# Multi-Item Big Data on Healthy People

## <Structural Diagram>

**Comprehensive data enables multifactorial analysis**

across disciplines

**3,000 items × 1,000 people × 19 years**

**[Particularly distinctive groups of biodata]**

**Whole human genome** (fastq, bam, vcf, Japonica Array)
**Bacterial flora** (intestinal/oral microbiome: 16s, shotgun metagenome)
**Metabolite/Metabolome** (blood/urine/hair/tears)
**Ribonucleic Acid** (Sebum RNA)
**Conventional X-Ray/Forearm DXA** (Whole spine, lumbar vertebrae, both hands, shoulder joints, knees, etc)

**Widespread involvement of medical school courses and undergraduate students**

**A gathering place for virtually everyone**
Various medical school lectures, other departments (Humanities/Science and Technology, etc.), other universities/research institutions, public institutions, businesses, local government, citizens

**Iwaki Pure Big Data**

**(1) [Genetics]**
**Molecular biological data**
(DNA)

**(2) [Health sciences]**
**Physiological/biochemistry data**
(Sex/blood pressure/fitness/obesity/symbiotic bacteria/medical treatment data)

**(3) [Humanities]**
**Individual lifestyle activity data**
(Hours of sleep/frequency of conversation/diet/hobbies/stress)
**Presence Identity**

**(4) [Sociology]**
**Social Environment Data**
(Work conditions/economic strength/academic background)

**[Iwaki Project Data Items (3,000)]**

1 Genome analysis 2 Free radicals

1 Physical constitution/body composition 2 Visceral fat 3 Fitness
4 Nutritional status 5 Walking speed 6 Dexterity test (pegboard) 7 Balance test
8 Walking analysis (Ayumi Eye) 9 Muscle strength 10 Bone density/metabolism
11 Joints 12 Cervical spine MRI 13 Liver/gall bladder 14 Endocrine secretion
15 Digestive system 16 Respiratory organs 17 Heart (echocardiogram)
18 Vascular channels (arteriosclerosis) 19 Kidneys
20 Vision/fundus examination 21 Hearing test 22 Urinary organs
23 Neurology (cognizance) 24 Nervous system 25 Dermatological examination
26 Allergies 27 Oral hygiene 28 Intestinal bacteria 29 Exhaled gas
30 Trace elements 31 Amino acid analysis 32 Fatty acid analysis
33 Pentosidine 34 Homocysteine 35 Adiponectin 36 Leptin 37 Serotonin
38 Cortisol 39 PAI-1 40 Fibrinogen 41 FDP 42 Equol
43 Metabolomic analysis 44 Immunity/inflammation
45 Oxidative stress (vitamin, carotenoid, 8-OHdG) 46 Saliva IgA
47 Electroencephalography 48 Olfactory perception: UPSIT, OSIT
49 Capillaries 50 Gustation 51 Tears 52 Hair 53 Biopyrrin

1 Falls 2 Sleep: JESS, RBDSQ 3 Diet: BDHQ, FFQ 4 Oral care
5 Drinking habits 6 Smoking habits 7 Medical history/medication
8 Medical compliance 9 Reproduction/maternal and child health handbook
10 Quality of life (QOL): SF-36 (physical functioning, daily task performance (body/mind), body pain, social activity, overall feeling of health, vitality, emotional health)
11 PHCS: Subjective ability to control health (performance indicator for changes to health-related habits and behavior key to health promotion)
12 Body image 13 Use of home remedies
14 Urinary excretion/bowel movements 15 Menopausal symptoms 16 Fatigue
17 Subjective age 18 Sense of well-being
19 Cognitive functions: MMSE, cognitive health checks 20 Depression: CES-D

1 Occupation/Academic background: Farmers, etc. METs by occupation - Middle school graduate/high school graduate/university graduate
2 Family: Number of household members, presence of spouse
3 Conditions of daily life, etc. (conversation, employment conditions, availability of pension, social interaction, leisure time, etc.) 4. Noise levels

**<Cross disciplinary/field research system>**

**The merit of being able to examine the relationship of one examination item with 3,000 other items!**

**Ex.) The intestinal bacteria data of 1,000 people on its own does not hold much meaning, but its relation to 3,000 items will bring about innovative knowledge.**

⇒ The relationship between sex, age, obesity, physical constitution, fitness, arteriosclerosis, smoking habits, drinking habits, eating habits, exercise, bowel movements, oral bacteria, oral condition, skin, metabolome, helicobacter pylori, dementia, diabetes, high blood pressure, allergies, liver function, kidney function, heart function, lung function, sleep, trace elements, exhaled gas, immune functions, stress, locomotive syndrome, frailty, metabolic syndrome, neutrophil function, lymphocytes, cytokine, vitamins, hormones, fatty acids, amino acids, prescription medicine, urologic disease, AGEs, etc. will become apparent.

* Iwaki Big Data enables a **comprehensive analysis of everything** from the molecular biological data to the societal environmental data of an individual in **relation to each other**.
* **"Roughly 20,000 people"** and more over **19 years**. In 2016, a separate **dementia exam** was given to **24,000 elderly people** above the age of 65.