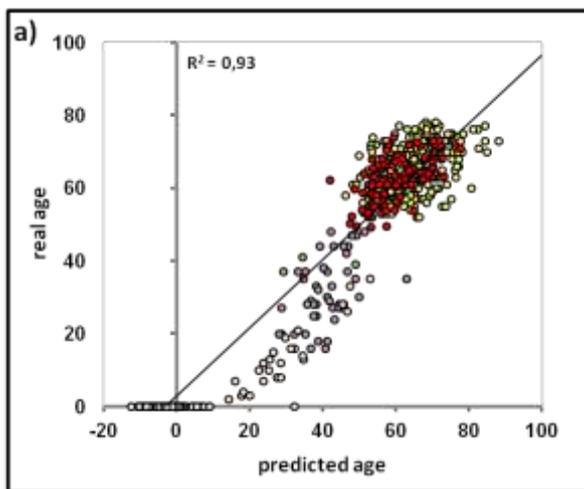


Determination of the Biological Age

Using DNA-methylation changes for determining the biological age of a human individual

Invention

Biological age is influenced by parameters, such as genetic background, disease and lifestyle. Currently, the biological age can be assessed by measuring telomere length, DNA rearrangements or protein alterations. However, these methods lack precision and have practical limitations. Based on the analysis of DNA-methylation (DNAm) profiles an Epigenetic-Aging-Signature has been evolved which only requires measurement of DNAm levels at six specific CpG sites. The DNAm can be assessed by locus specific pyrosequencing analysis of bisulfate-converted DNA. Therefore, scientists of the University Hospital Aachen developed a new m Based on the analysis of DNA-methylation (DNAm) profiles an Epigenetic-Aging-Signature has been evolved which only requires measurement of DNAm levels at six specific CpG sites.



The figure shows a linear regression diagram representing the correlation between the chronological ("real") age (y-axis) and the predicted age (x-axis) based on the analyses of the six specific CpG-dinucleotides in different blood cell types

This Aging-Signature allows an accurate and precise age-prediction with a deviation of less than five years.

Commercial Opportunities

The present invention enables the simple, economic and precise determination of the biological age of a human being. This novel assay may be useful for forensic analysis. It could also be used for geriatric assessment to tailor therapeutic treatments of older patients. Furthermore, it may also help in lifestyle management to improve the odds of staying healthy. On behalf of the University Hospital Aachen, PROVendis offers access to rights for commercial use as well as the opportunity for further co-development.

Current Status

In case of interest, we are pleased to inform you about the current patent status.

Relevant Publications

Weidner, C.I., et al. (2014) Aging of blood can be tracked by DNA methylation changes at just three CpG sites. *Genome Biology* 15: R24.

An invention of the RWTH Aachen University.

Competitive Advantages

- Epigenetic-Aging-Signature
- Suitable for:
 - ▶ Forensic analysis
 - ▶ Geriatric assessment
 - ▶ Lifestyle Management
- Cost effective and simple
- Precise: Less than five years deviation

Technology Readiness Level

1 2 3 4 5 6 7 8

Technology validated in relevant environment

Industries

- Pharmaceutical Industry

Ref. No.

3246

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