Internal Aging Index based on Gene Expression Profiling of Immune Cells

Test Result

Check your vitality!

Young?

Old?

No.15049
Personal Data

Test ID : 00X-M000XXX
Actual Age : 43
Sampling Date : 05/26/2015
Completion Date : 06/09/2015

Test Result

Your ImmunAge is ... 

43
(40s ranking : Top 17 / Among 36)

Your ImmunAge was computed as 「43 years old」. The activity of your immune system is age-appropriate. Maintain your vitality through healthy life style.

Persons in Charge

Supervision :
Mitsuru Emi, MD, PhD
Medical Genetic Specialist

Experiment : Masayo Yamauchi, AS
Analysis : Junpei Hata, BS
Quality Management : Ken Nonaka, MS
Your Position among Your Age Group

20s

Number of people

30s

Number of people

40s

Number of people

50s

Number of people

60s

Number of people

70s

Number of people

You are in the 40s age group. You are here.
Role of Major Immune Cells

ImmunAge reflects activity of immune cells, which travel through our blood and fight against pathogens like bacteria and viruses.

*1 Direct signaling through cell contact or release of signaling molecules.
*2 Change of cells in terms of function and morphology to become more specialized cells.
*3 Natural killer cell. Effector of innate immunity.
*4 NKT cell has characteristics of both NK cell and T cell.
*5 Cytotoxic T cell. Attack virus-infected cells, cancer cells, etc.
*6 T helper cell. Produce cytokines (signaling molecules).
*7 Antibody recognizes specific antigen and lets other immune cells know that it is a target.
ImmunAge is •••
「an internal body aging index calculated from gene expression profiling of immune cells」

DNA Chip Research Inc. has been investigating gene expression pattern (RNA profile) of blood samples from healthy individuals from a wide range of age (20s - 70s), and discovered biomarkers that correlate with aging pattern. RNA in our blood mainly originates from immune cells, and age-related biomarkers we identified are very likely to reflect the activity of immune system itself.

We have developed a method to calculate internal body aging index based on RNA expression profiles of age-related biomarkers, and named it “ImmunAge.” ImmunAge is dynamic, and should help you to monitor your health condition over time.

【Glossary】
RNA : Abbreviation for ribonucleic acid. Many cellular activities are regulated by function of proteins. Protein is synthesized accordingly to the genetic information carried by RNA, which is a complementary copy of DNA. Unlike DNA, which is a static genetic code, RNA is produced only when, where and at an amount the cells need. Synthesis of RNA precedes that of protein, thus dynamic fluctuation of RNA production, or gene expression pattern, is what eventually regulates many cellular processes.
ImmunAge (PCR version) is compiled from expression pattern of five age-related genes. ImmunAge and actual age show positive linear correlation.

Changes in immune function with aging are closely related to onset of various age-related diseases. By knowing your ImmunAge, you can objectively assess your internal aging status.

【Correlation of ImmunAge and actual age of 151 healthy individuals】

\[ R^2 = 0.595 \]
How was the Test Done?

1. Experiment

(1) Extract nucleic acid (RNA) from blood sample.

Lyse blood cells and extract RNA. Most RNAs in blood originate from immune cells.

(2) Quantitate RNA of age-related genes.

Measure the amount of RNA of 5 age-related genes, using quantitative PCR.

2. Analysis

Calculate ImmunAge with our proprietary algorithm.

Compute ImmunAge based on originally-developed algorithm.
Recommendation on periodic check up

ImmunAge reflects your current health condition, and by checking your ImmunAge periodically, you can monitor your internal health and possibly allow you to detect illness early.

ImmunAge is not static. Check periodically and grasp the aging status of your immune system!

Reference

(1) Immunology. 2011 Jul;133(3):288-95. The stromal cell antigen CD248 (endosialin) is expressed on naive CD8+ human T cells and regulates proliferation.


Information last updated: July 2015