
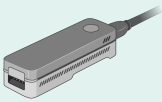




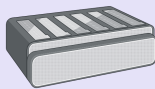




# The Application of Nanopore Sequencing

Object		Technical		Application	Analysis
Clinical Research	 	DNA	Resequencing and Epigenomics	Genetic disease	SNP, INDEL, CNV, SV, HLA
		DNA	Metagenome/ Amplicon	Infections disease	Rapid pathogen detection, community sturcture
		cDNA	Full-length Transcriptome	oncology, immnological disorders, neurological disorders et al	Isoform expression, fusion, splicing, poly(A)
		RNA	Direct RNA	RNA modification for mRNA vaccines, RNA therapy	RNA modifications (e.g., m6A, m5C, $\psi$ ), poly(A)
Microbiome and microbiology	 	DNA/RNA	Metagenome/ virome	Community structure and function, genome binning	Community Composition, function, diversity
		RNA	(Meta)Transcriptome	Virus study Functional profiling of microbial communities, identification of active microbial populations	Gene expression patterns, functional diversity
		DNA	(Meta)Pore-C	Chromatin interaction mapping, structural variation detection	Mobile elements-host association genome binning, chromatin conformation, structural variations
		DNA	Complete Genome	comprehensive microbial analysis, evolutionary studies, pathogen identification	Genomic variations, phylogenetic relationships, antimicrobial resistance genes
Animals and Plants	  	DNA	Single genome	individual genome T2T genome, haplotype genome assembly, function, evolution	Genome assembly, annotation, Population genetics, DNA methylation
		DNA	Pan genome	Evolutionary Biology, comparative genomics	Genetic diversity, gene presence/absence variation, evolutionary trajectories
		RNA(cDNA)	single-cell full-length Transcriptome Full-length Transcriptome Direct RNA sequencing	Cell Type Identification, Developmental Biology mechanisms, RNA Modifications Transcriptome Profiling Transcript Structure and Function	Differential gene expression, alternative splicing, novel transcript discovery
		DNA	Resequencing and Epigenomics	Population Genetics DNA Methylation	SNP, INDEL, CNV, SV, HLA
Other	 	DNA/RNA	Adaptive sampling	Ecology and Environmental Science Genomic regions of interest Survey Sampling	Real-time monitoring, targeted sequencing
		DNA	On-site	Field-based genetic analysis, environmental DNA (eDNA) studies	Rapid and portable sequencing, in-situ data collection