

RESEARCH ARTICLE

A Draft Sequence of the Neandertal Genome

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Neandertals

First appear in the European fossil record about 400,000 years ago

Lived in Europe and Western Asia as far east as Southern Siberia and as far south as the Middle East

came into contact with modern humans from at least 80,000 years ago

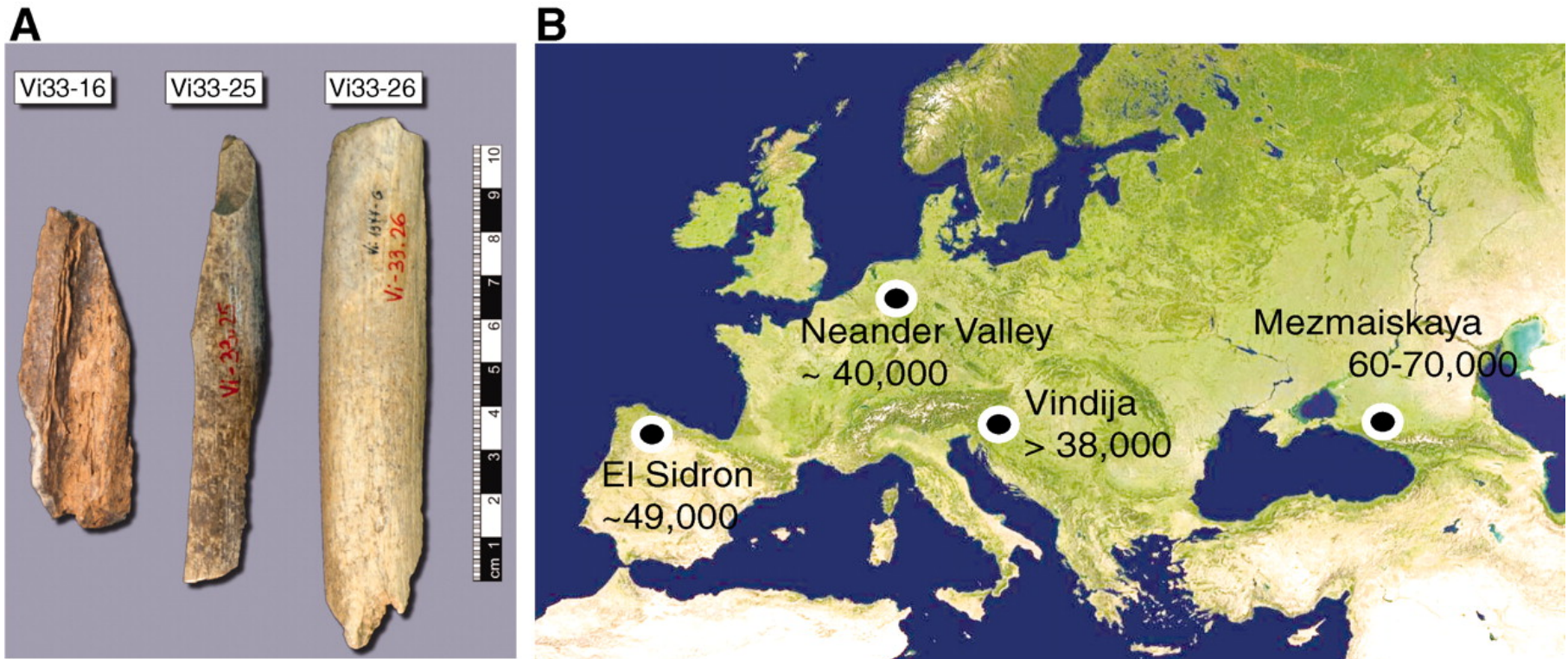
Neandertals

Neanderthal cranial capacity is thought to have been as large as babies or larger as adults than *Homo sapiens*

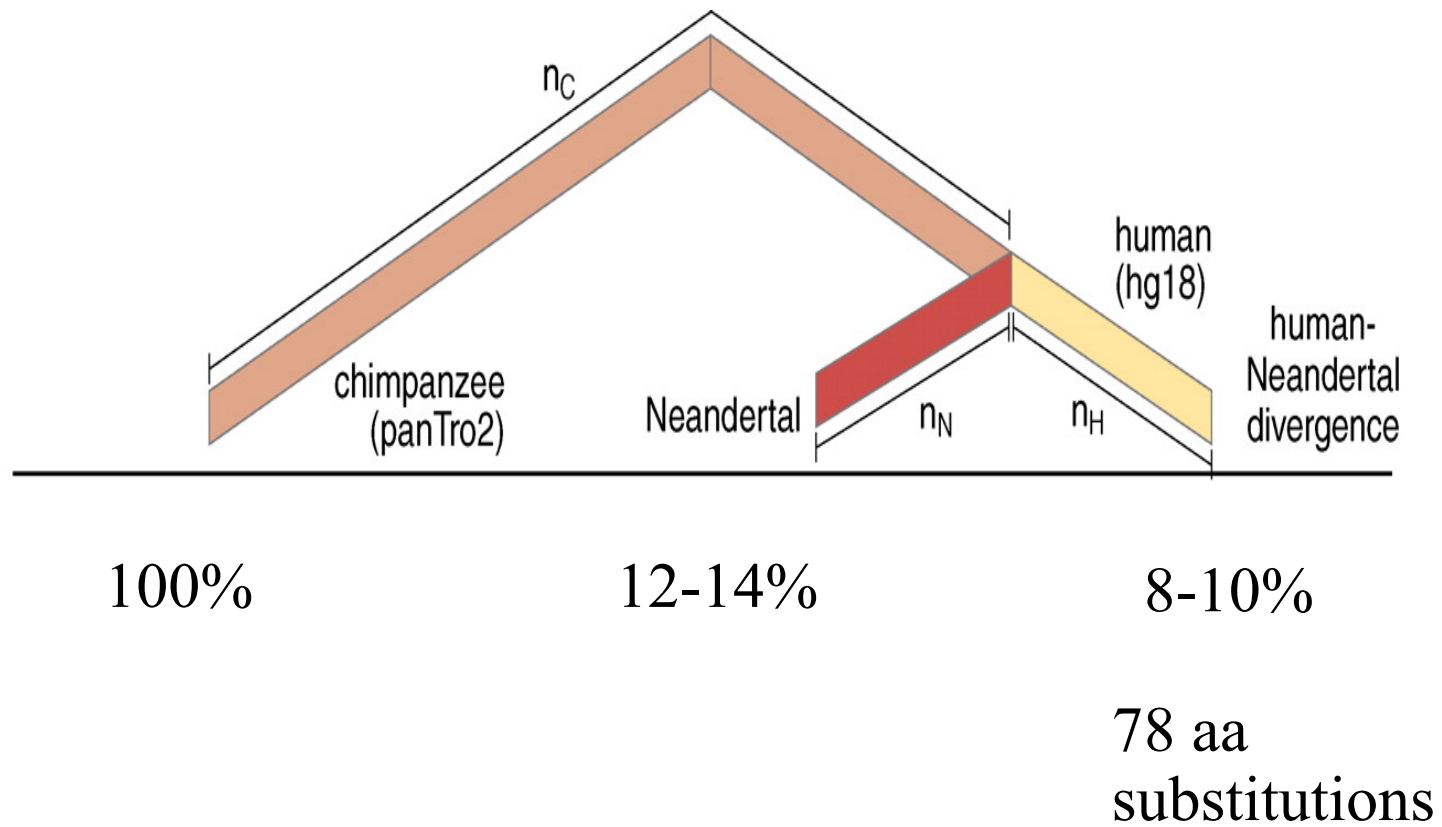
Neandertals were heavily built with robust bone structure.

They were much stronger than *Homo sapiens*, having particularly strong arms and hands

Samples and sites from which DNA was retrieved.



R E Green et al. Science 2010;328:710-722



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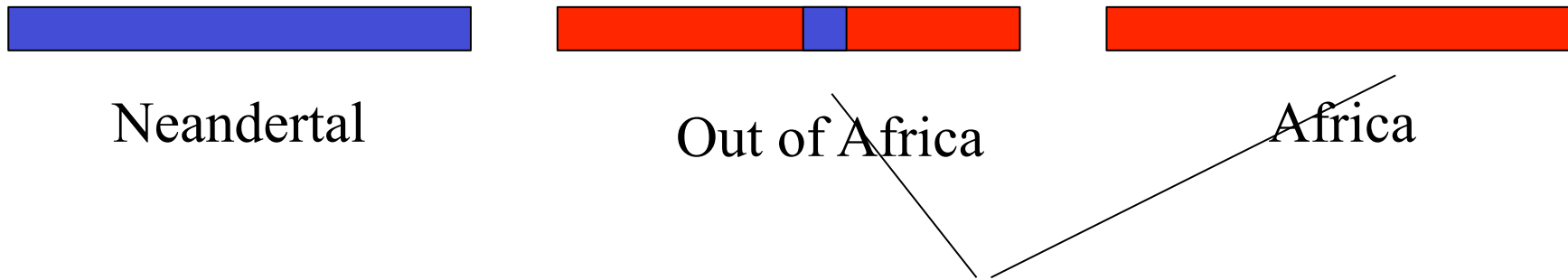
Supplementary Online Materials 17

Non-African haplotypes match Neandertal at an unusual rate

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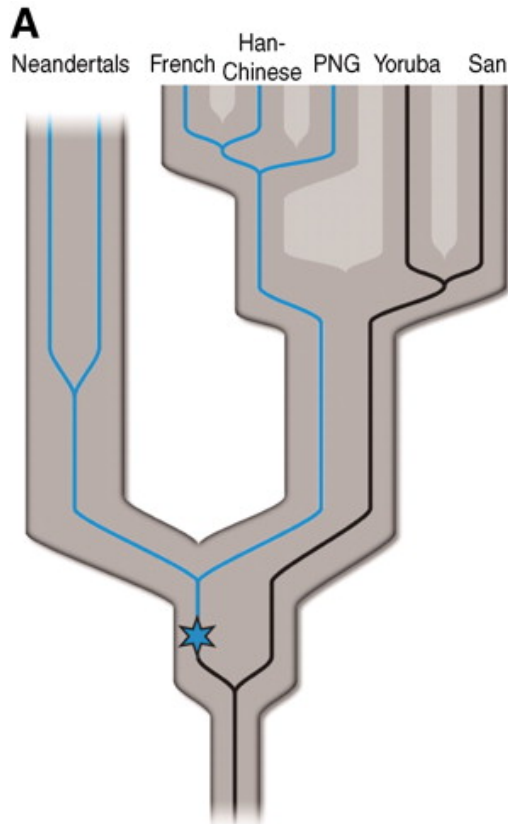


Step 1: candidate region

In a 50 kb region, search for regions in which OOA is very different from Africa

Step 2: compare to Neandertal

Look for cases in which there is high match to the Neandertal sequence across many SNPs. The OOA/Neandertal allele should be derived, not ancestral



Scenario for Neandertal gene flow into OOA genomes

The two alleles match, and should be derived.

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Neandertal Alleles

Use at your own risk.

[Compute my Neandertal Index](#)

Neandertal

Are you a neandertal?

You have **12** out of 82 Neandertal alleles. Running total

dbSNP	Derived Allele	Ancestral Allele	Out of Africa Allele	Genotype	Count
10800485	C	T	C	CT	1
6670818	G	A	G	AA	0
10915846	A	G	A	GG	0
16845098	C	T	C	CT	1
17503834	C	T	C	TT	0

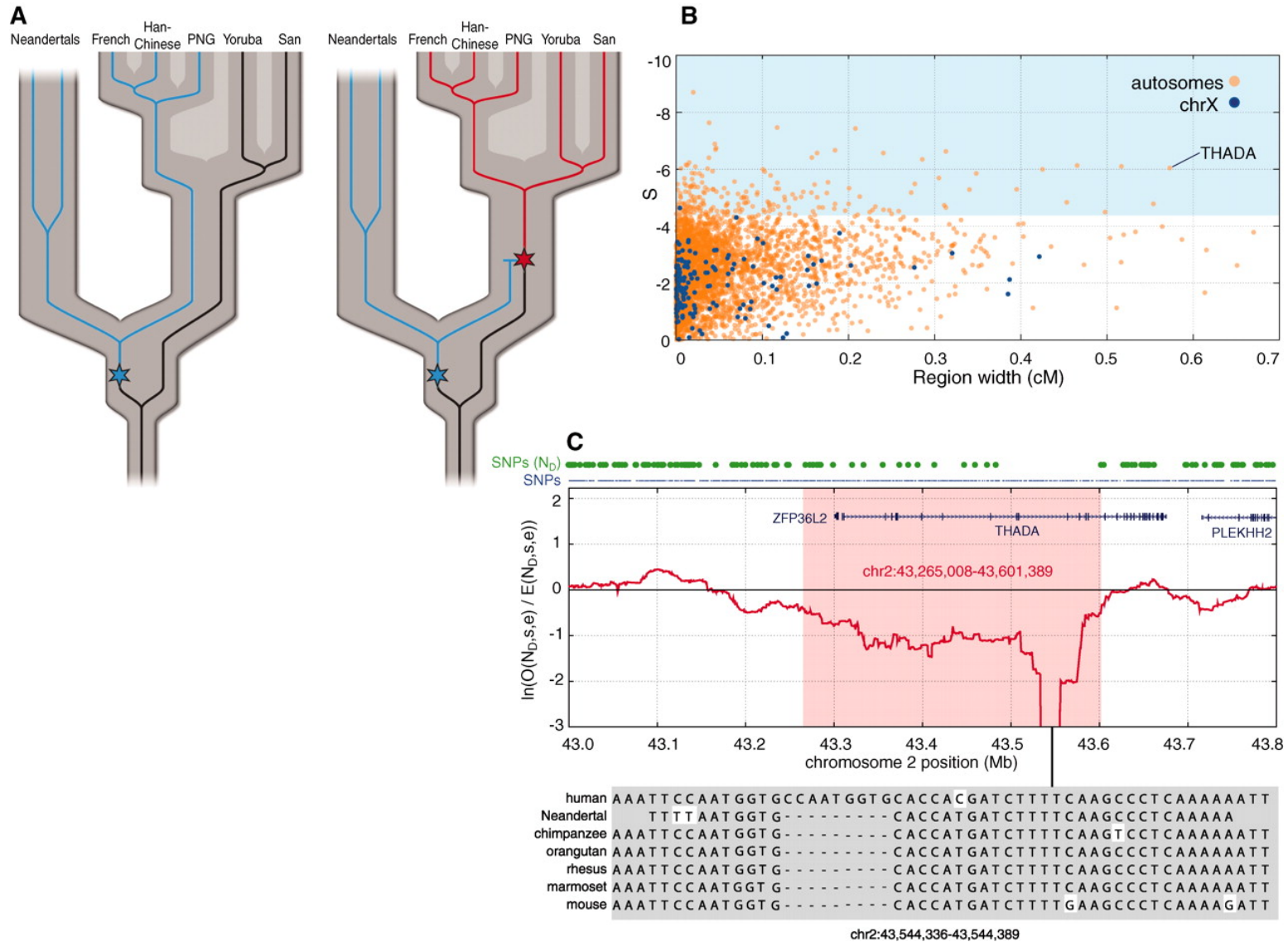
Same as Chimp

Same as Neandertal allele

Your genotype

Neandertal

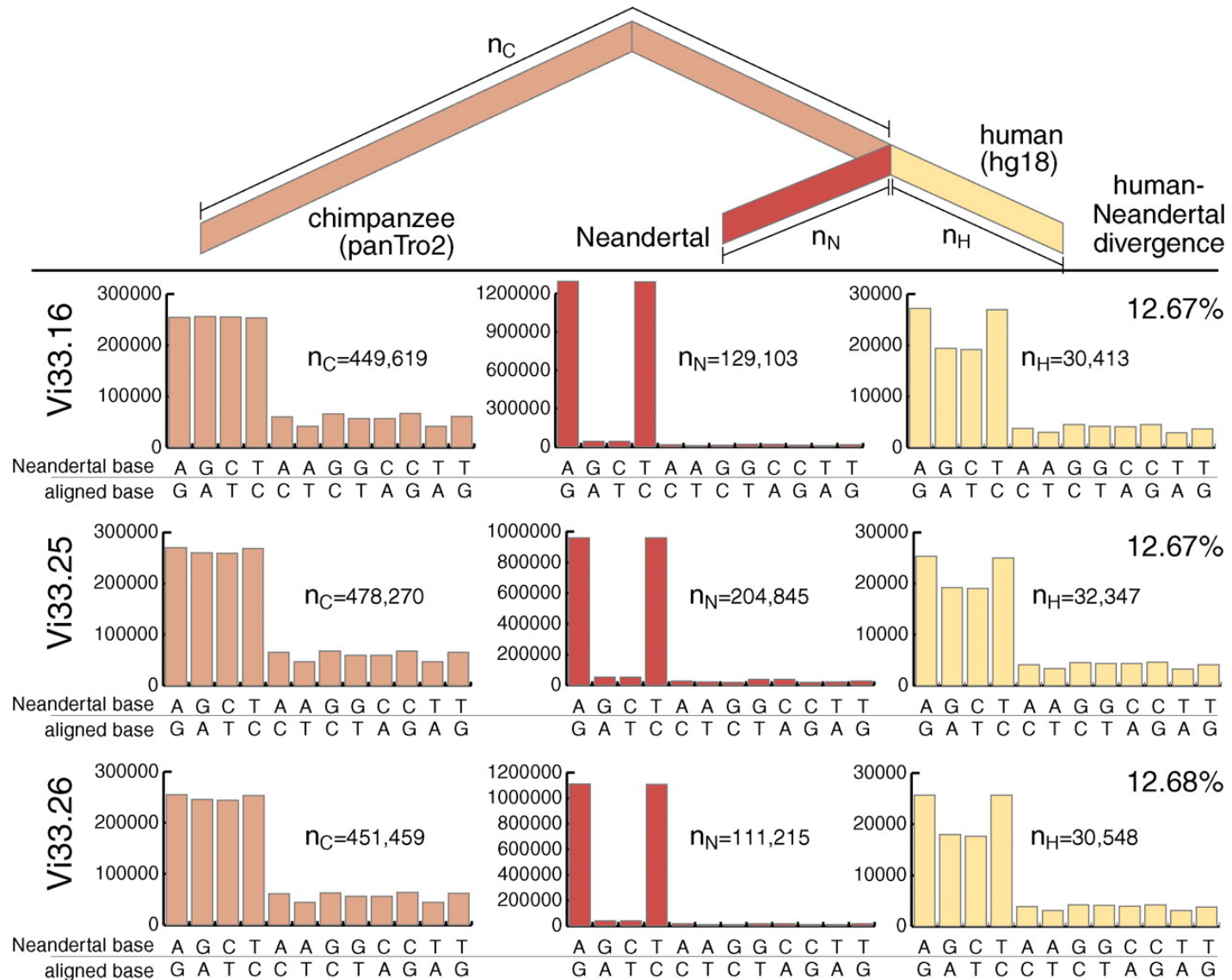
Fig. 4 Selective sweep screen.



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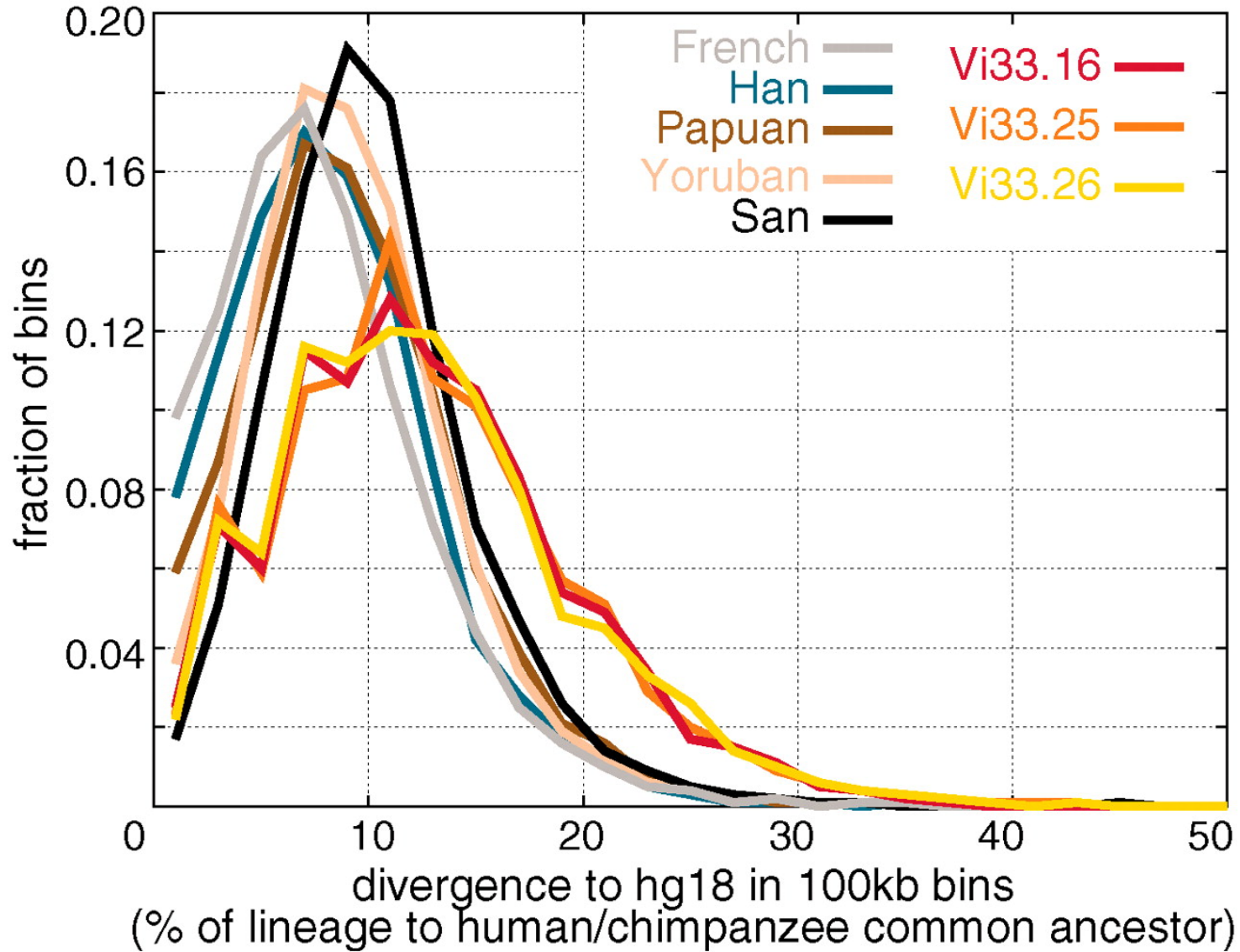
Nucleotide substitutions inferred to have occurred on the evolutionary lineages leading to the Neandertals, the human, and the chimpanzee genomes.



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Fig. 3 Divergence of Neandertal and human genomes.



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