



Fast Track Your Health
Goals with Personalised
Genetic Profiling

Gene Based Programme for Healthy Ageing and Healthy Living

Dr. David Ling

M.B.B.S, India

Dip Reproductive Medicine, Malaysia

Post Grad Dip. Andrology & Men's Health, Australia

Dip Family Practice Dermatology, Singapore

Fellow Dermatologic Laser Surgery, Bangkok

Korean College of Cosmetic Surgery, Korea

Consultant Wellness & Aesthetic Medical Practitioner
Healthy Ageing Practitioner

Certified Gene Profiling Consultant, Australia

Klinik Laser & Cosmetic Surgery Ling

Discover how the Fast Track to Health program offers
you a proactive healthcare solution that addresses your
individual needs.

Ask about personalised health and wellbeing
today or visit fitgenes.com.au.



Healthy Living : Healthy Ageing™

Personalized

Gene Profiling (检测基因谱)

Healthy Living Healthy Aging
(健康生活健康老化)





Mission (任务)

My commitment is to enhance individual's QoL (我个人认同提高个人生活素质) ,

Living a satisfying fulfilling , and a purposeful life (充实的生活,有目的的生活)

Through comprehensive & integrated Gene wellness, anti aging & aesthetic healthcare services.

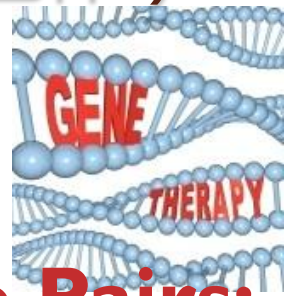
(通过全面及综合的基因健康 , 抗老化 , 及良好的医疗服务)

Definition “Gene” (基因定义)

Double Helix DNA
joined by base pairs



DNA, Genes, Chromosomes (脱氧核糖核酸/基因/细胞染色体)

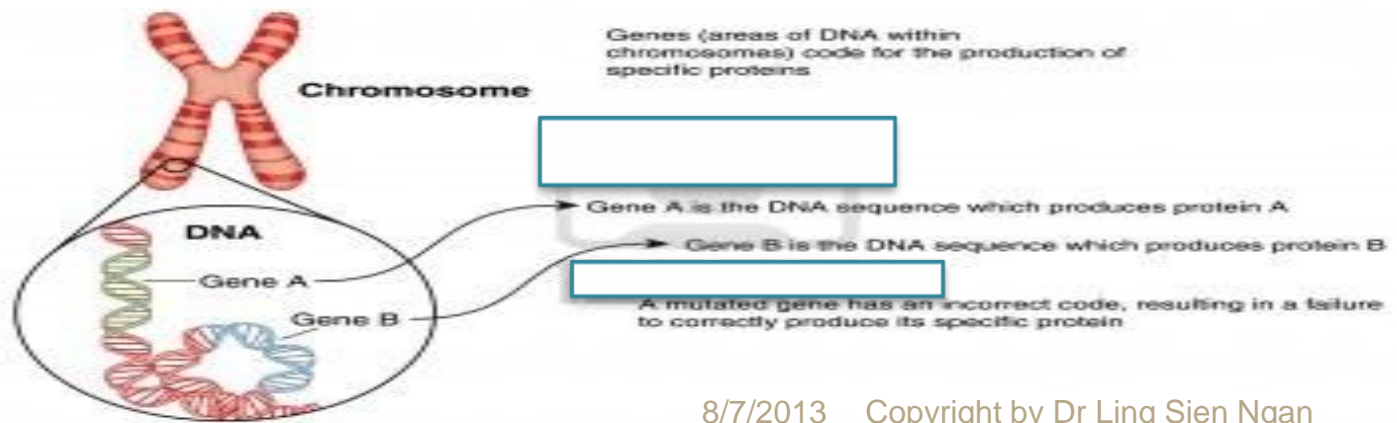


- **DNA (分子)**
- **Start 4 molecules, Base Pairs: A-T, C-G.**
- **Base Pairs arranged as steps of spiral staircase, hand-railing coiled in long strands (双对的脱氧核糖核酸就像一层层的螺旋形楼梯，手栏杆盘绕在长链上)**
- **Some gene characters (eye color, cheek bone) ,can't be changed, gene switched off permanently (一些基因特性 (眼睛的颜色，颧骨) 是不能改变因为它们的基因是永久关闭) .**
- **Others we have control, send signal (发送信号) through nutrigenomic to modify expression, is core of talk (我们所能控制及发送的信号是通过修饰营养基因表达的核心论点)**

1 strand DNA from father,
1 from mother

DNA, Genes, Chromosomes.

- **Chromosome**
- 23 pairs non identical, contain 25k genes
- **Genes**
- Continuous railing of DNA, contain 'stop' of a code, other a 'start' of gene
- Each section is a single gene, code a single specific protein
- When gene 'switched on', code can be read, cell make protein, reached required amount, gene 'switched off'.



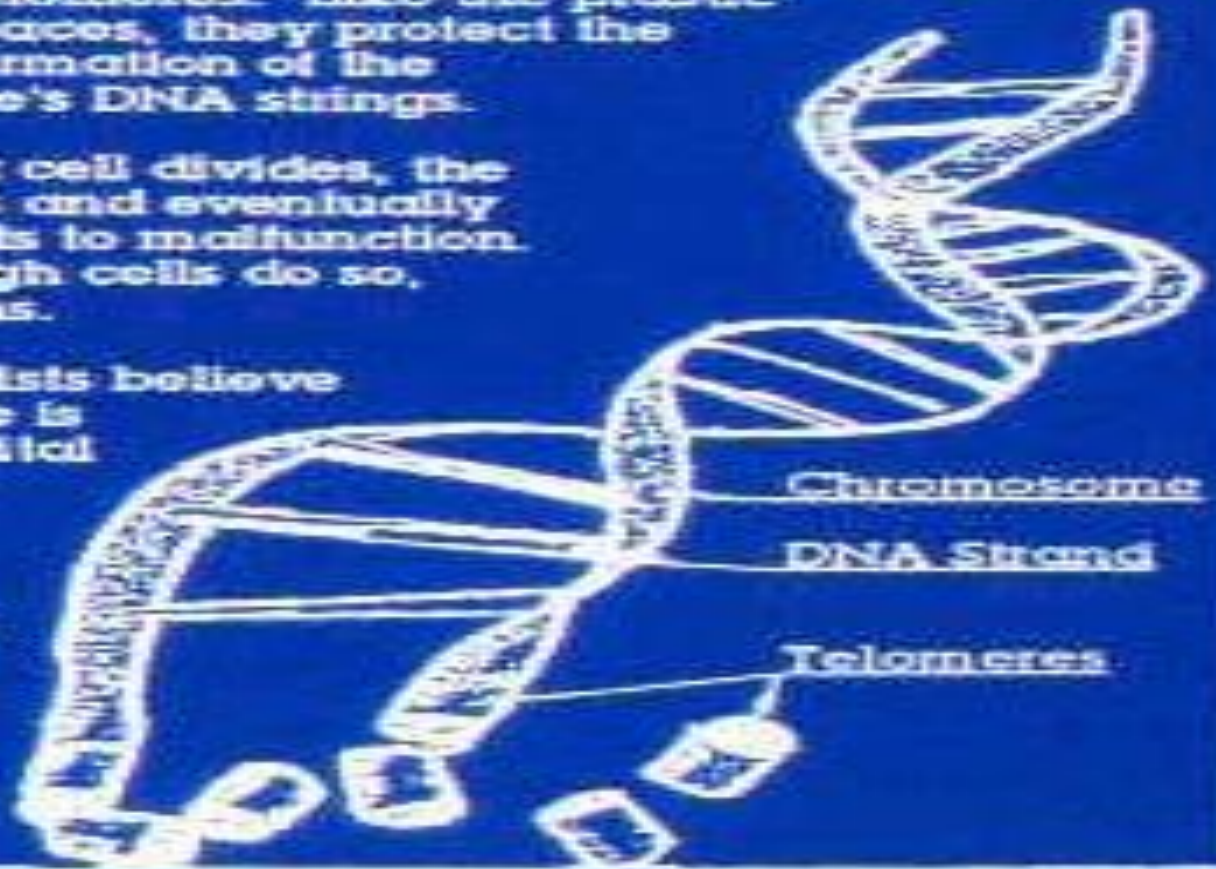
Biological clock (生物钟)

IS THIS THE BIOLOGICAL CLOCK?

At the tip of each chromosome are tails of DNA known as telomeres. Like the plastic tips of shoelaces, they protect the genetic information of the chromosome's DNA strings.

Each time a cell divides, the tail shortens and eventually the cell starts to malfunction. When enough cells do so, aging begins.

Some scientists believe the telomere is the body's vital biological clock and say they can manipulate the length of the tails and thus halt aging.



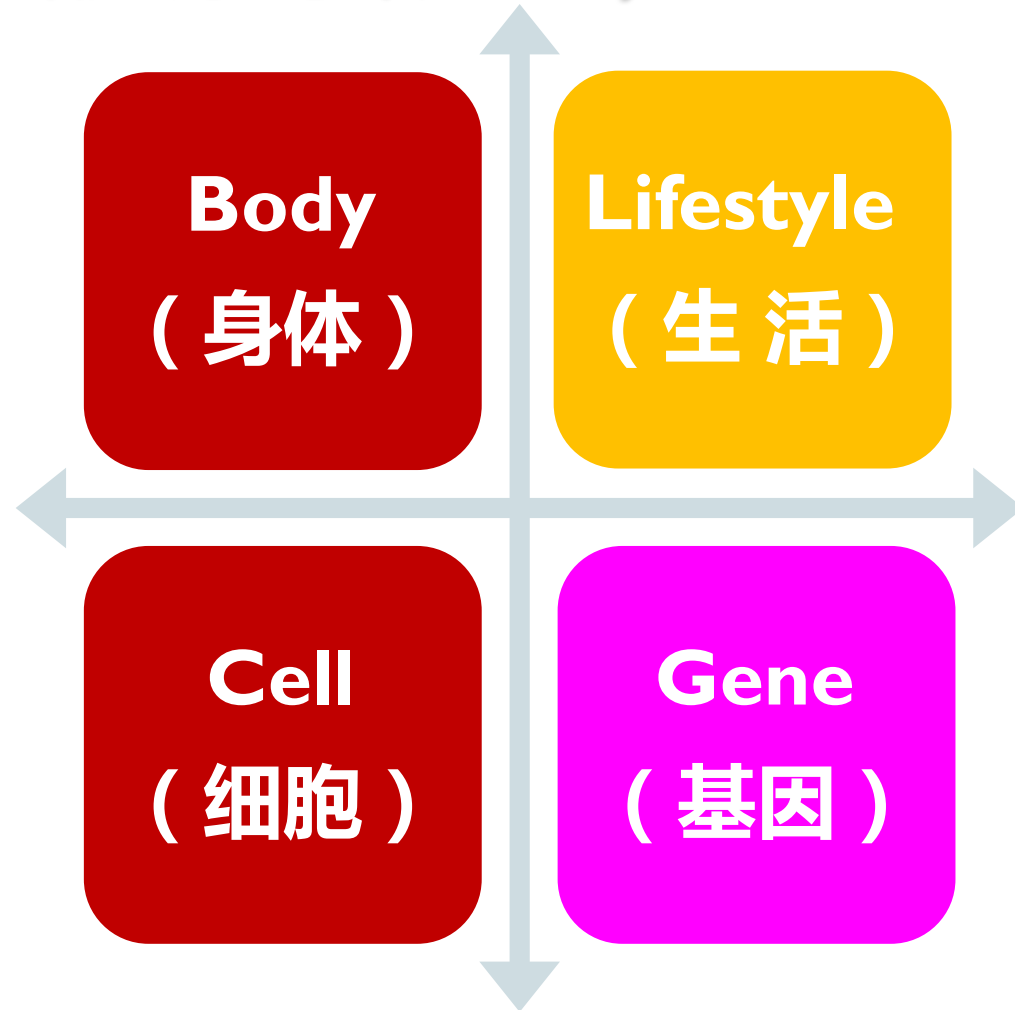
Definition “Gene Profiling” (基因分析定义)

- Individual, customized profiling inherited characters affecting your “machine”. (个体来说，特别的分析遗传特性会影响你的身体)
- Targeting particular part of lifestyle change to channel for maximum health benefit. (确定特定的生活方式可为健康带极大的好处)

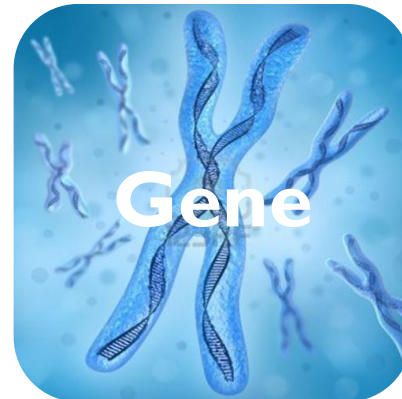
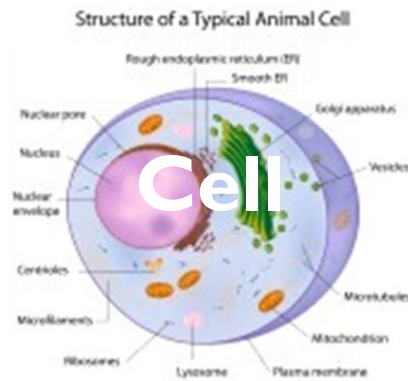
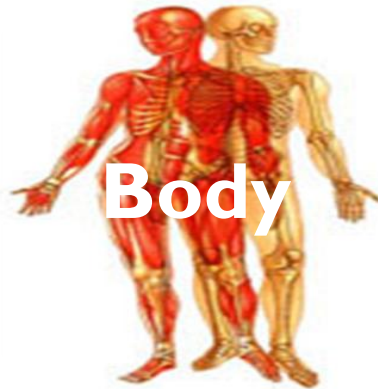


The Brand (标志)

Gene Wellness Quadrant (基因健康象限点)

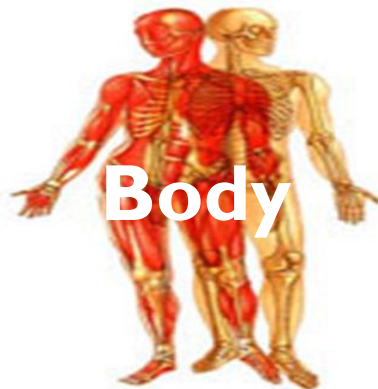


Gene Wellness Quadrant (基因健康象限点)

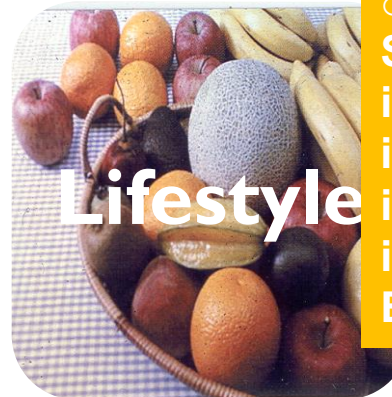


Gene Wellness Quadrant (基因健康象限点)

BMI **kg/m²**
Waist Hip Ratio
 0.7,M;0.8,F
Body fat

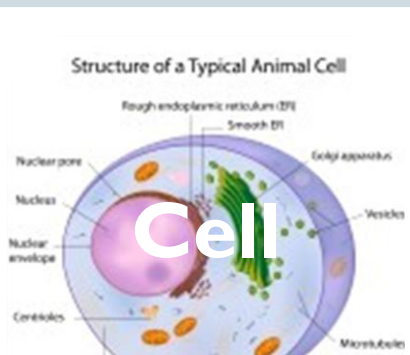


Body



Lifestyle

Diet (饮食)
 ○Small (小)
 ○Frequent (常)
 ○Type (各种)
 ○Preparation (准备)
Stimulant (刺激物)
 i. Alcohol 酒精
 ii. Tobacco 烟草
 iii. Caffeine 吗啡
 iv. Recr drug 药物
Exercise (运动)



Cell



Gene

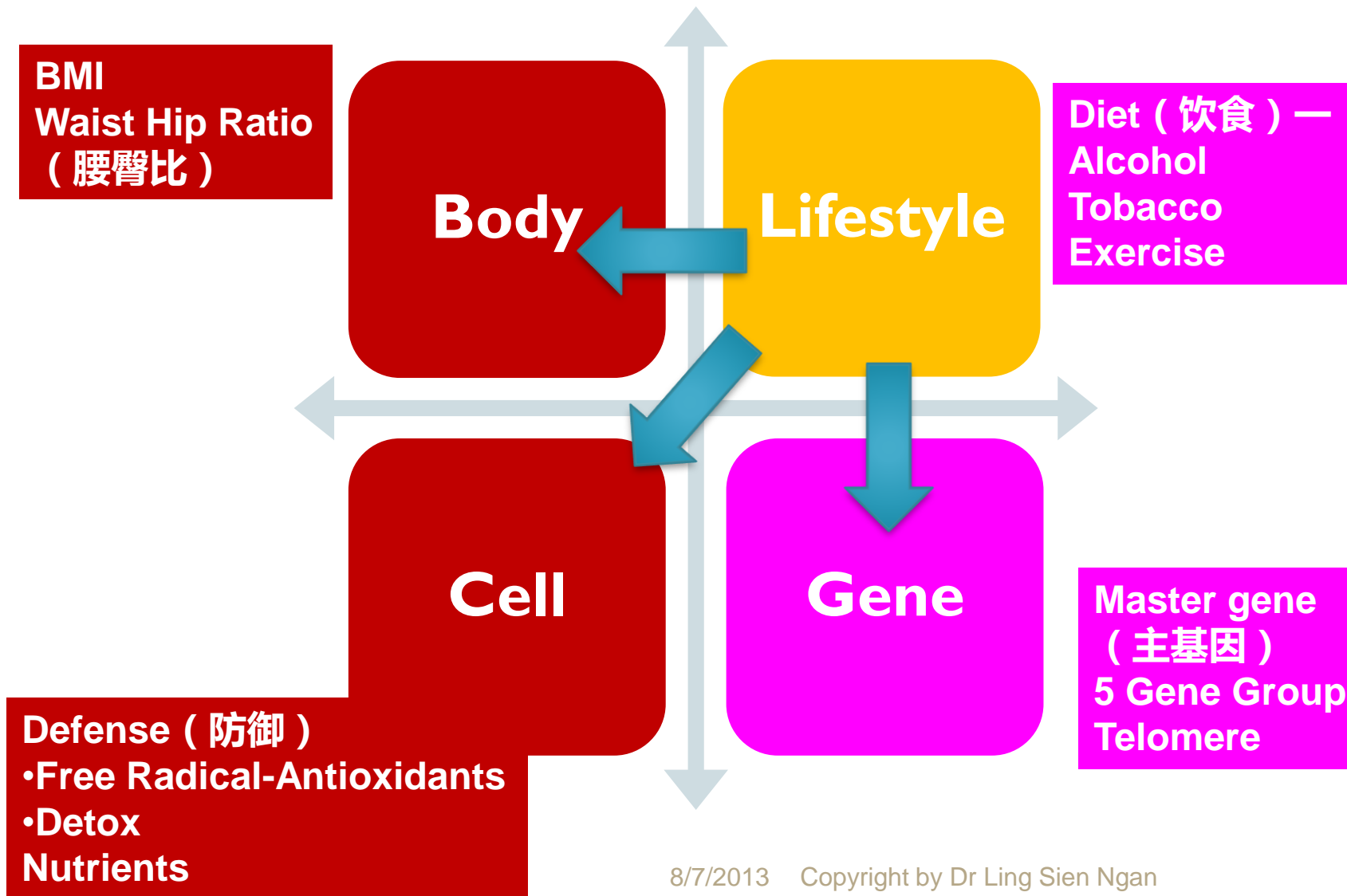
Master gene
Nrf2 (主基因)
NF-KB inflam
Insulin gene
 (胰岛素基因)
5 Gene Group
Telomere
 (基因组织端粒)

Defense 排毒

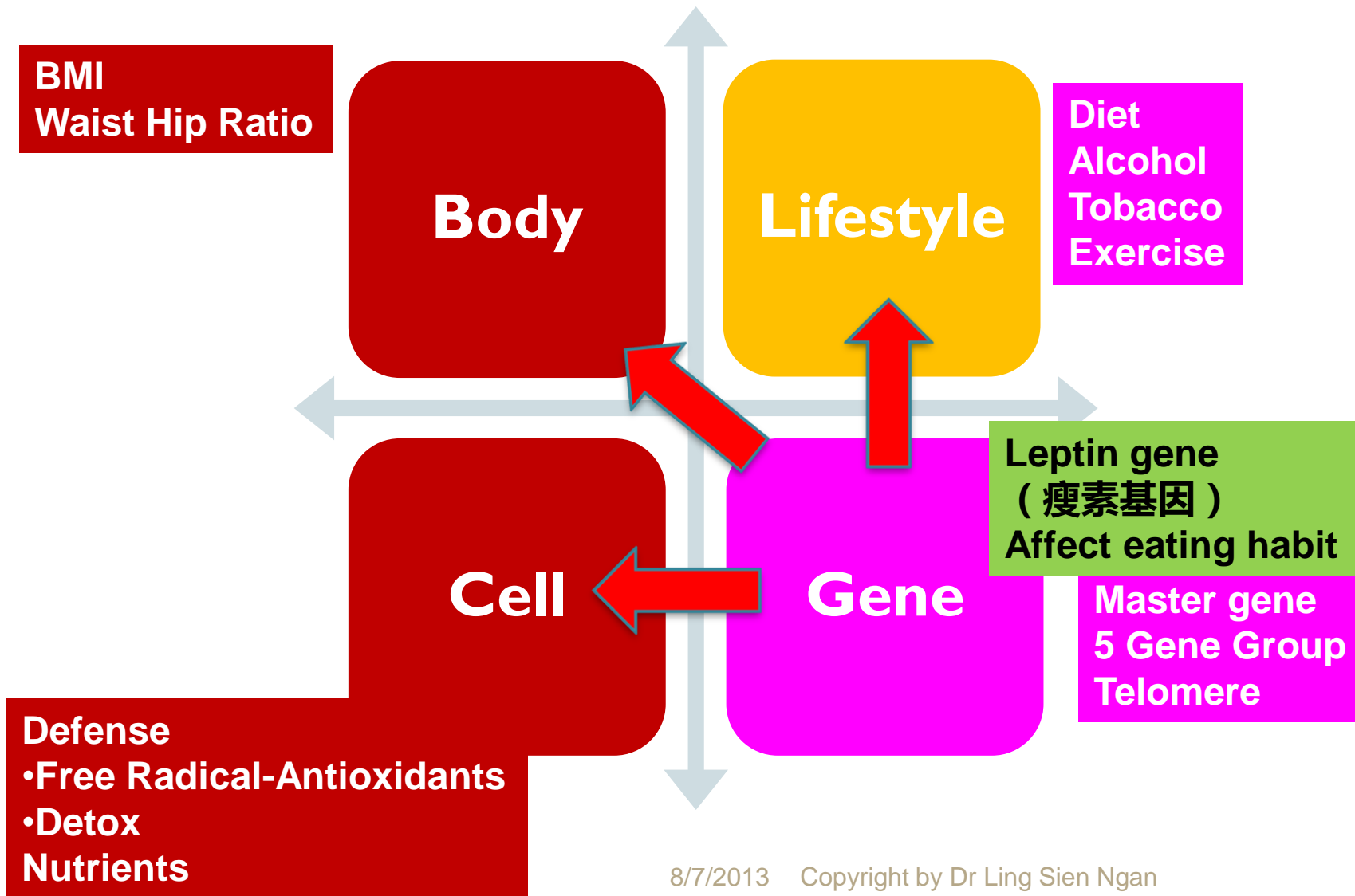
•Free Radical-Antioxidants (自由基的抗氧化剂)
 •Detox 毒素

Nutrients 营养物

Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)

BMI
Waist Hip Ratio

Body

Lifestyle

Diet
Alcohol
Tobacco
Exercise

**Switching on YOUR Good Gene &
own a Healthy Body without Drugs**
**远离药物控制，打开良好的基因，
拥有良好的健康身体**

Defense
•Free Radical-Antioxidants
•Detox
Nutrients

5 Gene Group
Telomere

Gene Wellness Quadrant (基因健康象限点)

BMI
Waist Hip Ratio

Diet
Alcohol

Switching on YOUR Good Gene &
own a Healthy Body without Drugs

Switching OFF YOUR BAD Gene &
own a Healthy Body without Drugs
远离药物控制，关上坏的基因，
拥有良好的健康身体

• Free Radical-Antioxidants
• Detox
Nutrients

gene
Group
re

Outline (大纲)

- Introduction (介绍)
- Definition (定义)
- Modern medicine lost its way (先进的科技已失去了医疗的方向)
- Why do we get sick? Wellness concept. (为什么我们会生病? 健康概念)
- Looking @ cell for answers
- DNA, Gene, Chromosome
- Evidence we need gene screening (需要基因检测)
- Nutrigenomic
- Switches talking to your gene (通过营养传达讯息给基因)
- Free Radical, Antioxidant: soldier & enemy (兵士和敌人)
- Detox & Cell Defense: Cinder & Carpet.
- Summary



HISTORY OF MEDICINE (医学史)

2000 BC - Here eat this **Root**

1000 AD - That root is Heathen. Here say this **Prayer**.

1850 AD - That Prayer is Superstition. Here drink this Potion.

1920 AD - That potion is **Snake Oil**. Here swallow this Pill.

1945 AD - That Pill is ineffective. Here take this **Penicillin**.

1955 AD - Oops! Bugs MUTATED ! Here take this Tetracycline.

1960~1999 - 39 more Oops! Here take this more powerful Antibiotic.

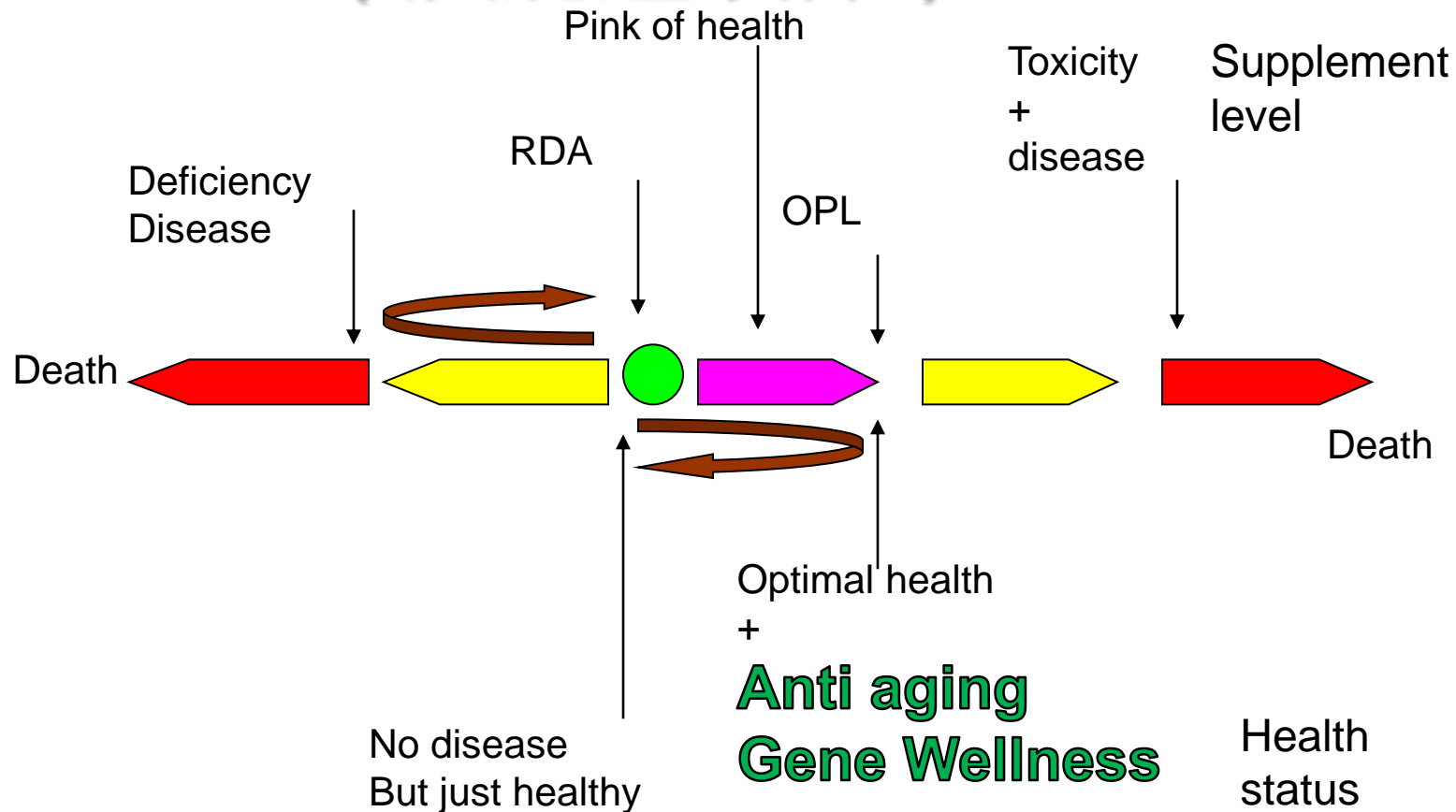
2000 AD - The Bugs have WON!

Here eat this Root

Wellness Concept (健康概念)



Health-disease continuum (疾病连续体)



Carcinogenesis (癌)

→ All about free radical damage

The enemy

Cancer
Initiation

Promotion

Progression

Free radical
DNA damage

Continued
damage

Further free
radical damage

Normal
cell

Mutated
cell

Pre malignant
Cell

Cancer
cell

DNA repair

DNA repair

Cant repair

Fully repaired

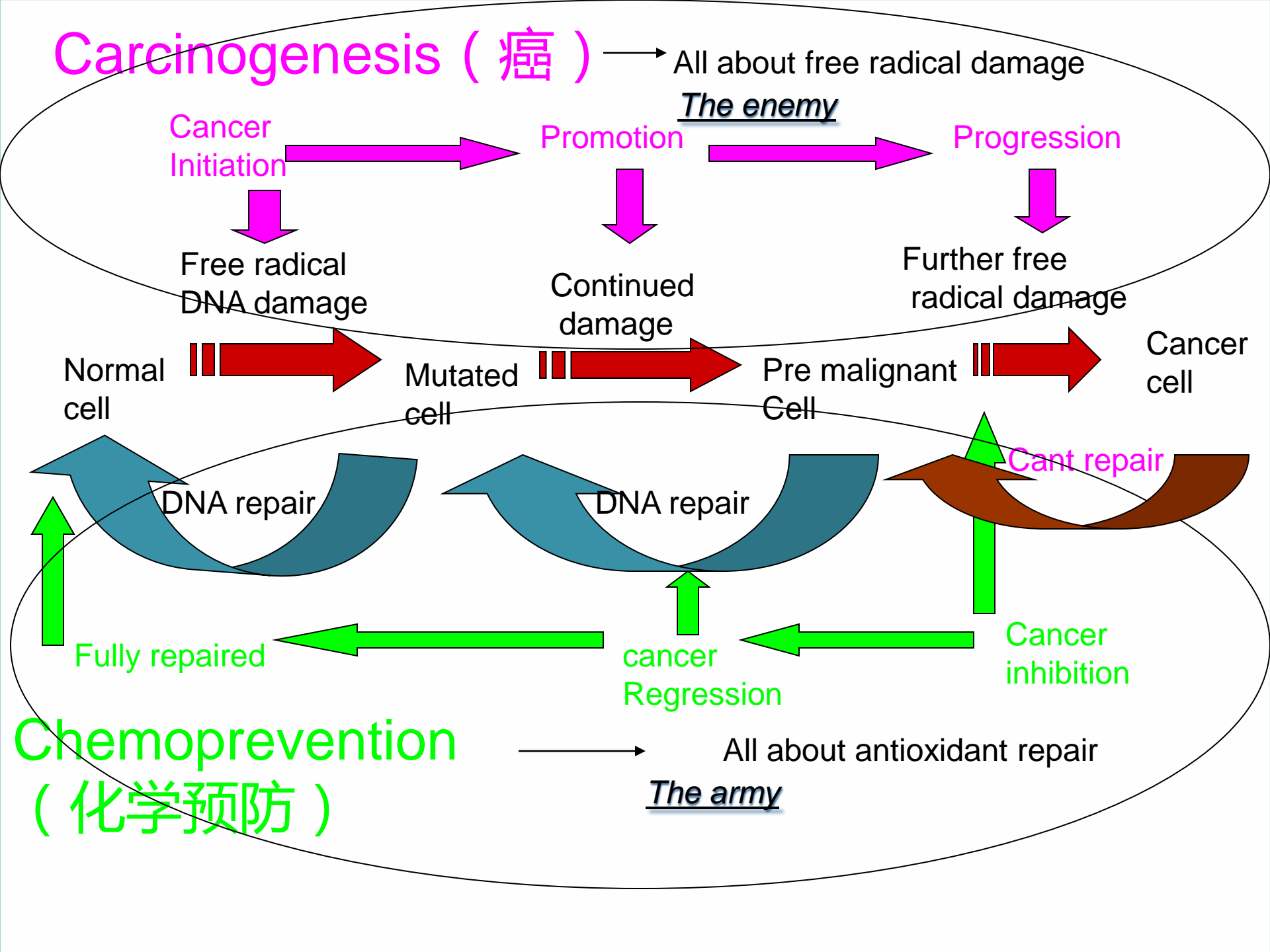
cancer
Regression

Cancer
inhibition

Chemoprevention (化学预防)

→ All about antioxidant repair

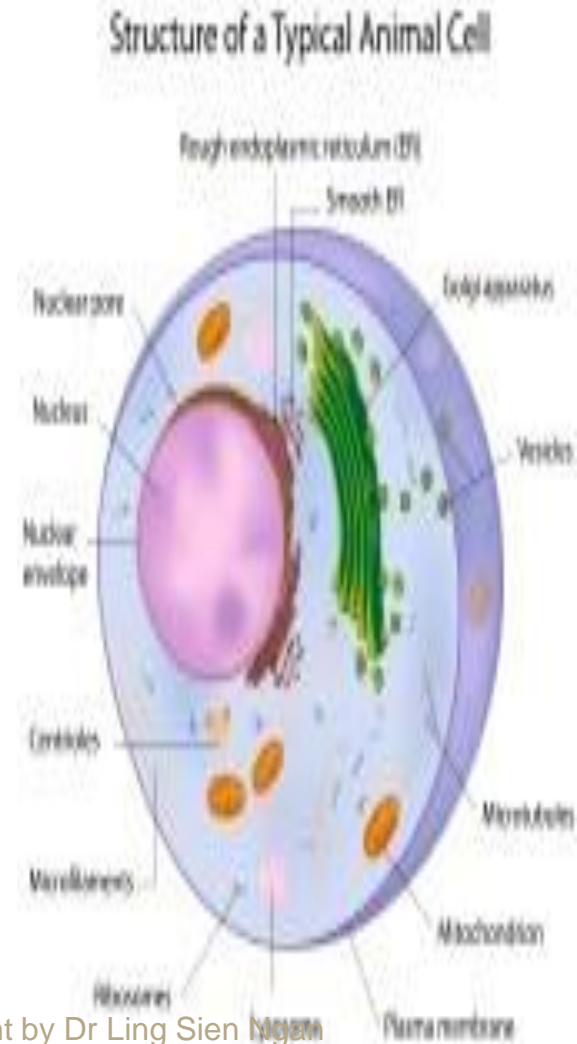
The army



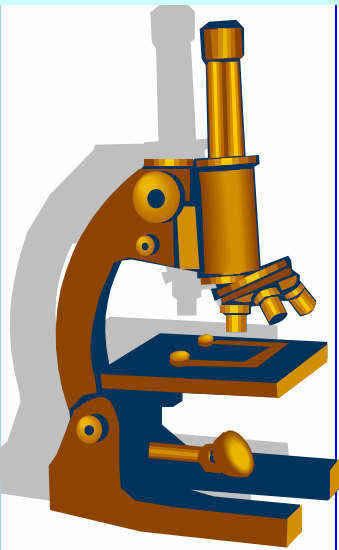
Look into cell for answer.

(观察细胞寻求答案)

- Concept is simple: healthy cells lead to healthy body
- (简单的健康概念：
- 健康细胞，就有健康的身体)
- Microscopic journey into cell: know how it work
 - (认识微型细胞的操作)
- Goal: achieve highest cell function. Don't need to name diseases—principles is same
- (达到细胞最佳的功能)
- (所有的疾病来源都属相同)



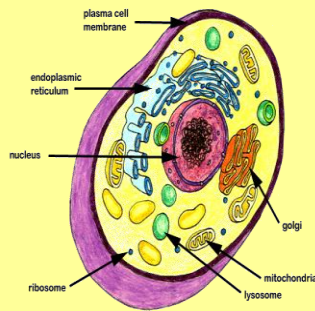
Understanding The Human Body



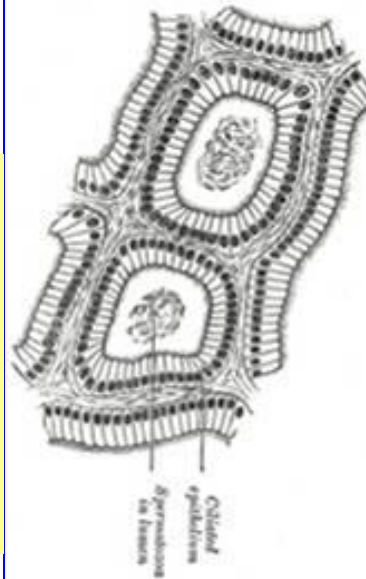
MOLECULE

loading...

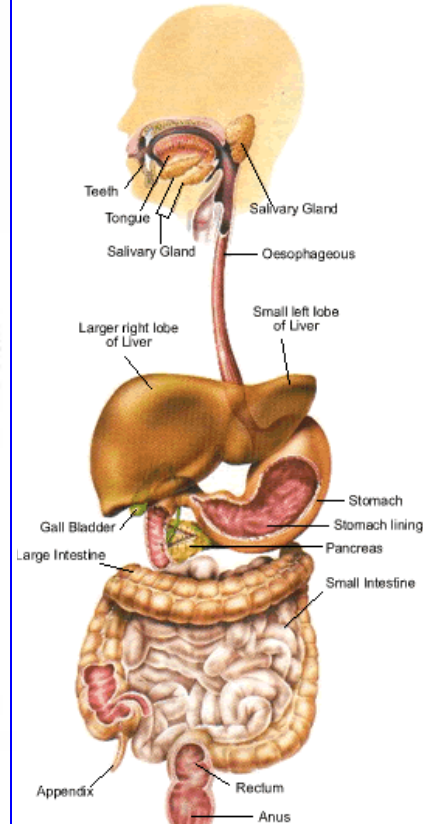
CELL



TISSUE



ORGANS



SICKNESS

HUMAN BODY



WELLNESS

Firstly...the Good News

“It is estimated that 75% of health and life expectancy after age 40 is modifiable
年龄超过四十岁的人，75%健康问题是可以改良的。”

Murray, C JL et al., 1998 NEJM 338:1035-10

The Bad News is... Living Longer is bad for Our Health

...

坏消息：长寿不是健康的象征
根据相同报告所显示：

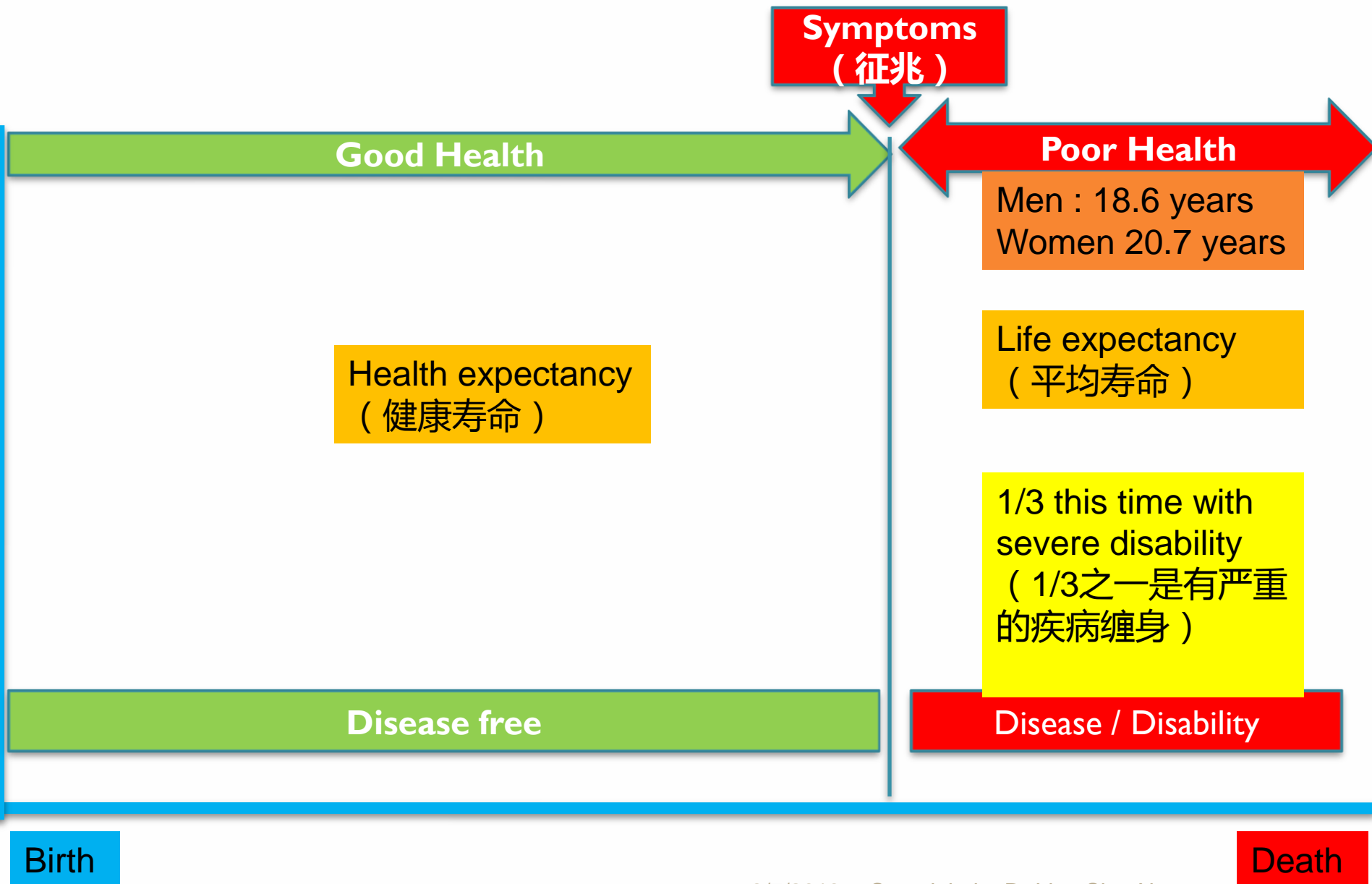
The same report found that

the number of years a person can expect to live with
Good Health & without a Disability (**Healthy
Expectancy**) is **DECREASING**.

每一年平均一个人的健康寿命会逐渐减少

- Life has been prolonged and acute disease is not anymore the major cause of death.
- (慢性的疾病是现今社会主要致命原因)
- Today one dies from chronic disease, degenerative diseases, metastatic cancer, immune deficiencies and other diseases which prolonged disability, immobility and dependency. (慢性疾病包括了 :
- 退化性疾病 , 变形癌症 , 免疫缺损等)

Living longer is bad for our health



- Every Hour → a person dies of a Heart Attack
- 1:3 → Cancer
- Every Hour → 4~5 people will have a stroke
- 1:2 >60 yrs → Diabetes
- 1:3 >70 yrs → Alzheimers
- 1:2 >80 yrs → Alzheimers

糖尿病成为主要的疾病之一

OF

12 SATURDAY, DECEMBER 28, 2002

NATION

Diabetes the 'mother of all diseases'

■ By S. Shankar

shank@nstp.com.my

PENANG, Fri. — Many Malaysians are unaware that diabetes is the main cause of many health complications such as high blood pressure, heart problems, kidney failure, blindness and impotence.

"It is the mother of all diseases. It

can aggravate one's health in many ways," the Health Ministry's Disease Control Division director Dr Shafie Ooyub said after launching the State-level "World Diabetes Day" in Penang Hospital here today.

Present was State Medical Health Services Department director Dr Azmi Shapie.

He said the ministry had been

carrying out nationwide programmes to educate the public on this.

He said the best way for a person suffering from diabetes to avoid such complications was to seek early treatment.

"A person should immediately have a blood test when he has diabetic symptoms such as being overweight, sudden loss of weight, fre-

quently urinating and feeling thirsty.

"The person then can get early treatment to control the disease and lead a quality life," he said.

According to a nationwide survey by the ministry in 1996, at least eight out of 100 Malaysians aged above 35 suffer from diabetes.

Selangor, followed by Penang, accounted for most of the diabetic cases,

while Sarawak has the least.

Dr Shafie said urbanites were more vulnerable to diabetes due to their lifestyle.

"Urbanites are more busy and affluent. An overwhelming majority of them have less time to exercise and attend regular medical check-ups, and also do not control their food and drink intake," he said.

'Every hour, four have cancer'

TheStar
1st Oct 2002

By SIMON KHOO

NILAI: Some 35,000 new cases of cancer are detected every year and the incidence of cancer deaths has increased by 29% from 1991 to 2000.

Health Minister Datuk Chua Jui Meng said every hour, four persons discovered that they suffered from cancer.

He said cancer ranked second in the list as a principal cause of death, resulting in 4,701 cases or 10.8% of the 43,514 medically certified deaths in the country in 1998.

In 2000, he said, there were 40,244 admissions of cancer patients into government hospitals, an increase of 54% as compared to 26,142 admissions in 1991.

The number of deaths from cancer in government hospitals had also gone up by 29% from 2,196 deaths in 1991 to 2,832 deaths in 2000, he said.

"With the number of senior citizens above 60 increasing to about 11% by 2020 and the surging prevalence of unhealthy lifestyle associated with affluence, such as smoking, inappropriate diet, excessive weight gain and lack of exercise, the incidence of cancer is expected to rise.

"As such, cancer is of national concern and will be given utmost priority in the country's health agenda," he said, adding that almost 90% of cancer was associated with the environment and lifestyle.

Chua said this after present-

ing the ISO 9001/2000 certification to Nilai Cancer Institute chairman Dr Tan Kim Sze.

Earlier in his speech, Chua commended Dr Tan by describing him as "a fine example of a Malaysian who had made it big overseas but had returned to do national service by investing in the RM20mil institute."

Chua said it had enabled cancer-stricken Malaysians to have an opportunity to try out new drugs and treatment, including those that were still at the clinical trial stage in collaboration with major biopharmaceutical companies.

He said such clinical trials offered patients a chance to receive the latest anti-cancer treatment at minimal cost.

YOUNG, MALAYSIAN & SICK! *VERY SICK*

There will be

5mil

young people with chronic diseases by 2006

10mil

by 2020 if nothing is done about it



THOSE AT RISK

- 2.3mil smokers
- 420,200 obese and 1.5mil overweight people
- 8.4mil physically inactive
- 410,650 diabetics
- 2.1mil who consume alcohol

It could be YOU

■ See page 6



Evidences of Gene switching (基因开关研究)

- Insulin production show how gene switching work (用基因开关引导胰岛素分泌)
- After meal, blood glucose up, detect, switched insulin gene to 'ON', glucose normalize, insulin gene switched 'OFF' (进餐前后 , 胰腺基因会察觉血糖上升或下降)

**When gene is expressed, gene is switched on. Produce a protein.
Gene code= recipe, (基因会反应 , 并制造出一种蛋白质 ,
这就 基因密码的功能)
telling cell's machine, correct ingredient & method to make correctly
(构成组成部分 , 调整出正确的蛋白)**

Gene irreversibly damaged=mutation. (基因损害无法复原=变种基因)
Mutated gene give incorrect code, (变种基因会成为错误的密码)
failure to produce specific protein, or wrong protein. (畸形的蛋白)

Angelina Jolie Wears Low-Cut Camisole Months After Mastectomy: Picture

CELEBRITY BODY JULY 9, 2013 AT 4:00PM BY ALLISON TAKEDA

Like 79 Tweet 34 19 +1 4 Pin it 4

Her mother die of breast Ca @ 59 yr



Strong family history of cancer should consider screening
拥有强烈的癌症遗传家族必须考虑基因检测

- Strong family history of breast cancer, meaning that if both sides of their families have had cancer for example, should consider screening-----consultant breast surgeon [Datuk Dr Yip Cheng Har](#)
- Knowing your genetic status helps you understand your risks,” Prof Dr Teo Soo-Hwang

Switches that talk to your DNA

- (什么基因开关能传达信号给我们

Switches that talk to your DNA

Analogy:
Christmas tree with
200 bulbs, 1 switch

- **Nrf2: cell Defense System** (细胞防御) **gene**
- Cell defense system work same way, switch called **Nrf2**.
(细胞防御系统同样操作法)
- Nrf2, small protein, switches on cell's own Defense System (微小蛋白 , 打开细胞防御系统)
- Nrf2 activates >200 genes, all code different aspect of cell defense (激活使200多种防御基因)
- Clever & convenient strategy, to activate family of related genes (这是有效激活同类型基因策略)
- Sulforaphane is bioactive substance that can activate Nrf2. The only cruciferous having significant source is broccoli. **萝卜硫 (liu) 素**可促进机体生成一种能消除损坏细胞自由基的酶 (mei) , 还可减低患癌风险。

Sulforaphane, powerful in switching on Nrf2

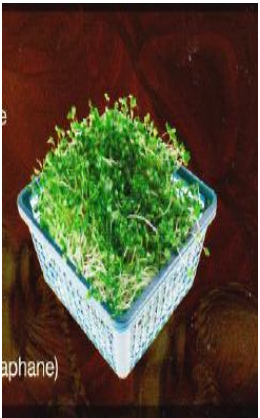
Analogy:
Sledge hammer & thumb tack.
Drug simply not specific,
cause collateral damage.

- **NF-kB, NF kappa B: cell Inflammation gene. (无菌细胞发炎基因)**
- It activate gene which promote Inflammation (促进良好发炎基因)
- **Good aspect** of inflammation: (急性发炎)
- Insect bite; red, hot, swollen, inflammation wall off location, protect further damage (受昆虫咬伤：红肿，发炎，包围受伤的组织发炎)
- **Bad aspect**: chronic arthritis, inflammation doesn't shut down. NF-kB stuck in ON (慢性发炎：时间长久会影响整个身体的健康)
- Food molecules, e.g. fats in **deep-fried food, shout to NF-kB gene to keep it ON**, churning out lot of inflammatory cytokines (食物分类：炸食油，会使慢性基因持续活跃)
- **Anti-inflammatory drugs**, steroid, NSAID, good for acute, not chronic inflammation. (抗炎药物适合用于短期或紧急发炎治疗)

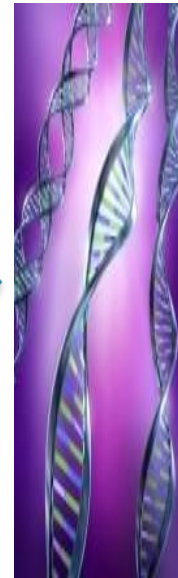
**Sulforaphane, powerful in switching off NF-kB
prevent chronic inflammatory diseases**

Switching ON NF-kB in acute disease gives protection to cells.

Sulforaphane



Nrf2



Detox Enzymes

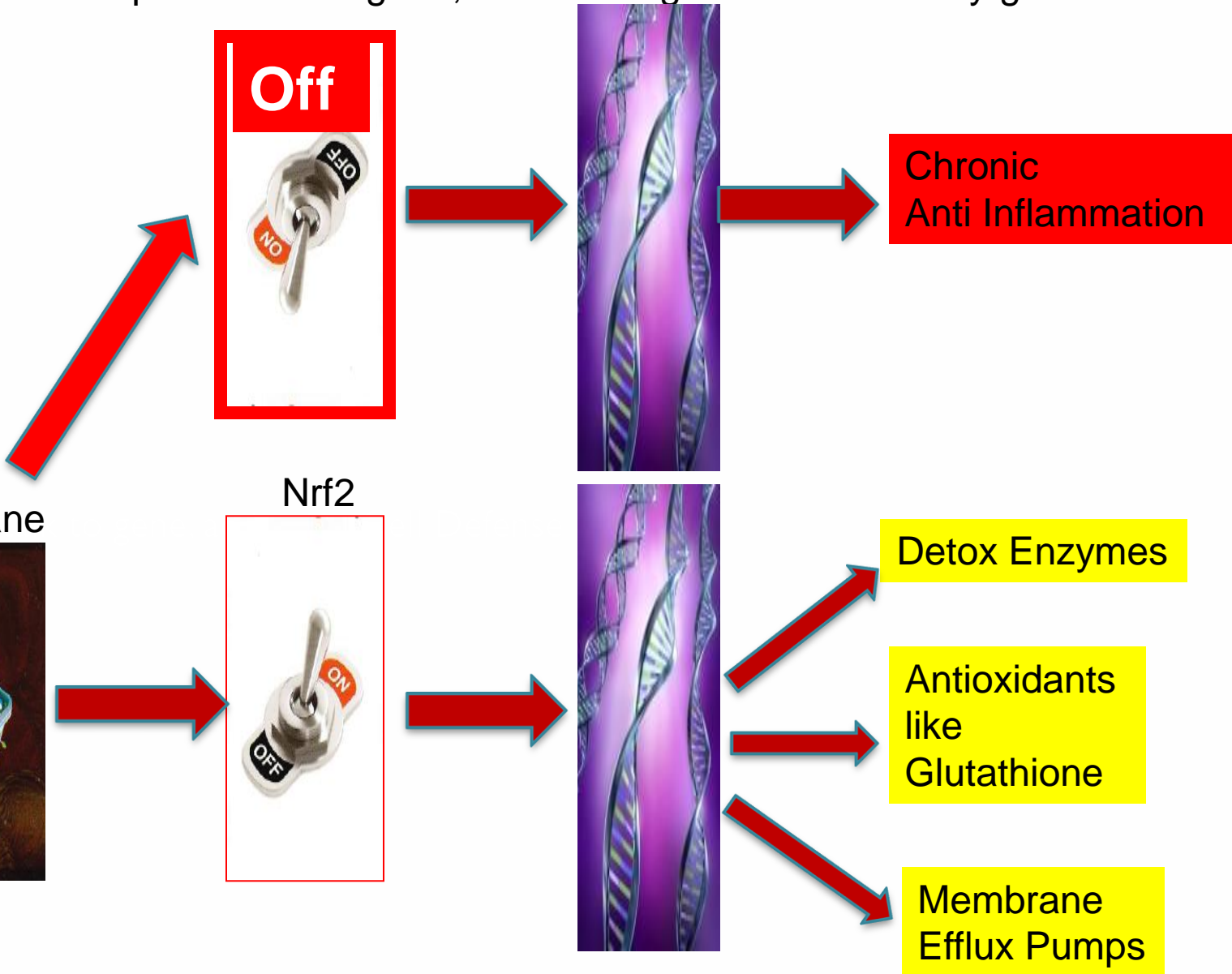
Antioxidants
like
Glutathione

Membrane
Efflux Pumps

Sulforaphane talk to gene, activating Cell Defense Process

Sulforaphane talk to gene, deactivating anti inflammatory gene

Sulforaphane



Sulforaphane talk to gene, activating Cell Defense Process

Sulforaphane formation from inactive precursor

Broccoli don't contain sulforaphane, but precursor
(青花椰菜 没有含有萝卜硫素，但是它拥有前体的
Glucoraphane)

Cooking destroy sulforaphane & myosinase

(通过煮食会损坏生化酶)

Raw broccoli not commonly consumed, few get benefit.
Intestinal bacteria convert 8% glucoraphanin to
sulforaphane

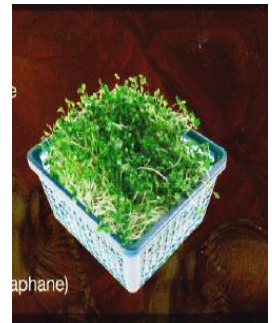
(未煮熟的青花椰菜并不受人接受)

Myosinase
Enzyme
(生化酶)

Glucoraphane
(inactive)

Vacuoles ruptured
by cutting/ chewing
(被切削/咀嚼)

Moisture
saliva
唾液



Sulforaphane

Broccoli sprout has glucoraphanin 50X > mature broccoli

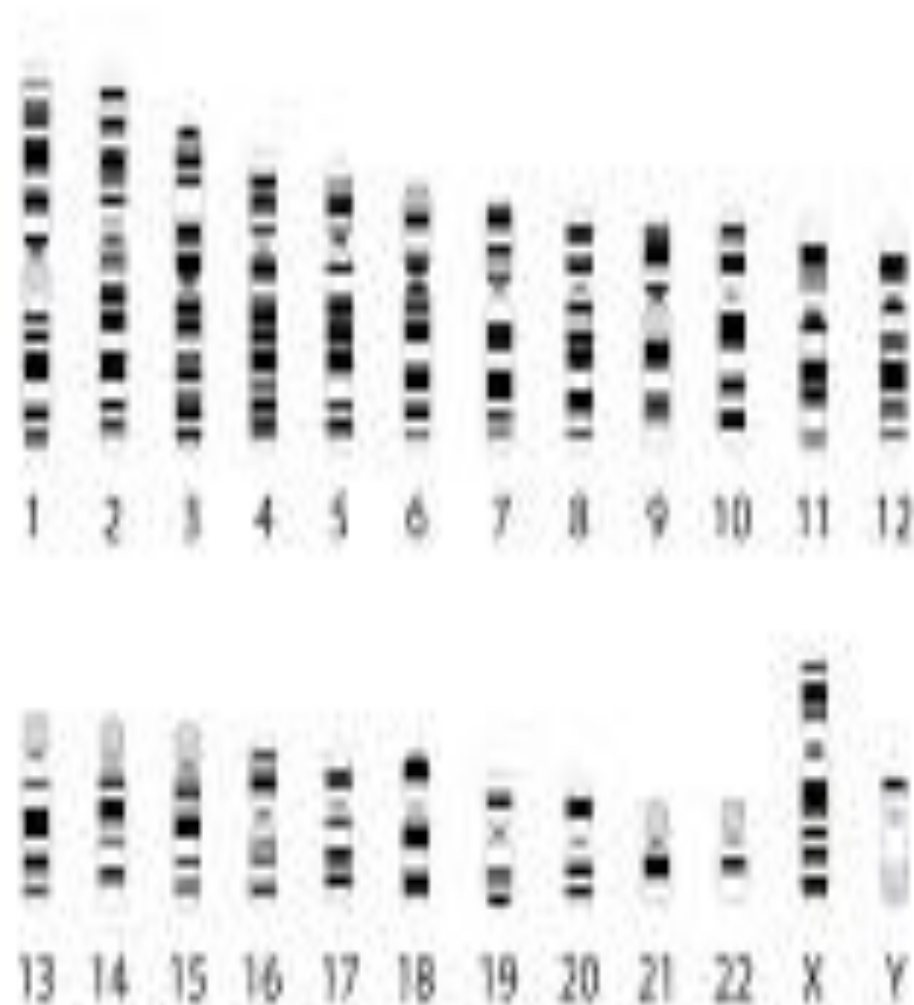
Future of Medicine (明日医学)

- “It is far more important to know what person the disease has than what disease the person has”

(预先知道
疾病的并发好过
疾病的病发后的
预防)

Hippocrates

Idiograms of Human Chromosomes



Future of Medicine

- Preventive (预防)
- Predictive (前兆)
- Participatory (参与)
- Personalized (个性化)

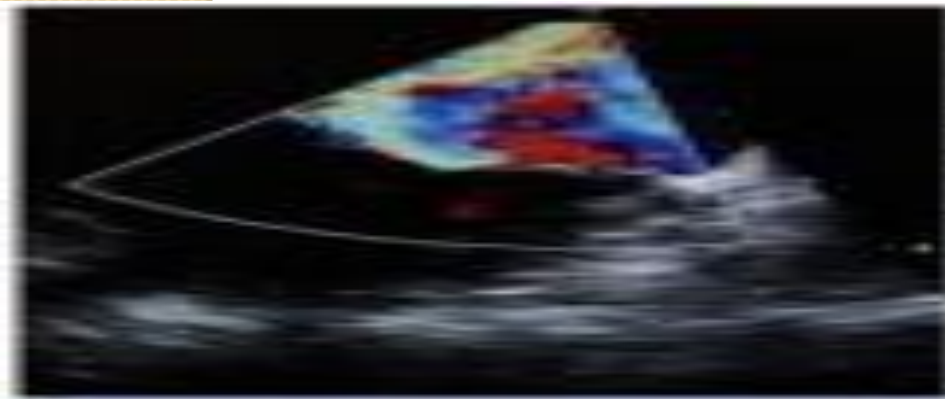
The concept of
preserving health.
(维持健康的概念)



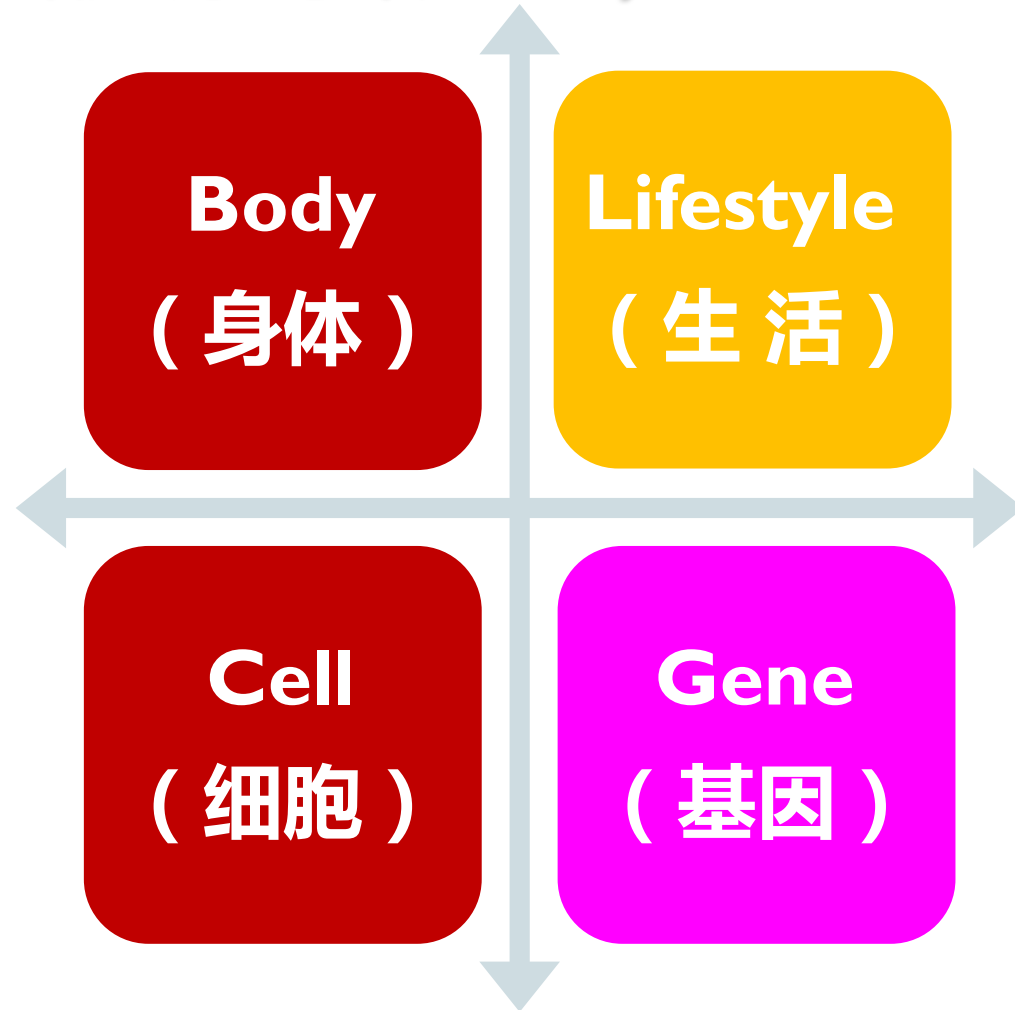
Diseased body Vs Healthy check

(身体疾病及健康检查)

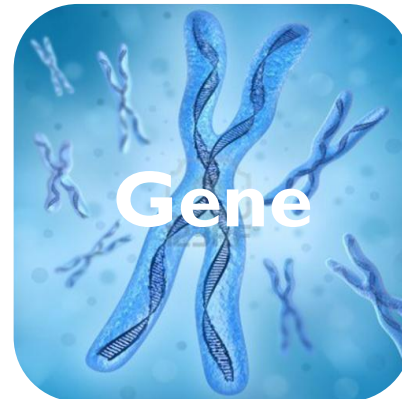
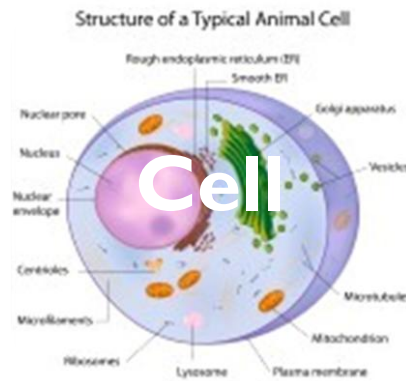
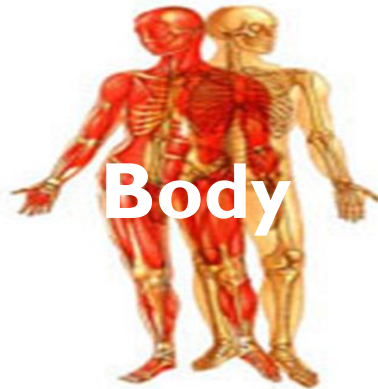
- Blood test
- Urine test
- Saliva
- Body fluid
- Histopathology
- Punch biopsy
- Body check
- DNA/Gene profiling
- Test for future diseases



Gene Wellness Quadrant (基因健康象限点)

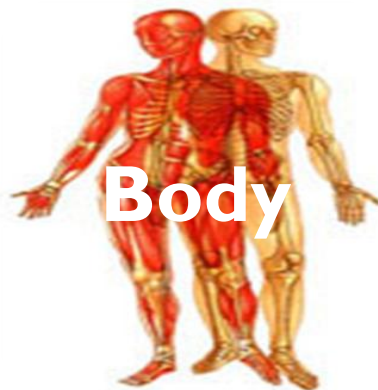


Gene Wellness Quadrant (基因健康象限点)

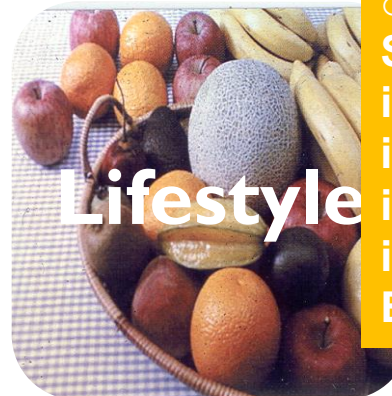


Gene Wellness Quadrant (基因健康象限点)

BMI **kg/m²**
Waist Hip Ratio
 0.7,M;0.8,F
Body fat

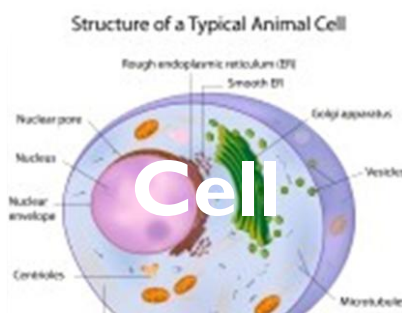


Body



Lifestyle

Diet (饮食)
 ○Small (小)
 ○Frequent (常)
 ○Type (各种)
 ○Preparation (准备)
Stimulant (刺激物)
 i. Alcohol 酒精
 ii. Tobacco 烟草
 iii. Caffeine 吗啡
 iv. Recr drug 药物
Exercise (运动)



Cell



Gene

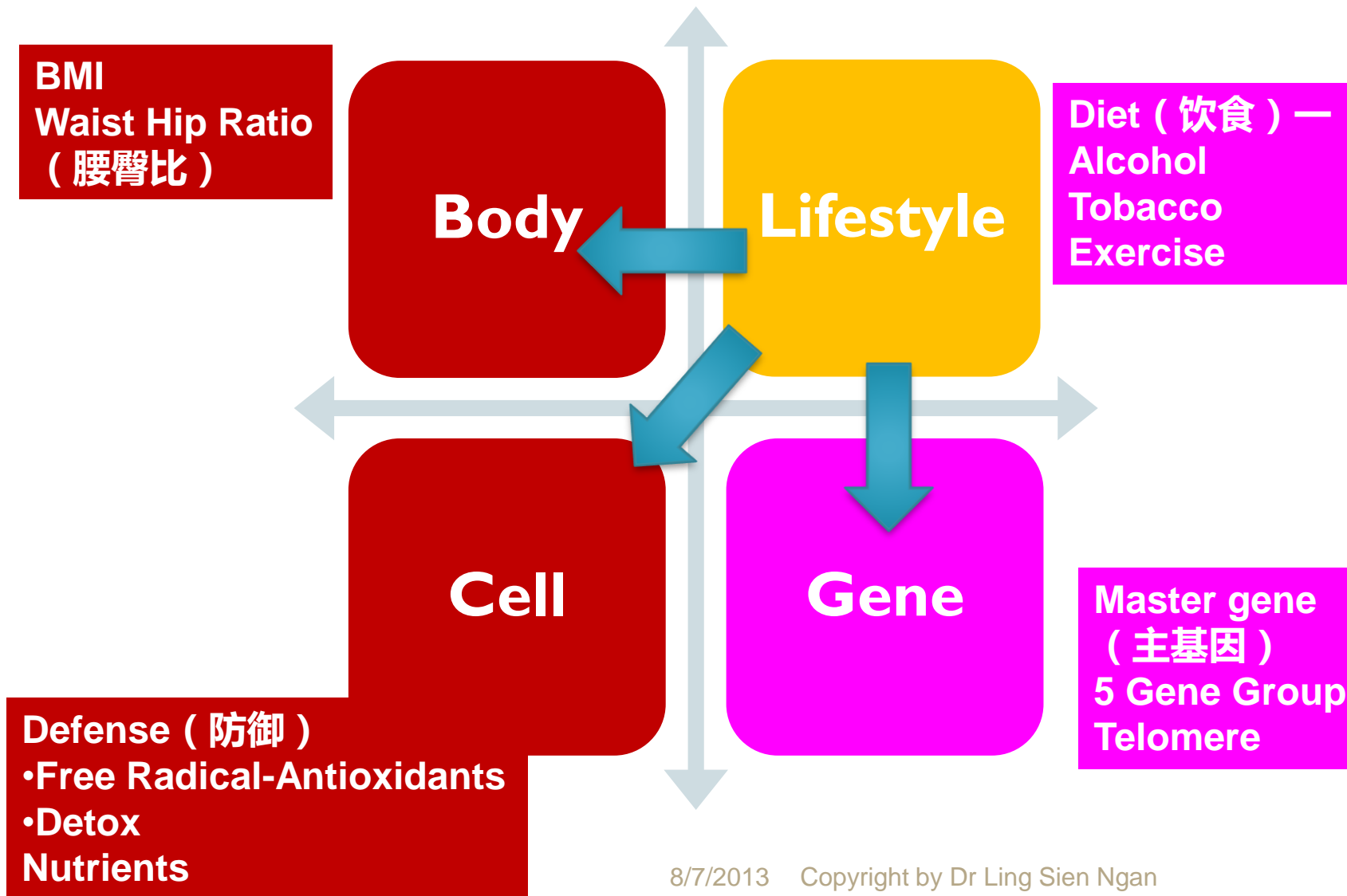
Master gene
Nrf2 (主基因)
NF-KB inflam
Insulin gene
 (胰岛素基因)
5 Gene Group
Telomere
 (基因组织端粒)

Defense 排毒

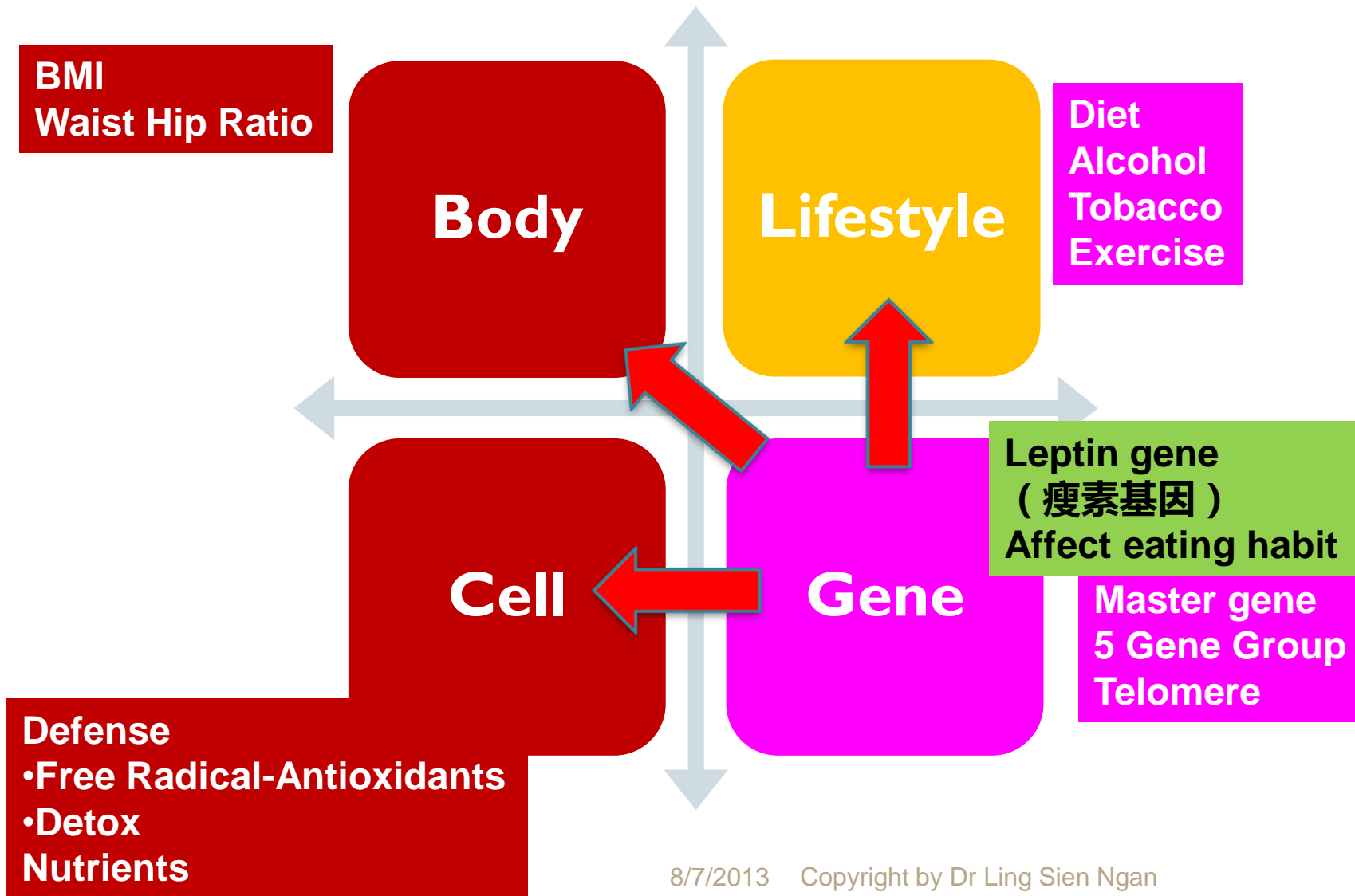
•Free Radical-Antioxidants (自由基的抗氧化剂)
 •Detox 毒素

Nutrients 营养物

Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)

BMI
Waist Hip Ratio

Body

Lifestyle

Diet
Alcohol
Tobacco
Exercise

**Switching on YOUR Good Gene &
own a Healthy Body without Drugs**
**远离药物控制，打开良好的基因，
拥有良好的健康身体**

Defense
•Free Radical-Antioxidants
•Detox
Nutrients

5 Gene Group
Telomere

Gene Wellness Quadrant (基因健康象限点)

BMI
Waist Hip Ratio

Diet
Alcohol

Switching on YOUR Good Gene &
own a Healthy Body without Drugs

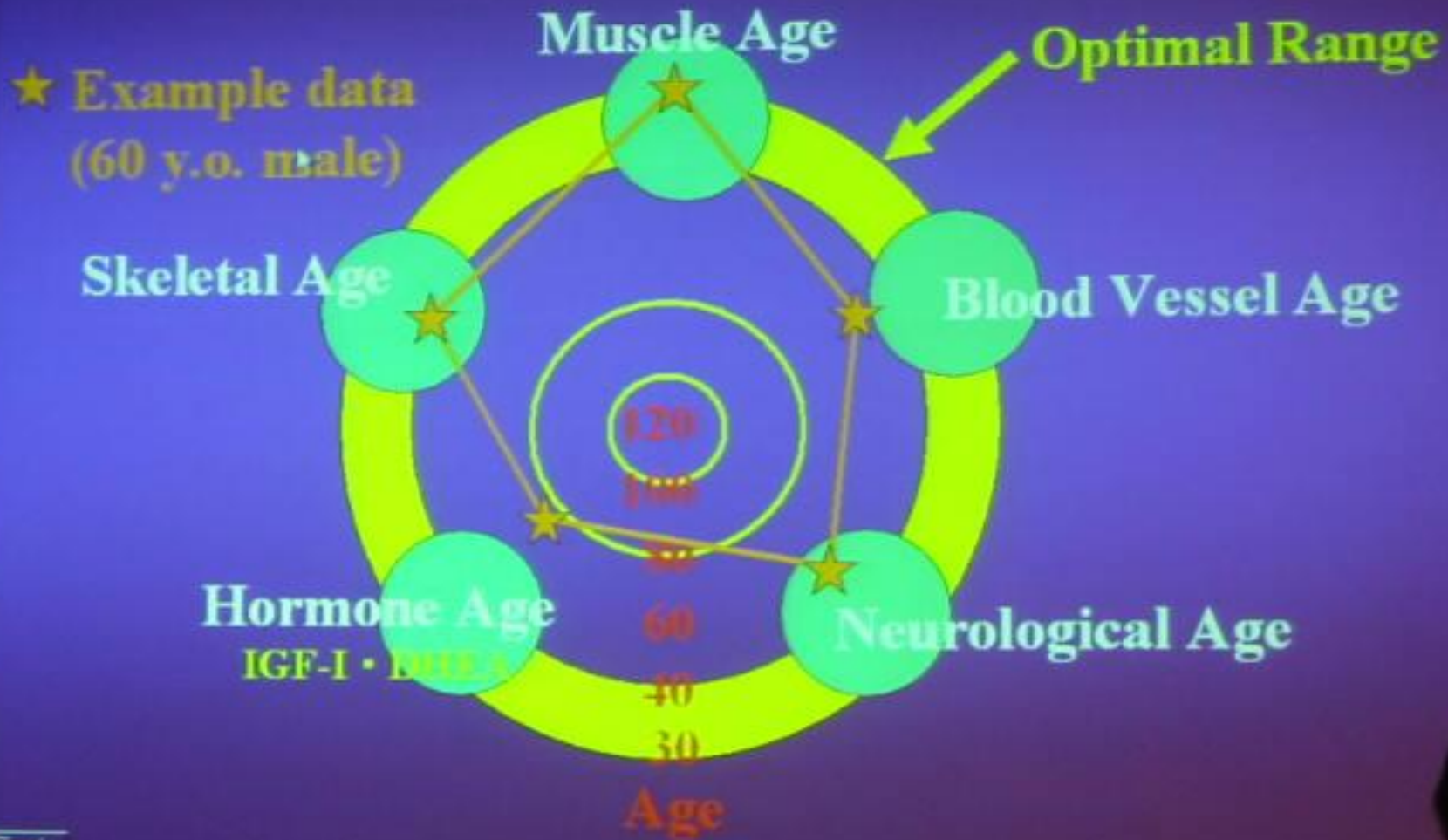
Switching OFF YOUR BAD Gene &
own a Healthy Body without Drugs
远离药物控制，关上坏的基因，
拥有良好的健康身体

• Free Radical-Antioxidants
• Detox
Nutrients

gene
Group
re

What is Unbalanced aging (不平衡老化)

Optimal Health and Diagnosis of Aging





“Eliminating the Guesswork”

排除猜测性的工作

Accuracy (准确度)

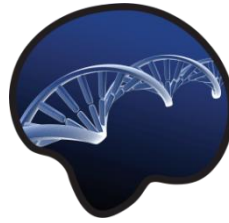
Reliability (可靠性)

Measurability
(测量性)

SUSTAINABILITY
(持续性)



**Your
Genotype
(基因型)
Vs.
Phenotype
(表型)**



Genotype



Exercise



Thinking



Food

**Your Choices
and Goals**



**How you look, how you
feel and your current
fitness level**

Phenotype

i.e. Fitness level – fit or unfit

Also Cholesterol Regulation

- CETP
- LIPC
- APOA-1
- PON-1

Also Bone Health

- Col1A1
- VDR

- PPAR γ
- ADRB2
- ADRB3
- ADIPOQ

- CYP1A1
- CYP1B1
- GSTP1
- GCLM
- NQ01
- H0-1

- ADRB2
- ADRB3
- UCP1
- UCP3

- FTO
- LEPR

Maximise your Health Potential

Healthy Living -
Healthy Ageing

Gene Expression

Genotype
& Cell
Function

Cell Health

1) Reduce
Inflammation

2) Minimise
Free Radical
Activity

3) Improve
circulation

4) Healthy nutrition

(Taste & Satiety)

- TAS2R38

6) Remove toxins
(detox)

5) Optimise
metabolism

7) Burn fat

- IL-6
- TNF α
- CRP

- MnSOD
- GPX1
- Cat

- MTHFR
- CBS
- ACE
- AGT
- AGTR1
- eNOS
- PAI-1
- F-7

Group 1 – Inflammation & Immune Response

炎症和免疫反应

Pro –inflammatory Proteins

- Interleukin 6 (**IL-6**)
- Tumor necrosis factor alpha (**TNF α**)

Acute phase inflammation

- C- reactive protein (**CRP**) – 2 SNP's

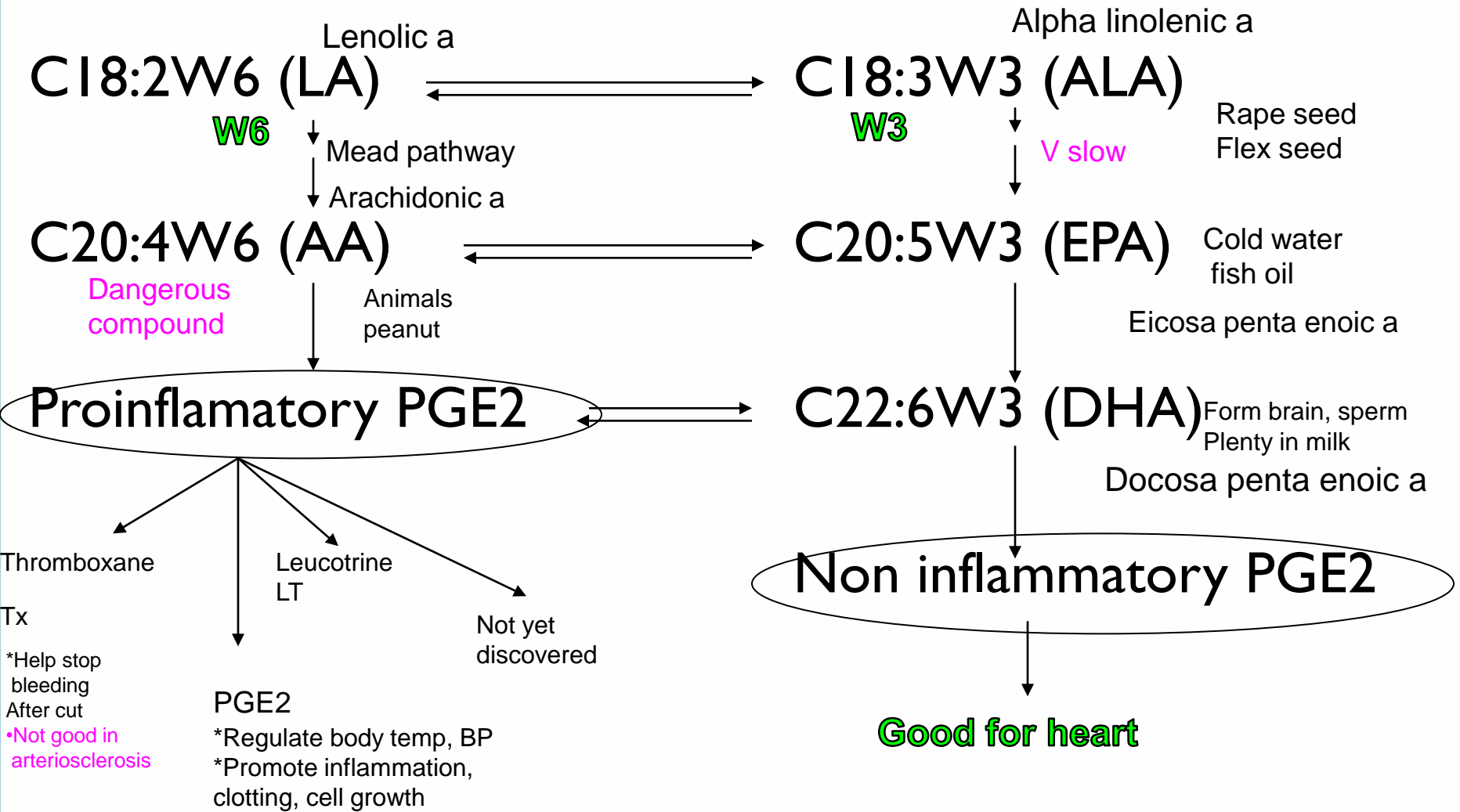
Analogy:
Sledge hammer & thumb tack.
Drug simply not specific,
cause collateral damage.

- **NF-kB, NF kappa B: cell Inflammation gene.**
- It activate gene which promote Inflammation
- **Good aspect** of inflammation:
- Insect bite; red, hot, swollen, inflammation wall off location, protect further damage
- **Bad aspect:** chronic arthritis, inflammation doesn't shut down. NF-kB stuck in ON
- Food molecules, e.g. fats in **deep-fried food, shout to NF-kB gene to keep it ON**, churning out lot of inflammatory cytokines
- **Anti-inflammatory drugs**, steroid, NSAID, good for acute, not chronic inflammation.

**Sulforaphane, powerful in switching off NF-kB
prevent chronic inflammatory diseases**

Switching ON NF-kB in acute disease gives protection to cells.

W3,W6,W7,W9 metabolism (新陈代谢)



Ratios of omega FA (健康替代品)

- For long term balanced FA use:
- W 3,6,9 is 2:1:1 → Udo Erasmus found
- W 3,6 is 1:40 → in today's USA diet
- Impossible for normal diet **W3 > W6** (usually **1:6 only** !)
- In order for **W3 > W6 by 2:1** → can take fish oil supp ,of >> dose
- W3 don't cause toxicity. More the merrier. More → less risk of CAD



Group 2- Cell Defence (細胞防衛)

Cellular Anti – oxidant Defence (Soldier & Enemy)

- Manganese Superoxide dismutase (***MnSOD***)
- Glutathione peroxidase (***GPX1***)
- Catalase (***CAT***)

Detoxification - Phase I

- CYP1A1
- CYP1B1

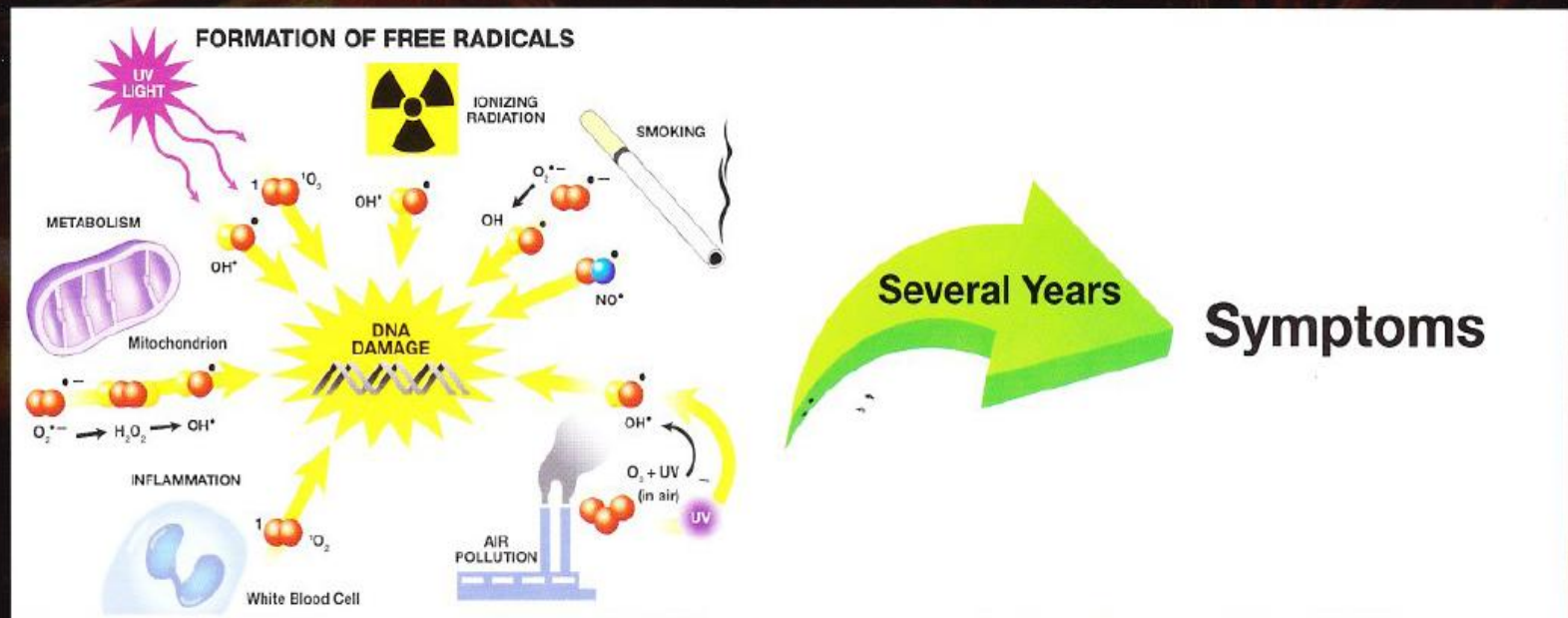
Free Radicals

Free radicals produced by oxidative stress is the major cause of damage to our DNA and the cells in our body.

• Sources of Free Radicals include:

- Inflammation
- Smoking and/or passive smoke
- Deep fried and/or burnt food
- Strenuous exercise and/or workouts
- Medications
- Alcohol and/or coffee
- Sunlight and/ or UV rays
- Food preservatives and/or additives
- Stress
- Pollution, chemicals and/ or toxins

The effects of Free radical damage on DNA and cell health can take several years to become evident.



O₃ is free radical

超氧化物是自由基

- How diabetes at increased risk?
- (如何造成糖尿病增加的风险)

In cell & Mitochondria 粒线体

EXTRA Glucose + O₂-----→ATP + EXTRA O₃ superoxide

EXTRA O₃ than can't handle:
→oxidative stress 氧化应激
→all other disease a/w DM

超氧化自由基是如何形成？

- How **Superoxide Free Radical** formed?

In Mitochondria

Glucose + O₂-----→energy ATP + O₃, superoxide

- 2-4% O₂ don't get used, instead converted to free radical, called superoxide
- SOD, **Superoxide Dismutase** rescue:

SOD enzyme

Catalase

superoxide radicals(2)-----→ H₂O₂-----→O₂+H₂O

GPx

Major pathway quenching superoxide

Specially formulated to take advantage of the cell-protective properties of 2 key potent nutrigenomic plant-based compounds:

- Melon - derived **Superoxide Dismutase**
- Broccoli Sprout - derived **Sulforaphane**

Evidence - based functional foods with potent nutrigenomic effects



Broccoli Sprouts

Phyllanthus Emblica

High-SOD Melon

Also included, Phyllanthus Emblica (Indian Gooseberry), to:

- ✓ prevent the overactivity of collagenase which breaks down the integrity of the skin
- ✓ reduce joint inflammation associated with arthritis
- ✓ normalize dyslipidaemia
- ✓ counters the damaging oxidative effects of cigarette smoking, a known contributor to premature ageing

Recommended usage

1 sachet twice daily

Ingredients

Melon-derived Superoxide Dismutase

造成疾病最基本的根源是氧化应激

- Primary event leading to any disease is oxidative stress

Oxidative stress

Free radical overwhelm antioxidant-----→ All diseases

Free radical quickly removed-----→ Healthy, no disease

- Closer getting to source of cause, better preventing getting out of control. Upstream factors refer to earliest event in disease.
- Free radical responsible for starting chain reaction. Logical to deal with free radical
- Drug deal with symptom, downstream effect.

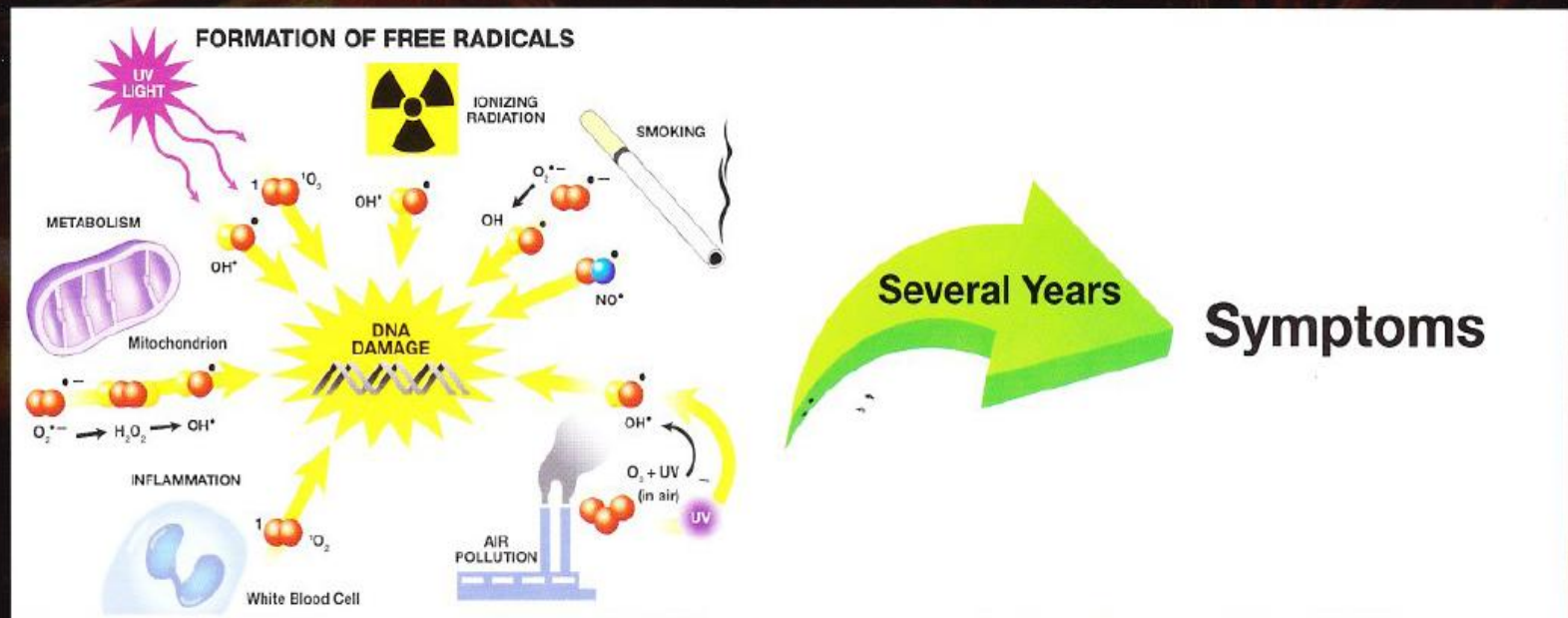
Free Radicals

Free radicals produced by oxidative stress is the major cause of damage to our DNA and the cells in our body.

• Sources of Free Radicals include:

- Inflammation
- Smoking and/or passive smoke
- Deep fried and/or burnt food
- Strenuous exercise and/or workouts
- Medications
- Alcohol and/or coffee
- Sunlight and/ or UV rays
- Food preservatives and/or additives
- Stress
- Pollution, chemicals and/ or toxins

The effects of Free radical damage on DNA and cell health can take several years to become evident.



The Anti-oxidant Hierarchy (抗氧化剂层次)

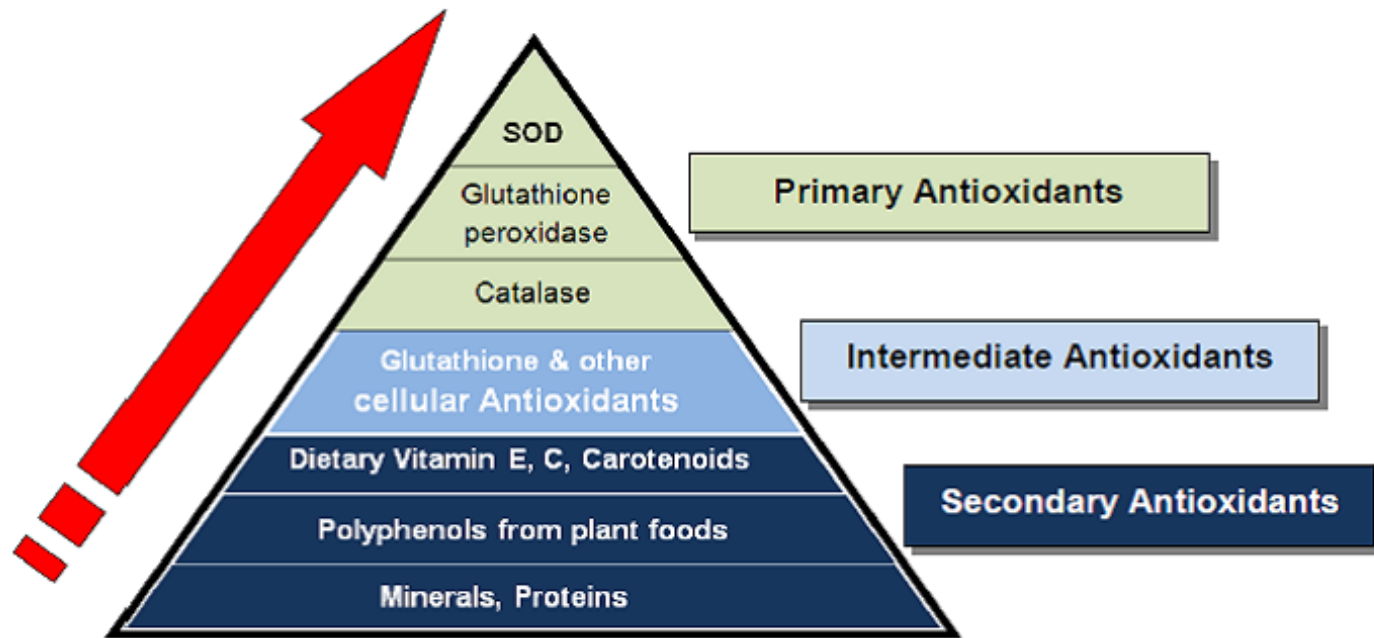
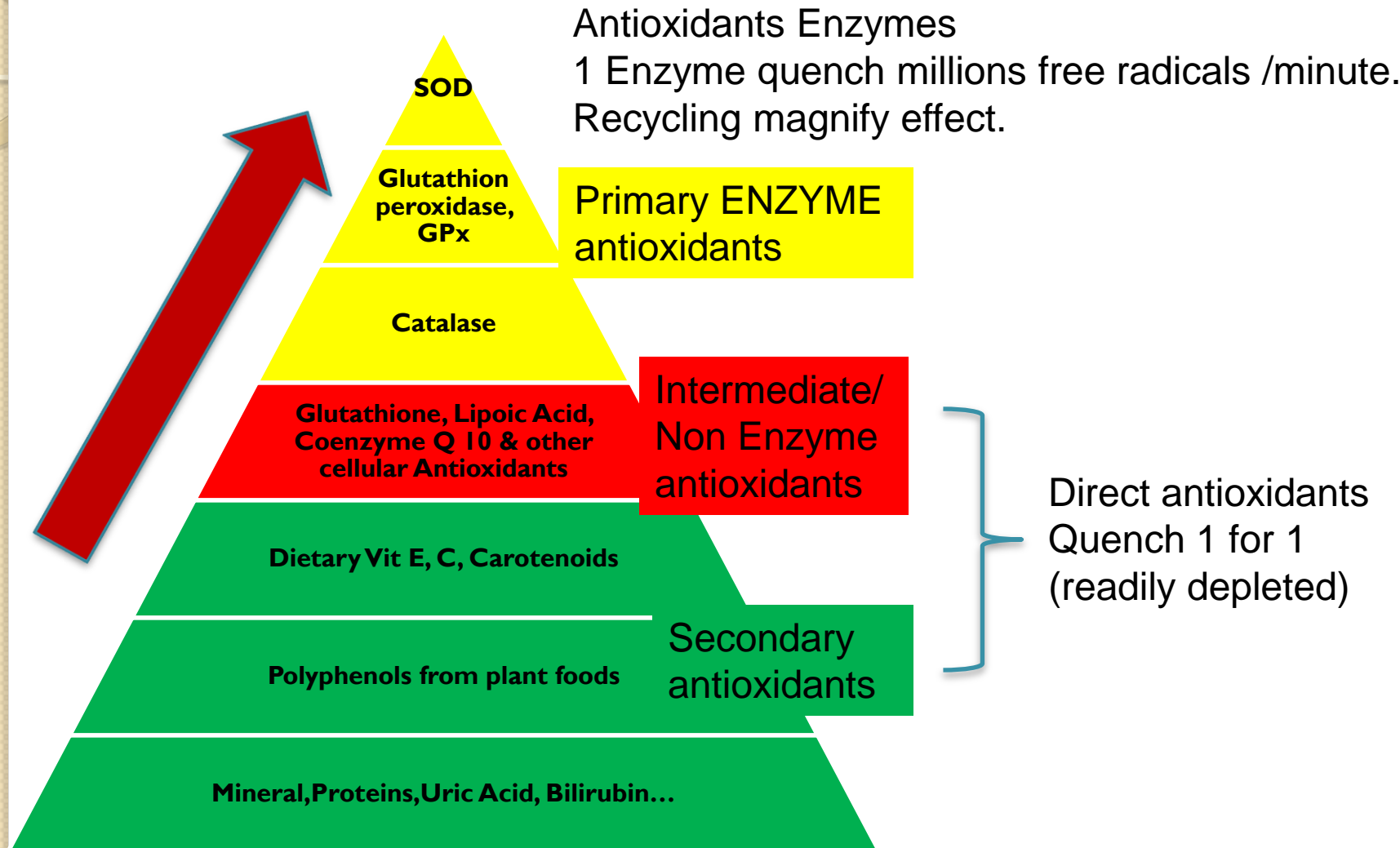


Figure 3 Increasingly Protective Effect with progress up the Pyramid

- **Ref.** "Switched On" – Harnessing the Power of Nutrigenomics, C Houghton, ,Integra Publishing, 2010.

Antioxidant Hierarchy



Increasing protective effect, with progress up the pyramid

Primary Anti-oxidant Pathway (抗氧剂途径)

STEP 1

2 x Superoxide radicals



Hydrogen peroxide

SOD Enzyme

STEP 2

2 x Hydrogen peroxide



Oxygen + Water

Catalase

Glutathione peroxidase

The major pathway used by the Primary Antioxidants in quenching Superoxide

- *Ref. "Switched On" – Harnessing the Power of Nutrigenomics, C Houghton, ,Integra Publishing, 2010.*

Group 2- Cell Defence (cont-操纵)

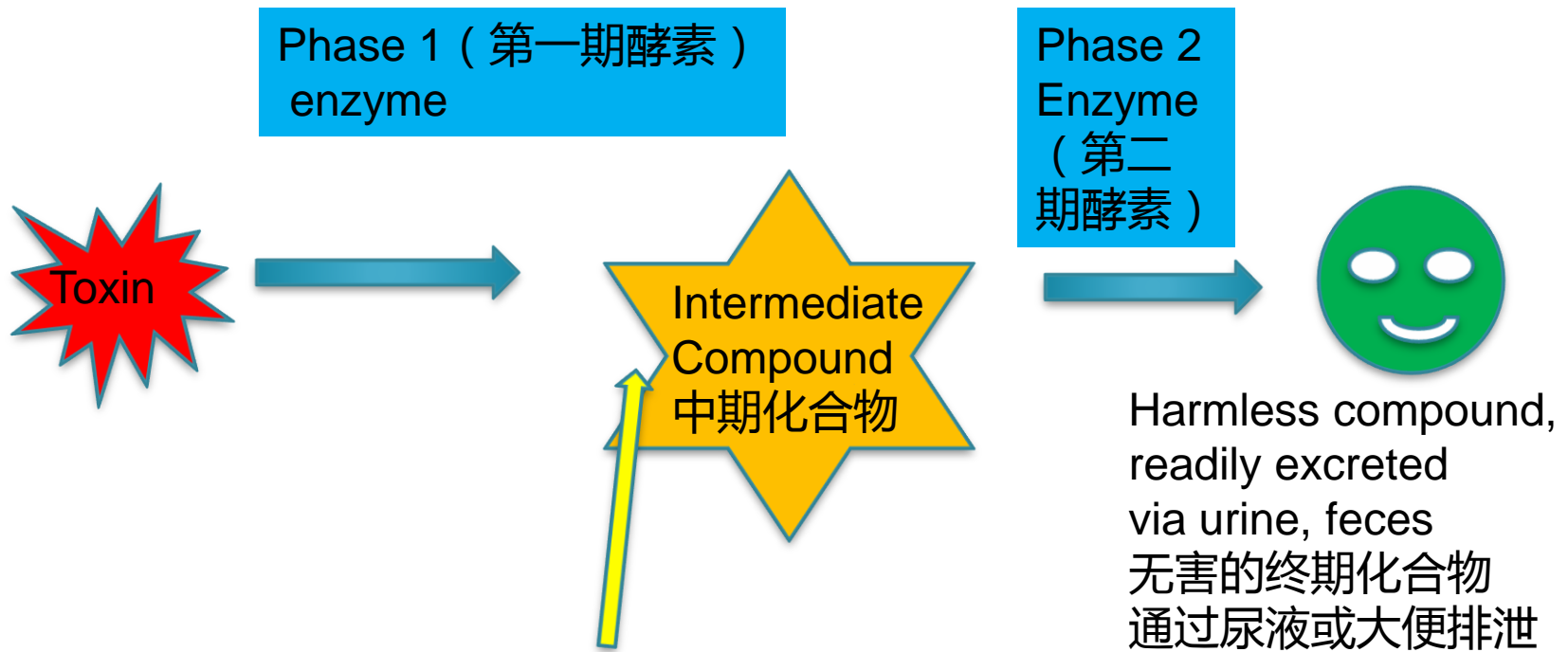
Cellular Anti – oxidant Defence

- MnSOD
- GPX1
- CAT

Detoxification - Phase I

- Cytochrome P450 1A1 (***CYP1A1***)
- Cytochrome P450 1B1 (***CYP1B1***)

Detox process (排毒过程)



Antioxidant reserve protect against free radical damage.
Intermediate compound may be more toxic than initial toxin

Detox & cell defense

- Cell need keep clean, waste removed to function at peak
- Body has sophisticated self cleaning, self tuning model
- Feed antioxidant, avoid over stressing
- Depending individual DNA blueprint, you may not need focus consciously on certain aspect of its function
- What is wrong @ cell level isn't corrected permanently by mainstream drug

Analogy : Car performance-failure to change oil, engine clogged.
Red warning light @ dashboard, telling you need oil change.
Too busy to bother.
Disconnected wire, no more annoying red light.

We pay more attention looking after our car than own body

- Parallel situation
- Use drug to rid symptoms:
 - i. Anti-inflammatory not fixing underlying inflamed joint
 - ii. Anti hypertensive not fixing underlying cause
- Cell has build in spring cleaning system or Detox
- Molecular switch Nrf2, once activated, move from cytoplasm to nucleus, line with genes governing defense system, switches ON 200+ genes on Detox

Analogy:

Prescription just like disconnecting red bulbs.

Cause continue ticking in background.

Eventually unable to cope, serious disease suddenly appear.

Now developed suddenly!

- **3 legs Detox stool:**

- 1. antioxidant status— quench excess radical
- 2. detox mechanism—break toxin down to harmless substance
- 3. Efflux pump— pumping toxic out by activating shuttles in cell membrane
- Nrf2 activate all 3 aspect of detox

E.g. detox process:

Eaten fresh spinach with pesticide, enter cell.

Phase 1: toxin attacked by enzyme(cytochrome P450), producing intermediate

Phase 2: 3 phase 2 Detox enzyme

(Glutathione-s-transferase, GST, Quinone reductase),
break intermediate to harmless compound

If antioxidant reserve inadequate, intermediate severely damage cell

Group 2- Cell Defence (cont)

Detoxification - Phase II

- Glutathione Transferase P1 (GSTP1)
- Glutamate Cysteine Ligase Modifier (GCLM)
- Quinone Reductase (NQO1)
- Heme Oxygenase – 1 (HO-1)

Group 3 – Cardiovascular Health

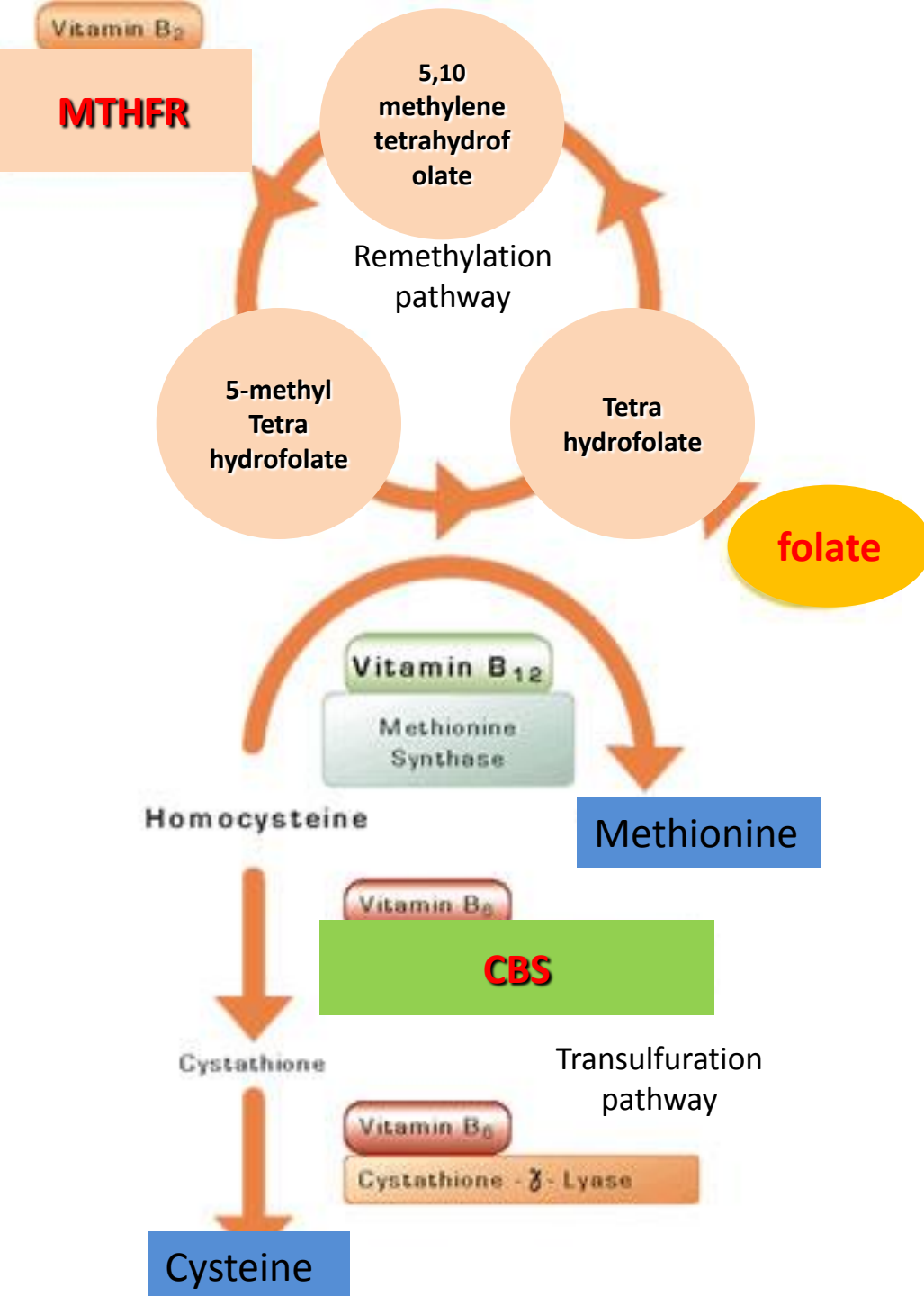
心血管健康

Homocysteine Metabolism (同行半胱氨酸代谢)

- Methylene tetrahydrofolate reductase (**MTHFR**) – 2 SNP's
- Cystathionine β -synthase (**CBS**)

Blood Pressure Regulation (血压调节)

- Angiotensin I converting enzyme (**ACE**)
- Angiotensin (**AGT**)
- Angiotensin II Receptor (**AGTR1**)
- Endothelial nitric oxide synthase (**eNOS**)



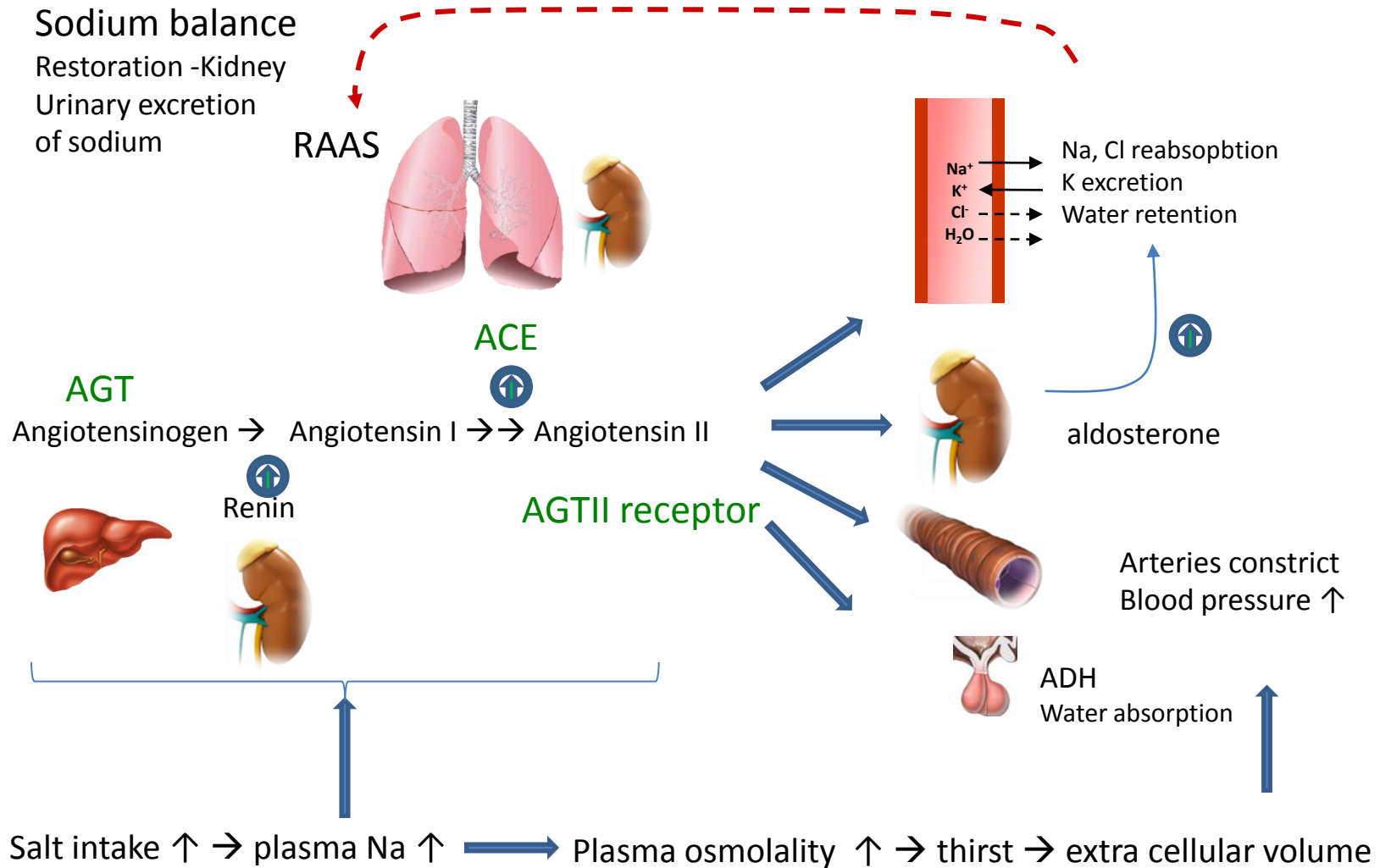
Folate-homocysteine metabolism

Folate converts homocysteine to methionine

To S adenosyl methionine (SAM) which is needed for methylation of DNA
Which controls gene expression

Homocysteine level increases
When
1)MTHFR variant
2)Low in folate
3)B12 is low
Need both!

RAAS



Group 3 – Cardiovascular Health (cont)

Blood Coagulation

- Plasminogen Activator Inhibitor – 1 (***PAI-1***)
- Coagulation Factor F7 (***F-7***)

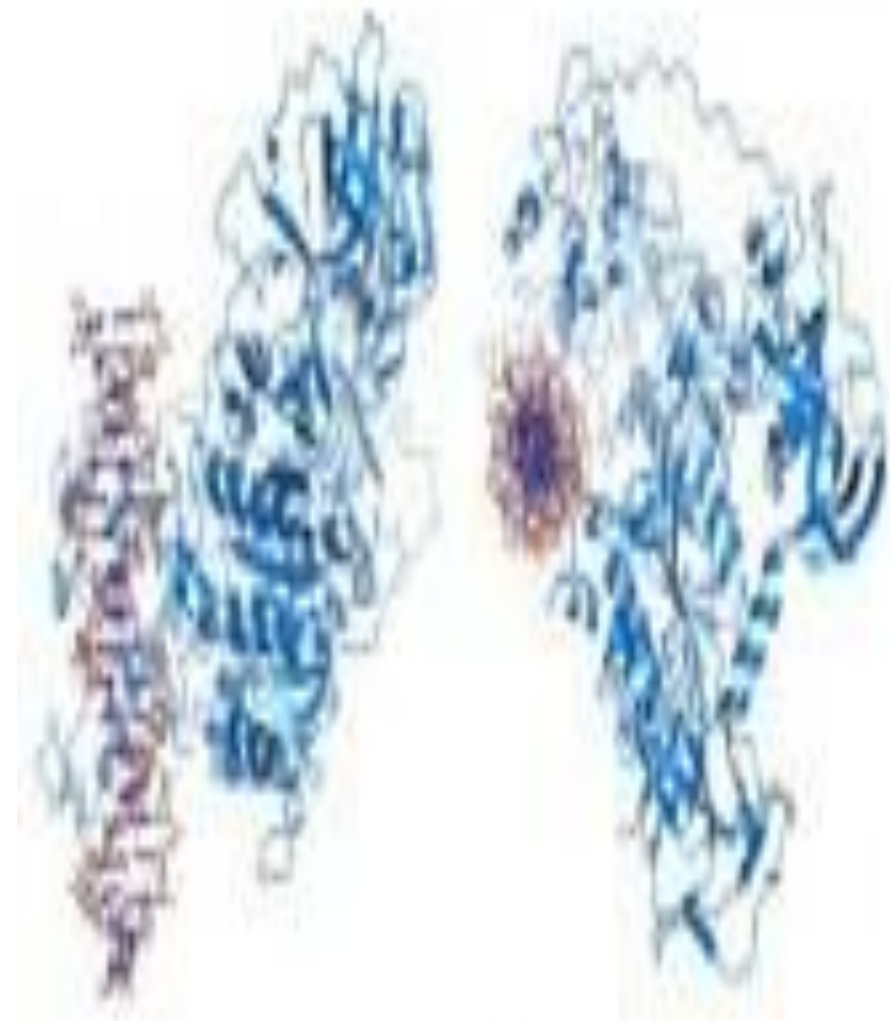
Group 4 – Fat Metabolism & Cholesterol Regulation

a) Fat Metabolism

- Peroxisome proliferator-activated (**PPAR γ**)
- Adiponectin (**ADIPOQ**)

a) Energy Metabolism and Thermogenesis

- ADR β 2
- ADR β 2
- UCP1
- UCP3



Group 4 – Fat Metabolism & Cholesterol Regulation

a) Fat Metabolism

- PPAR γ
- ADIPOQ

a) Energy Metabolism and Thermogenesis

- Adrenergic Receptor Beta – 2 (***ADR β 2***)
- Adrenergic Receptor Beta – 3 (***ADR β 3***)
- Uncoupling Protein 1 (***UCP1***)
- Uncoupling Protein 3 (***UCP3***)

Group 4 – Fat Metabolism & Cholesterol Regulation

a) Cholesterol Regulation

- Cholesterol ester transfer protein (**CETP**)
- Hepatic lipase (**LIPC**)
- Apolipoprotein A-1 (**APOA-1**)
- Paraoxonase – 1 (**PON1**)

a) Leptin – Insulin Signalling Pathway

- FTO
- LEPR - 2 SNP's

Group 4 – Fat Metabolism & Cholesterol Regulation

新陈代谢和胆固醇调节

a) Cholesterol Regulation

- CETP
- LIPC
- APOA-1
- PON1

a) Leptin – Insulin Signalling Pathway 胰岛素信号通路

- Fat Mass and Obesity (**FTO**) 脂肪量和肥胖
- Leptin Receptor (**LEPR**) - 2 SNP's 瘦素受体

Group 5 – Taste and Satiety

味道和饱腹感

Taste

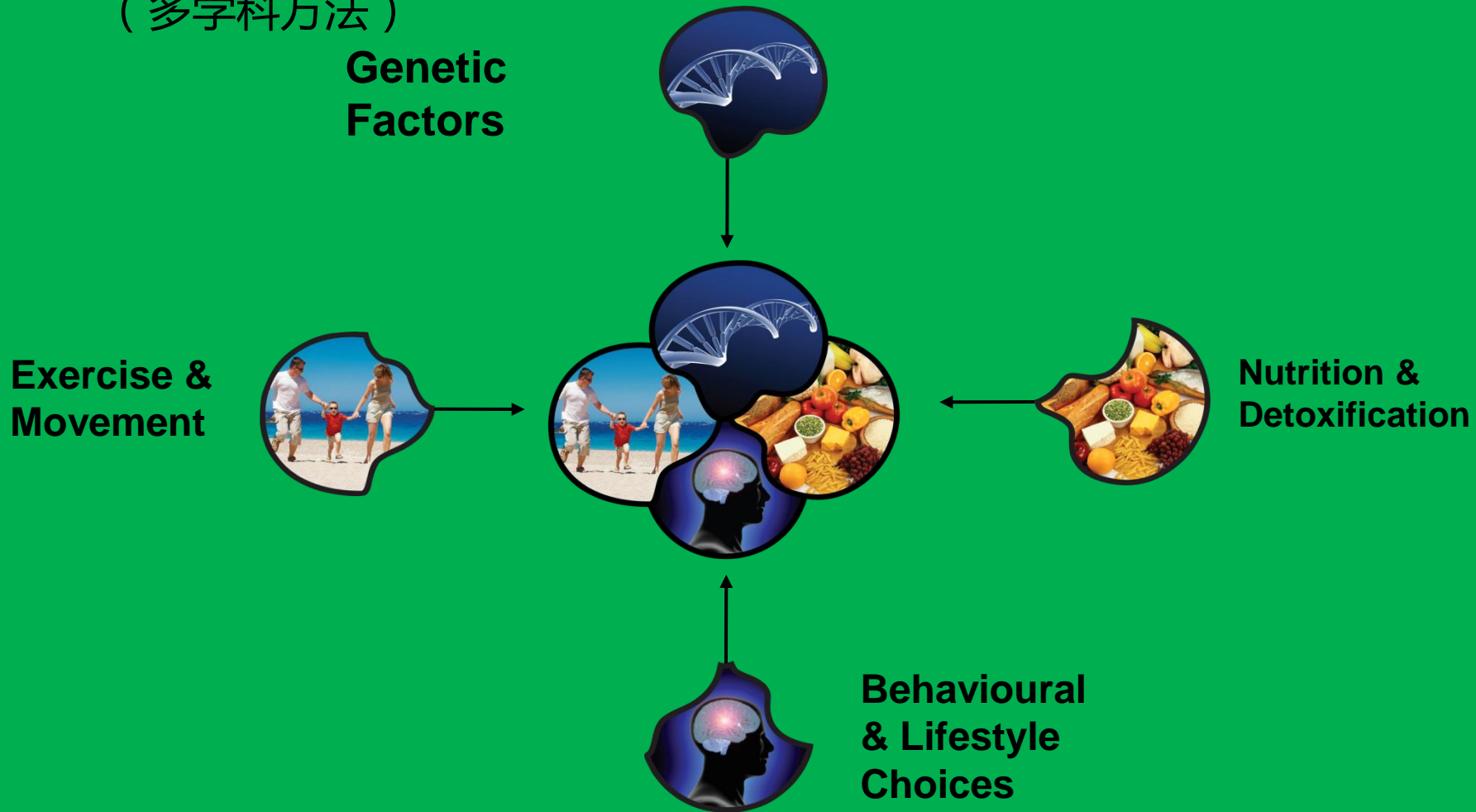
- Taste Receptor type 2, member 28 (***TAS2R38***) – 3 SNP's

Group 6 – Bone Health (骨骼保健)

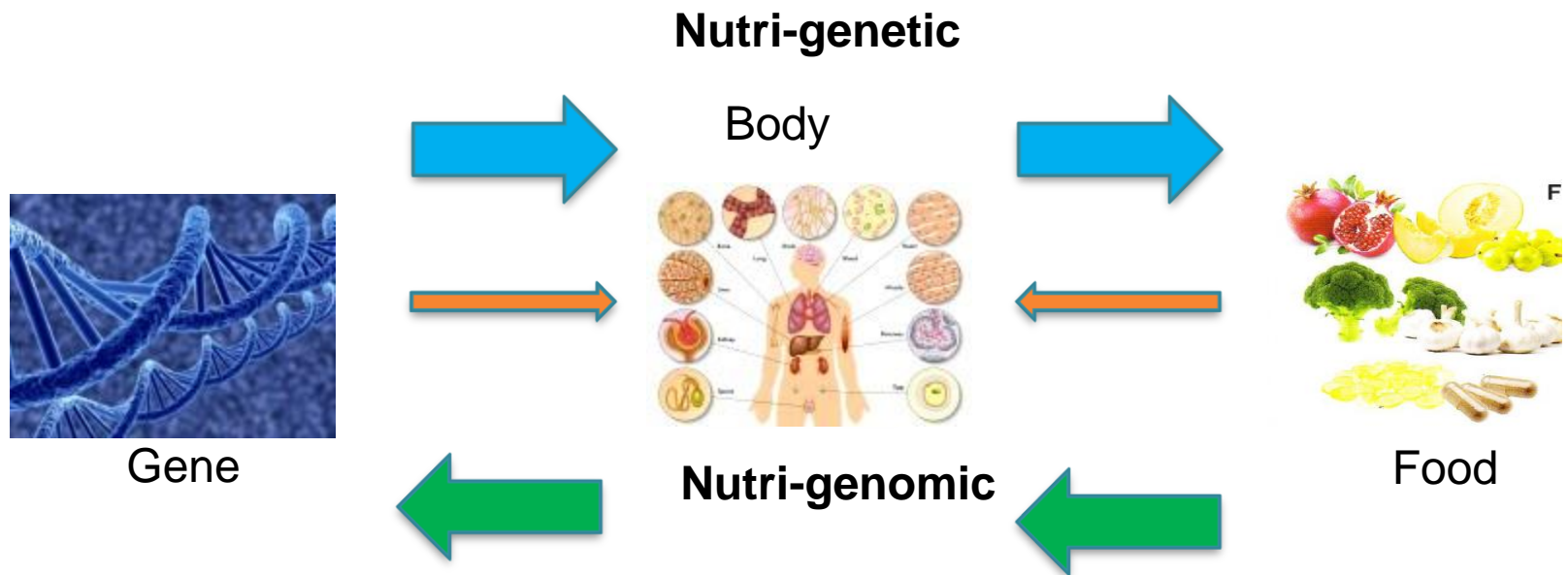
- Collagen type 1 alpha 1 (*Col1A1*)
- Vitamin D Receptor (*VDR*)

Multi-discipline Approach

(多学科方法)



Nutrigenomic Vs Nutrigenetic (营养基因组)



Nutrigenomics (营养基因)

- Explains how foods(nutrients) interact with genes.
- ‘Your food talking to your genes’.
- Good food and lifestyle send ‘healthy’ messages to your genes, poor choices damage DNA in our genes leading to disease.
- Real power of Nutrigenomics lies in the identification and application of powerful food derived biomolecules capable of ‘switching on’ certain genes associated with cellular health.
- Genome Based Healthy Ageing Healthy Living Programme



Detox Enzymes

**Antioxidants
like
Glutathione**

**Membrane
Efflux Pumps**

Epigenetic (后生的)

2003 human Genome Project completed
Only 25,000 gene –too few!

- Another layer complexity
- Provide **modifiable chemical code within genetic** material
- Is **sister discipline to Nutrigenomics**
- Epigenetic changes to DNA: **like adding detachable paper clip here & there, making subtle change to gene expression(heritable)**

Epigenetic

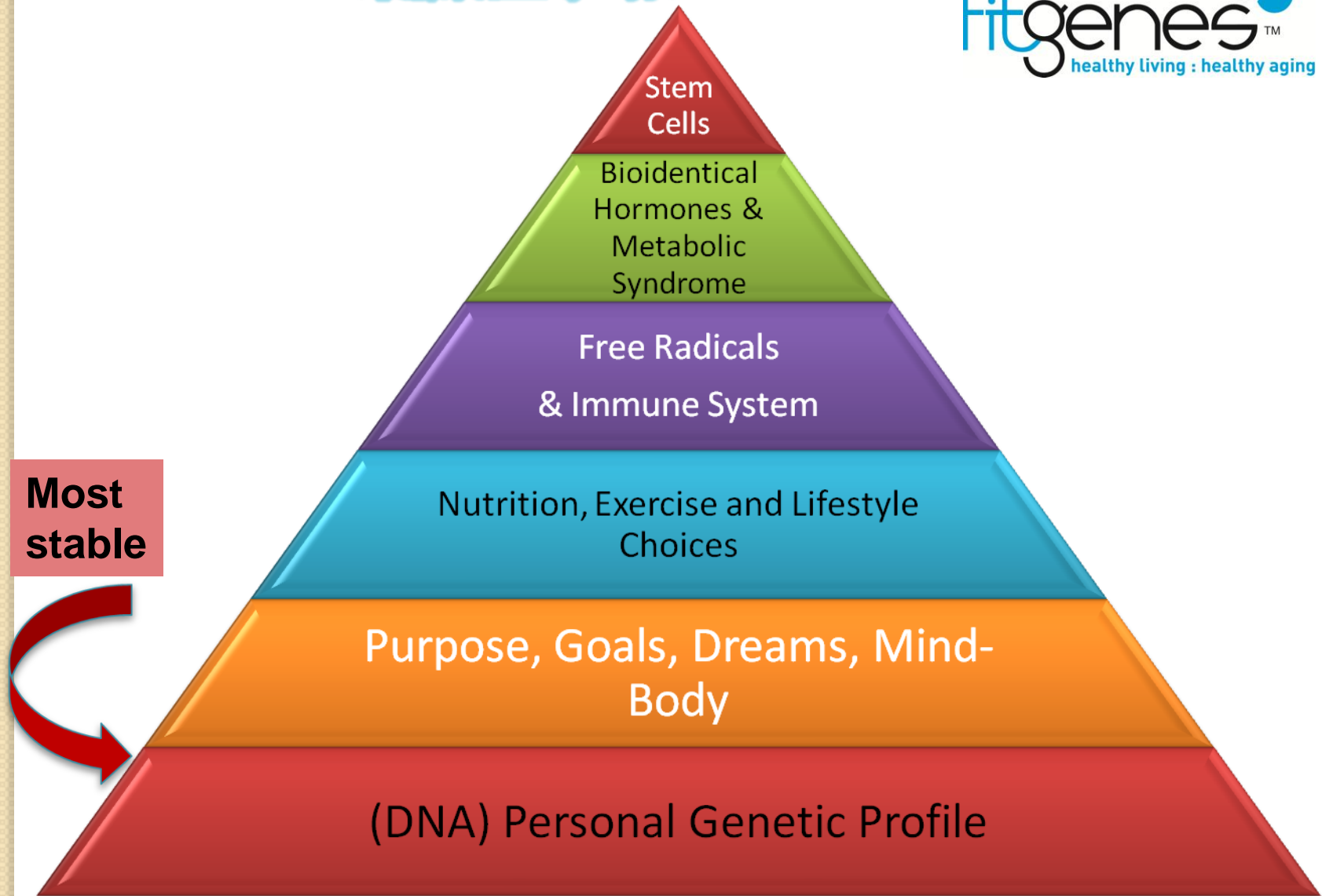
1st contact baby with mother's milk(colostrum),
signal send to baby's genome.

Lifetime **consequences to baby fed
early in life with processed** food.

- During our pre-reproductive year, parents responsible for our genome we inherit, that we pass on to our kids
- Most of us abusing our body during childhood, pushing cell to the limit

- Result of modern tech, we are exposed to huge changes, our **body not able adapt fast enough**. **We come to 21st century, but still dressed in Stone Age body** (我们的身体基因操作追不上现代化的食物改变)
- **Our genome know nothing about refined sugar.** (我们的身体基因未知道精制糖)
- 8th generation since we had access to sugar**, not sufficient for cell to adapt yet! Same **true for all processed foods**, including additives. **Cell over burdened trying to detox** foreign chemical
- Sulforaphane from food can activate switches, in turn can **switch on lazy gene, or off over active gene.**

Personal Health Pyramid (健康金字塔)



Your Genetic **ID** Card

Now, Know
Your Risk for
Deadly Diseases
...and How to
Fight Them



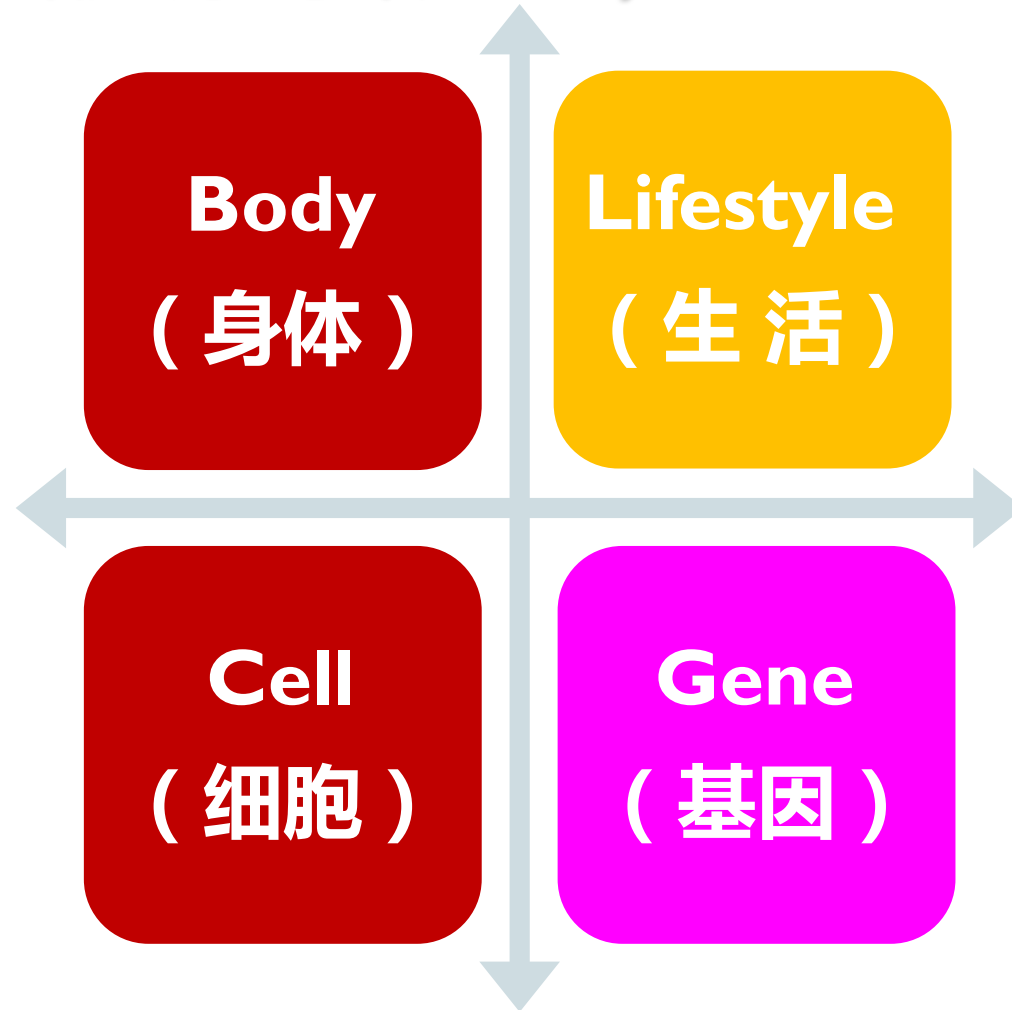
基因象征你的身份证

HEALTH IS A CHOICE

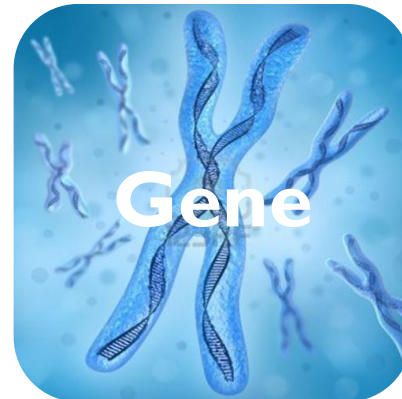
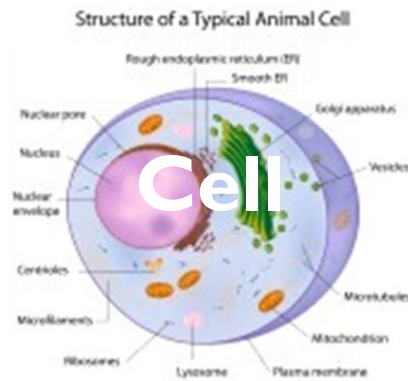
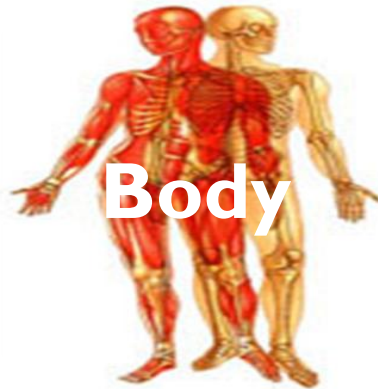
保健是最佳的选择.

- GOOD NEWS AND BAD NEWS IS: OUR FUTURE HEALTH LIES IN OUR OWN HANDS. (你的健康操纵在你圣神的手中)
- EMPOWER OURSELVES TO LOOK AFTER OUR OWN HEALTH.
- PERSONAL RESPONSIBILITY 个人的责任.

Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)

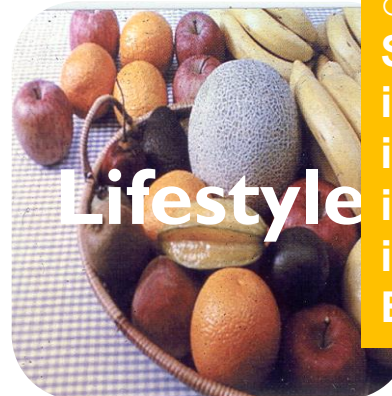


Gene Wellness Quadrant (基因健康象限点)

BMI **kg/m²**
Waist Hip Ratio
 0.7,M;0.8,F
Body fat

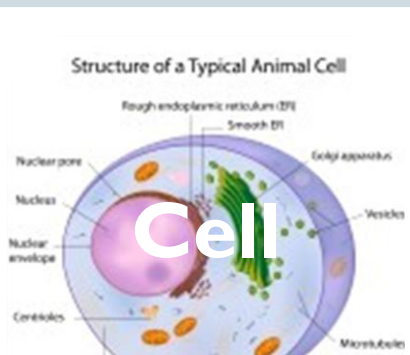


Body



Lifestyle

Diet (饮食)
 ○Small (小)
 ○Frequent (常)
 ○Type (各种)
 ○Preparation (准备)
Stimulant (刺激物)
 i. Alcohol 酒精
 ii. Tobacco 烟草
 iii. Caffeine 吗啡
 iv. Recr drug 药物
Exercise (运动)



Cell



Gene

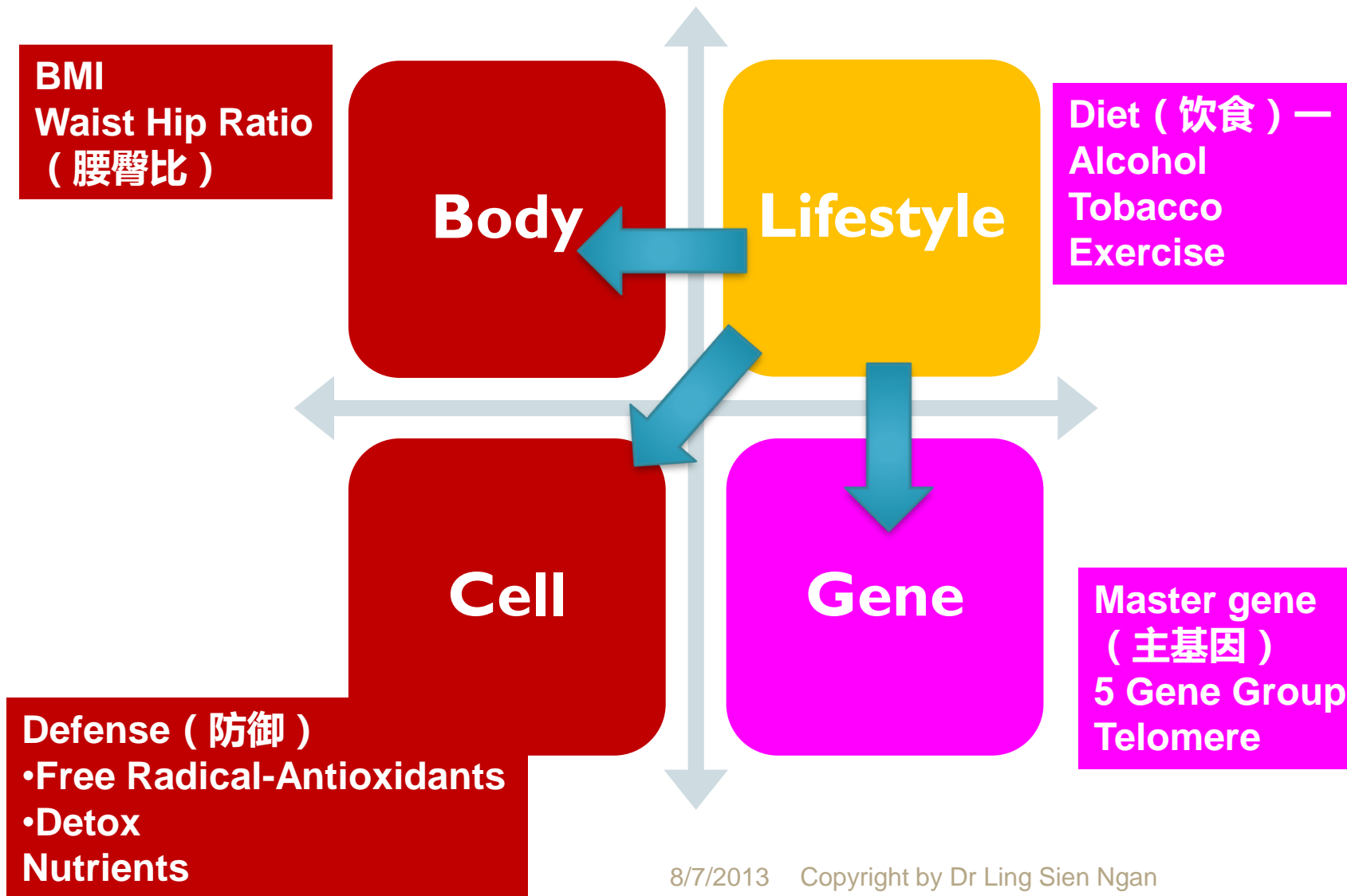
Master gene
Nrf2 (主基因)
NF-KB inflam
Insulin gene
 (胰岛素基因)
5 Gene Group
Telomere
 (基因组织端粒)

Defense 排毒

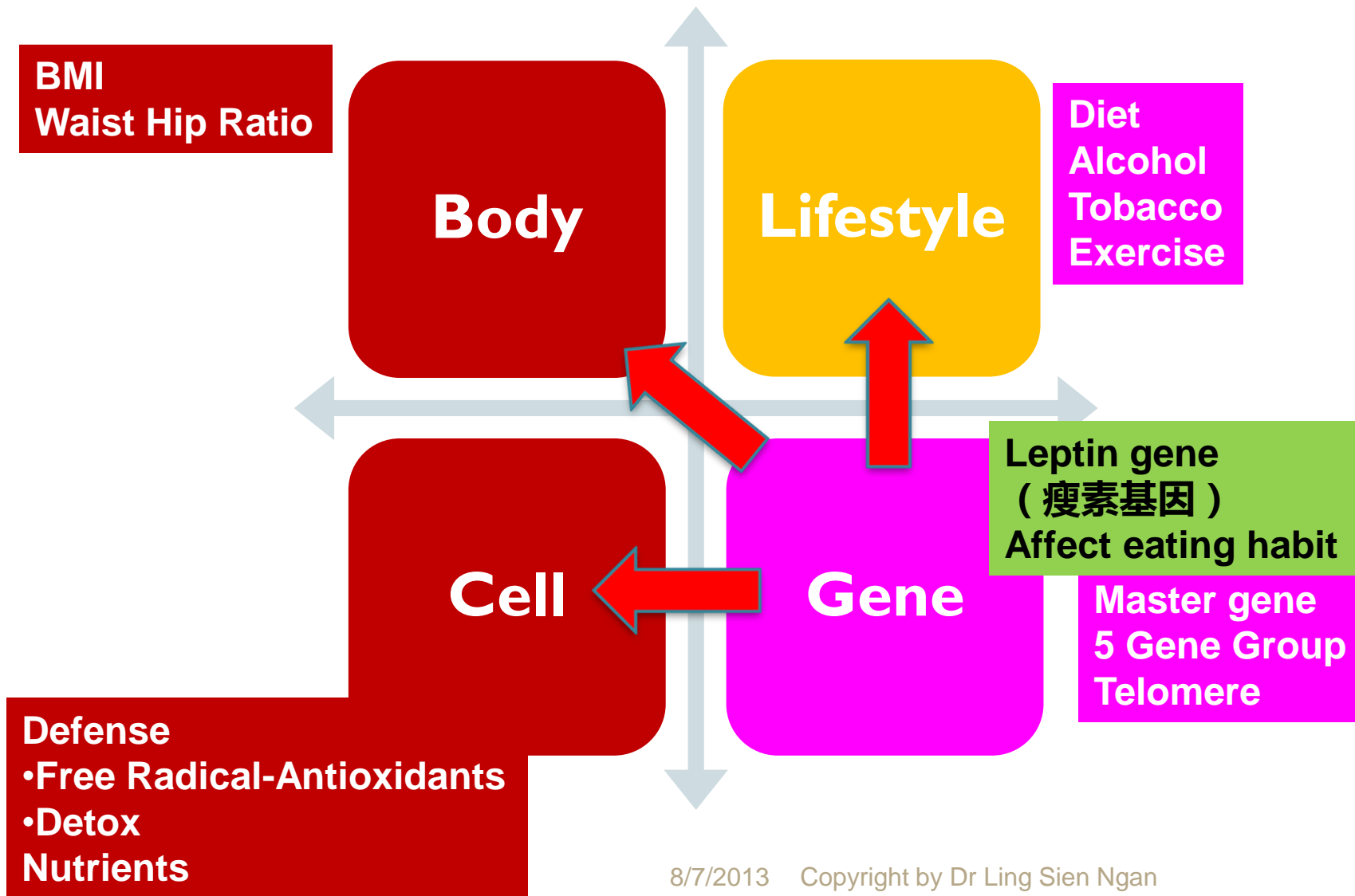
•Free Radical-Antioxidants (自由基的抗氧化剂)
 •Detox 毒素

Nutrients 营养物

Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)



Gene Wellness Quadrant (基因健康象限点)

BMI
Waist Hip Ratio

Body

Lifestyle

Diet
Alcohol
Tobacco
Exercise

**Switching on YOUR Good Gene &
own a Healthy Body without Drugs**
**远离药物控制，打开良好的基因，
拥有良好的健康身体**

Defense
•Free Radical-Antioxidants
•Detox
Nutrients

5 Gene Group
Telomere

Gene Wellness Quadrant (基因健康象限点)

BMI
Waist Hip Ratio

Diet
Alcohol

Switching on YOUR Good Gene &
own a Healthy Body without Drugs

Switching OFF YOUR BAD Gene &
own a Healthy Body without Drugs
远离药物控制，关上坏的基因，
拥有良好的健康身体

• Free Radical-Antioxidants
• Detox
Nutrients

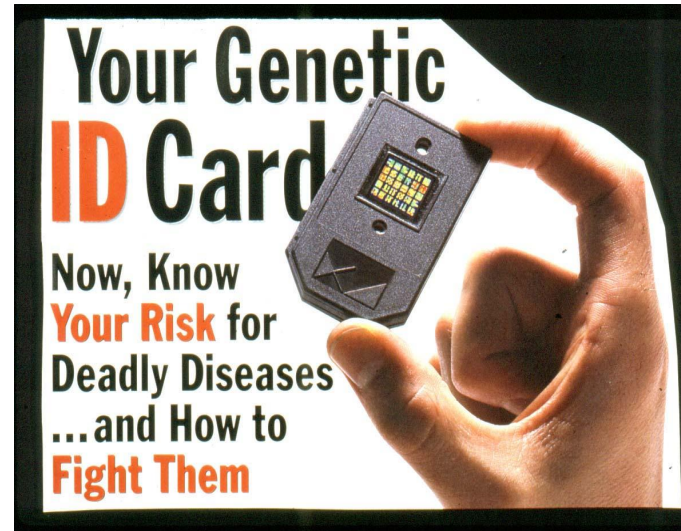
gene
Group
re

Conclusion



Action

Switching on YOUR Good Gene & own a Healthy Body without Drugs



- Easy (knowledge)
- Take action (talk is cheap)
- Today (there is never better time)
- Circle of friends (make or break you)
- Early in life (start on non diseased body)
- Time is essence (loss out, starting on diseased body)
- ...guaranteed....you can maintain healthy machine in your body.
- Time is the essence.