

# Quantify Aging Precisely

Understanding Health Through Epigenetics



Exclusive License of the Epigenetic Aging Clock from  
Dr. Steve Horvath, professor at UCLA

# DNAge® Epigenetic Aging Clock

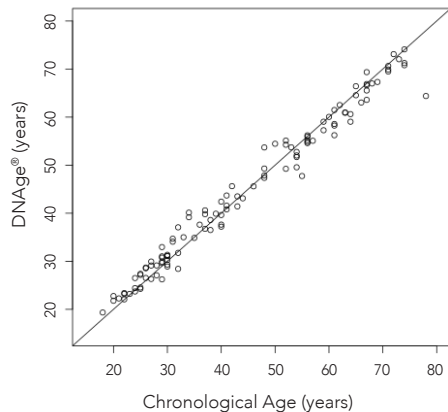
## Highlights:

- Precisely quantify biological age at the molecular level for both humans and mice.
- Low sample input.
- High-throughput: sequence >300 samples per run.

## What is the Epigenetic Aging Clock?

Epigenetic modifications refer to heritable changes that are independent of the primary DNA sequence and play crucial biological roles. DNA methylation is one of the most studied epigenetic modifications, and is recognized as a reliable indicator of biological age and reflects the status of diseases.<sup>1-5</sup>

DNAge® is highly correlated with chronological age:



### Human DNAge® Panel

>1,000

CpG sites

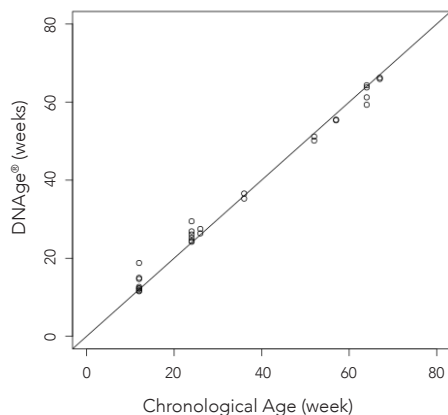
200 ng

of input DNA

Blood / Urine Sample Type

>1,000X Sequencing Depth

320 samples per sequencing run



### Mouse DNAge® Panel

>500

CpG sites

200 ng

of input DNA

Blood / Tissue Sample Type

>1,000X Sequencing Depth

640 samples per sequencing run



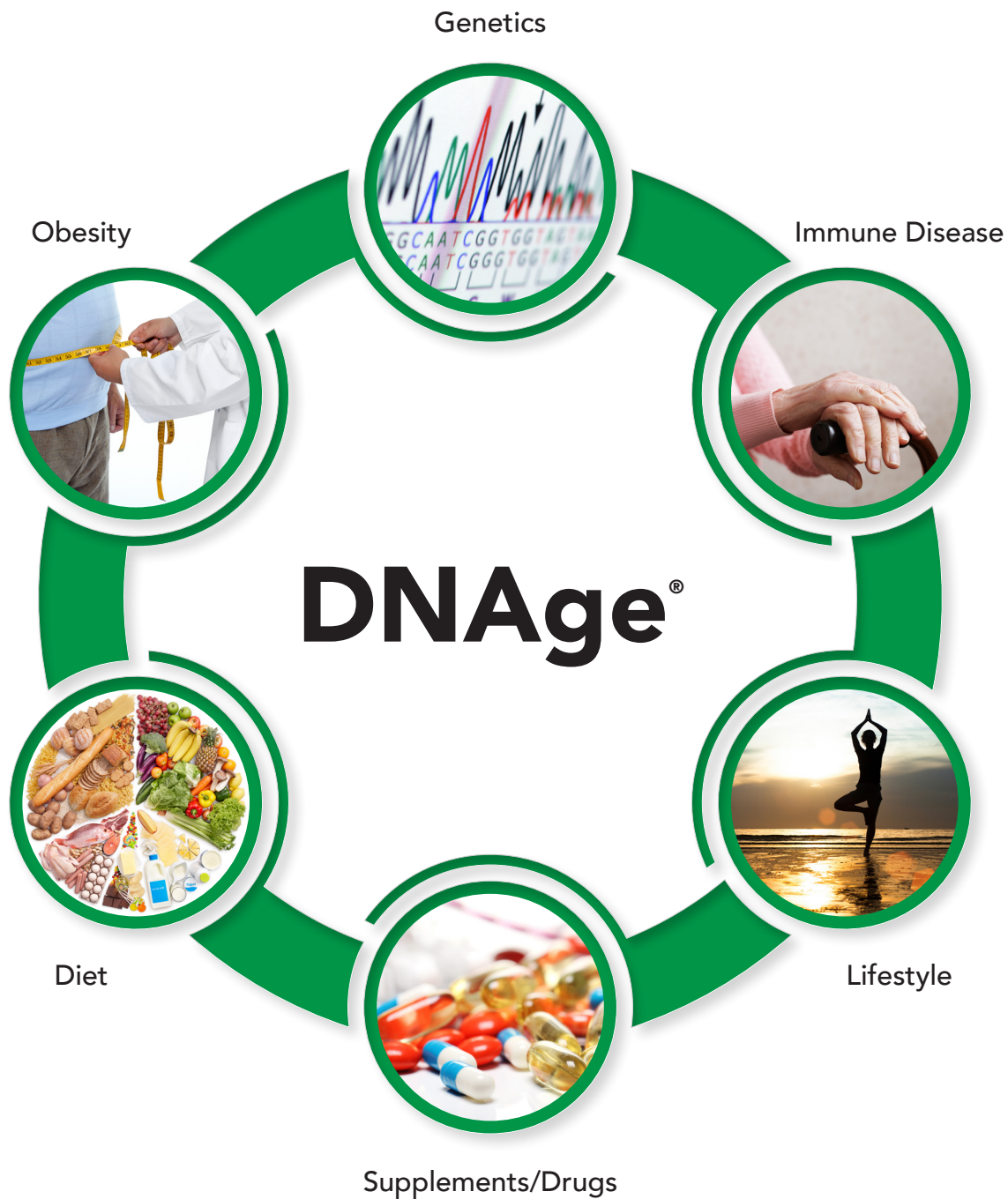
Dotted line is the regression line of DNAge®. Solid line represents a hypothetical perfect match between DNAge® and chronological age.

## References:

1. Horvath S. DNA methylation age of human tissues and cell types. *Genome Biology*. 2013;14(10): R115. doi:10.1186/gb-2013-14-10-r115.
2. Jones MJ, Goodman SJ, Kober MS. DNA methylation and healthy human aging. *Aging Cell*. 2015;14(6):924-932. doi:10.1111/acer.12349.
3. Horvath S, Langfelder P, Kwak S, et al. Huntington's disease accelerates epigenetic aging of human brain and disrupts DNA methylation levels. *Aging (Albany NY)*. 2016;8(7):1485-1504. doi:10.18632/aging.101005.
4. Horvath S, Garagnani P, Bacalini MG, et al. Accelerated epigenetic aging in Down syndrome. *Aging Cell*. 2015;14(3):491-495. doi:10.1111/acer.12325.
5. Horvath S, Levine AJ. HIV-1 Infection Accelerates Age According to the Epigenetic Clock. *The Journal of Infectious Diseases*. 2015;212(10):1563-1573. doi:10.1093/infdis/jiv277.

# Aging Is Driven By More Than Just Time

The reversible, dynamic nature of DNA methylation modifications (in contrast to genetic changes) makes the DNAge® clock an ideal tool to directly study aging-related diseases and monitor lifestyle interventions.



Simply send us your samples, and we will provide you with an accurate epigenetic age estimate and detailed data report.

Please contact us at [www.zymoresearch.com/dnage](http://www.zymoresearch.com/dnage)



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