

Next-Generation Sequencing for Cell Line and Model Authentication

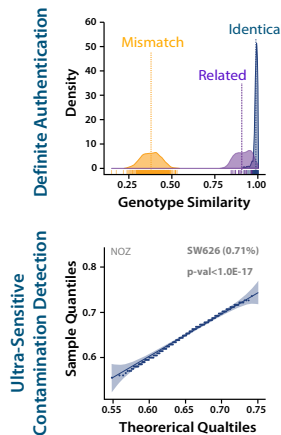
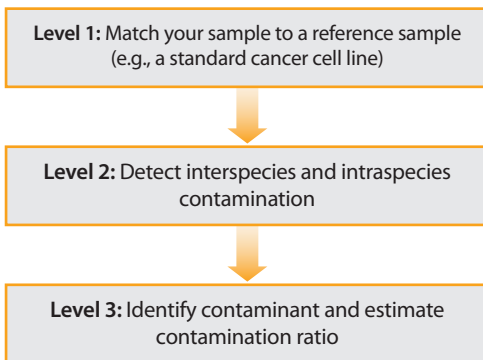
NGS-based SNP Profiling for Cell Line and Model Authentication

Outperforms Conventional STR/SNP Assays

- ✓ Increased Accuracy
- ✓ Increased Sensitivity
- ✓ Higher Throughput

- ✓ Extensive Information
- ✓ Lower Cost Per Sample
- ✓ Rapid Turnaround

Achieve Three-Level Model Authentication



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

Assay Comparison	NGS-based SNP Profiling	STR Profiling	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 Sample Authentication	Yes	Yes	Yes
Mouse Sample 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

Additional services available:

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


- List of authenticatable human and mouse cell lines at <https://qc.crownbio.com>
- More information at <https://www.crownbio.com/oncology/cell-line-and-model-authentication>
- NAR Genomics and Bioinformatics, Volume 2, Issue 3, September 2020, Iqaa060, <https://doi.org/10.1093/nargab/Iqaa060>



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