for us.

When you read through this review, note that, generally speaking, having a single copy (yellow) of a mutation should theoretically make the mutation 50% less active than if one has two copies (red), but in reality this doesn’t always play out. It is possible to be “yellow”, but function as a “red” (or vice versa) due to strengths and weaknesses elsewhere in the body (or due to the absence or presence of stressors such as toxicity or poor gut health). One may also be free of issues even if one tests red for a mutation, or suffer from issues even if one is green. Genetics is not destiny!

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Legend for looking at your appendix	
-/-	Neither chromosome carries a genetic variation
+/-	Heterozygous. (A chromosome from one parent, carries a variation)
+/+	Homozygous (A chromosome from each parent carries a variation.)
NC or --	No Call. Data for this SNP could not be processed.

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Summary

Main points for consideration. (The genes involved in each section are in brackets and can be found in your appendix)

Diet:

- A mixed macronutrient (Protein, fat and Carbohydrate) but slightly lower fat diet (ACAT gene) should suit you best. I would not think it is necessary to use any extreme diets (Ketogenic, Low Carb, Vegan etc). When constructing your diet, it should include: High sucrose carbohydrates (fruit, juice, honey, maple syrup and a little raw sugar), all vegetables (including potato and other starchy vegetables), a little rice and quinoa, all unprocessed meats, seafood, eggs, bone broth, gelatin, whey protein, organic dairy products (like cheese and butter), quality saturated and monounsaturated oils (coconut oil, coconut milk, butter, cold pressed olive oil, ghee), salt and a few nuts and seeds.
- You will also require a good amount of salt to keep your blood pressure stable and your adrenal glands functioning optimally.
- Gluten free is preferred (HLA, CTLA4 and STAT4 Genes). Choose organic, pasture fed where possible.
- You are a fast metaboliser of caffeine (CYP1A2 gene) so it should be beneficial for you if consumed in moderate amounts.
- Low Vitamin D may also be an issue (VDR and CYP24A1 genes) so getting sun exposure where possible is very important for you. You need as much time as possible between 6 and 10am with no glasses, shoes and as fewer clothes as possible.

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You can also download the D minder app on your phone to let you know when the best time is to be outside to get the most vitamin D.

- High lectin foods should also be considered and limited if deemed to be an issue (CNR1 gene). Lectins are implicated in many conditions including autoimmune diseases, skin conditions and pain causing ailments such as arthritis. They include: most grains (especially wheat), beans and legumes, cashews, peanuts, A1 Dairy and nightshade vegetables.
- You may be lower in Vitamin B6 (NBPF3 gene) so supplementing with and adding foods high in B6 should be beneficial for you. They include: Sunflower seeds, fish, chicken, pork, bananas, prunes, avocados, lean beef, cauliflower, garlic and cooked spinach.

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Methylation:

- The methylation process is an important one in the body. Methylation turns genes on and off and regulates just about every body function including the rebuilding and repairing of the body. Therefor it is crucial that you methylate properly. To methylate properly, we need SAMe. The body has a complex mechanism to make it. When SAMe performs its appropriate task, it turns into Homocysteine, a substance that needs to be recycled back into SAMe and turned into the master antioxidant, Glutathione. This can also cause an increase in histamine (and allergies) as methyl groups are required to break down histamine.
- You have many gene variants that predispose you to having problems in the methylation cycle and a subsequent decrease in SAMe, an elevation in Homocysteine and lowered glutathione levels. (MTHFD1L, MTHFD1, DAO, CBS, BHMT, DHFR, MTRR, CTH, PEMT). Monitoring Blood Homocysteine levels periodically will be important for you.
- Probably the most important and well researched gene in relation to methylation is the MTHFR gene. There are 2 variants that seem to have the most impact. The C677T variant and the A1298C. You don't carry either copy which means that the MTHFR enzyme that it encodes for should work at approximately 100% efficiency, assuming the cofactors are available (B2 and B3) and that there are no heavy metals interfering with the conversion.
- Here are a few simple You Tube clips on Methylation that might help you understand the process better

https://www.youtube.com/watch?v=o4uqEDK6BvM https://www.youtube.com/watch?v=kZXKNYSXBCs

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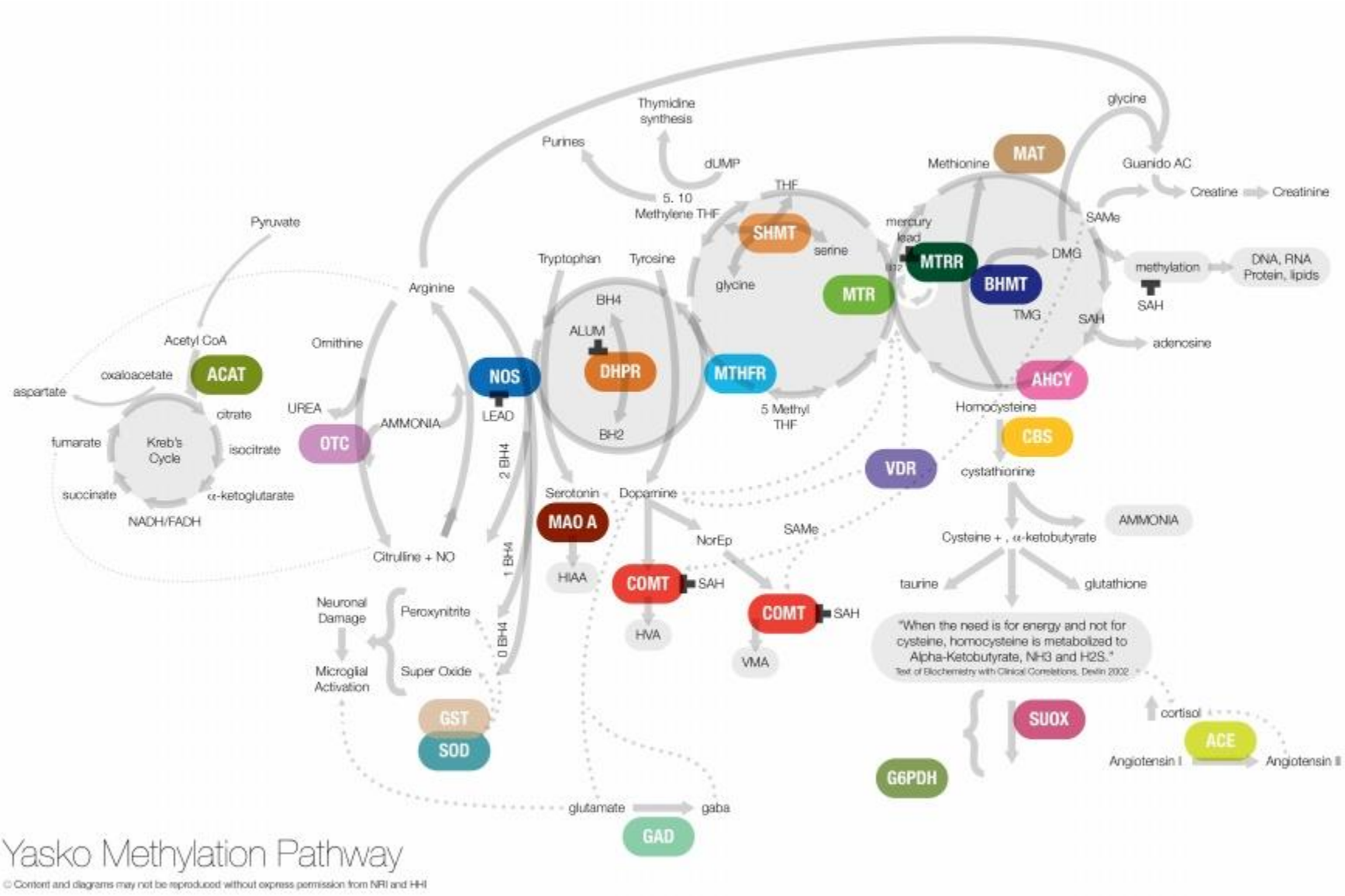
This is the methylation cycle:



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Detoxification

- Your genetics show a decreased ability detoxify pesticide's, xenobiotics, heavy metals and some pharmaceutical drugs (CYP2D6, CYP2C9, MTRR, HFE, PON1, NAT2, CBS, GSTP1, GPX3, CTH, GSS and SULTA2 genes). Limiting your exposure to these compounds as well as well as supporting the liver with nutrients such as B12, folate, zinc, choline, copper, NAC etc. will be important.

Neurotransmitters

- The main genes responsible for the breaking down Dopamine and Adrenaline (catecholamine's) are the COMT and MAOB gene. You have variations of the COMT and MAOB genes that is works faster than other variants. This means that you may have trouble keeping catecholamine's (Dopamine and Adrenaline) in the synapse (in the brain) and may need to support the process with substances that increase their production, including tyrosine and plenty of methyl donors (as catecholamine's need methyl donors for production and breakdown). Examples of methyl donors are: Methyl folate, Methyl B12, TMG, DMG, DMAE, SAM-e and Tumeric.
- Your ability to make Gaba (a calming Neurotransmitter) may be limited with the many polymorphisms in the GAD gene.

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- Lowered Neurotransmitter production can lead to anxiety, depression, OCD, fears, insomnia and paranoia.
- Your genetic predisposition is to deplete serotonin slowly (MAOA gene). Elevated levels of serotonin can imbalance dopamine even further. 5-HTP, tryptophan and other serotonin precursors or MAO inhibitors (eg anti-depressants) should only be considered after functional testing has been used to establish low levels of serotonin.
- Estrogen requires methylation to be metabolised so keeping methylation optimal is important.

Blood Sugar Balance

- Finding a diet that is conducive to maintaining blood sugar balance and optimizing insulin sensitivity will be important as you genetically may have more difficulty keeping blood sugar stable (VDRFOK, ADIPOQ, ADRB2, FTO, FADP2, GCKR and TAS2R38 genes). This means increasing insulin sensitivity through proper food and exercises selection, reducing stress and avoiding blood sugar swings associated with over and under eating.
- Eating seasonally and with the light cycles (so food when the sun is out and stopping early in the evening) will assist in managing blood sugar balance and energy levels.

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Gut Function

- Recent research has identified a key gene that influences gut bacteria in a major way. This gene is known as FUT2. Genetic mutations in FUT2 (of which you have 1 Copy) has shown to be a linked with decreases in Bifidobacterium, a key beneficial microbial colony that lines the gut. Additionally, research shows that FUT2 mutations are strongly associated with Crohn's Disease and Ulcerative Colitis, which are inflammatory and autoimmune bowel conditions, as well as low levels of functional vitamin B12 in the body (blood tests will usually show normal/high plasma levels).
- This is compounded for you with polymorphisms in the MTHFS, BHMT and GAD genes.