SUL002 SUL002 (SUL002)
Sample ID: CF10190A
Initial Sample
Report Date: 08/15/2023

Epigenetic Clock Biological Age Report

CLOCK FOUNDATION

Dear SUL002,

Congratulations on taking your GrimAge epigenetic clock test with the Clock Foundation! You've taken an incredible step towards understanding your aging and wellness in a new and empowering way.

Below is your complete biological age report including a few specific epigenetic risk factors we've uncovered and one or two initial personal recommendations.

We've also included some background about how we test your epigenetic clock and some potentially useful information about biological aging and approaches towards improving your longevity.

Thank you so much for taking our test and joining us in the on-going pursuit of longer, healthier lives for everyone.

Sincerely,

Robert "Bobby" Brooke
Executive Director

Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

How do we measure aging?

GrimAge: Biological Aging Test

GrimAge is an epigenetic biological age test. Our test measures where your DNA has been modified by specific methyl groups and then looks at correlation patterns in over 1,000 of these epigenetic markers to estimate your actual biological age.

How your DNA ages can affect gene expression levels over time leading up to increased aging and functional changes. Developed by Dr Steve Horvath and other researchers, DNA Methylation patterns and Epigenetic Clocks (like GrimAge) use statistical analysis across different types of tissues and organs and have been shown to predict morbidity, mortality risk, aging and other diseases.

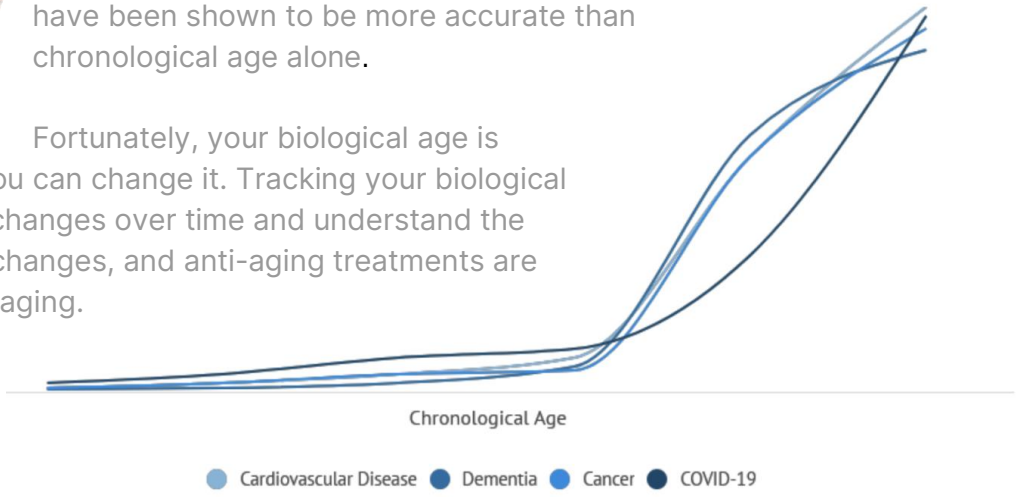
The GrimAge measure of biological age has now been shown to strongly predict future healthspan and lifespan (Lu Horvath 2018). A 7.5 year acceleration of GrimAge relative to your chronological age equates to a doubling of mortality risk. Conversely, a 7.5 year reduction equates to approximately a 50% reduction in mortality risk.

Biological Age is a Modifiable Risk Factor

Age is the strongest risk factor for mortality and disease, including heart disease, dementia, and also COVID-19.

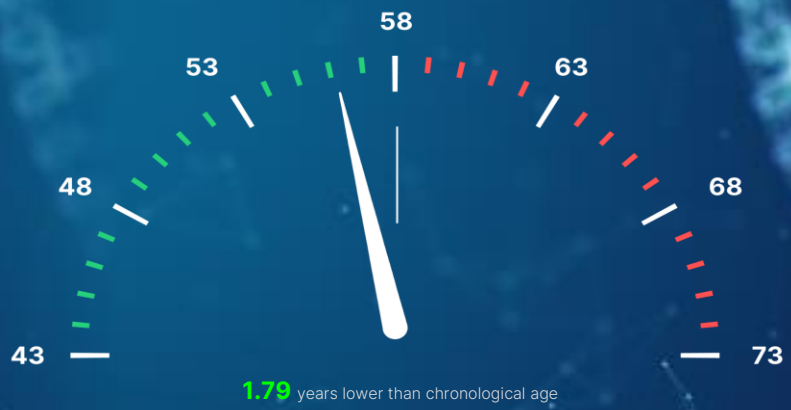
Biological age measurements (like GrimAge) are built to represent your actual age risk and have been shown to be more accurate than chronological age alone.

Fortunately, your biological age is modifiable, meaning you can change it. Tracking your biological age can help you see changes over time and understand the impact diet, lifestyles changes, and anti-aging treatments are having on your rate of aging.



Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

Your GrimAge: 56.4



1.79 years lower than chronological age

Your Percentile Rank: **84.0%**

SUL002, congrats, your biological age is lower than your chronological age of 58.2. In fact, your GrimAge is **1.79 years lower** than the number of birthdays you've had.

You're off to a good start!

About GrimAge

Your GrimAge refers to your calculated epigenetic biological age. Our test measures specific sites where your DNA has been modified by methyl groups and then looks at correlation patterns in epigenetic markers to estimate your actual biological age. The GrimAge measure of biological age has now been shown to strongly predict future healthspan and lifespan [1].

About Percentile Rank

Your percentile rank refers to how you compare with others in a frequency distribution. So if you scored a percentile rank of 87 on your biological age test, it would mean that your biological age is younger than 87% of others of the same chronological age. By contrast, if you scored 50% or less, that means your biological age is higher than average compared to others of your same chronological age.

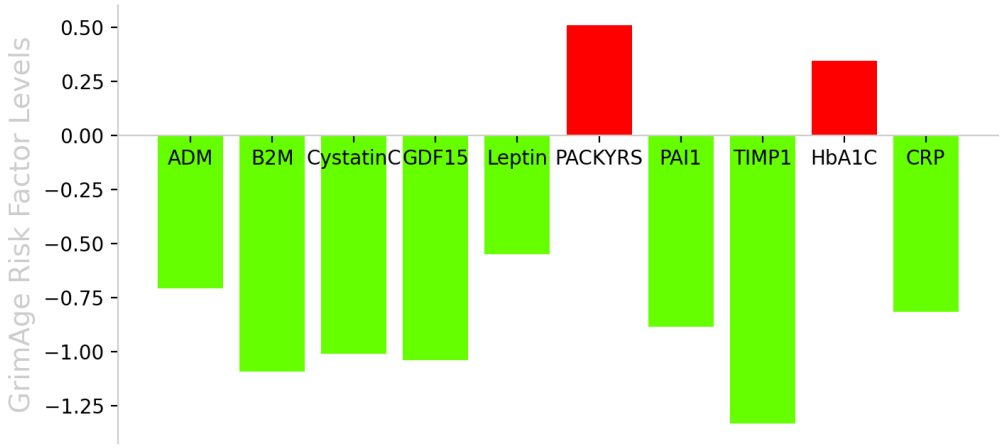
Additional Reading:

[1] Lu AT, Quach A, Wilson JG,..., Horvath S, DNA methylation GrimAge strongly predicts lifespan and healthspan. Aging (Albany NY). 2019;11(2):303-327. doi:10.18632/aging.101684

Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

What's impacting your biological aging score?

Epigenetic Aging Risk Factors



About Epigenetic Aging Risk Factors

The GrimAge measure enables surrogate markers of function based on biomarker data from large epidemiological clinical studies. They can help you understand the most significant drivers of aging. Although these risk factors and your physiology overall is tightly interwoven, by focusing on the largest contributors to GrimAge acceleration we will be able to identify key areas for risk reduction.

Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

Your Primary GrimAge Risk Factor

There are many known factors contributing to this risk. However, some risk may be genetic, or not easily modifiable, while others may be much more easily changed.

Your primary GrimAge Risk Factor has been identified as:

PACKYRS

About PACKYRS: PACKYRS is a surrogate marker representing the total smoking consumption by an individual. It is calculated by multiplying the reported number of packs smoked per day by the reported number of years smoked. Intriguingly, PACKYRS more significantly predicts lifespan than self-reported pack-years in smokers and even predicts lifespan in people who have never smoked. It is believed to capture variation in lung function and decline that occurs with aging.

Candidate Interventions to Reduce PACKYRS

Remove smoking	Click here to read more
Avoid air pollution	Click here to read more
Improve respiratory fitness	Click here to read more

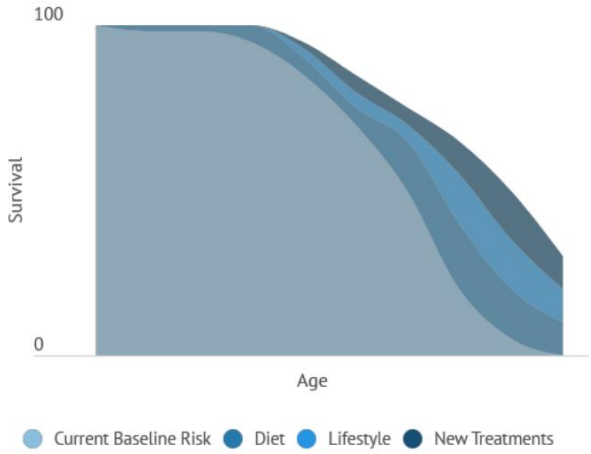
Note: Your risk for the above may indicate your own heightened individual risk or susceptibility, so you may have to work harder or pay closer attention to this biomarker than others. As always, please consult with your personal physician before initiating any new treatment regimen.

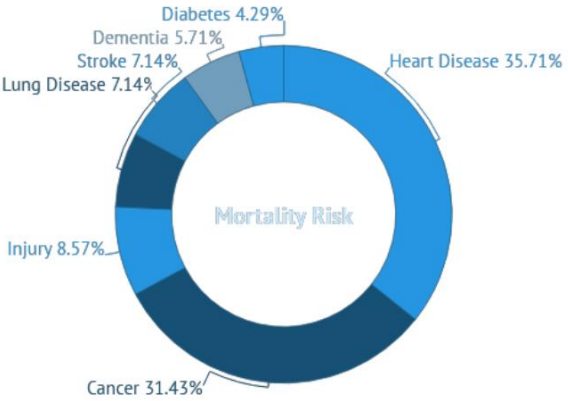
Additional Reading: "Smoking and blood DNA methylation: an epigenome-wide association study and assessment of reversibility", https://www.tandfonline.com/doi/full/10.1080/15592294.2019.1668739

Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

What can I do to live longer and healthier?

Improving Longevity





Ways for Increasing Your Lifespan

- **Diet**: What, when and how you eat have all been shown to play an important role in how long we live.
- **Lifestyle**: For those not in optimal health, basic diet and lifestyle interventions available today can improve life expectancy by 10 or more years.
- **Treatments**: Beyond diet and lifestyle, new treatments and interventions are likely required in order to modify your life expectancy significantly more.

Additional Reading:

- [Academic Paper] Impact of Healthy Lifestyle Factors on Life Expectancies in the US Population
- [News] Following five healthy lifestyle habits may increase life expectancy by decade or more

Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

What should I do next?

NOTE: We highly recommend you consult with a physician or medical professional before making any major aging- or health-related changes, like diet, lifestyle or other anti-aging therapies.

While we believe your approach to aging, health, and even how to act based on your results should be a personal choice, we are here to assist you along the way. Here are a few things to consider in your pursuit of longevity:

1. Increase Report Completeness with...

- **Repeat Testing:** Consider obtaining additional tests or a comprehensive age monitoring plan to access the biological age of your blood and other tissues over time. They are now available both in the U.S. & U.K. through www.myagingtests.com. Contact us to schedule a personalized plan.

- **Monthly Health Surveys & Personalized Reports**: Complete your health surveys to have scientists from the Clock Foundation analyze the results of your interventions. Our surveys encourage you to share additional details of your anti-aging interventions and enable us to provide you with enhanced reports!

2. Attend one of our upcoming longevity community events

Our events are focused on new longevity treatments, which will discuss strategies for how to improve PACKYRS and other GrimAge risk factors.
The Clock Foundation is organizing workshops focused on ways to reduce leading biological age risk factors using new anti-aging protocols. If you are interested in participating in one of our longevity citizen science projects, please contact Bobby Brooke at brooke@clockfoundation.org, or look for sign-up information in our email newsletters.

3. Schedule a 1-on-1 Longevity Consultation

As one of our early customers, we'd like to offer you a free, one-on-one longevity consultation with a member of our team. Please contact Mark Koester at mark@clockfoundation.org to schedule a time to discuss your results and next steps.

Note: This report is provided for **Research Use Only**. It is not to be used to diagnose or prevent any disease. Please consult your physician before initiating any new treatment.

Thanks for taking an important first step with us.

Contact / Questions:

Email: info@clockfoundation.org
Phone: (866) 366-2001

Epigenetic Clock Development Foundation
1124 West Carson Street
MRL Building, 3rd Floor
Torrance, CA 90502