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Gen_e-ious food

***The 7 best food to boost
your good genes***

Includes a delicious recipe

What is epigenetics?

The human body is constituted of cells, several trillions of cells. Each cell has the same DNA copies in their nucleus, but cells are specialized, they produce different proteins and enzymes, they have different functions, this differentiation is possible thanks to epigenetics, the end result will be different with the same genes / DNA.

Epigenetics is the study of how environmental factors and behavior can influence which of our genes are ON or OFF. In other terms, epigenetics changes can activate or deactivate genes without any changes in the DNA code itself.

This activation/deactivation is influenced by the internal cell environment but also by what we eat, drink, breathe in, our stress level, how we move, our physical or emotional traumatic experiences, quality of our sleep, our mood and mindset, connection we have with nature and with the others. All of that can turn on genes that create health or diseases...

A nutrient-rich, anti-inflammatory diet (such as the Autoimmune Protocol or AIP, for example) makes so much sense to me in view of the epigenetics to allow expression of your good genes, in other words, use epigenetics in your favor.

The goals are to flood your genes and biochemical reactions with **nutrient-dense food**, to **reduce external factors linked to inflammation**, **learn to tune in with your body** and **understand its needs**.

Those principles will have a direct positive impact on your gene expression towards achieving the most optimal health given the genes that you are born with, by making your internal environment as favorable as possible.

Your genes are not your destiny!! With optimal lifestyle choices, you can keep the most harmful genes in silent mode (turned off) and the most health-promoting genes turned ON.

You may have a predisposition to develop some diseases due to some SNPs (*Single Nucleotide Polymorphism or gene variation or kind of typing error in some genes*) but if your body is fully nourished (mind, body and soul) and not exposed to excessive toxins, you are less likely to develop them.

Genomic testing results are a useful tool to further fine-tune your healing protocol by providing recommendations on which nutrients to increase or lifestyle changes to implement according to your SNPs. It can also provide a good indication of which specific nutrient-rich food would be good to introduce in your diet or to supplement (if you cannot tolerate it or cannot get enough from your food) – *Please always discuss supplementation with your practitioner.*



How food affects genes expression?

Food is one of the components affecting gene expression. It is a very important one, because food is bringing the building blocks our human body needs to function optimally, proteins, carbs, fats, yes, but more importantly micronutrients like vitamins A, Bs, C, D, E, K..., minerals like Potassium, Selenium, Zinc, Calcium, Iron, bioactives like Quercetin, Resveratrol, terpenes, CoQ10 - acting as cell signaling agents, and phytonutrients, those nutrients are essential to allow the internal biochemical reactions (called also pathways) to occur. These reactions are responsible to create energy, repair DNA, detoxify our cells, transform food elements into active forms, use oxygen, fighting infections and parasites, and more. All those reactions are critical to our survival and to thrive. With those nutrients, we are helping our body to express the good genes as we are flooding the biochemical reactions with all the elements they need to be complete.

Realize that when you eat a food, you are triggering a ripple effect that penetrates all the way to your genetic code. Your silverware can quite literally be a gene-editing tool, for better or worse.

What are the best foods to promote expression of good genes and boost your immune system?

The best food to boost our immunity and our biochemical functions are food consistent with our human being species, meaning real whole food rich in nutrients, bioactives and phytochemicals, such as:

- Vegetables
- Cruciferous
- Fruits
- Organ meats
- Seafood (wild fish, shellfish, sea vegetables)
- Mushrooms
- High-quality meats (grass-fed / organic)
- Herbs and spices
- Eggs
- Nuts & seeds
- Grass-fed dairy



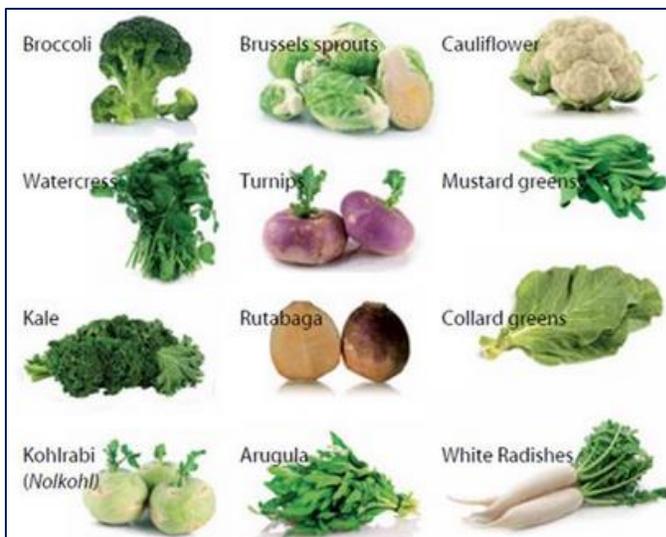
1. Vegetables and fruits from all colors

Vegetables tend to be rich in very important vitamins and minerals, including the most absorbable form of calcium (i.e., bok choy, collard greens, spinach, kale, figs). They contain plenty of fiber to support a healthy diversity of gut microorganisms (i.e., raspberries, green peas, pear, broccoli, turnip greens, Apple). Vegetables are rich in thousands of different beneficial plant phytochemicals. Diversity is so important, eat the rainbow as we said! Each of the color will bring different phytochemicals and active substances. Recall that phytochemicals abound in antioxidant, anti-inflammatory, and other health-promoting properties. All of these components add up to serious benefits for people who include abundant vegetables in their diets (5-8 servings per day).



**A lot of Minerals,
Vitamins, fibers,
Phytochemicals and
Bioactives**

2. Cruciferous... among the vegetables the cruciferous have wonderful anti-oxidant properties, they are rich in sulforaphane that are essential in the upregulation of the anti-inflammatory pathway (referred as Nrf2). Broccoli, Brussels sprouts, cauliflower are part of the large cruciferous family but also arugula, watercress, turnip, rutabaga, mustard greens... try them all and have fun mix match them in your meals every day.



**Sulforaphane
Vitamin K
Phytochemicals
Quercetin**

3. Organ meats (offal's) – from pastured-raised animals is best, as liver, kidney, heart... are the most nutritional food ever. They contain a lot of essential vitamins and minerals in a high quantity, like Vitamins A, B12, B9, B6, K, E, Iron, Copper, Selenium, Zinc, omega 3, CoQ10, Methionine, creatinine. Everything you need to support your methylation pathway, among many others!



I usually get a face when I say to eat organ meats here in the US. When I was a kid in Belgium, we were eating regularly liver, kidney, tongue and even brain. Sweetbreads are even a delicacy. They are part of our gastronomy; you can find them on the menu of most of the good restaurants...

Therefore, if you didn't yet, I really urge you to give them a try and incorporate them in your diet every week. Look at the awesome recipes from several AIP community bloggers for inspiration!

Some anti-inflammatory diet compliant offal Recipe Round-Ups:

- <https://www.joannafrankham.com/aip-friendly-liver-recipe-round-up/>
- <https://asquirelinthekitchen.com/aip-paleo-organ-meats-and-offal-recipe-round-up-liver-pates-meatballs-burgers-and-more/>
- <http://mybigfatgrainfreelife.com/2016/10/34-aip-offal-recipes-aka-organ-meat.html>



4. Seafoods is the best food source of essential omega 3 fatty acids acting as an antioxidant that reduce free radicals from internal reactions and external toxins. The active forms of Omega 3 (EPA and DHA) directly available in seafoods down-regulate the pro-inflammatory pathway responsible for the accumulation of oxidative stress in the cells (referred as NfkappaB).



**EPA & DHA
= active forms of
Omega 3 Fatty Acids**

5. Mushrooms and also **Seafoods** are rich in Vitamin D. Vitamin D is essential for several reasons, including maintaining healthy bones and teeth. It may also protect against a range of diseases and conditions, by supporting immune, brain, lung, cardiovascular and nervous system health. That vitamin is not abundantly found in food, then go for those ones... while walking in nature taking some sunlight...



Mushrooms



Sunlight

Vitamin D

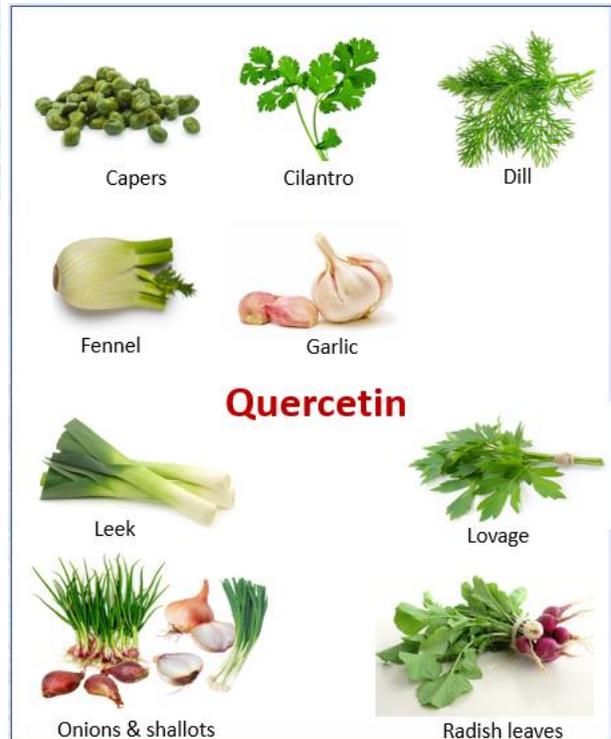
Seafoods



6. The herbs and spices contain essential Bioactives that all can down-regulate the pro-inflammatory NfkappaB pathway and upregulate NrF2, like **Terpenoids** (in sage, rosemary, thyme, mint, citrus), **Quercetin** (in capers, cilantro, dill, fennel, garlic, leeks, lovage, onions, shallots, radish leaves and apples), and **Phenols/polyphenols** (what gives the color of the plants). Knowing this, I no longer throw away my radish leaves anymore but add these in salads, or sprinkle them on meals to add more quercetin to my diet. All of those add a lot of taste and fun in your meals. Enjoy them!



+ Phenols/Polyphenols



7. **Other essentials** to upregulate Nrf2 (anti-inflammatory properties) are **Curcumin** (in the Turmeric), **Lycopene** (in pink grapefruit, watermelon and other red food), the **allium** family (onion, leek, garlic) and **Ginger**.

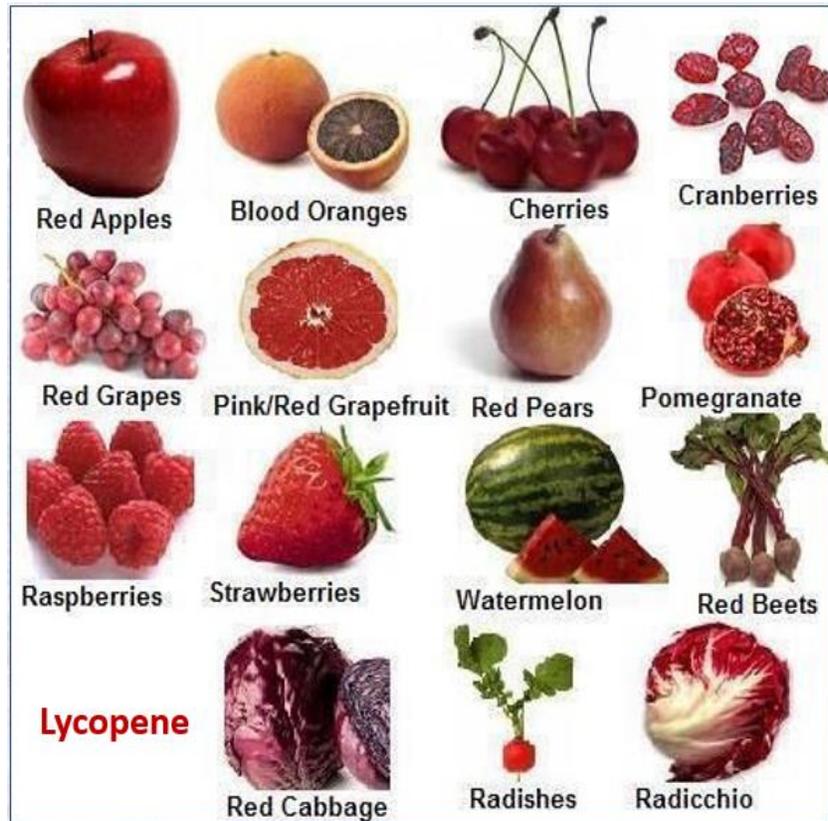
Curcumin (Turmeric)



Alliums



Ginger



As a bonus, I included a special recipe bundling most of the best food for your genes described above!!!



Salmon cakes with broccoli/zucchini sauce (AIP, Paleo, Whole30)

Serving 4 people

Preparation time: 40 min

For the salmon cakes:

2 medium sweet potatoes

$\frac{1}{2}$ cup of water

1 scallion (optional)

1lb wild caught sockeye salmon (fresh, frozen or 3 cans)

1 Tbsp arrowroot flour (or cassava or tapioca flour)

1 Tbsp coconut aminos

1 tsp fish sauce

Ginger powder, Garlic powder, Chives, Fresh parsley, Salt

Coconut or avocado oil to grease the oven sheet

For the sauce:

1 broccoli

1 zucchini (or 2 small)

1 small piece of fresh ginger

1 Tbsp of fish broth (or water)

$\frac{1}{4}$ cup coconut milk

Salt, horseradish powder, fresh parsley, dill, curcumin powder

1. Peel the sweet potatoes and cut them in cubes. Put the cubes in a large pan with the water and the scallion. Cook at medium-high heat for 15-20 min till the sweet potatoes are smooth. Stir regularly. Add some water if it sticks on the bottom of the pan.

2. In the meantime, cut the broccoli and the zucchini and put them in another pan to prepare the sauce. Add the fresh ginger cut in very small pieces and the fish broth to the broccoli/zucchini. Cook on medium heat for 10 min till tender. Add the coconut milk. Add $\frac{1}{2}$ tsp of salt, horseradish powder and fresh parsley to start. Adjust to your taste. Transfer into a high speed blender or use a stick hand-blender. Reserve.

3. When the sweet potatoes are smooth, mash them. Add the salmon (without the skin). Continue to mash with the potatoes. Add the arrowroot flour, coconut aminos, fish sauce, $\frac{1}{2}$ tsp ginger powder, garlic powder, curcumin powder and salt, 1 Tbsp fresh parsley, dill and chives. Mix well together.

4. Pre-heat the oven on broil at 420 F. Cover an oven sheet with paper film. Oil the film with coconut oil. With 2 spoons, form cakes with the salmon mixture and place them on the oven sheet. They cannot touch each other. Broil till browned then flip to the other side and leave them for 5 more minutes.

Enjoy the salmon cakes on fresh greens with the broccoli/zucchini sauce and some mushrooms.

The cakes freeze very well, can be eaten cold or warm, and are great in the lunchbox.



Conclusion

Most people tend to attribute far too much power to their genes, but it's actually your lifestyle impacting your genes that maps your health outcomes. Look at it this way: genetics loads the gun, but environment pulls the trigger.

Your genes are not your destiny, this is what is very exciting. Because whatever your genes, you can have a huge level of control in the expression of those genes and you can turn on / activate those that can heal your body and make it thrive. Knowing your genes allows you to personalize the food and lifestyle interventions to ensure your good genes are activated to stay healthy or reverse predispositions to diseases. Genetics can seem like an overwhelming topic, but it's actually empowering. We have control and we can change our health, from the very deepest part, inside out.

Eat nutritious food for your genes, to respect your biological needs as a human being!!

My related preferred resources – check them out!

-The Autoimmune Protocol Diet Modifies Intestinal RNA Expression in Inflammatory Bowel Disease. Anita Chandrasekaran *et al*, *Crohn's & Colitis* 360, Volume 1, Issue 3, October 2019, otz016, <https://academic.oup.com/crohnscolitis360/article/1/3/otz016/5531501>

-8 Potential Anti-COVID Compounds Revealed by Molecular Docking Studies. <https://www.drkarafitzgerald.com/2020/04/17/8-potential-natural-anti-avoid-compounds>

-Dr. Sarah Ballantyne – <https://www.thepaleomom.com/>

-Dr. Ben Lynch - <https://www.drbenlynch.com/>

-Dr. Terry Wahls - <https://terrywahls.com/>

-Dr. Kara Fitzgerald - <https://www.drkarafitzgerald.com/>

-Dr. Izabella Wentz - <https://thyroidpharmacist.com/>

-Chris Kresser - <https://chriskresser.com/>

-Dr. Mark Hyman - <https://drhyman.com/>

-Autoimmune Wellness - <https://autoimmunewellness.com/>

-Chronic Wellness Collective - <https://www.chronicwellnesscollective.org>

-Genomics Medicine Works - <https://genomicmedicineworks.com/>



AIP coaching packages

Nutrigenomics packages

Group sessions

Cooking classes

Educational talks

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