



Confidence in Science

Sir John Burn

MD FRCP FRCPE FRCPCH FRCOG FMedSci

Professor of Clinical Genetics, Newcastle University

Non-Executive Director, NHS England

Chairman, QuantumDx group

World Science Forum

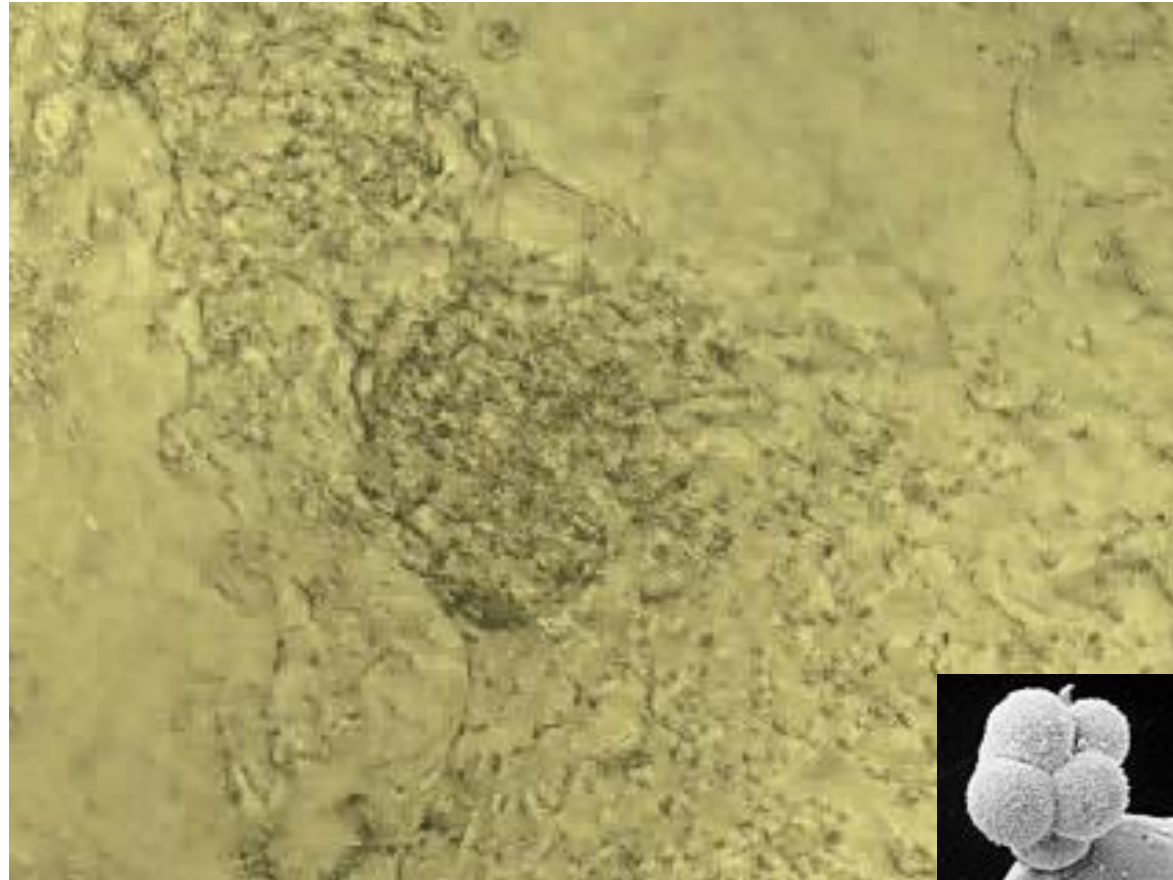
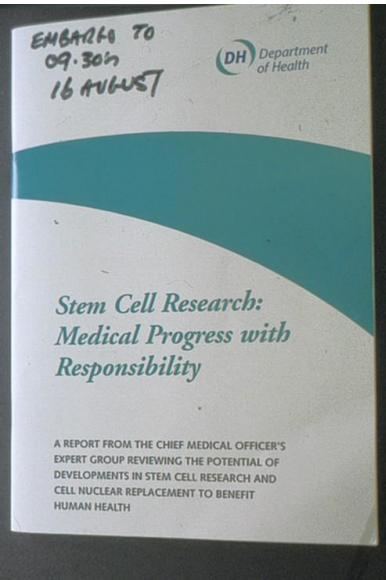
Budapest

5th November 2015



Spontaneous differentiation of human stem cells into cardiomyocytes

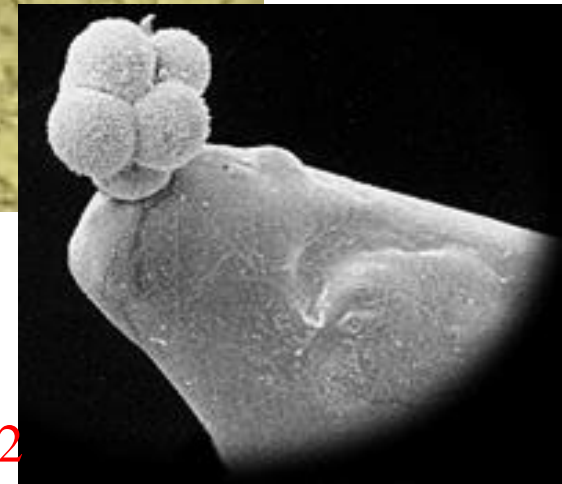
Courtesy of Prof Miodrag Stoikovich



**S Korea cloning
pioneer
disgraced
24/11/05**

Can a cell have a soul?

Burn J, British Medical Journal 2008;336:1132

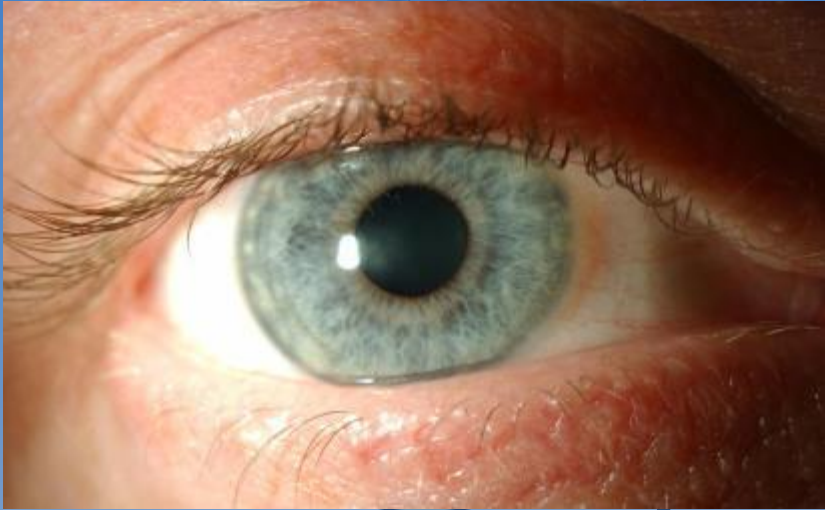


GMP Cultured limbal grafts

Courtesy of Dr Saj Ahmad
Professor Majlinda Lako
Mr Francisco Figueiredo

Donor healthy eye

Recipient limbal stem cell deficient eye

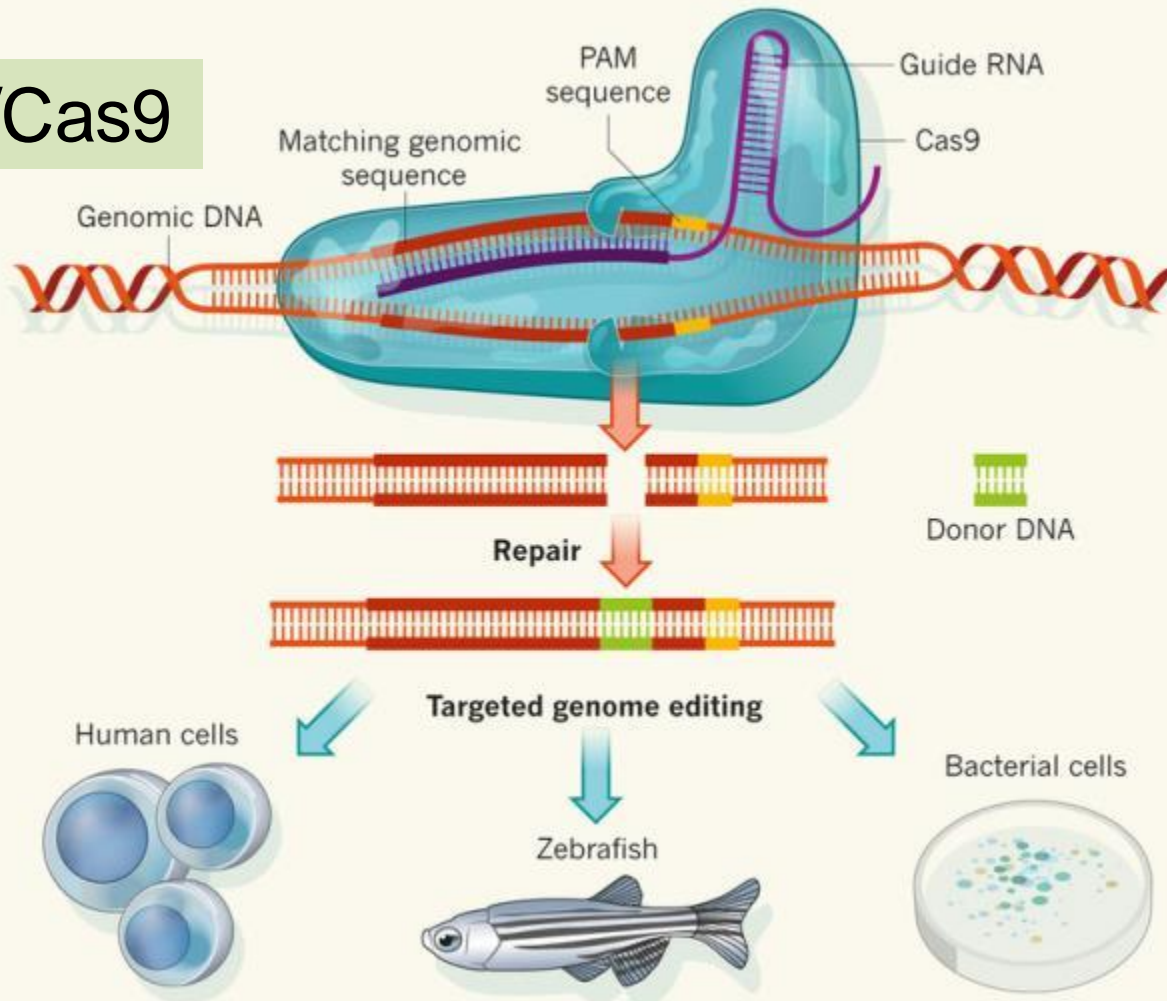


Removal of donor tissue
and culture in laboratory

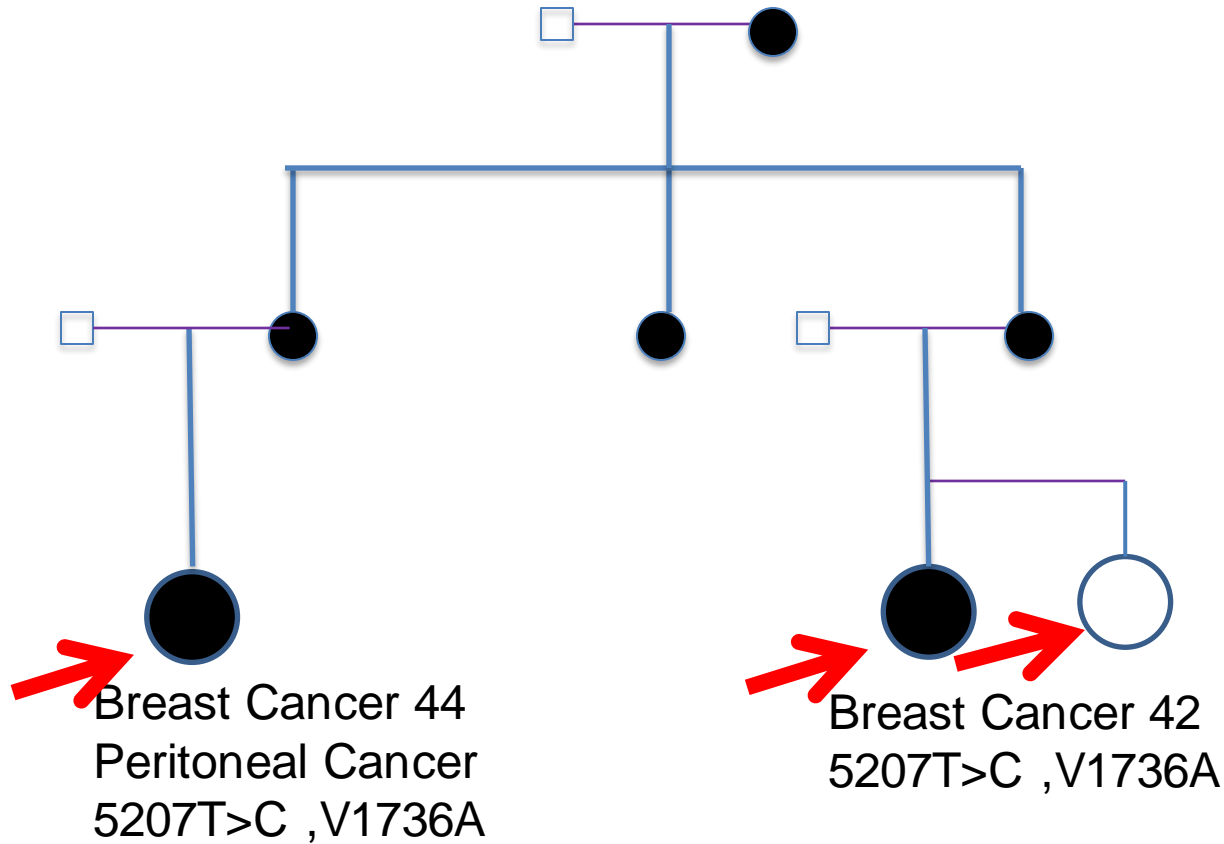


Emmanuelle Charpentier & Jennifer Doudna
Biotechnology: Rewriting a genome
Nature 2013 : 495, :50–51

CRISPR/Cas9



A missense mutation exchanges alanine for valine at position 1736 in BRCA1





Beeld

Jou wêreld, Jou koerant ••

Woensdag 15 Mei 2013 R7,50

Ekstra bylae oor
jagbedryf **Binne**

Eugene de Kock
moet weer wag **2**

Aussie-
Cheeta



Die lewe het baie uitdagings. Dié wat ons nie bang behoort te maak nie, is dié wat ons kan pak en waaroor ons self beheer kan neem.

— ANGELINA JOLIE OOR HAAR
BESLUIT OM 'N DUBBELE
MASTEKTOMIE TE ONDERGAAN

SA

op

hu

Emira
Karab


paspo

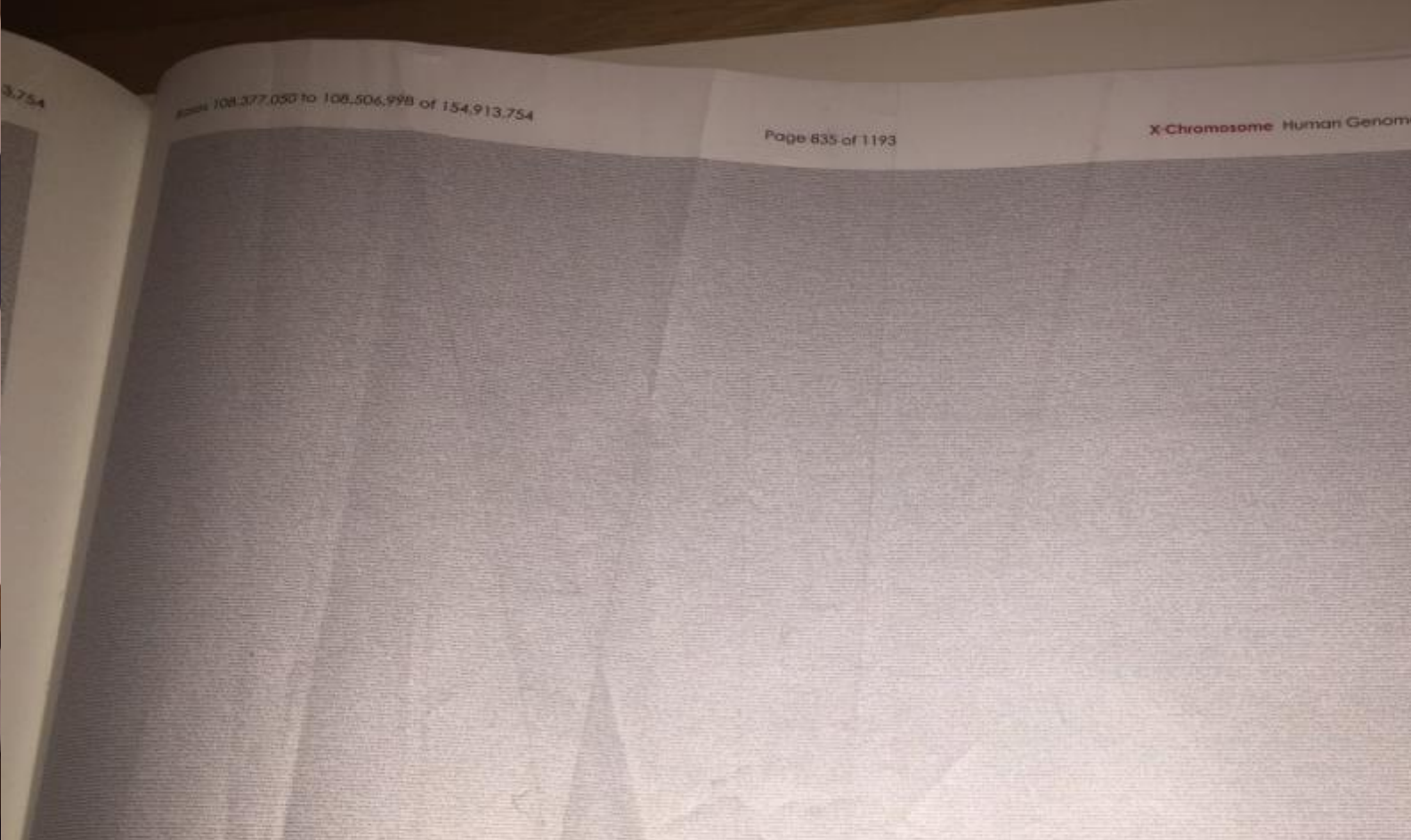
Human Genomics Strategy Group



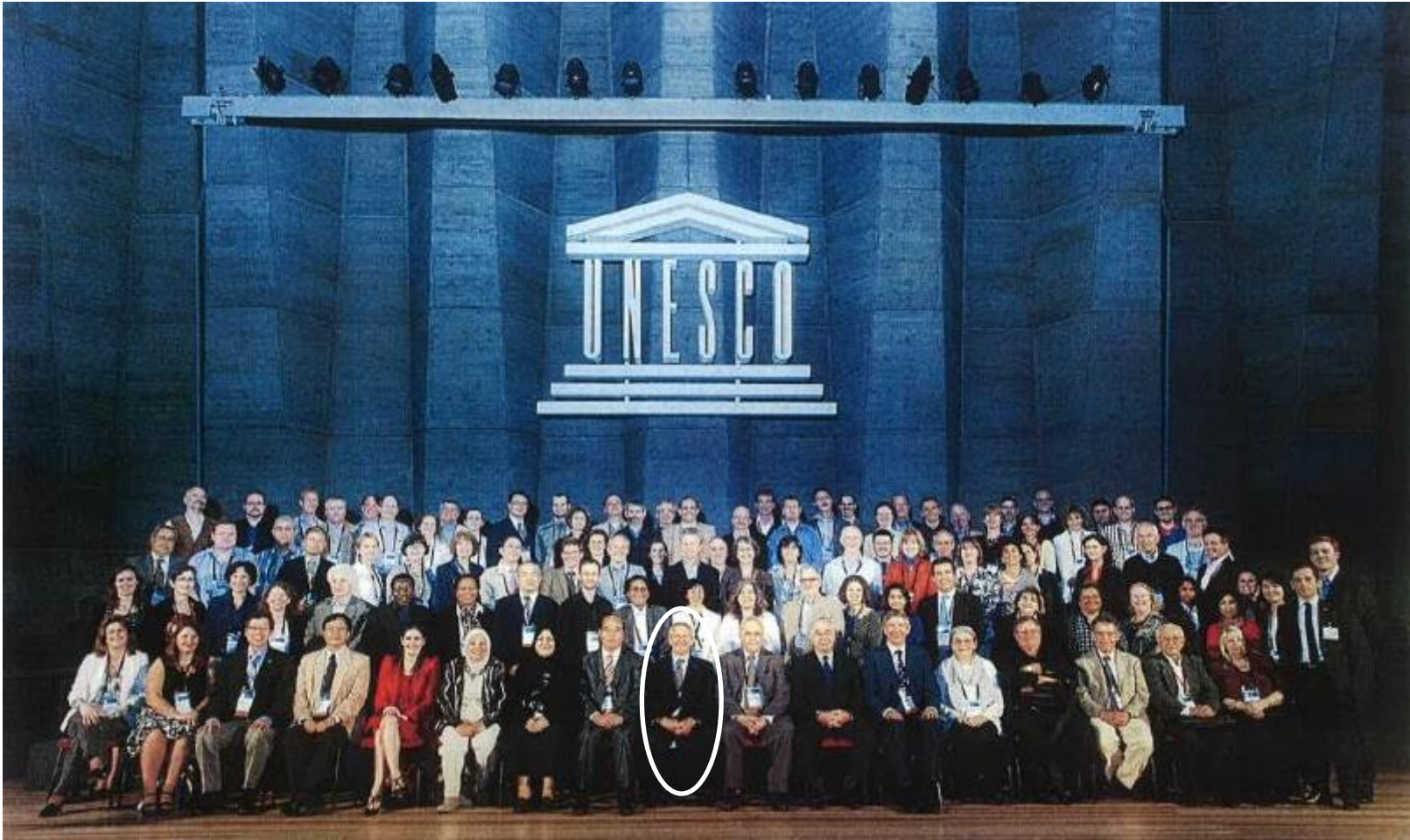
- Government response
 - 100,000 whole genomes
 - £300 million investment

Functional classification of JDW SNPs

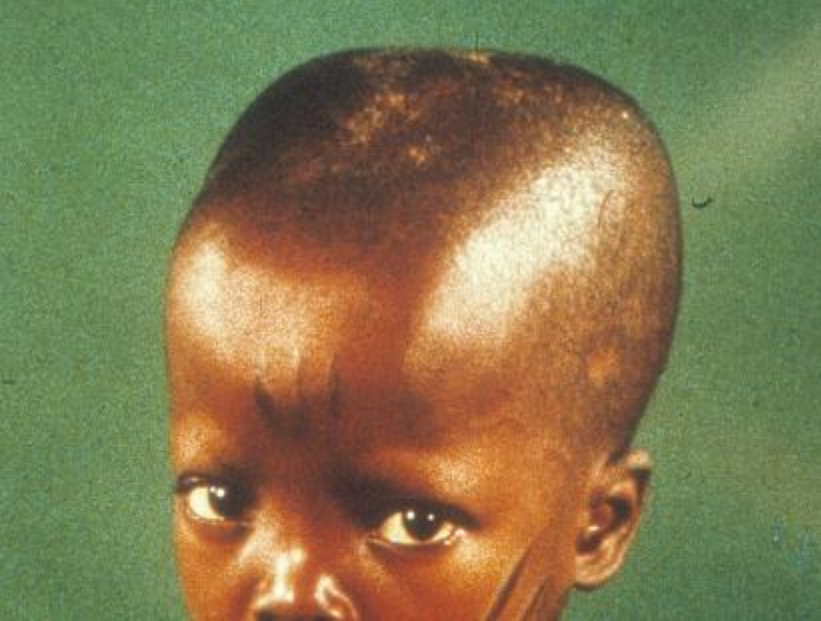
SNP Type		Novel SNPs
Missense		2421
Nonsense		5
Synonymous		2261
UTR		7102
Intron		381924



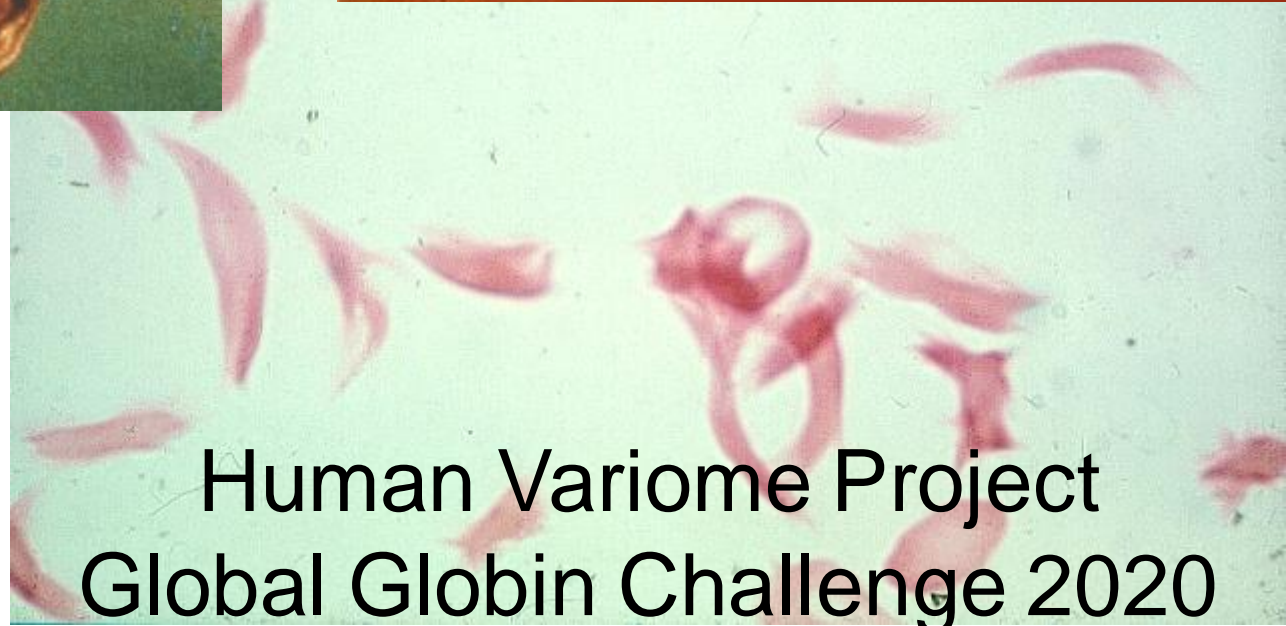
BRCA Challenge meeting UNESCO June 12-13th 2015



HVP4, UNESCO, Paris, 11-15 June 2012
Chaired by Professor Dick Cotton

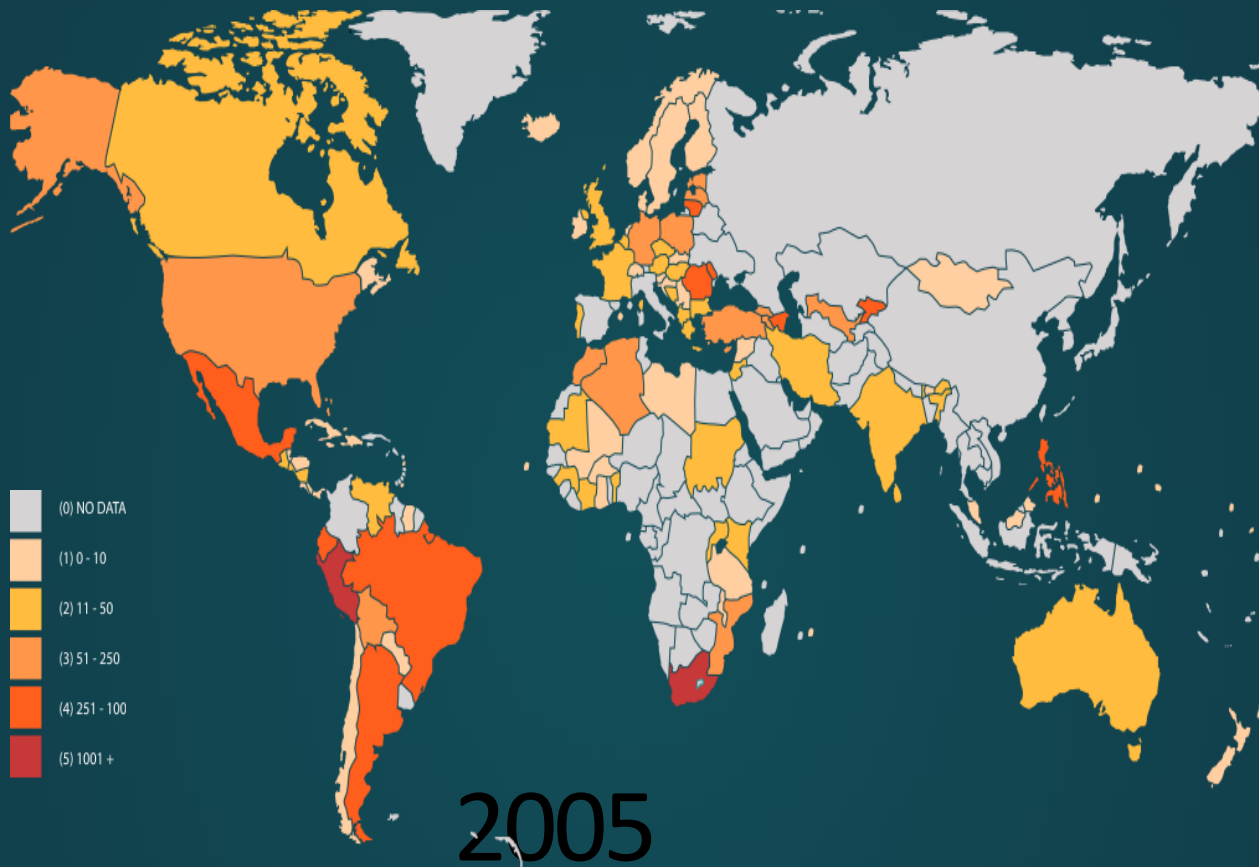


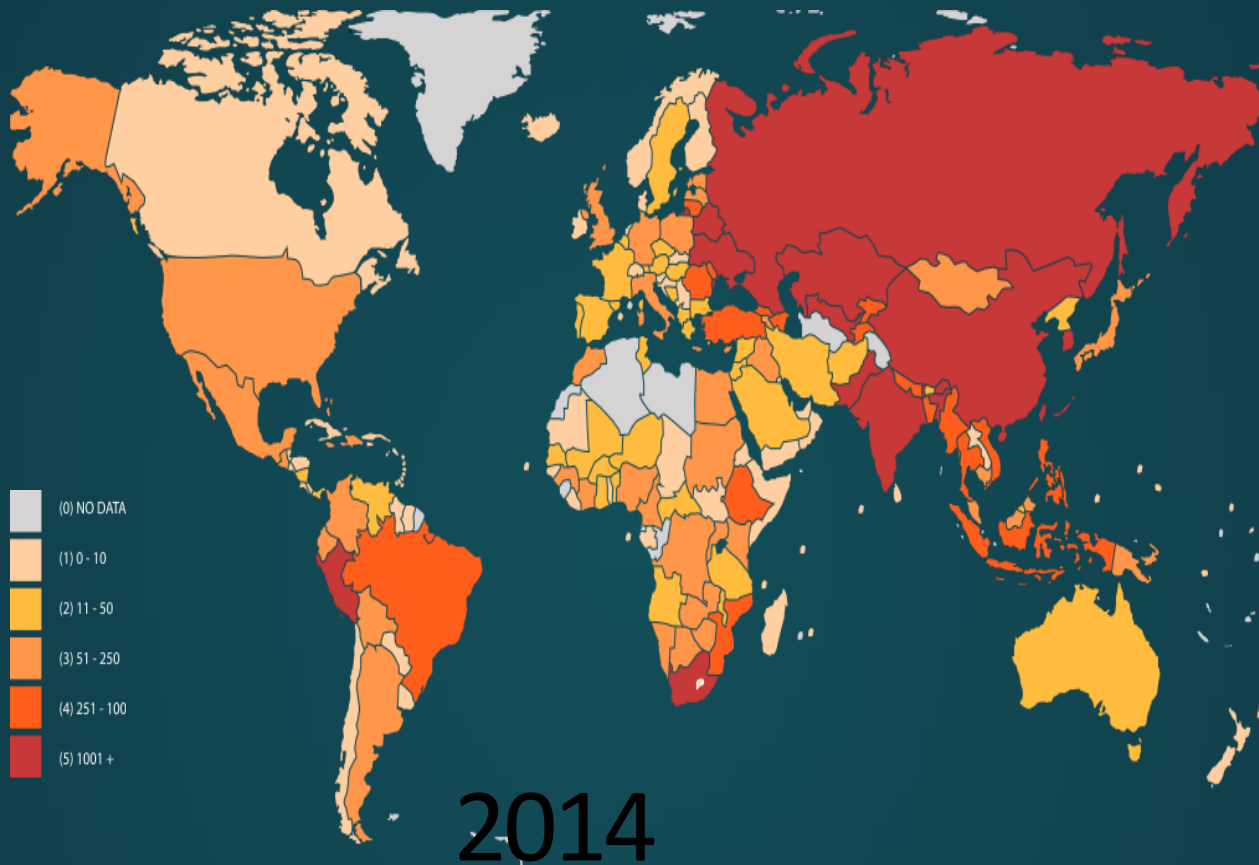
Expansion of bone marrow spaces to correct haemolytic anaemia



Human Variome Project
Global Globin Challenge 2020

Sickle Cell Disease
Homozygous for a missense mutation







Rt Hon George Freeman
Minister for Life Sciences
2014

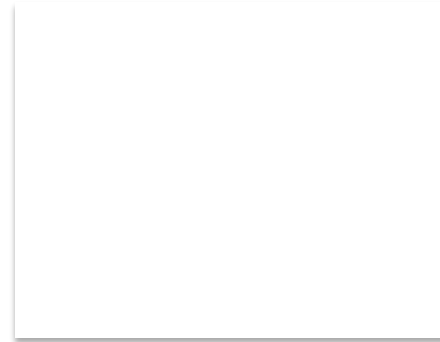


QuantuMD_s

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YES



NO