CROWN BIOSCIENCE

Cell Line and BioSample Authentication with Deep Sequencing

Ensure the reproducibility of your research with our deep sequencing-based QC service

A JSR Life Sciences Company

QUICKFACT

V1.0

Cell Line and Biosample Authentication with Deep Sequencing

Outperforms Conventional PCR-based STR/SNP Assays

- Increased Accuracy
- Increased Sensitivity
- Higher Throughput
- Extensive Information
- Lower Cost Per Sample
- Rapid Turnaround

Achieve Three-Level Authentication

Level 1: Match your sample to a reference sample (e.g., a standard cancer cell line)

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Level 2: Detect interspecies and intraspecies contamination

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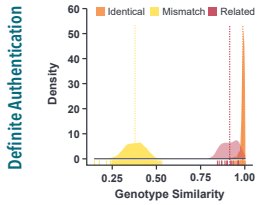
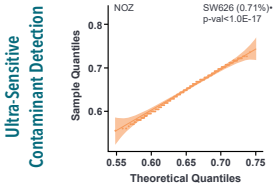
Level 3: Identify contaminant and estimate contamination ratio





Suitable Sample Types:
Human and mouse samples
(cell lines, tissues, organoids, and xenografts)

Use Cases	
Catalogue new samples with SNP fingerprints	As a standard QC during experiments
Authenticate samples across multiple species	Simultaneously check for contamination and mycoplasma infection

Cell Line Authentication (CLA) Assay Comparison	CLA with Deep Sequencing	CLA with STR Profiling	CLA with SNP Profiling
Technology	Barcode Deep NGS	Multiplex PCR & capillary electrophoresis	Multiplex PCR/qPCR
Readout Type	Digital (clean, near-zero quantification error)	Analog (noisy, high quantification error)	Analog (noisy, high quantification error)
Human Cell Authentication	Yes	Yes	Yes
Mouse Cell Authentication	Yes	Limited	No
MMR Deficient Cell lines Identification	Yes	No	Yes
Contamination-Detecting Sensitivity	High (1%)	Low to medium (5-20%)	Low to medium (3-20%)
Accuracy	High	Low to medium	Low to medium
Throughput	High	Low	Low
Contaminant Identification	Yes	No	No
Quantification of Contamination Ratio	Yes	No	No
Suitable for Large Biobanks	Yes	No	No
Interspecies Contamination Detection	Yes	Limited	Limited
Intraspecies Contamination Detection	Yes	Limited	Limited
Detecting Contamination w/o Reference	Yes	No	No
Estimating Mix Ratios for 3+ Cell Lines	Yes (1% sensitivity)	No	No

Other functions

- Mycoplasma contamination check
- Common viral infection check
- Gender and ethnicity identification for human samples
- Genetic drift and constructing phylogeny of samples

Additional information

- List of authenticatable human and mouse cell lines at https://qc.crownbio.com
- NAR Genomics and Bioinformatics, Volume 2, Issue 3, September 2020, lqaa060, https://doi.org/10.1093/nargab/lqaa060
- https://www.crownbio.com/oncology/cell-line-and-model-authentication

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