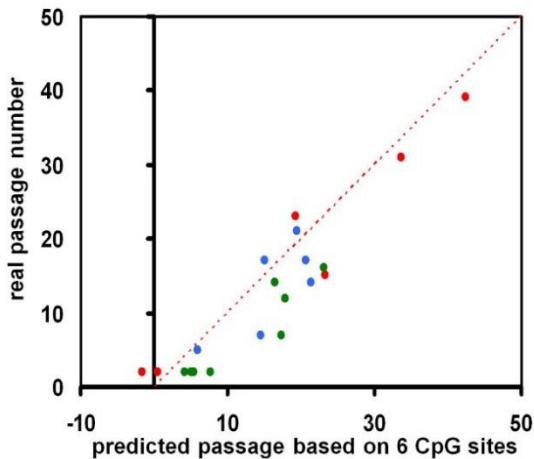


Senescence-Methylation-Signature

Determination of cellular aging in cell cultures

Invention

Long-term culture associated changes need to be considered for quality control of cell preparations. The invention discloses a simple method to track cellular aging based on continuous DNA-methylation changes at six specific CpG sites. This epigenetic signature can be used as a biomarker for various cell types to predict – continuously over the time – the state of cellular aging with regard to the number of passages or days of *in vitro* culture.



Correlation of predicted passage numbers by means of the methylation status of six CpG-dinucleotides with the real passage number of the cells *in vitro*. These data were generated in independent samples by pyrosequencing of the specific regions

The method does not require a reference-sample of the corresponding early passage and provides a simple quality control to determine the state of cellular aging. As induced pluripotent stem cells (iPS) do not reveal cellular aging and are predicted passage zero, the identification of high quality induced iPS might also be possible. On behalf of RWTH 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

Koch, C.M., et al. (2012) Monitoring of cellular senescence by DNA-methylation at specific CpG sites. *Aging Cell* 11: 366-9.

Schellenberg, A., et al. (2014) Proof of Principle: Quality Control of Therapeutic Cell Preparations using Senescence-Associated DNA-Methylation Changes. *BMC Research Notes* 7: 254.

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

12345678
System prototype demonstration in operational environment

Industries

- Medical Technology
- Pharmaceutical Industry

Ref. No.

2910

Contact

Dr. Constanze Vogel
E-Mail: cv@provendis.info
Phone: +49(0)208-94105-41

