

Genetic Testing Options

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Popular genetic testing services (~\$99) include www.ancestry.com/dna/ (preferred for coverage of some critical genes), or www.23andMe.com. (Their standard services are adequate for health management needs; extra options, like family traits, disease probabilities, or family-tree tracing are available.) After registering online and paying the fee, you download the test-requisition form, and a saliva collection kit is sent to you, to return with saliva & requisition back to the lab (~6-8 week turnaround for results). It produces a unique genetic database computer ZIP file for you, to download to your computer for safe-keeping after notification that your file is ready.

NOTE: These tests miss some important genes and only look for a selection of some common published SNPs (genetic variations), rather than the entire genome which would be much more expensive and of little additional benefit. Your genetic data file will then need to be uploaded to another website for health-related genetic interpretation. There are several website choices with different features, which I can guide you on; you will probably need only one of these:

GeneticGenie.org is the simplest option. It will provide a Methylation and/or a Detoxification genetic profile (do both of these) that you can download, after you upload your Ancestry.com or 23andMe data file there. This provides your status of most of the important genes for these 2 areas, but no information about what to do about them, so bring the reports to me for discussion. They request a small charitable donation to pay for their costs.

KnowYourGenetics.com (Dr Amy Yasko's website) has free registration, where you can upload your Ancestry.com or 23andMe data file to obtain a free **Methylation Pathway Analysis (MPA)** report to download. This explains the critical importance of methylation for repairing biological damage from toxic burden, chronic diseases, cancer, and aging, with explanation of the affected genes, and discussion of compensating nutritional supplements (a very large list of Dr Yasko's brand-name supplements are suggested). These are very complex, so bring this report to me (as a printed PDF file) for medical guidance on supplement suggestions. (Note: She also offers a specialized genetic Methylation Analysis done by the Doctor's Data Lab for \$495, which is more complete but would duplicate much of the Ancestry.com or 23andMe data.)

StrateGene DNA Kit (\$236 at <https://us.fullscript.com/login/drbradford/> & look for "StrateGene", or \$295 from <https://strategene.me/>) was customized by Dr Ben Lynch as a more-comprehensive analysis (instead of the popular but incomplete Ancestry.com or 23andMe data). StrateGene presents your genetic findings in visual pathways to show how your genes work together as a team. It features 75 Genes and their most important 147 SNPs on pathways for Methylation (Folate & Methionine), Neurotransmitters (Serotonin, Melatonin, Dopamine, Norepinephrine, Epinephrine), Biotin, and Histamine. It shows the nutrients associated with each gene, and what is speeding them up or slowing them down. His book, "Dirty Genes" (available from Amazon), discusses changing lifestyle factors to "clean up" the functioning of your genes.

SNPedia.com/ is a "wiki" for investigating human genetics. It is complex to use but you can upload your Ancestry.com or 23andMe data file there to look up information on ~110,000 SNPs from peer-reviewed scientific publications. Their Promethease link can be used to generate a personal genetic report, and a FAQ link has answers to common questions.

ApoE variants:

The **ApoE** (apolipoprotein E) gene (a potential risk factor for **coronary disease & Alzheimer's**) makes a protein which combines with fat in the blood to make a lipoprotein, for transporting fat molecules in the bloodstream. This ApoE lipoprotein is a "very low-density lipoprotein" (VLDL). Genetic variations in ApoE affect cholesterol metabolism in the liver & brain and the odds of developing Alzheimer's and other diseases (as implemented by lifestyle choices).

There are three relatively common allelic variants of ApoE, known as ApoE- ϵ 2, ApoE- ϵ 3, and ApoE- ϵ 4. The kinds of proteins produced by these genes are called ApoE2, ApoE3, and ApoE4. One copy of the gene comes from each parent, so each person's combination can be written as "ApoE3/E4", etc. The most common variant is ApoE- ϵ 3, and the highest risk variant for Alzheimer's is Apo- ϵ 4. (Each of these types can have additional subtypes too.) The "rs" numbers (RSID#'s) are used to uniquely specify the 2 relevant positions on this gene (rs429358 & rs7412), for searching your genetic database. The **combination of these 2 positions** on the gene **de-termines which variant** of the gene you have (1 gene from each of your parents):

Name	rs429358	rs7412
ϵ1	C	T
ϵ2	T	T
ϵ3	T	C
ϵ4	C	C