

ERROR CORRECTION

5 OCT 15

ANNOUNCEMENTS

Personal Genomic Medicine:

Social, ethical, and scientific
implications



Image of Smithsonian exhibit: *Genome: unlocking life's code*, courtesy of Alex Pang

With the success of the Human Genome Project and advances that permit individuals to have their genetic code determined, the era of personal genomics is already upon us. Leading scholars representing multiple areas of human genome and microbiome research will outline and navigate the current state of knowledge. The series will explain how the genomic revolution will affect our lives, and will stimulate debate of the scientific, medical, ethical, legal, and societal implications of sequencing human genomes.

The Saul O Sidore Memorial Lecture Series was established in 1965 in memory of Saul O Sidore of Manchester, New Hampshire. The purpose of the series is to offer the University community and the state of New Hampshire programs that raise critical and sometimes controversial issues facing our society. The University of New Hampshire Center for the Humanities sponsors the programs.



<http://cola.unh.edu/center-humanities/sidore>

14 October

Gut Feelings: How the Microbiome Influences Behavior
Dr. Jane A. Foster, Brain-Body Institute, McMaster University

7 December

Personalized Medicine: Using Integrative Omics to Analyze Complex Disease and Manage Health
Dr. Michael Snyder, Director, Stanford Center for Genomics and Personal Medicine

10 February

Implementing 'Precision' Medicine: Ethical Concerns in a Postgenomic World
Dr. Barbara Koenig, Institute for Health and Aging, UCSF

9 March

The Dog Genome: Shedding Light on Human Diseases
Dr. Elaine Ostrander, Head of Comparative Genetics, NIH

13 April

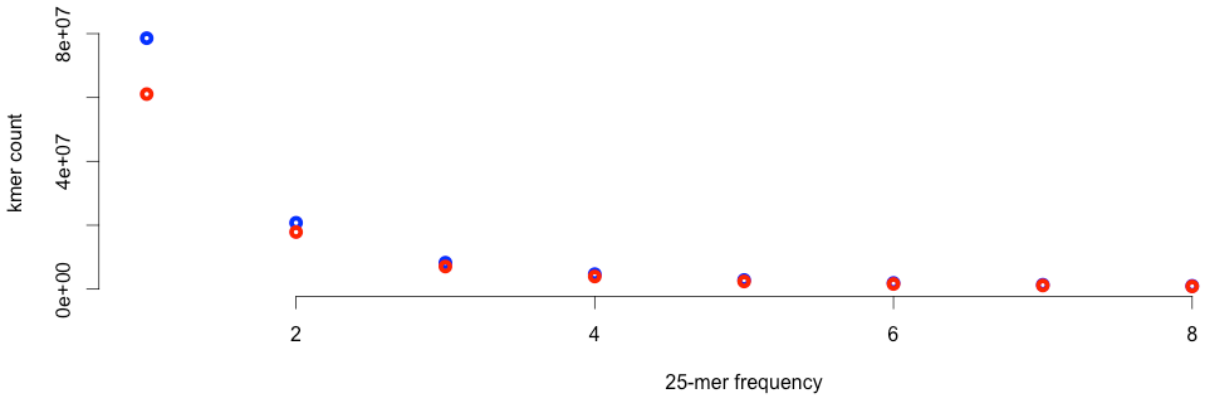
The Invisible Influence of the Human Microbiome
Dr. Jack A. Gilbert, University of Chicago

27 April

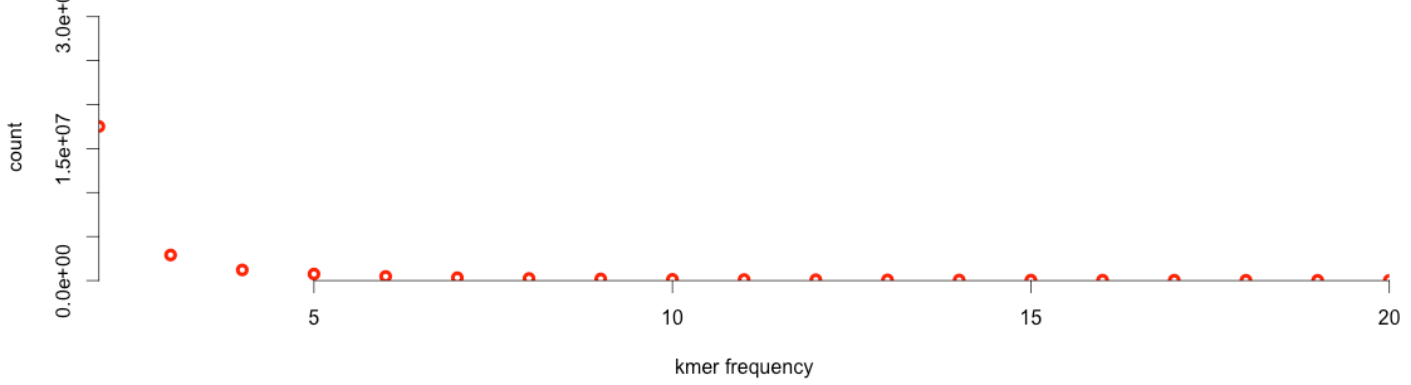
Probing Human Ancestry with Ancient DNA
Dr. John Hawks, University of Wisconsin

LAB REVIEW

Kmer distribution in sample with different trimming thresholds



Diff in 25mer counts of freq 2 to 20
Phred2 vs. Phred30



EXAM REVIEW

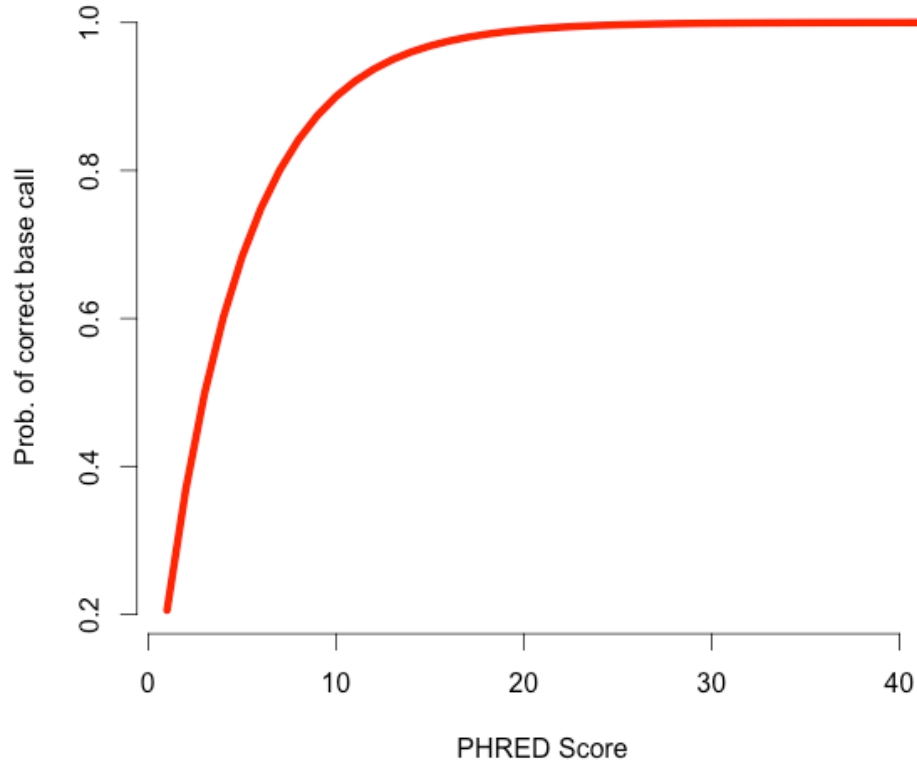
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+

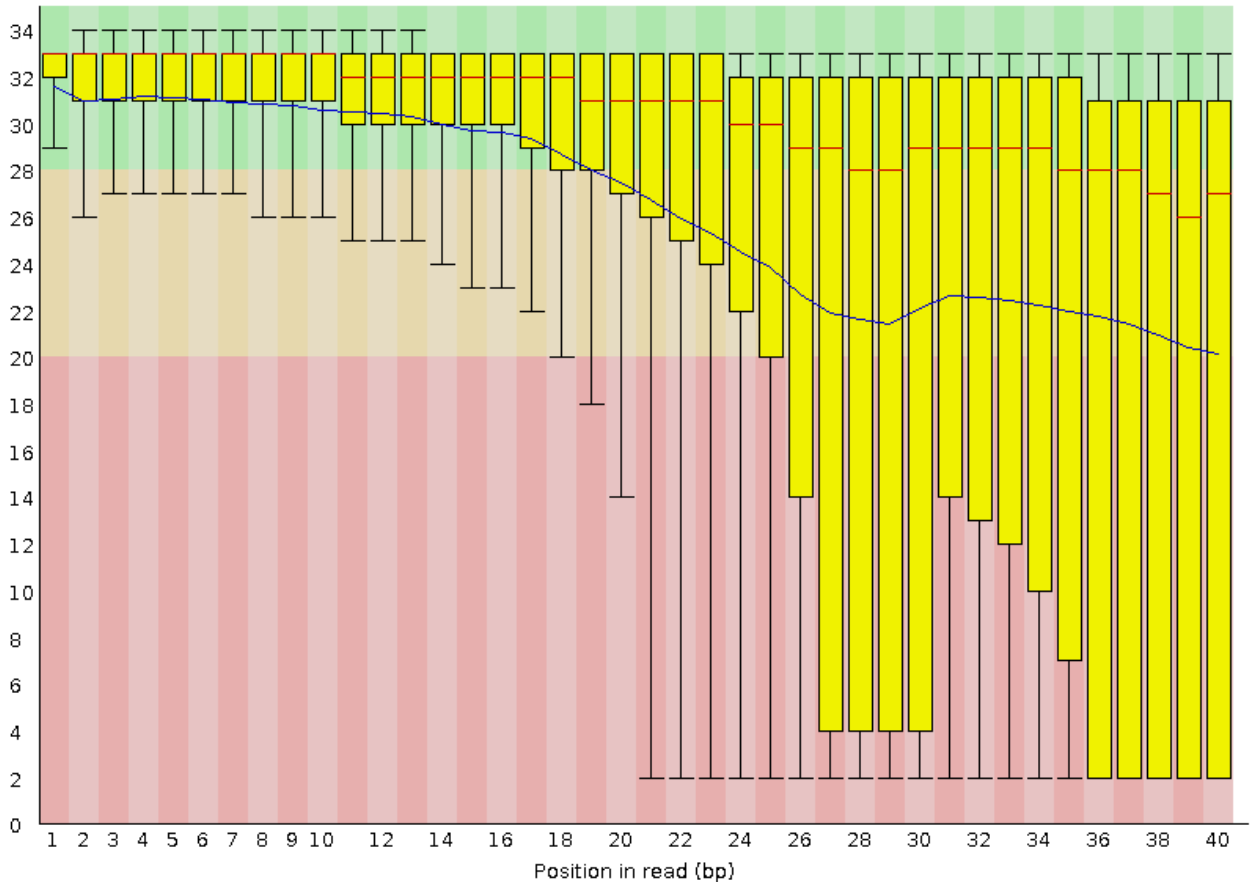
BBBFF

EXAM REVIEW

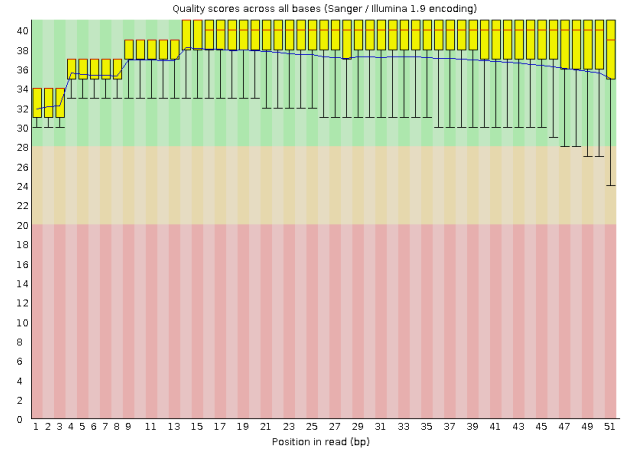
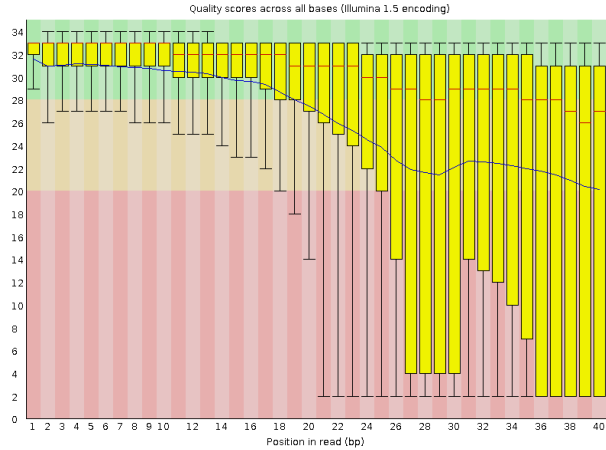


EXAM REVIEW

Quality scores across all bases (Illumina 1.5 encoding)



EXAM REVIEW



ERROR CORRECTION

MSA based

ERROR CORRECTION

Evaluation of Correction

DIGITAL NORMALIZATION

DIGITAL NORMALIZATION

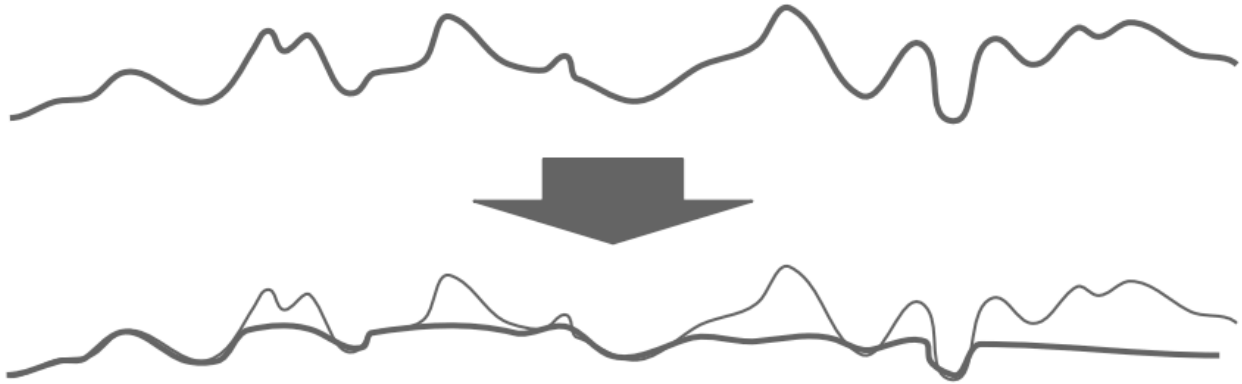
High-throughput seq: 2 major challenges

DIGITAL NORMALIZATION

Perfect Storm of data analysis – What to do???

DIGITAL NORMALIZATION

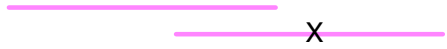
Perfect Storm of data analysis – What to do???



Brown 2012 arXiv:1203.4802v2

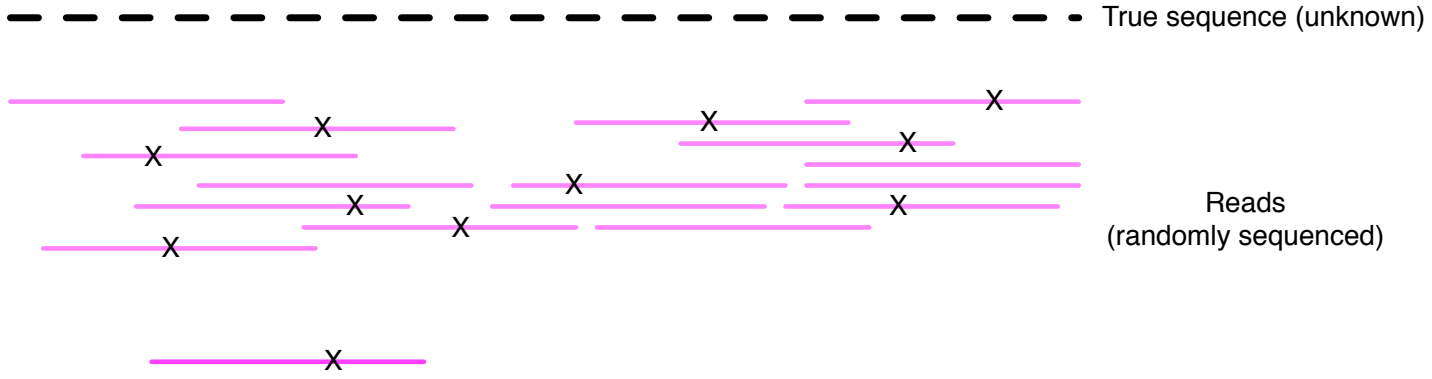
DIGITAL NORMALIZATION

----- True sequence (unknown)



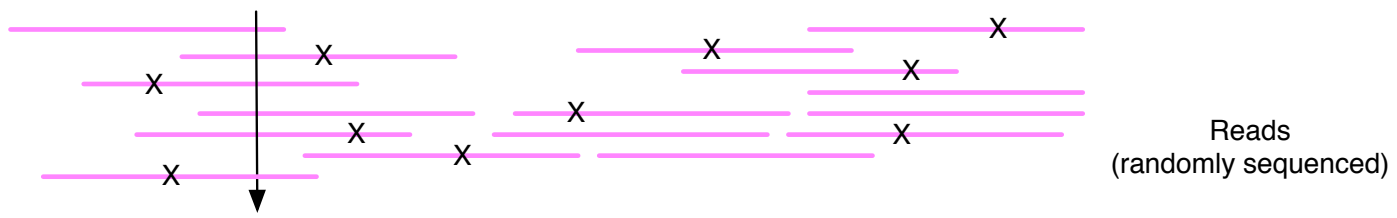
Reads
(randomly sequenced)

DIGITAL NORMALIZATION



DIGITAL NORMALIZATION

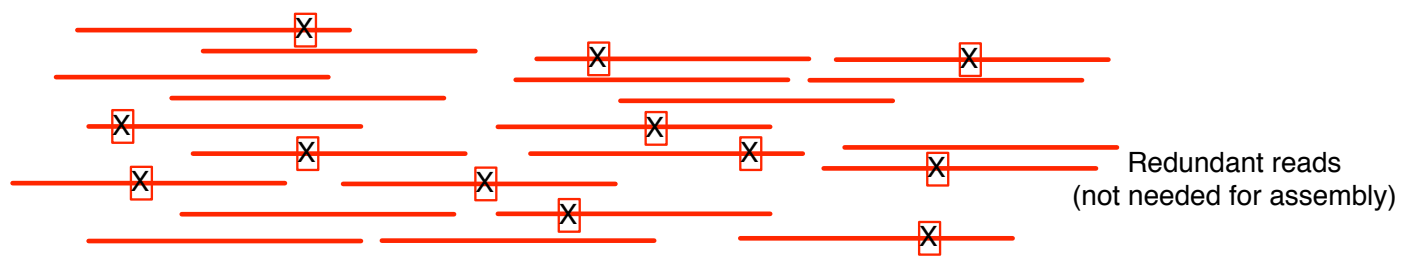
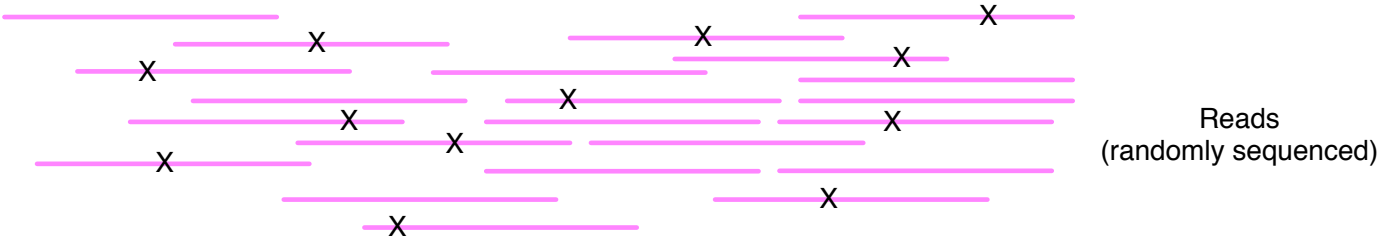
----- True sequence (unknown)



If next read is from a high coverage region - **discard**

DIGITAL NORMALIZATION

----- True sequence (unknown)



DIGITAL NORMALIZATION

