

cancerlines.org - a Cancer Cell Line Variant Knowledge Resource Built on the Beacon Framework



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- The Beacon framework was created for global and federated queries. To facilitate variant sharing, we have built our novel cancer cell line resource on the Beacon framework.
- cancerlines.org is the daughter of Progenetix (a cancer copy number variant (CNV) database), including over 5600 cell line CNVs
- We have mapped additional known cancer cell line variants from resources like CCLE and ClinVar to our database, resulting in 16178 cell lines total from 400 different NCIT disease classifications.
- Known information about each cell line (from Cellosaurus) is displayed on the cell line page e.g. age at collection, genome ancestry and genotypic sex.
- Each cell line is represented hierarchically and includes an NCIT diagnostic code. Both hierarchies can be accessed in the database.

HeLa (cellosaurus:CVCL_0030)

Derived Cell Lines

[cellosaurus:CVCL_0030](#) [cellosaurus:CVCL_0058](#) [cellosaurus:CVCL_2320](#)

Donor Details

- Diagnosis:** NCIT:C27677 (Human papillomavirus-related endocervical adenocarcinoma)
- Genotypic Sex:** female genotypic sex (PATO:0020002)
- Age at Collection:** P30Y6M

Genome Ancestry

ID	Description	%
HANCESTRO:0010	African	64.74
HANCESTRO:0009	East Asian	2.26
HANCESTRO:0005	European (North)	19.45
HANCESTRO:0005	European (South)	12.78
HANCESTRO:0013	Native American	0.77
HANCESTRO:0006	South Asian	0
HANCESTRO:0007	South East Asian	0

Samples

- 14 samples (11 direct *cellosaurus:CVCL_0030* matches; 6 CNV analyses)
- Select *cellosaurus:CVCL_0030* samples in the [Search Form](#)

More Information

- Cellosaurus: [cellosaurus:CVCL_0030](#)



cancerlines



Annotated Single Nucleotide Variants

- We mapped known cancer cell line single nucleotide variants (SNVs), including parental SNVs annotated on Cellosaurus.
- SNVs mapped from ClinVar show known severity of the variant and disease ontologies.
- SNVs mapped from CCLE include data about variant effect.
- As an example, some of the annotated SNVs for breast cancer cell line MDA-MB-453 are listed on the right.

Digest	Gene	Pathogenicity	Variant Effect	Variant Instances
3:179234296-179234297:A>G	PIK3CA	Pathogenic		V: pgxvar-63ce6a913319d2172d27d52e B: pgxbs-0c31031B V: pgxvar-63ce6ad2a24c83054b8dc06c B: pgxbs-0c31031B
12:25245346-25245347:C>T	KRAS	Conflicting interpretations of pathogenicity		V: pgxvar-644fd17a72c0f659d200cf6f B: pgxbs-0c31031B
1:243286369-243286370:G>A	SDCCAG8		Silent mutation	V: pgxvar-63ce6ad2a24c83054b8dbd96 B: pgxbs-0c31031B
4:150921247-150921248:G>C	LRBA		Missense variant	V: pgxvar-63ce6ad2a24c83054b8dc0b0 B: pgxbs-0c31031B

Copy Number Profiles of Cancer Cell Lines

- Over 5600 unique copy number profiles from more than 2000 cancer cell lines.
- Copy number profiles from cancer cell lines and their origins (from Progenetix) can be used for comparison.
- On the right are 4 CNV profiles for tumor and its cell line example.
- Fun fact: cell line MDA-MB-435 has been found to be misidentified. It was thought to originate from breast carcinoma but has been shown to originate from amelanotic melanoma instead.



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