CloneTracker™ Lentiviral Barcode Libraries

CELLECTA

Discovery is yours™

Label Millions of Cells with Unique Barcodes for Clonal and Sub-Population Analysis

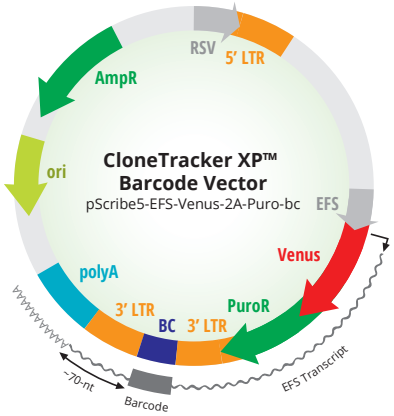
- Identify cell sub-populations with advantageous phenotypes for growth or survival
- Assess changes in cell culture heterogeneity over time or changing culture conditions
- Track clonal expansion in tumors or during differentiation or metastasis
- Link CRISPR-induced genetic knockouts with changes in expression profiles.

The ability to label and trace the fate individual cells is a critical need in many research areas including cell development, tumor evolution, stem cell differentiation, or carcinogenesis. Cellecta's **CloneTracker Barcode Libraries,** together with next-generation sequencing (NGS) technology, enable tracking of large numbers of clonal populations derived from individual founder cells.and with fluorescent or chemiluminescent reporters.

Barcode Integration to Permanently Label Cells

With one lentiviral transduction you can label each cell in a population of a few million with a uniquely identifiable short nucleotide sequence (i.e., a barcode). Since the barcodes integrate in the genome, they are heritable so all progeny from each cell harbor the same unique sequence and clonal expansion for each founder cell can be monitored. Cells can be treated, grown for several passages, frozen and thawed, and the sequences within the lentiviral vector will remain in the host cell.

The barcode in Cellecta's CloneTracker XP Barcode Libraries is expressed on 3'-UTR of the selection gene.

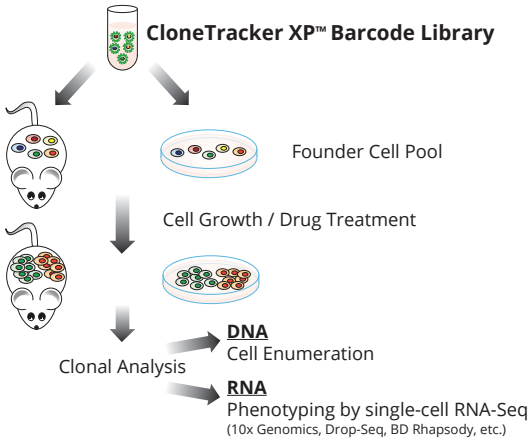


- 50M barcodes in validated pooled lentiviral libraries to easily label more than a million cells with heritable, unique barcodes
- Library pools allow for labeling of several cell populations with non-overlapping barcodes.
- RNA-expressed barcodes are readily detected in RNA-Seq and single-cell expression analysis.
- After selection, treatment, or differentiation, identify and quantify barcodes by genomic DNA amplification and sequencing, or RNA sequencing.

Expressed Barcodes Detectable in RNA

In Cellecta's CloneTracker XP Barcode Libraries, the barcode is positioned in the 3'-UTR of the selection marker so it is expressed as part of the RNA transcript in the cells. As a result, it can be detected by RNA sequencing, as well as DNA sequencing.

The CloneTracker XP Libraries, used in combination with single-cell RNA sequencing, allow researchers to identify which genes are actually activated or shut down in different groups of cells so that, depending on the experiment, they can identify which genes are important for drug resistance, metastasis, cell differentiation, or other processes.



As shown in the figure above, the initial transduction of a lentiviral barcode library into cultured cells, produces a founder population in which each cell has a unique and heritable barcode label. NGS can then be used to sort out sub-populations of progeny cells derived from the original progenitors at any point during an experiment. The approach provides a convenient way to identify cell variations with unique characteristics or biology, and to understand how these groups of variant cells evolve in response to drug treatment, tumor metastasis, or other conditions.

For more information, email info@cellecta.com, or call +1-650-938-3910

Ordering Information

Catalog #	Description	Quantity
BCXP50M3RP-P	CloneTracker XP™ 50M Barcode-3' Library with RFP-Puro (plasmid)	200 ug
BCXP50M3RP-V	CloneTracker XP™ 50M Barcode-3' Library with RFP-Puro (virus)	1 x 10^8 TU
BCXP5M3RP-XS-P	CloneTracker XP™ 5M Barcode-3' Library with RFP-Puro (plasmid)--up to 10 pools	200 ug
BCXP5M3RP-XS-V	CloneTracker XP™ 5M Barcode-3' Library with RFP-Puro (virus)--up to 10 pools	1 x 10^8 TU
BCXP10M3VP-P	CloneTracker XP™ 10M Barcode-3' Library with Venus-Puro (plasmid)	200 ug
BCXP10M3VP-V	CloneTracker XP™ 10M Barcode-3' Library with Venus-Puro (virus)	1 x 10^8 TU
BCXP10M5VP-P	CloneTracker XP™ 10M Barcode-5' Library with Venus-Puro (plasmid)	200 ug
BCXP10M5VP-V	CloneTracker XP™ 10M Barcode-5' Library with Venus-Puro (virus)	1 x 10^8 TU
BCXP10M3LP-P	CloneTracker™ XP-rLuc 10M Barcode-3' Library with rLuciferase-Puro (plasmid)	200 ug
BCXP10M3LP-V	CloneTracker™ XP-rLuc 10M Barcode-3' Library with rLuciferase-Puro (virus)	1 x 10^8 TU
BC13X13-P	CloneTracker™ 50M Lentiviral Barcode Library (plasmid)	200 ug
BC13X13-V	CloneTracker™ 50M Lentiviral Barcode Library (virus)	1 x 10^8 TU