“Sastra for Science"

Science for Ayurveda or Ayurveda for Science"

INTRACELLULAR MUCIN ACCUMULATION & ENDOPLASMIC RETICULUM ER -STRESS

Salubrinal to the Rescue? New Compound Fights ER Stress

The Therapeutic Dimesion: “ER stress pathways may be promising therapeutic targets, Caroni wrote, as well as potentially provide biomarkers to monitor disease.”

The Causative & Prevention Dimesion: “However, the research simply leads to another question: Why are certain motor neurons more vulnerable to ER stress? Those million dollars are still up for grabs. ”

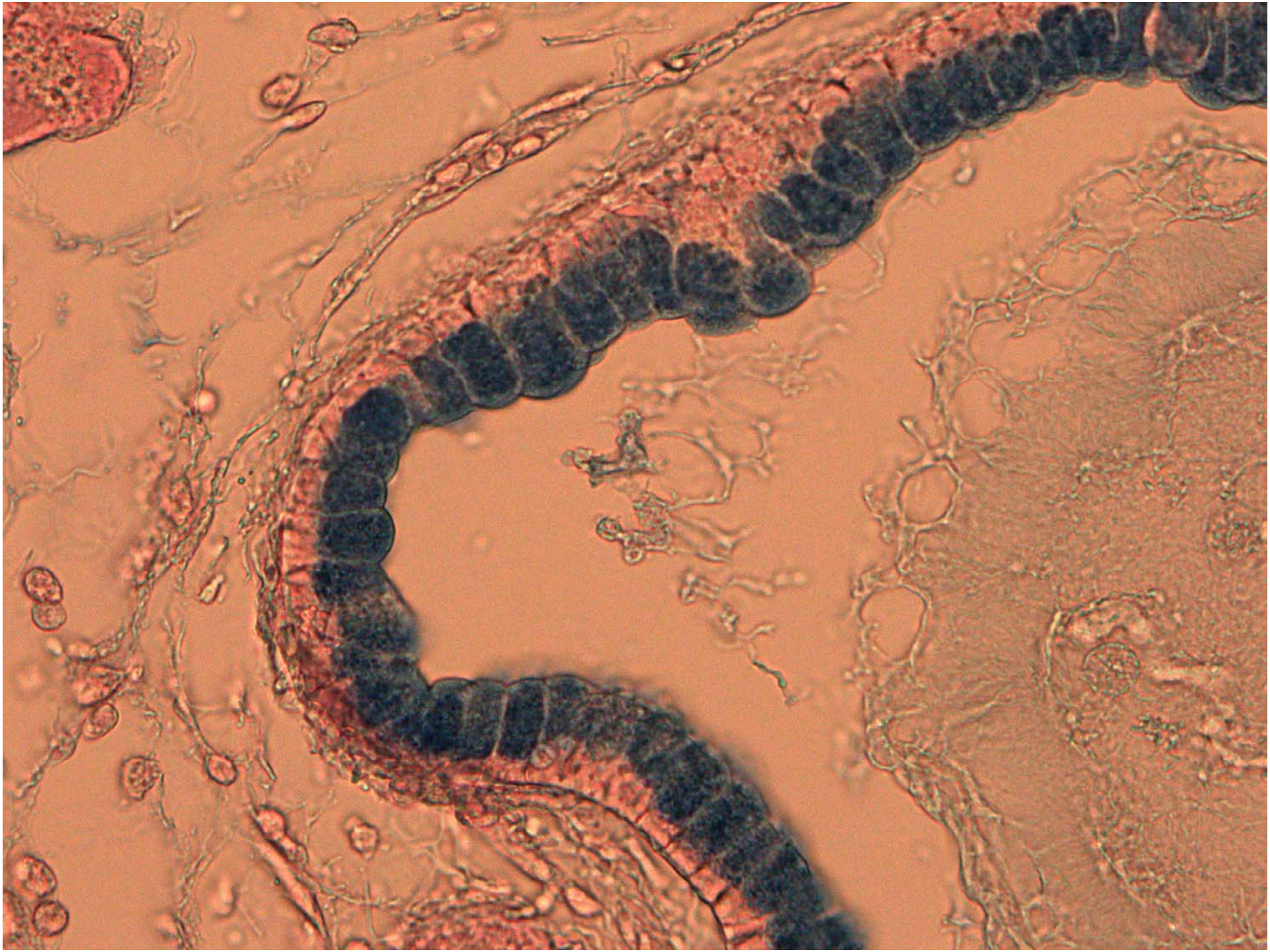
“This builds on earlier reports…that not all motor neurons are equal when faced with the disease,” Henderson said. The problem is a general one, he noted; for example, different parts of the substantia nigra exhibit different pathology in Parkinson disease. That makes it important for scientists to select small neural populations to study, Henderson said, as Saxena and colleagues have done.

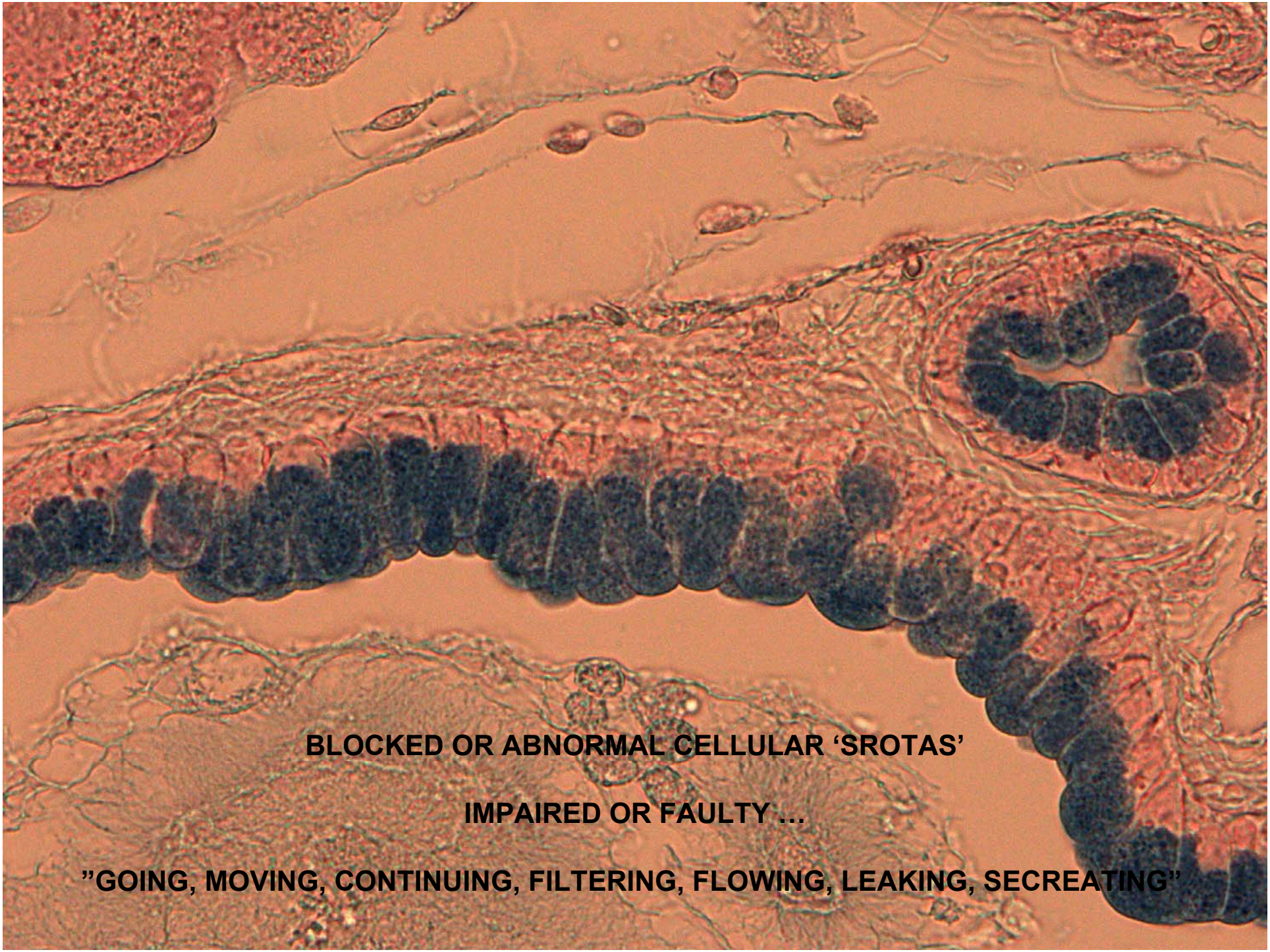
Boyce M, Bryant KF, Jousse C, Long K, Harding HP, Scheuner D, Kaufman RJ, Ma D, Coen DM, Ron D, Yuan J. A Selective Inhibitor of eIF2a Dephosphorylation Protects Cells from ER Stress. Science. 2005 Feb 11;307(5711):935-9.

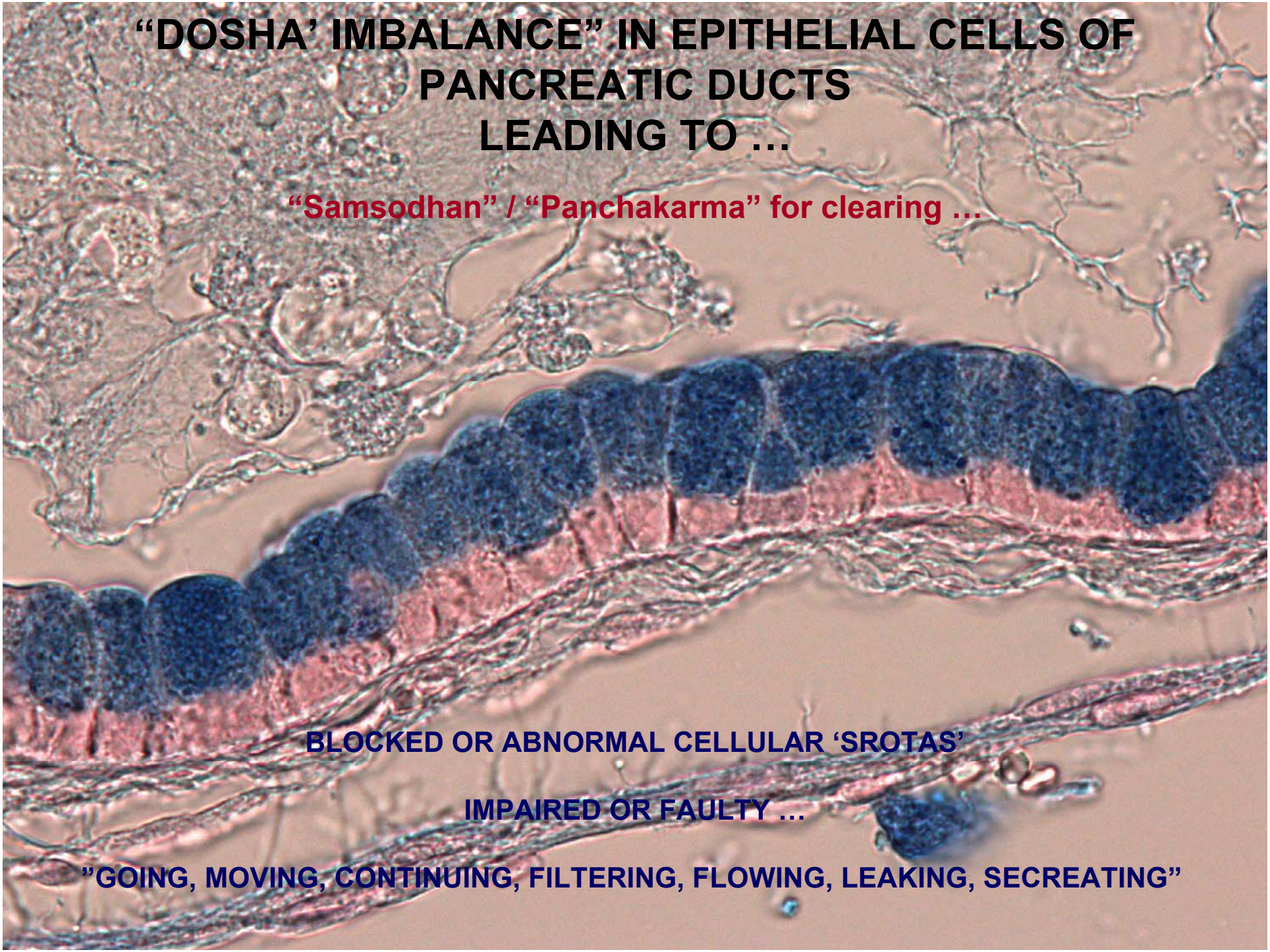
http://www.alzforum.org/new/detail.asp?id=1150

Why are certain motor neurons more vulnerable to ER stress?

The Different Dimesions: Therapeutic, Causative & Prevention




BLOCKED OR ABNORMAL CELLULAR ‘SROTAS’
IMPAIRED OR FAULTY …
”GOING, MOVING, CONTINUING, FILTERING, FLOWING, LEAKING, SECREATING”


"DOSHA' IMBALANCE" IN EPITHELIAL CELLS OF PANCREATIC DUCTS
LEADING TO …
"Samsodhan" / "Panchakarma" for clearing …
BLOCKED OR ABNORMAL CELLULAR 'SROTAS'
IMPAIRED OR FAULTY …
"GOING, MOVING, CONTINUING, FILTERING, FLOWING, LEAKING, SECREATING"

Plenary Session: Manufacturing and Standardisation

Mr Anil Jauhri

Director, National Accreditation Board for Certification Bodies, Quality Council of India

Voluntary Certification of AYUSH products

Mr AK Krishnakumar

Executive Director, IL & FS Clusters

Dr C I Jolly

Scientific Advisor, Amala Ayurvedic Hospital & Research Centre

Achieving World Standards through Quality in Raw Materials

Dr Nimish Shroff

Director, Charak Pharma Pvt Ltd

Achieving World Standards through Quality in Process

Prof Bhushan K Patwardhan

Interdisciplinary School of Health Sciences , University of Pune

R&D for global products; for achieving worlds standards

And People Wonder Why The Lights Go Out In Delhi So Often?

http://www.seanpaulkelley.com/?p=620

http://l.yimg.com/g/images/spaceball.gif

John Hughlings Jackson, FRS1878

(4 March 1835 - 7 October 1911)

"It takes 50 years

to get a wrong idea out of Medicine,

and

100 years a right one into Medicine."

http://en.wikipedia.org/wiki/John_Hughlings_Jackson

“Playing with half-a-deck of cards …
(… the research community is always) ”

One important point that needs to be emphasized is that the reductive approaches of Western Medicine will never provide holistic perspectives required for appreciating the Human Body.

THE OUTCOME:-

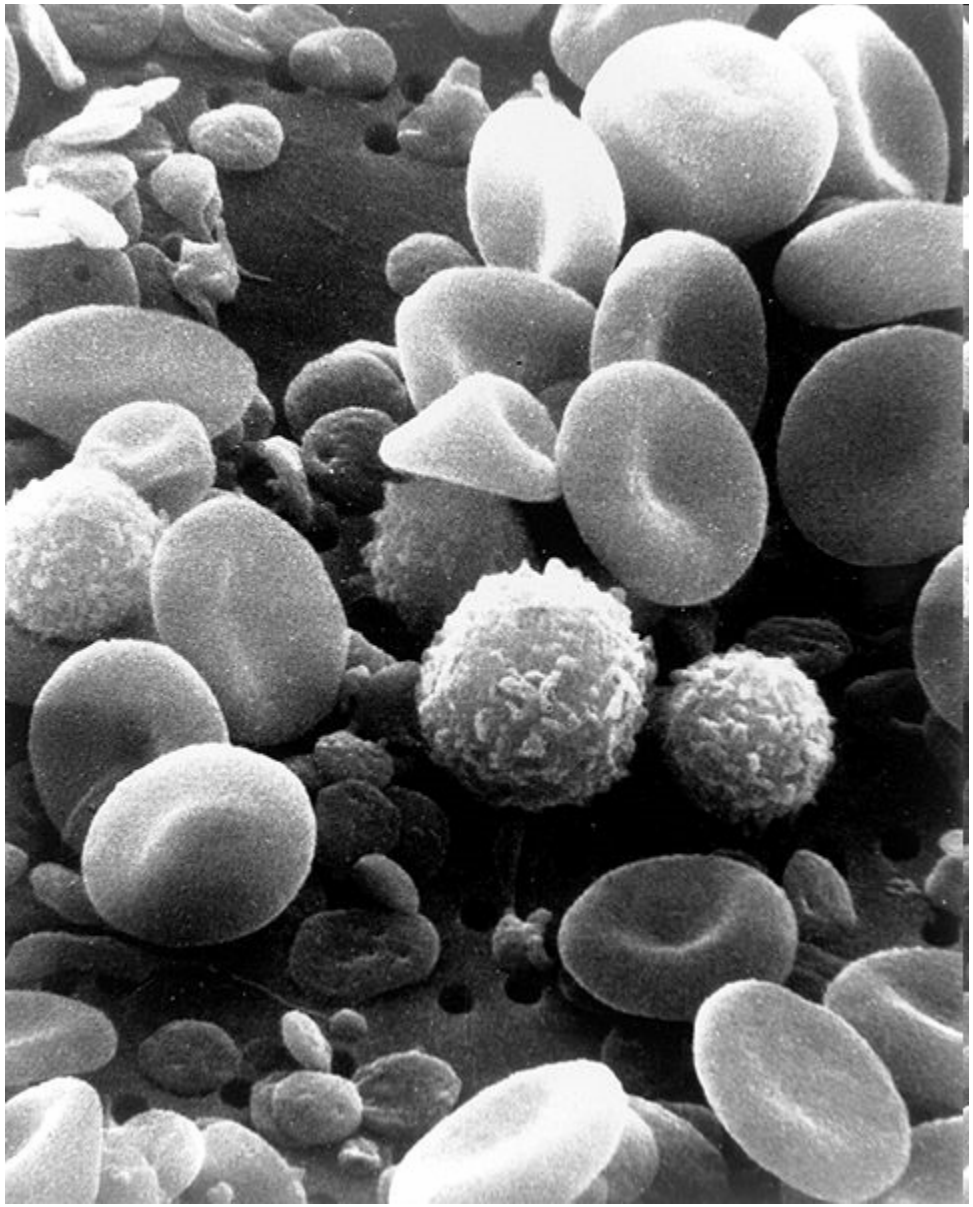
BEHAVIOUR THAT IS WELL DEFINED,
BUT ACHIEVED BY AMBIGUOUS MEANS !!!

Conventional reducibility is lost !

Resolving Whole Organism Biology at Single-Cell Resolution

Cells of the innate immune response

http://en.wikipedia.org/wiki/Innate_immune_system



http://en.wikipedia.org/wiki/File:SEM_blood_cells.jpg

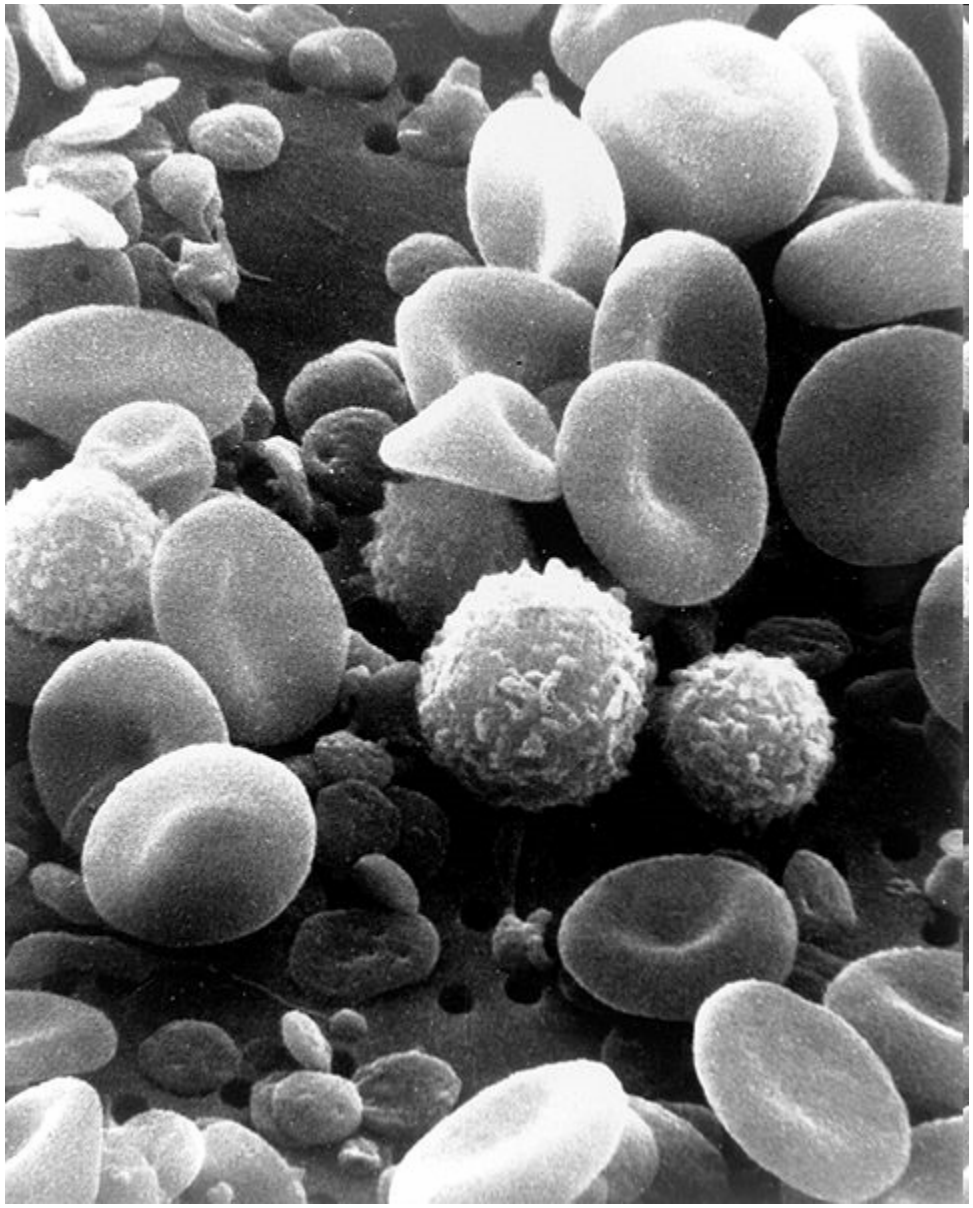
Bruce Wetzel (photographer).
Harry Schaefer (photographer)

PCR analysis of DNA from single cells

Resolving Whole Organism Biology at Single-Cell Resolution

Cells, the innate immune response & *Raktha Dhatu* of Ayurveda

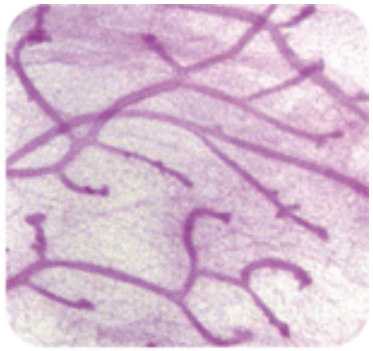
This is a scanning electron microscope image from normal circulating human blood. One can see red blood cells, several white blood cells including lymphocytes, a monocyte, a neutrophil, and many small disc-shaped platelets. Red cells are nonnucleated and contain hemoglobin, an important protein which contains iron and allows the cell to carry oxygen to other parts of the body. They also carry carbon dioxide away from peripheral tissue to the lungs where it can be exhaled. The infection-fighting white blood cells are classified in two main groups: granular and agranular. Granulocytes are formed in bone marrow; agranulocytes are produced by lymph nodes and spleen. There are two types of agranulocytes: lymphocytes, which fight disease by producing antibodies and thus destroying foreign material, and monocytes. Platelets are tiny cells formed in bone marrow and are necessary for blood clotting.



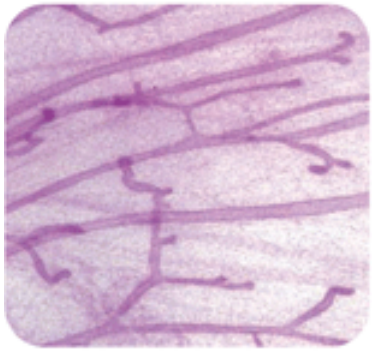
http://en.wikipedia.org/wiki/File:SEM_blood_cells.jpg

Bruce Wetzel (photographer).
Harry Schaefer (photographer)

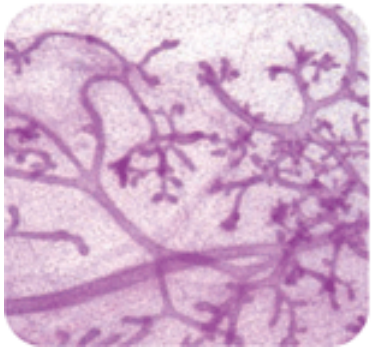
Releasing the brakes.



Normal



p53 inactive



p53 and *BRCA1* inactive

REPORTS

Prevention of *Brca1*-Mediated Mammary Tumorigenesis in Mice by a Progesterone Antagonist

Aleksandra Jovanovic Poole, Ying Li, Yoon Kim, Suh-Chin J. Lin, Wen-Hwa Lee, and Eva Y.-H. P. Lee (1 December 2006) *Science* **314** (5804), 1467. [DOI: 10.1126/science.1130471]

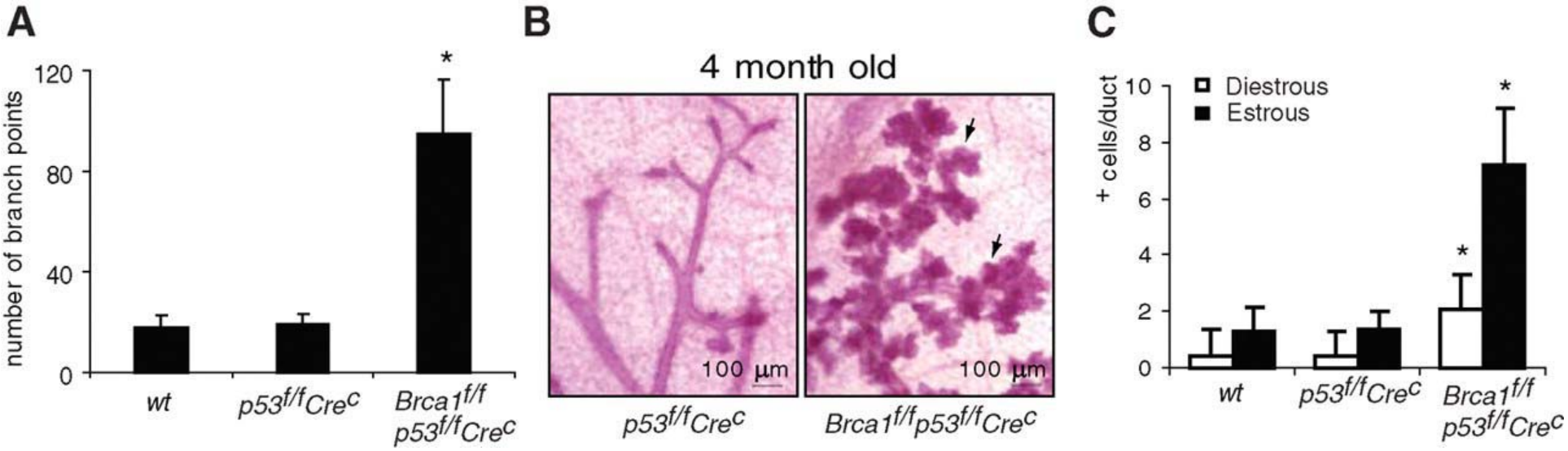


Fig. 1. Mutation in *Brca1/p53* leads to increased mammary ductal branching, alveologenesis, and proliferation.

(A) Number of branching points in mammary glands of 2.5-month-old wild-type (wt), *p53f5&6/f5&6Crec*, and *Brca1f11/f11p53f5&6/f5&6Crec* mice was determined.
The data represent averages of branch points in five randomly selected areas ± SD. (*P 0.05)

(**B**) Alveolar development in 4-month old *p53f5&6/f5&6Crec* and *Brca1f11/f11p53f5&6/f5&6Crec* mice.
Arrows indicate alveoli.

(**C**) Proliferation of mammary epithelial cells was determined at different estrous phases in wt, *p53f5&6/f5&6Crec*, and *Brca1f11/f11p53f5&6/f5&6Crec* mice by BrdU incorporation.

Histogram shows the average number of BrdU-labeled cells per duct ± SD (*P 0.05).
At least 15 mammary ducts per animal were evaluated (a minimum of three mice per genotype).

The Guiding Principle:

"Incompleteness, Inconsistencies, Anomalies:

<u>Anomalies should be the life-blood of Science.</u>

“Progress in Science is impossible without a paradox…”

Niels Bohr

“The thing that doesn’t fit is the thing that is most interesting.”

Richard Feynman

... identify issues that makes one feel uncomfortable and thus help define the pointers to the need for new approaches ... and more importantly the much required new approaches.

The Guiding Principle:

"Incompleteness, Inconsistencies, Anomalies:

**... from the research point of view,
we are and must be especially interested in those parts of our studies where we feel uncomfortable, since this feeling could be a pointer to a different approach being required. ...**

... identify issues that makes one feel uncomfortable and thus help define the pointers to the need for new approaches ... and more importantly the much required new approaches.

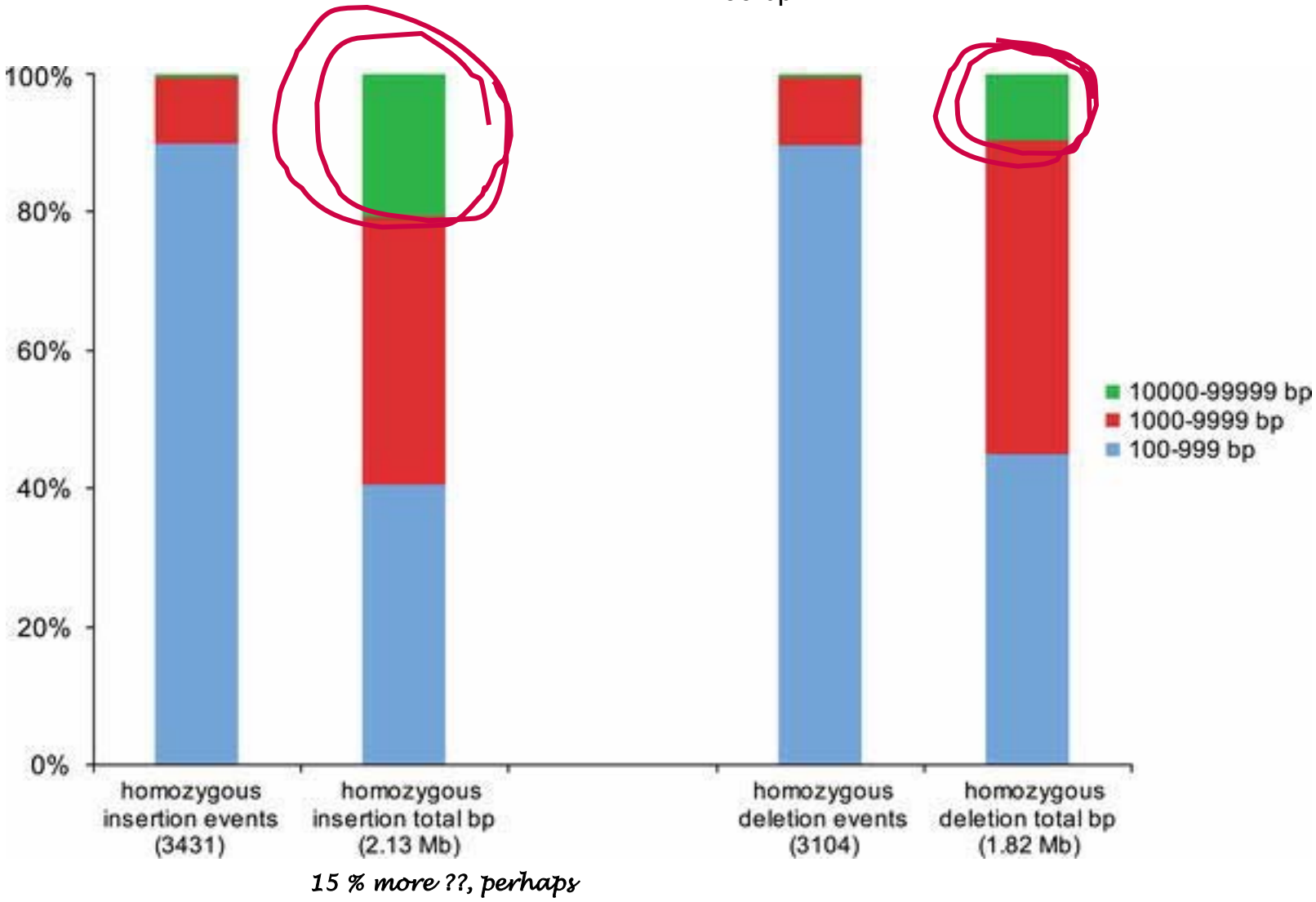
The Diploid Genome Sequence of an Individual Human

04 Sep 2007
PLoS Biol.;5(10):e254.
(PMID: 17803354)

Personal Genomes & Personal Genomics:

Genomics pioneer Craig Venter (above) has sequenced his entire genome and released it to the world.

Figure 7.
Number and Length Distribution of Apparent Homozygous Insertion and Deletion Sequences Greater than 100 bp



Note: The number of indel events are similar but that there are more longer insertions than deletions.

Dataset	Number CNVs[a]	Number Unique Features[b]
RefSeq Genes	31	95
OMIM Disease Genes	6	7
DGV Entries	54	48
SegDup	34	91
WSSD Duplications	28	213
miRNA	1	1

[a] Number CNVs refers to the number of unique CNV records in the HuRef dataset for which one or more genomic features were found.

[b] Number Unique Features refers to the number of unique features in functional elements (e.g., genes or miRNAs) found within all of the individual's CNV.

doi:10.1371/journal.pbio.0050254.t012

The complete genome of an individual by massively parallel DNA sequencing

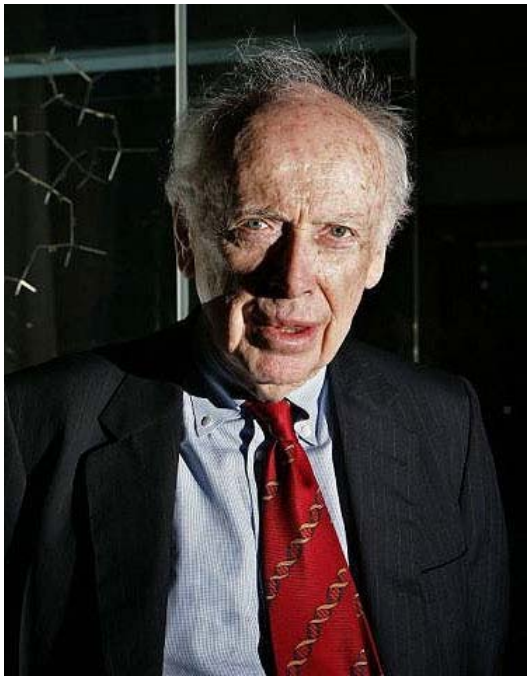
Nature 452, 872-876 (17 April 2008)
Received 3 December 2007; Accepted 4 March 2008

DNA library - Five µg of genomic DNA extracted from blood

"…we sequenced the genome of Dr Watson for less than US$1 million, whereas the genome of Venter by Sanger sequence reportedly cost approximately US$100 million.(!!)"

The Watson Genome

Thirty-four genes are predicted to be affected by these gains and losses, including **two separate olfactory receptor groups**, several genes with possible roles in cancers of the prostate, breast and colon, a gene from the HLA-D locus, and two proteins thought to be involved in RNA editing (Supplementary Table 4)



Sequence alignment of the subject's reads spanning the breakpoint of a homozygous deletion region reveals a 2-bp addition at the breakpoint junction, suggesting non-homologous end joining was the mechanism involved in generating the deletion, and demonstrating the feasibility of using 454 sequence reads for identifying CNV breakpoints (Supplementary Fig. 6c)

Implications for "*Sugandh Vigyan*" (Aroma Therapy)

Sukham Bandhi Sooksmas cha Sugandho Rochano Mridu
- Shushruta

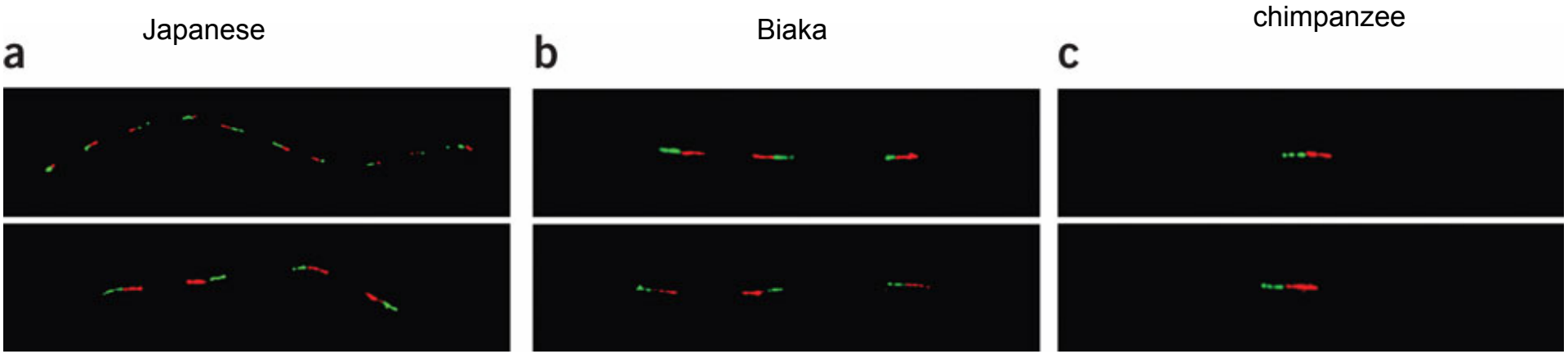
sukham bandhi – filled with pleasure, total blissfull
sookshma - very fast because of tiny molecular size & weight.
sugandho - aromas
rochano - agreable
mridu – smooth, gentle

Figure 3 - High-resolution fiber FISH validation of AMY1 copy number estimates.

Nature Genetics | Published online: 9 September 2007 | doi:10.1038/ng2123

Diet and the evolution of human amylase gene copy number variation

George H Perry, Nathaniel J Dominy, Katrina G Claw, Arthur S Lee, Heike Fiegler, Richard Redon, John Werner, Fernando A Villanea, Joanna L Mountain, Rajeev Misra, Nigel P Carter, Charles Lee & Anne C Stone



Red (approx10 kb) and green (approx8 kb) probes encompass the entire AMY1 gene and a retrotransposon directly upstream of (and unique to) AMY1, respectively. (a) Japanese individual GM18972 was estimated by qPCR to have 14 (13.73 plusminus 0.93) diploid AMY1 gene copies, consistent with fiber FISH results showing one allele with ten copies and the other with four copies. (b) Biaka individual GM10472 was estimated by qPCR to have six (6.11 plusminus 0.17) diploid AMY1 gene copies, consistent with fiber FISH results. (c) The reference chimpanzee (Clint; S006006) was confirmed to have two diploid AMY1 gene copies.

wellcome trust

Genomic Disorders 2009 - Genomic Variation in Health and Disease

Session 1 **Genomic disorders, copy number variation and clinical practice**

Session 2 **Genomic instability**

Session 3 **Genomic variation in common diseases - psoriasis**

Session 4 **Copy number variation and disorders of the brain – autism, schizophrenia**

Session 5 **Genomic approaches to development disorders**

Session 6 **Genetics of X-chromosome disorders**

Session 8 **Models of genomic disorders**

Session 9 **Genomic disorders – an evolutionary perspective**

Wellcome Trust Conference Centre,
Hinxton, Cambridge, UK
9th - 11th March 2009

http://hum-molgen.org/meetings/meetings/3674.html

Cell-to-cell variation in gene expression in ageing mouse heart.

Bahar R, Hartmann CH, Rodriguez KA, Denny AD, Busuttil RA, Dolle ME, Calder RB, Chisholm GB, Pollock BH, Klein CA, Vijg J.

Increased cell-to-cell variation in gene expression in ageing mouse heart. /Nature. 2006 Jun 22;441(7096):1011-4.
PMID: 16791200

Buck Institute for Age Research, Novato, California 94945, USA.

The accumulation of somatic DNA damage has been implicated as a cause of ageing in metazoa. One possible mechanism by which increased DNA damage could lead to cellular degeneration and death is by stochastic deregulation of gene expression. Here we directly test for increased transcriptional noise in aged tissue by dissociating single cardiomyocytes from fresh heart samples of both young and old mice, followed by global mRNA amplification and quantification of mRNA levels in a panel of housekeeping and heart-specific genes. Although gene expression levels already varied among cardiomyocytes from young heart, this **heterogeneity was significantly elevated at old age**. We had demonstrated previously an increased load of **genome rearrangements and other mutations in the heart of aged mice**. To confirm that increased stochasticity of gene expression could be a result of increased genome damage, we treated mouse embryonic fibroblasts in culture with hydrogen peroxide. Such treatment resulted in a significant increase in cell-to-cell variation in gene expression, which was found to parallel the induction and persistence of genome rearrangement mutations at a lacZ reporter locus. These results underscore the stochastic nature of the ageing process, and could provide a mechanism for age-related cellular degeneration and death in tissues of multicellular organisms.

PMID: 16791200

Nature Genetics - 38, 518 - 520 (2006)
Published online: 9 April 2006; | doi:10.1038/ng1778

Mitochondrial DNA deletions are abundant and cause functional impairment in aged human substantia nigra neurons

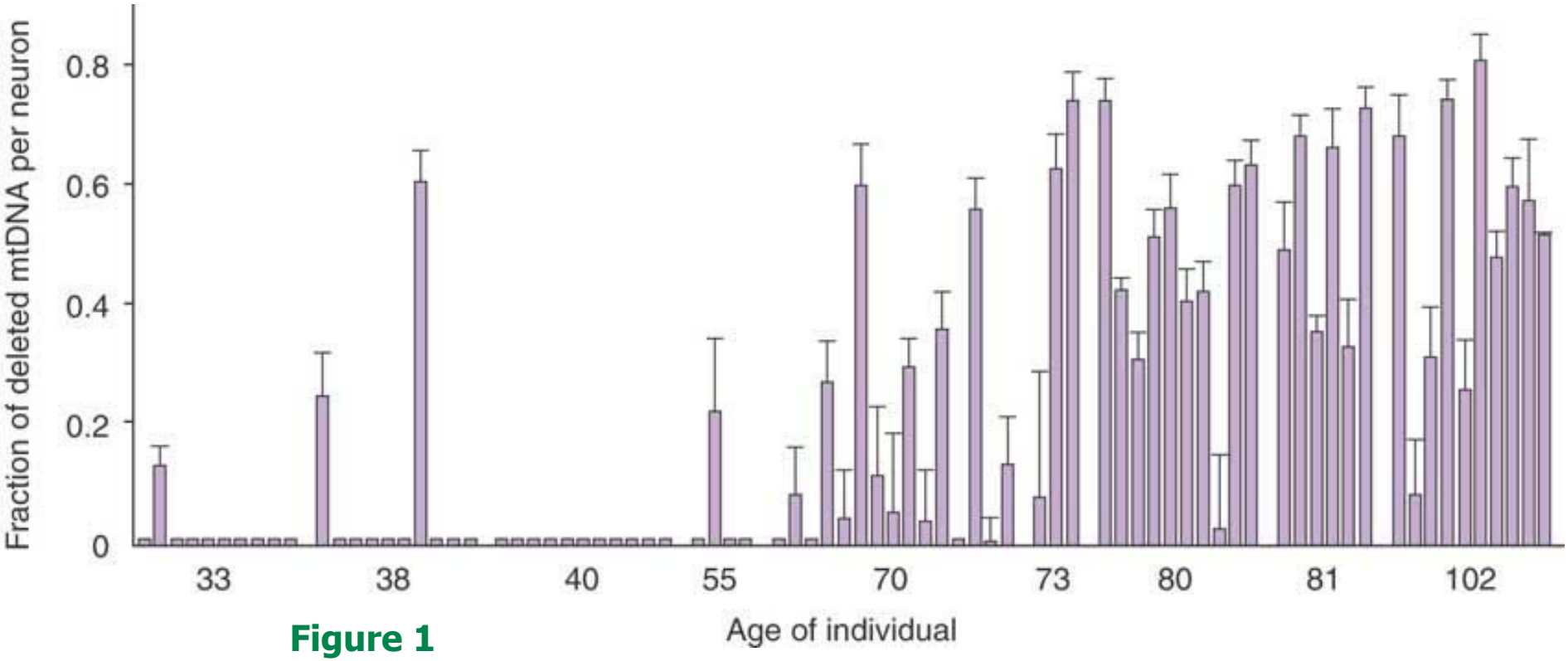


Figure 1

Nature Genetics **- 38, 518 - 520 (2006)**

Figure 1. Fraction of deleted mtDNA in individual pigmented neurons of substantia nigra from subjects of different ages. Each bar represents the mutant fraction in a single cell as determined by single-molecule PCR or extended PCR. Bars representing neurons from the same individual of a certain age are grouped, and the age is indicated under the group. Error bars represent standard error with respect to repeated measurements of the same cell ($n \geq 3$). Zero-height bars represent cells that were determined to be deletion-free by extended PCR. See Supplementary Note for methodological details.

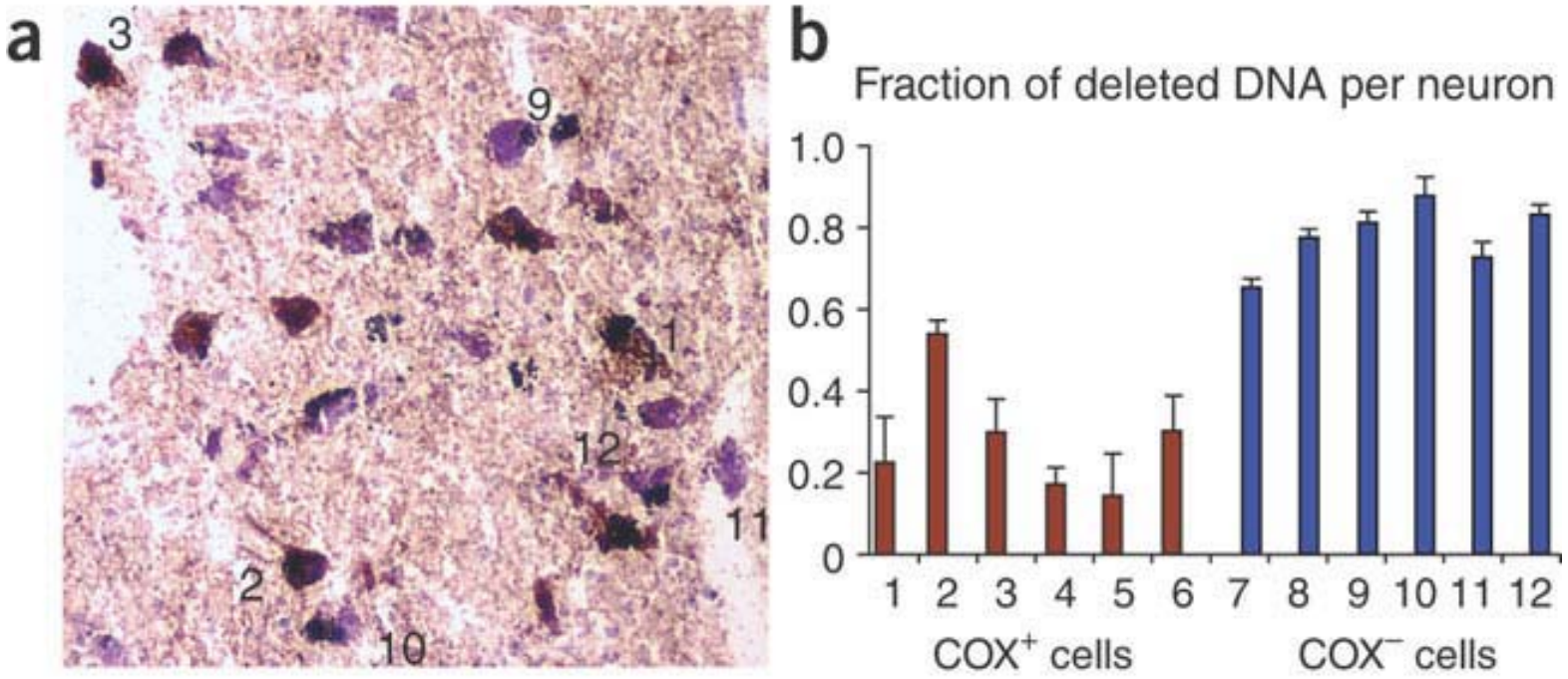


Figure 2. Clonal expansions of mtDNA deletions are associated with COX defects in individual neurons. (**a**) COX-specific immunostaining of the substantia nigra pars compacta of an 80-year-old (Cresyl violet counterstain). COX-positive cells appear brown, whereas COX-deficient neurons appear violet owing to counterstaining with Cresyl violet. Dense black granules are the neuromelanin aggregates characteristic of pigmented neurons. Cells identified as COX-positive or COX-deficient were individually collected by laser capture microdissection and analyzed for mtDNA deletions. (**b**) Mutational analysis of individual neurons by single-molecule PCR. Each bar represents the fraction of deletions in a single neuron; brown and blue bars represent COX-positive and COX-deficient neurons, respectively. Numbers under the bars correspond to the numbers assigned to individual collected cells, some of which are visible in **a**, though not all the collected cells fit within the field of view. Error bars represent standard error ($n \geq 3$).

Fatty acid synthase gene regulation in primary hypothalamic neurons.

Kim EK, Kleman AM, Ronnett GV.

Neurosci Lett. 2007 Aug 23;423(3):200-4.

Department of Neuroscience, The Johns Hopkins University School of Medicine, Baltimore, MD 21205, USA. kimeunk@msu.edu

Understanding the mechanisms that regulate feeding is critical to the development of therapeutic interventions for obesity. Many studies indicate that enzymes within fatty acid metabolic pathways may serve as targets for pharmacological tools to treat this epidemic. We, and others have previously demonstrated that C75, a fatty acid synthase (FAS) inhibitor, induced significant anorexia and weight loss by both central and peripheral mechanisms. Because the **hypothalamus is important in the regulation of homeostatic processes for feeding control**, we have identified pathways that alter the gene expression of FAS in primary hypothalamic neuronal cultures. Insulin, glucose and AICAR (an activator of AMP-activated protein kinase) affected changes in hypothalamic FAS mRNA, which may be regulated via the SREBP1c dependent or independent pathway.

PMID: 17709201

1000 Genomes

A Deep Catalog of Human Genetic Variation

An international research consortium:

- Wellcome Trust Sanger Institute in Hinxton, England,

- The Beijing Genomics Institute Shenzhen in China

- The National Human Genome Research Institute (NHGRI), part of the National Institutes of Health (NIH).

The project involves sequencing the genomes of approximately 1200 people from around the world

http://www.1000genomes.org

Affordable cost of $4,400

Science. 2009 Nov 5.

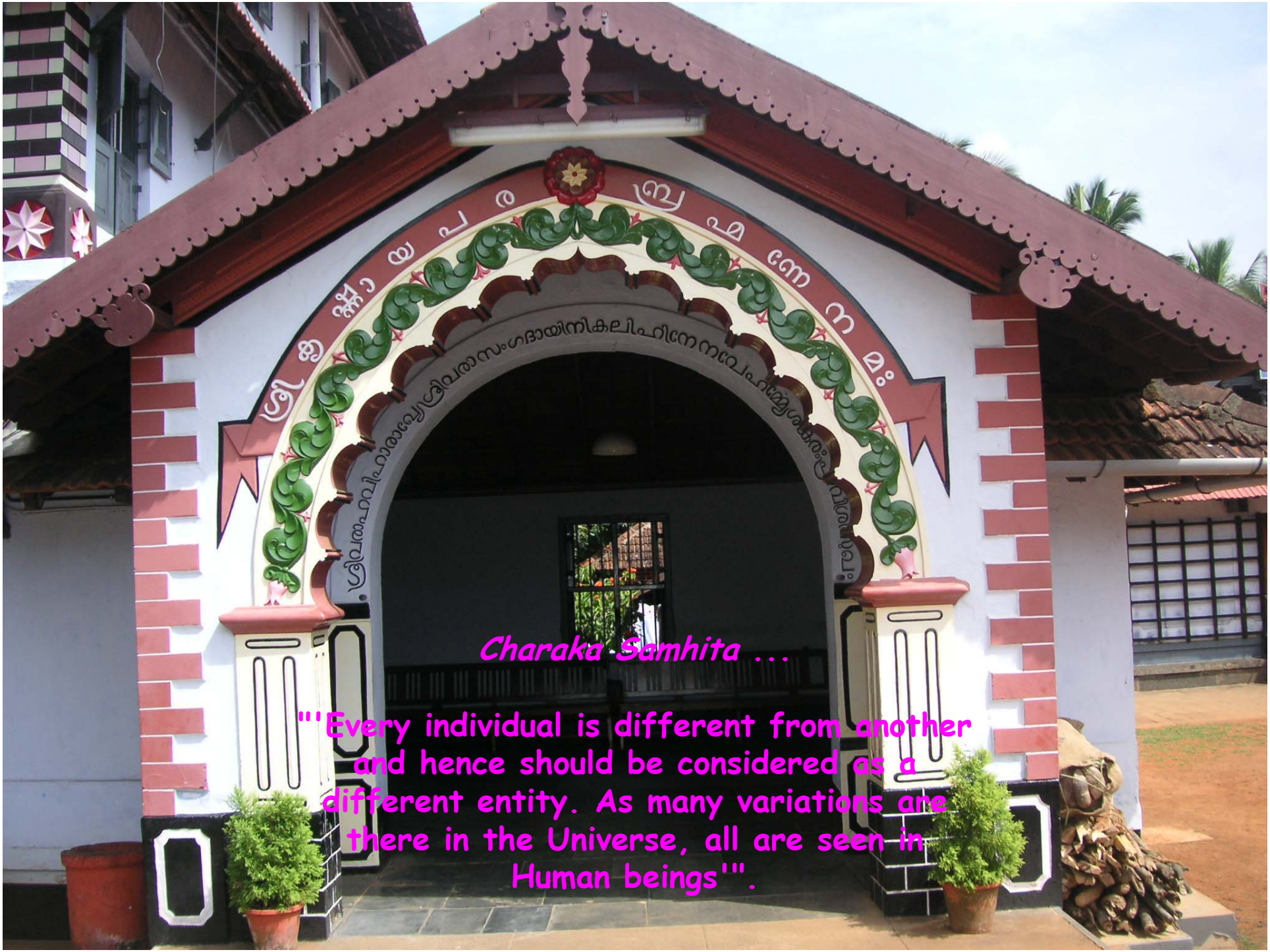
Human Genome Sequencing Using Unchained Base Reads on Self-Assembling DNA Nanoarrays.

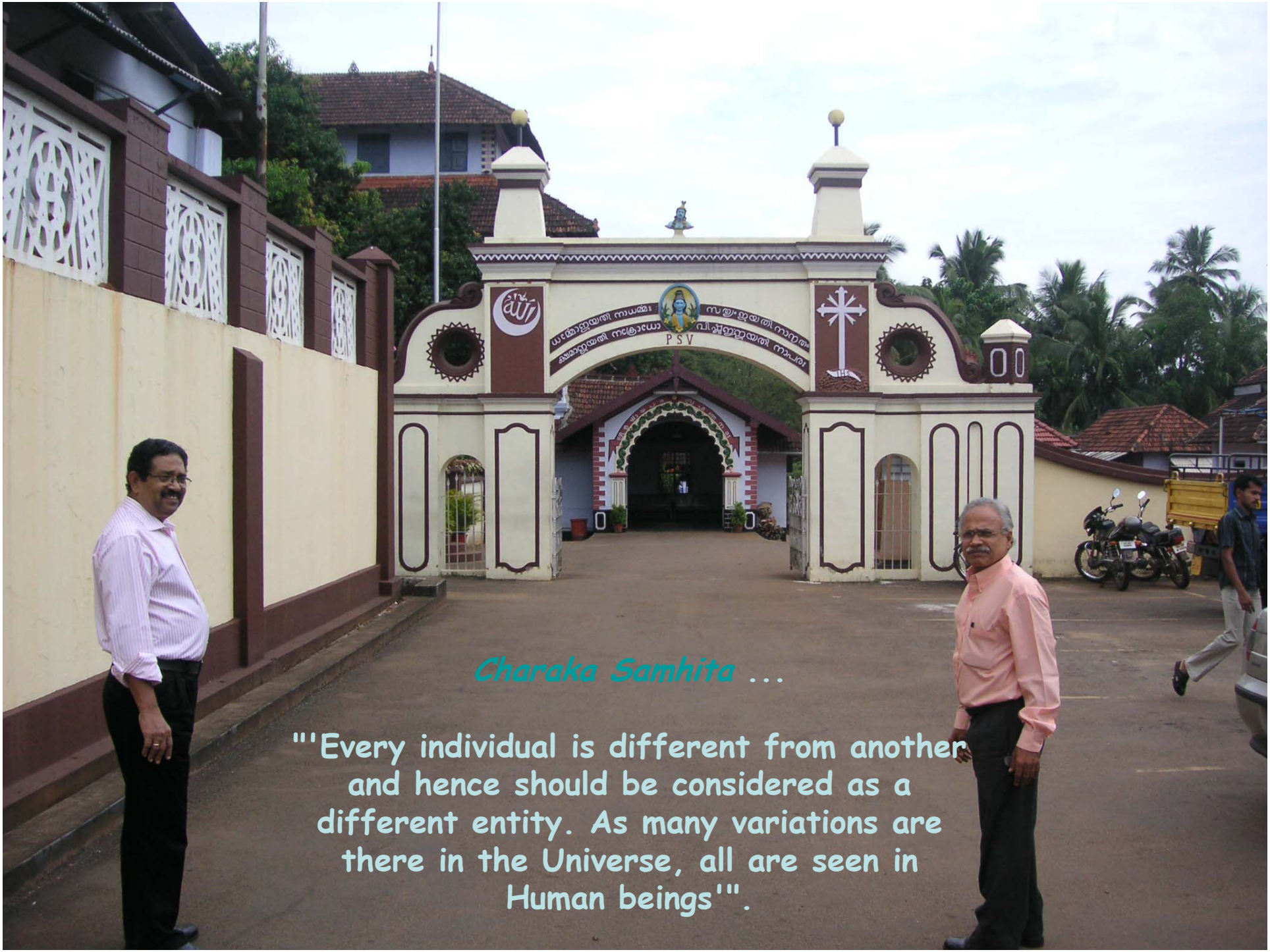
Drmanac R, Sparks AB, Callow MJ, Halpern AL, Burns NL, Kermani BG, Carnevali P, Nazarenko I, Nilsen GB, Yeung G, Dahl F, Fernandez A, Staker B, Pant KP, Baccash J, Borcherding AP, Brownley A, Cedeno R, Chen L, Chernikoff D, Cheung A, Chirita R, Curson B, Ebert JC, Hacker CR, Hartlage R, Hauser B, Huang S, Jiang Y, Karpinchyk V, Koenig M, Kong C, Landers T, Le C, Liu J, McBride CE, Morenzoni M, Morey RE, Mutch K, Perazich H, Perry K, Peters BA, Peterson J, Pethiyagoda CL, Pothuraju K, Richter C, Rosenbaum AM, Roy S, Shafto J, Sharanhovich U, Shannon KW, Sheppy CG, Sun M, Thakuria JV, Tran A, Vu D, Zaranek AW, Wu X, Drmanac S, Oliphant AR, Banyai WC, Martin B, Ballinger DG, Church GM, Reid CA.

Complete Genomics, Inc., 2071 Stierlin Court, Mountain View, CA 94043, USA.

Genome sequencing of large numbers of individuals promises to advance the understanding, treatment, and prevention of human diseases, among other applications. We describe a genome sequencing platform that achieves efficient imaging and low reagent consumption with combinatorial probe anchor ligation (cPAL) chemistry to independently assay each base from patterned nanoarrays of self-assembling DNA nanoballs (DNBs). We sequenced three human genomes with this platform, generating an average of 45- to 87-fold coverage per genome and identifying 3.2 to 4.5 million sequence variants per genome. Validation of one genome data set demonstrates a sequence accuracy of about 1 false variant per 100 kilobases. The high-accuracy, **affordable cost of $4,400 for sequencing consumables** and scalability of this platform enable complete human genome sequencing for the detection of rare variants in large-scale genetic studies.

PMID: 19892942


Charaka Samhita ...
"'Every individual is different from another and hence should be considered as a different entity. As many variations are there in the Universe, all are seen in Human beings'".



Charaka Samhita ...

"'Every individual is different from another and hence should be considered as a different entity. As many variations are there in the Universe, all are seen in Human beings'".

The EPIGENOME
Network of Excellence

Epigenetics?

Abuse affects genes

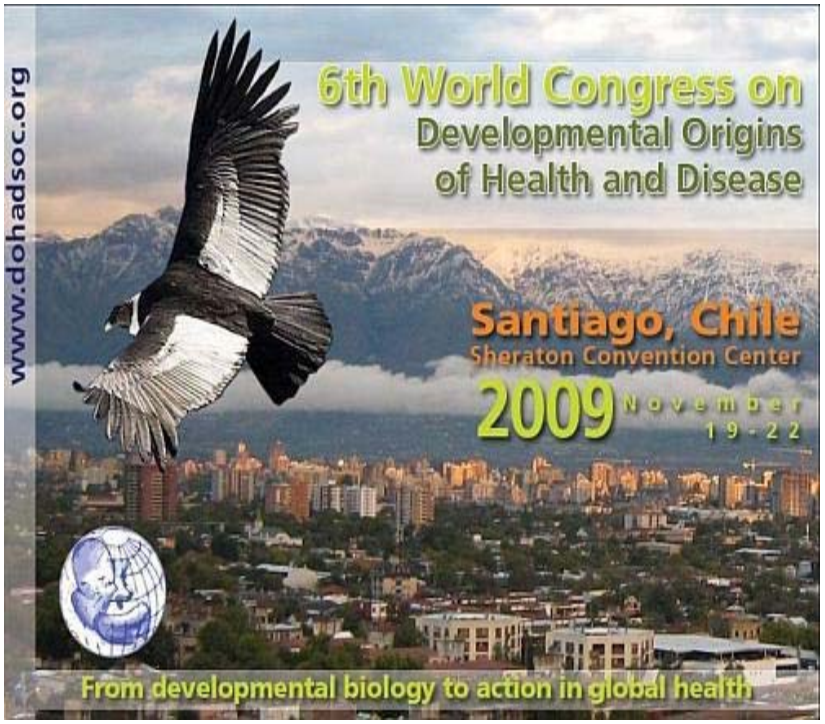
Dining for your descendants

An expectant mother might well logically reason that what she eats will affect her unborn child. But the evidence is mounting that not only her children, but her grandchildren and subsequent generations will be affected by her nutrition. What she eats may not only affect her descendants as they develop, but potentially throughout their adult lives.

KARMAJ / SAHAJA – Heriditary & Genetics (and possibly Epigenetic)

http://www.epigenome-noe.net/

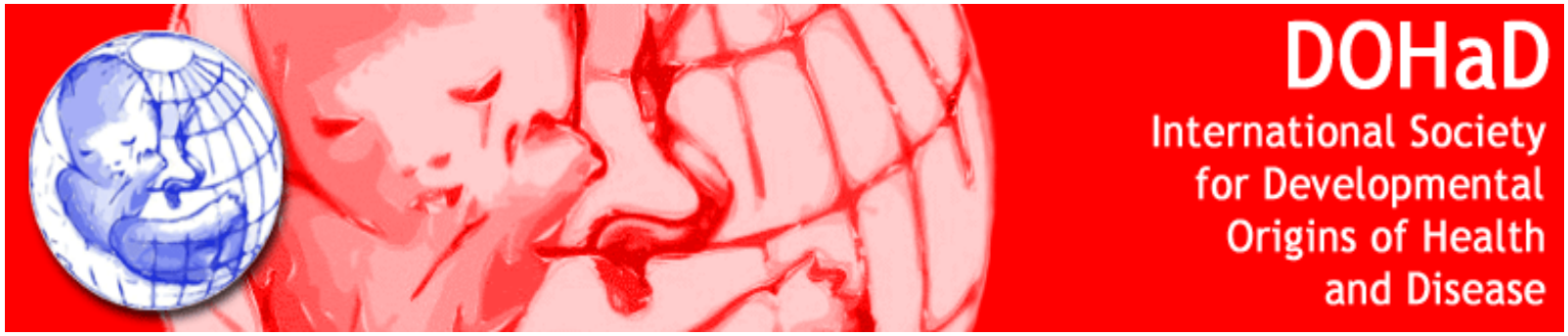
Development Origins of Health and Disease
DoHaD



http://www.mrc.soton.ac.uk/dohad/index.asp

"…the fetal and developmental origins of health and disease.

"…poor fetal growth and small size at birth are followed by increased risk of coronary heart disease, stroke, hypertension, Type 2 diabetes and osteoporosis.
This has led to the hypothesis that these disorders originate through unbalanced nutrition *in utero* and during infancy. "

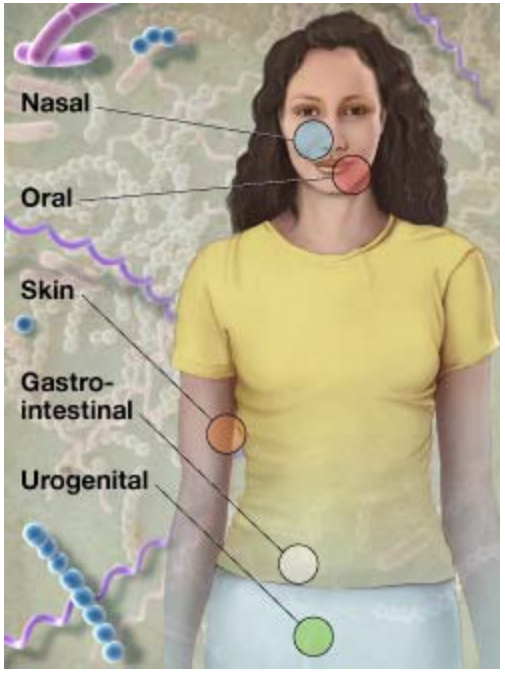


Human Microbiome Project (HMP)

"comprehensive characterization of the human microbiota and analysis of its role in human health and disease."

"Within the body of a healthy adult, microbial cells are estimated to outnumber human cells by a factor of ten to one.

These communities, however, remain largely unstudied, leaving almost entirely unknown their influence upon human development, physiology, immunity, and nutrition."

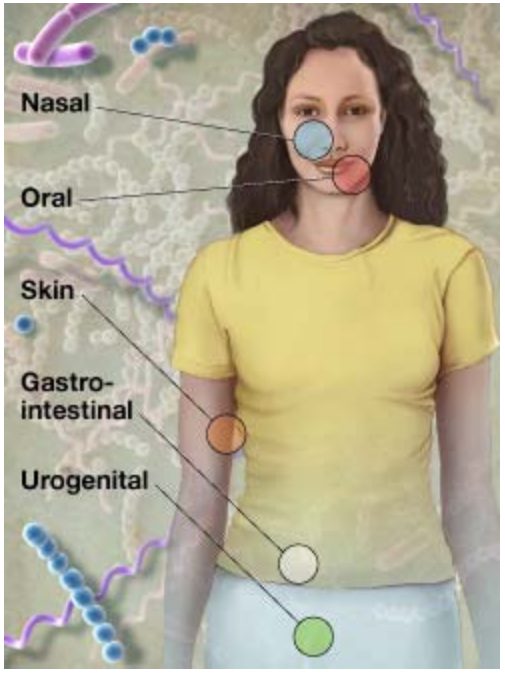


http://nihroadmap.nih.gov/hmp/

Human Microbiome Project (HMP)

"comprehensive characterization of the human microbiota and analysis of its role in human health and disease."

The average human body, consisting of about 10^{13} (10,000,000,000,000 or about ten trillion) cells, has about ten times that number of microorganisms in the gut.



The metabolic activity performed by these bacteria is equal to that of a virtual organ making the gut bacteria termed as a "forgotten" organ.

Somewhere between **300 and 1000 different species** live in the gut, with most estimates at about 500. However, it is probable that 99% of the bacteria come from about 30 or 40 species. Fungi and protozoa also make up a part of the gut flora, but little is known about their activities.

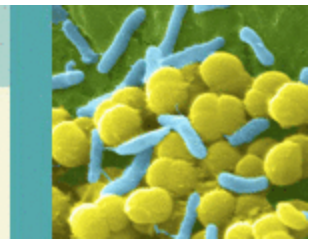
http://en.wikipedia.org/wiki/Gut_flora

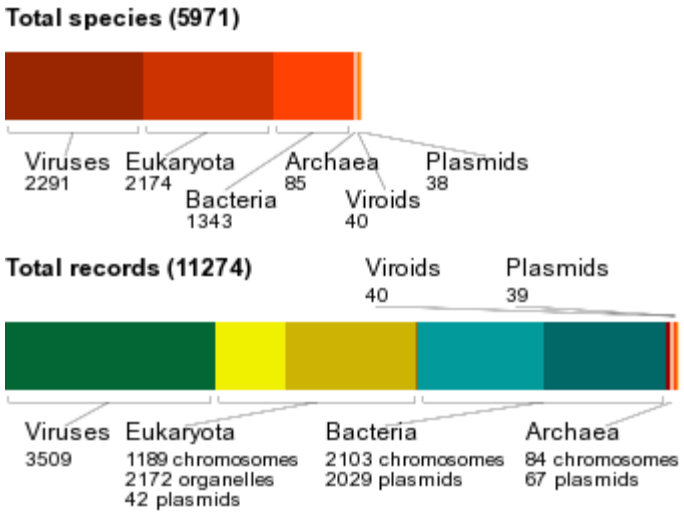
ENTREZ Genome Project

connection information discovery

Genome

1000 prokaryotic genomes are now completed and available in the Genome database.





http://www.ncbi.nlm.nih.gov/sites/genome

CHYAVANAPRASAM Ingredients

Decoction of:

Gmelina arborea
Aegle marmelos
Stereospermum colais
Oroxylum indicum
Premna corymbosa
Uraria pecta
Desmodium gangeticum
Aerva lanata
Solanum anguivi
Tribulus terrestris
Sida retusa
Kaempferia rotunda
Vigna pilosa
Vigna radiate
Asparagus racemosus
Ipomea paniculata
Emblica officinalis
Piper longum
Pistacia integerimma
Phyllanthus nirui
Elettaria cardamomum
Holostemma ada-kodien
Aquilaria agallocha
Kaempferia galangal
Vitis vinifera
Inuia racemosa
Santalum album
Boerhaavia diffusa
Tricosanthes tricuspidata
Tinospora cordifolia
Adhatoda vasica
Cyperus rotundus
Withania somnifera

Powders of:

Meranta arundinaceae / Maranta arundinacea
Piper longum
Elettaria cardamomum
Cinnamomum zeylanicum
Cinnamomum tamala
Mesua ferrea

Sugar candy
Sesame oil
Ghee
Honey

39 plants

Brahma rasayana

Arya Vaidya Sala, Kottakal,India

extracts of the following plants:

Terminalia chebula (Pathya), *Phyllanthus emblica* (Dhatri), *Cinnamomum zeylanicum* (Twak), *Eletaria cardamomum* (Ela), *Cyperus rotundus* (Musta), *Curcuma longa* (Rajani), *Piper longum* (Pippali), *Aquallaria agolcha* (Agaru), *Santallum album* (Chandana), *Centella asiatica* (Mandukaparni), *Atropabellodona* (Kanaka), *Convovulus pluricalis* (Sankhapushpi), *Acorus cakamus* (Vacha), *Cyperus scariosus* (Plava), *Glyceresia glabra* (Yashtyahwa), *Embeliya ribes* (Vidanga), Ghee (Sarpi), Sessamum oil (Taila), Milk (Kshaudra), Sugarcandy (Sitopala), *Desmodium gangeticum* (Shalaparni), *Uraria picta* (Prishnaparni), *Solanum indicum* (Brihati), *Solanum xanthocarpum* (Kantakari), *Tribulus terestris* (Gokshura), *Aegle bruhat* (Bilva), *Clerodendron premnoses* (Agnimantha), *Oroxyllum indicum* (Shyonaka), *Gmelina arboria* (Gambhari), *Ptereospermum saveolens* (Patala), *Sida cordifolia* (Bala), *Boerhavia diffusa* (Punarnava), *Ricinus communis* (Erandamula), *Phaseolus trilobus* (Mudgaparni), *Pteramnus labialis* (Mashaparni), *Asparagus racemosa* (Shatavari), *Tinospora cordifolia* (Geevaka), *Leptademia reticulata* (Jivanthi), *Withania somnifera* (Medha), *Bambusa arundanacia* (Rishabhaka), *Imperta cylindrica* (Darba), *Saccurum spontanium* (Kshara), *Oryza sativum* (Kshalimula) and *Saccharum officinalis* (Ikshumula).

41 plants

International Scientific Conference on Nutraceuticals and Functional Foods
June 9th-11th 2009

http://www.foodandfunction.com/node/7

Science for Ayurveda or Ayurveda for Science?

How is Ayurvedic Knowledge possible"

But not to forget in all this the simple question " How is Ayurvedic Knowledge possible" and the answer ...

"The origins of Ayurveda are fascinating in their simplicity, and they are proof that the concepts of biology and the principles and laws involved in the maintenance of biological complexity in systems can be derived from the most routine and everyday experiences". Reductive analyses of any kind only adds details, most times or always … and only corroborating the need to study the system as a whole, and little else.

Science for Ayurveda or Ayurveda for Science"

Clare Boothe Luce

Member of the U.S. House of Representatives from Connecticut's 4th district
In office: January 3, 1943-January 3, 1947

"Technological man can't believe in anything that can't be measured, taped, or put into a computer."

“Computers are useless; they can only give you answers”; Pablo Picasso

Physics, Biology, Technology & “The Science of Life” …

Can the conflict(s) be resolved ??

Seal of the Charaka Club

"The Science of Life"

Charaka Samhita

" The **Science of Life** shall never attain finality.

Therefore humility and relentless industry should characterize your endeavor and your approach to knowledge.

The entire world consists of teachers for the wise and enemies for the fools.

Therefore, knowledge, conducive to health, longevity, fame and excellence, coming from even an unknown source, should be received, assimilated and utilized with earnestness".

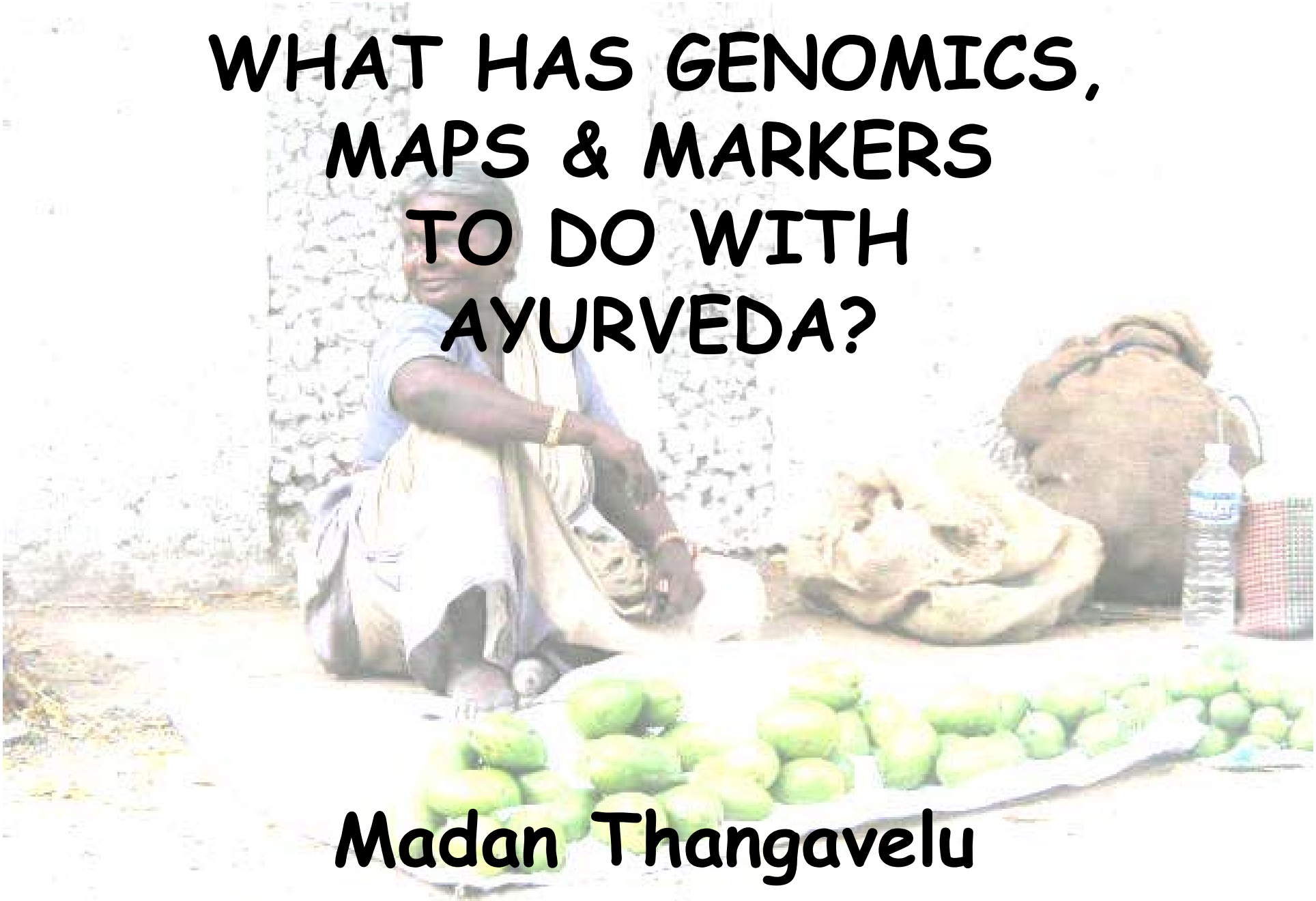
Sir William Osler, M.D., F.R.S.

(July 12, 1849 – December 29, 1919)
Regius Professor of Medicine, University of Oxford (1905–1919)

**“The philosophies of one age have become absurdities of the next,
and the foolishness of yesterday has become the wisdom of tomorrow.”**

Aequanimitas.
Aequanimitas with other Addresses to Medical Students, Nurses and Practitioners of Medicine.
H.K.Lewis, London, 1904. pages 1-11.

WHAT HAS GENOMICS, MAPS & MARKERS TO DO WITH AYURVEDA?



Madan Thangavelu

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