

INVITED SPEAKER PRESENTATION

Open Access

Reading and writing genomes

George Church

From Beyond the Genome: The true gene count, human evolution and disease genomics Boston, MA, USA. 11-13 October 2010

The human genome draft published in 2004 was a milestone, but achieved at a cost of \$3 billion it is inapplicable to diagnostics for global health. We have reduced the cost of sequencing by over a million times in the past six years. The next step is integrating Genome + Environment = Trait (GET) data on large diverse cohorts enabled by a new consent mechanism (http:// www.personalgenomes.org) in a globally shareable, unrestricted form (http://evidence.personalgenomes.org). This includes time-series studies of microbiomes and immune responses to such microbes, allergens, vaccines and allele-specific expression in pluripotent stem cells. To move from correlations to causations and cures requires a similar million-fold improvement in DNA writing technology - via use of DNA synthesized on chips and Multiplex Automated Genome Engineering (MAGE). Applications include metabolic engineering and multivirus resistant cells.

Published: 11 October 2010

doi:10.1186/gb-2010-11-S1-I2 Cite this article as: Church: Reading and writing genomes. *Genome Biology* 2010 11(Suppl 1):12.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

BioMed Central

Submit your manuscript at www.biomedcentral.com/submit

Harvard Medical School, NRB Rooms 232 & 238, 77 Ave Louis Pasteur, Boston, MA 02115, USA

