# One Cell Multiple Readouts with FocuSCOPE®

High-throughput single-cell sequencing technologies have significantly enhanced our understanding of complex biological systems. However, most current high-throughput single-cell sequencing methods detect only gene expression levels. Mutation detection at single-cell resolution remains a bottleneck. To address this, Singleron has developed FocuSCOPE, a high-throughput multi-omics sequencing solution capable of **detecting mutations, gene fusions**, **viral sequences**, and **the whole transcriptome** from the same single cells, better elucidating the connection between genotype and gene expression.

Highlights

❋ **High sensitivity**   ❋ **High accuracy**   ❋ **Not limited to poly-T capture**

Principle

The core technology of FocuSCOPE® is centered around specially designed Barcoding Beads containing customizable probes and poly T probes that capture poly adenylated mRNA and specific transcripts. During the workflow, cDNA is split, and two different library is prepared which can be combined for sequencing.
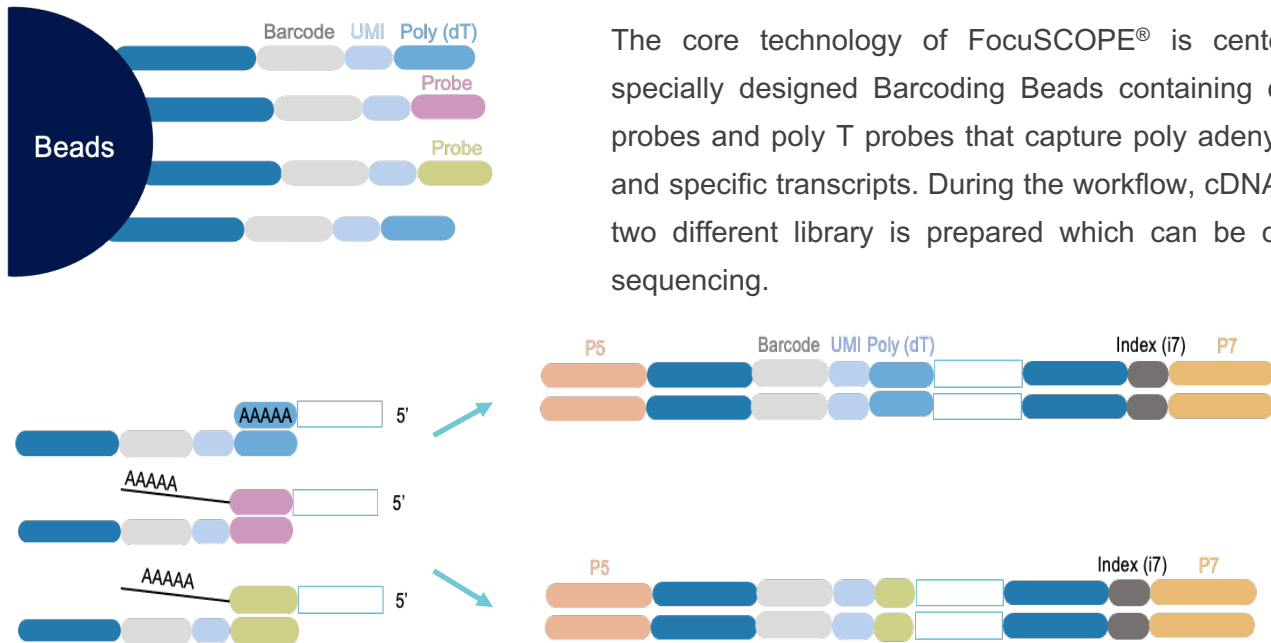
## 4 ready to use panel with a possibility to fully customize!

Lung cancer*	Clonal hematopoiesis*	Blood cancer*	Epstein-Barr Virus*	Custom
❋ EGFR	❋ DNMT3A	❋ WT1	❋ EBNA1	
❋ KRAS	❋ TET2	❋ KRAS	❋ EBNA2	
❋ PIK3CA	❋ ASXL1	❋ IDH1/IDH2	❋ EBER1	
❋ BRAF	❋ JAK2	❋ TP53	❋ EBER2	
❋ TP53	❋ TP53	❋ BCR_ABL1	❋ ZEBRA	
		❋ PML_RARA		

*Specific mutation sites are targeted in the genes showed above.

FocuSCOPE exhibits high degree of specificity

NB4, CCRF and K562 were mixed in equal proportions. Libraries were prepared by FocuSCOPE® Single Cell Multiomics Blood Cancer mRNA x Mutation Analysis Kit.

NB4 cell line contains KRAS (A18D), **CCRF** cell line contains KRAS (G12D) mutations.
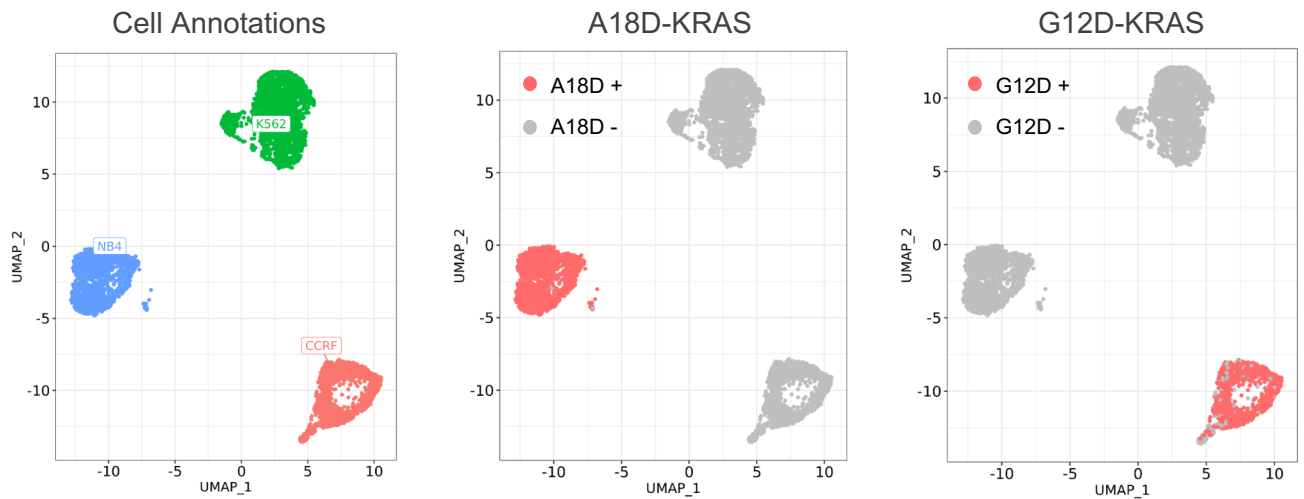
High capture rate compared to poly-T capture

NB4 cell line that contains PML-RARA fusion gene was subcutaneously injected into immunodeficient mice to generate CDX (cell-line-derived xenograft) tumor model. Libraries are generated by using FocuSCOPE BC Barcoding Beads or poly-T beads.
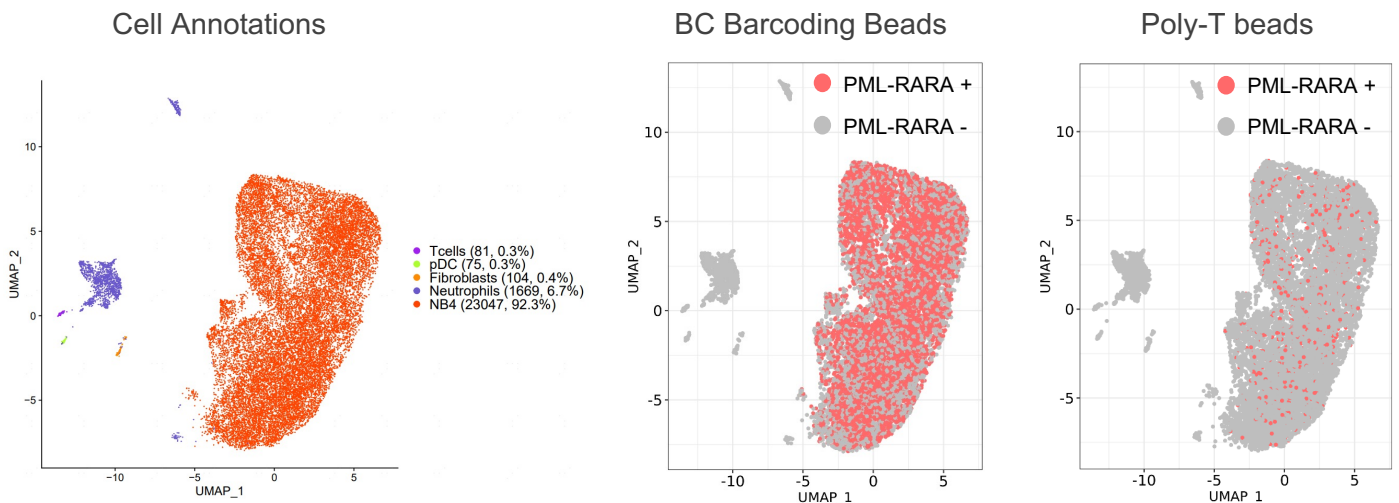
Bead type	Nr. NB4 cells	Nr. of PML-RARA	Detection rate
Poly-T Beads	11504	724	6%
BC Barcoding Bead	11543	6876	59%

Contact us to get more information!