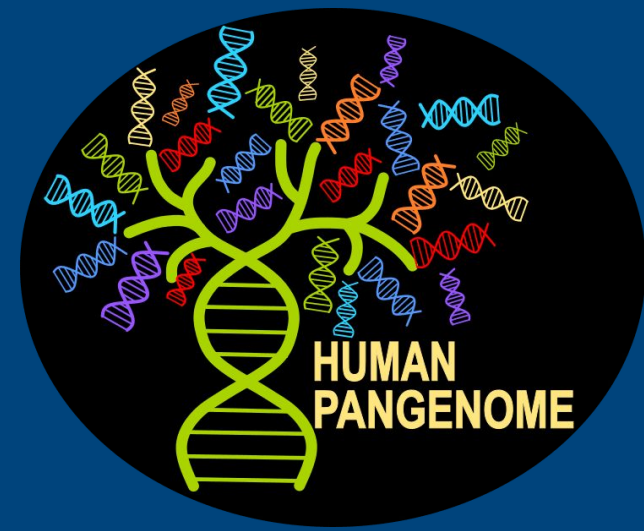
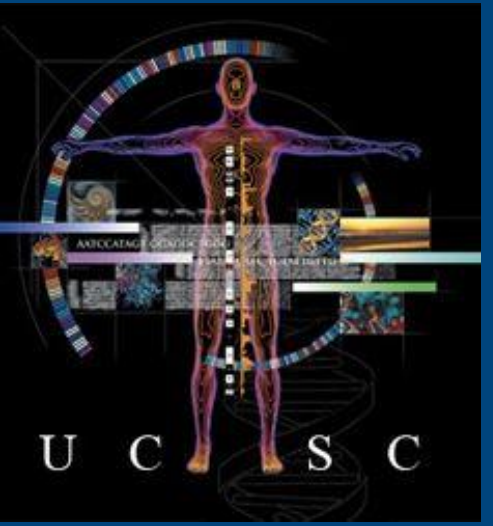




Viewing Human Pangenome Research Consortium (HPRC) data on the UCSC Genome Browser



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Human Pangenome - HPRC

1 Multiple Alignment
pack

2 Pairwise Alignments
full

3 Rearrangements
pack

4 Short Variants
show

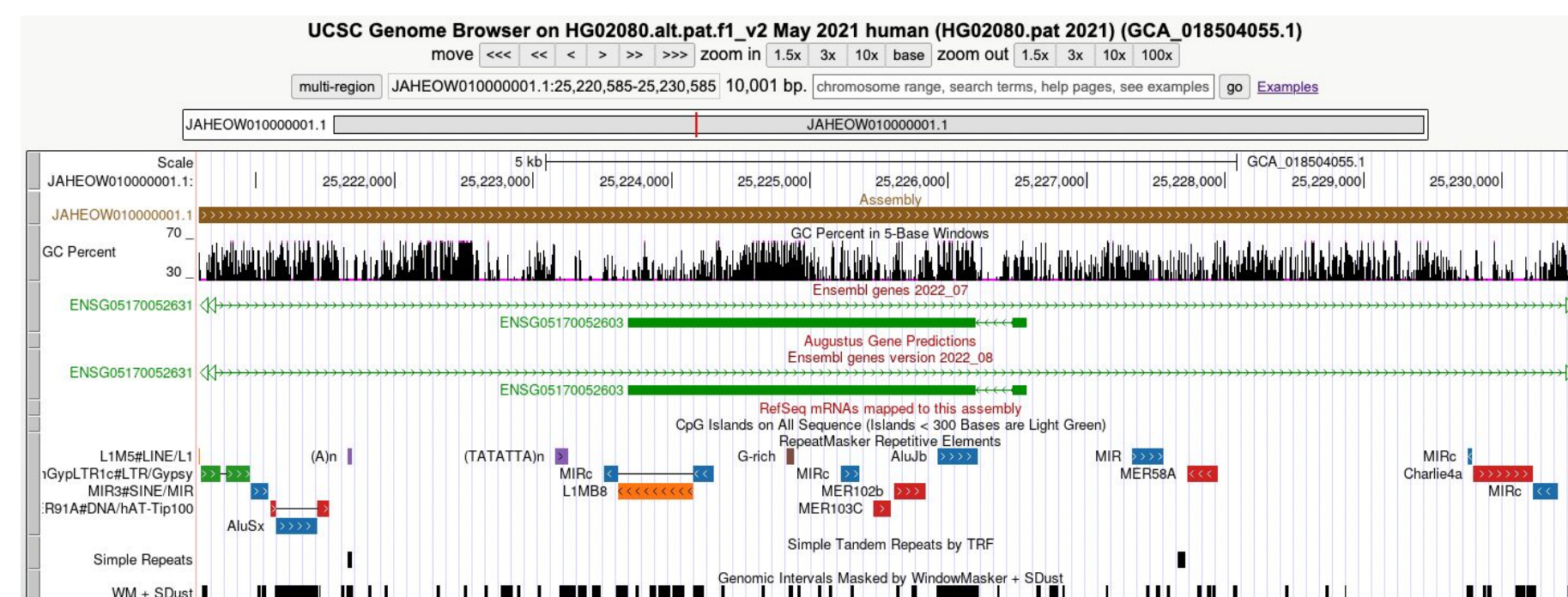
The Human pangenome contains 47 phased, diploid assemblies from a group of genetically diverse individuals. A total of 176 maternal and paternal haplotypes were used in this analysis. The haplotypes can be grouped into the 14 subpopulations:

- Telomere-to-Telomere (T2T)
- African Caribbean, Barbados
- Gambian, Western Division
- Yoruba, Nigeria
- Esan, Nigeria
- Peruvian, Lima
- Colombians, Medellin
- International HapMap Project
- African, South West USA
- Puerto Ricans, Puerto Rico
- Punjabi Pakis
- Mende, Sierra Leone
- Southern Han Chinese
- Kinh Vietnamese

HPRC data can be viewed directly on hg38

All Pangenomes are Available on GenArk

With the rapid increase in genomic assemblies available, the UCSC Genome Browser has imported many NCBI assemblies via the track hub system. The UCSC Genome Browser's GenArk hub includes all 96 HPRC pangenome assemblies.

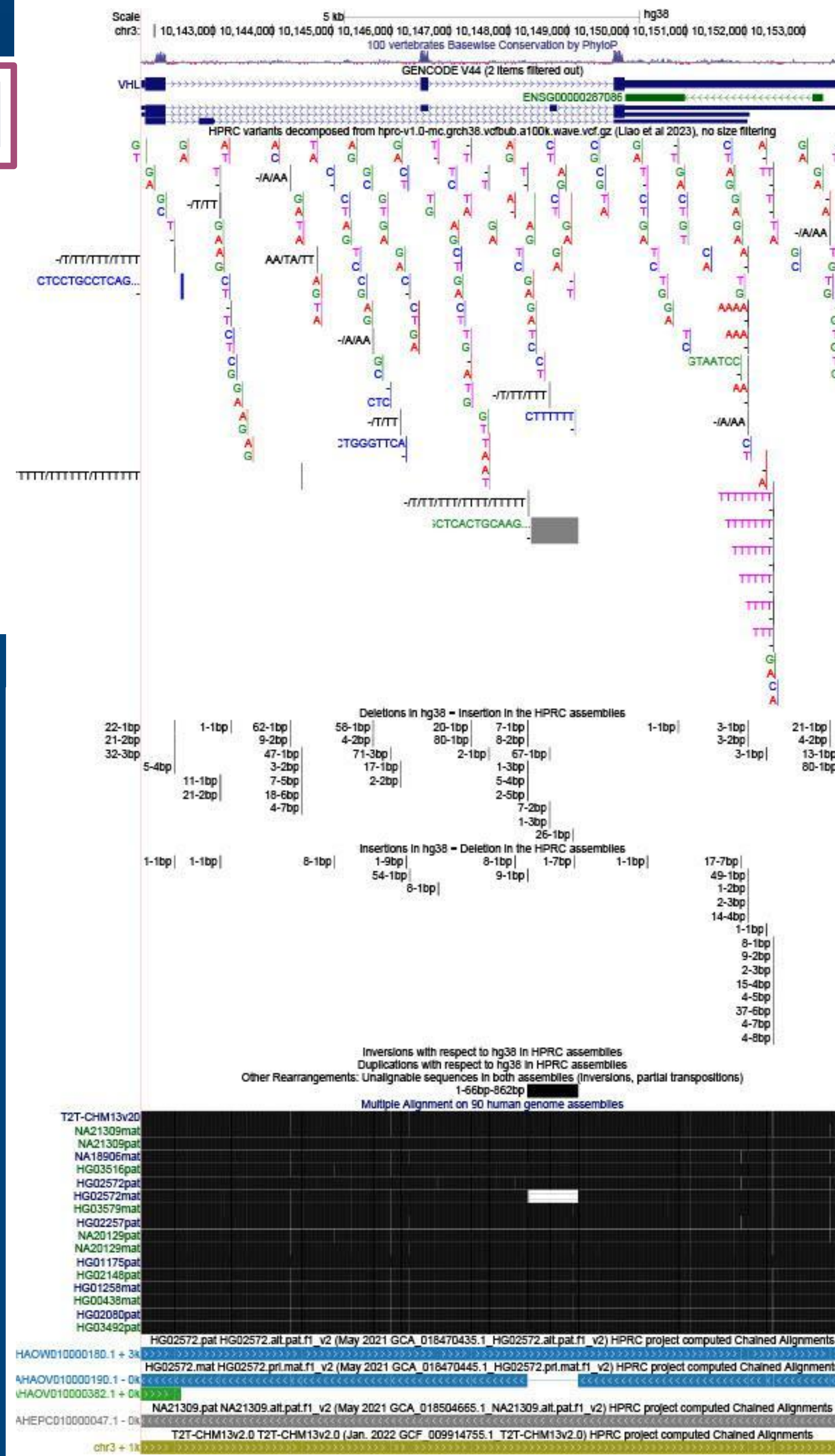


Links to view the pangenome and other NCBI resources are available

GenArk: UCSC Genome Archive

hub gateway	description
primates	NCBI primate genomes (207 assemblies)
mammals	NCBI mammal genomes (506 assemblies)
birds	NCBI bird genomes (327 assemblies)
fishes	NCBI fish genomes (357 assemblies)
vertebrate	NCBI other vertebrate genomes (198 assemblies)
invertebrate	NCBI invertebrate genomes (642 assemblies)
fungi	NCBI fungi genomes (612 assemblies)
plants	NCBI plant genomes (252 assemblies)
viral	NCBI virus genomes (265 assemblies)
bacteria	NCBI bacteria genomes (74 assemblies)
collections below are subsets of the assemblies above	
VGP	Vertebrate Genomes Project collection (773 assemblies)
CCGP	The California Conservation Genomics Project (126 assemblies)
HPRC	Human Pangenome Reference Consortium (96 assemblies)
globalReference	Global Human Reference genomes, January 2020 (10 assemblies)
mouseStrains	16 mouse strain assembly and track hub, May 2017
legacy	NCBI genomes legacy/superseded by newer versions (437 assemblies)

count	common name and view in UCSC browser	[IGV browser]	scientific name and data download	NCBI assembly	BioSample	BioProject	assembly date, source link
1	human (HG00438.mat 2021)	[IGV]	Homo sapiens	GCA_018471515.1_HG00438.pat.mat.f1_v2	SAMN17861652	PRJNA726273	2021-05-24
2	human (HG00438.pat 2021)	[IGV]	Homo sapiens	GCA_018472595.1_HG00438.pat.mat.f1_v2	SAMN17861652	PRJNA726272	2021-05-24
3	human (HG00621.mat 2021)	[IGV]	Homo sapiens	GCA_018472605.1_HG00621.pat.mat.f1_v2	SAMN17861653	PRJNA726275	2021-05-24
42	human (HG02080.pat 2021)	[IGV]	Homo sapiens	GCA_018504055.1_HG02080.pat.mat.f1_v2	SAMN13957942	PRJNA727358	2021-05-26
95	human (NA24631.mat 2021)	[IGV]	Homo sapiens	GCA_018506965.1_HG005.pat.mat.f1_v2	SAMN03283350	PRJNA727429	2021-05-26
96	human (NA24631.pat 2021)	[IGV]	Homo sapiens	GCA_018506945.1_HG005.pat.mat.f1_v2	SAMN03283350	PRJNA727428	2021-05-26



References

[The UCSC Genome Browser database: 2024 update.](#)
Raney BJ, Barber GP, Benet-Pagès A, Casper J, Clawson H, Cline MS, Diekhans M, Fischer C, Navarro Gonzalez J, Hickey G *et al.*
Nucleic Acids Res. 2024 Jan 5;52(D1):D1082-D1088.
DOI: [10.1093/nar/gkad987](#); PMID: [37953330](#);
PMC: [PMC10767968](#).

[GenArk: towards a million UCSC genome browsers.](#)
Clawson H, Lee BT, Raney BJ, Barber GP, Casper J, Diekhans M, Fischer C, Gonzalez JN, Hinrichs AS, Lee CM *et al.*
Genome Biol. 2023 Oct 2;24(1):217.
DOI: [10.1186/s13059-023-03057-x](#); PMID: [37784172](#);
PMC: [PMC10544498](#).

[A draft human pangenome reference.](#)
Liao WW, Asri M, Ebler J, Doerr D, Haukness M, Hickey G, Lu S, Lucas JK, Monlong J, Abel HJ *et al.*
Nature. 2023 May;617(7960):312-324.
DOI: [10.1038/s41586-023-05896-x](#); PMID: [37165242](#);
PMC: [PMC10172123](#).

Acknowledgements

This work was funded by NHGRI award 2U24HG002371 to the UCSC Genomics Institute. We would like to acknowledge the work of the UCSC Genome Browser technical staff (<https://genome.ucsc.edu/staff.html>), our many collaborators, and our users for their feedback and support.

More Information

Have questions?
Send us a question on our public mailing list:
genome@soe.ucsc.edu

Genome Browser tutorials and videos:
<https://genome.ucsc.edu/training/index.html>

Digital copy of this poster available at:
https://bit.ly/BoG_2024

CSHL Biology of Genomes
May 7th - 11th, 2024