

# Certificate of Analysis



## Ensuring Integrity in Every Cell Line

<b>Product</b>	HFF-1	<b>Passage Number</b>	6
<b>Species</b>	Human	<b>Cell Count per mL</b>	2.0 million
<b>Cytion™ Number</b>	305790	<b>Volume per ampule</b>	1.5
<b>Lot Number</b>	305790-221025	<b>Freeze Date</b>	22.10.2025
<b>Product Format</b>	cryovial	<b>Freeze Medium</b>	Freeze medium containing FBS
<b>Storage Conditions</b>	Below -150°C	<b>Expiration Date</b>	Not applicable

At Cytion, we ensure the quality and reliability of our cell lines through in-house and third-party testing, including:

1. **STR Profiling:** To authenticate cell line<sup>1</sup> identity
2. **Virus Testing:** For species-specific<sup>2</sup> viruses where possible
3. **Mycoplasma Testing:** To prevent contamination.
4. **Interspecies Contamination Testing:** To ensure purity.
5. **Bacteria and Fungi Testing:** To ensure cells are free from microbial contaminants.

1: Human, Mouse, Rat, Hamster and Canine Species.

2: Human, Mouse, Rat, Hamster, Bovine, and Porcine Species.

Test Overview	Methodology	Acceptance Criteria	Outcome
<b>Post-Freeze Viability</b>	Viability assessment using Vi-CELL BLU by Beckman Coulter (analyzing 100 images per sample, 200 µl cell suspension per test)	≥70% post-thaw cell viability	98.1%
<b>Recovery</b>	Culture in the appropriate growth medium, microscopic evaluation	> 80% confluence within the expected recovery period	A T25 culture flask seeded at a density of $5.5 \times 10^4$ viable cells per $\text{cm}^2$ typically reaches approximately 95% confluence within 1 day.
<b>Growth Properties</b>	Observation of cell culture behaviour to determine if cells are adherent, suspension, or semi-adherent	Cells exhibit expected growth properties consistent with the cell line's characteristics	Adherent
<b>Sterility Testing</b>	Direct inoculation on 8 media, 10-day incubation; microbial ID by MALDI-TOF MS ± anaerobic culture	No aerobic microbial growth (anaerobic if test was performed)	Sterility confirmed
<b>Mycoplasma Testing</b>	PCR-based detection assay with specific primers targeting Mycoplasma DNA	No detectable Mycoplasma contamination confirmed by PCR	Pass

Interspecies Contamination Testing	Species	Status
	Mouse	-
	Rat	-
	Human	+
	Chinese hamster	-
	African green monkey	-

Authentication	Marker	Alleles
	AMEL	X, Y
	CSF1PO	7, 11, 12, 13
	D13S317	11, 13
	D16S539	10, 12
	D18S51	10, 13, 16
	D21S11	28, 30, 32.2
	D3S1358	15, 17, 18
	D5S818	11
	D7S820	9, 10, 12
	D8S1179	10, 14
	FGA	15
	Penta_D	19, 21, 22, 25
	Penta_E	7, 12, 21
	TH01	7, 9, 9.3
	TPOX	8, 11
	vWA	14, 15, 17, 19
Identity match	100%	

<b>Species-Specific Pathogen Testing</b>	<b>Pathogen</b>	<b>Result</b>
	Hepatitis A	-
	Hepatitis B	-
	Hepatitis C	-
	HIV1	-
	HIV2	-
	HTLV 1	-
	HTLV 2	-

<b>Post-production sterility and mycoplasma testing</b>	<b>Pathogen</b>	<b>Result</b>
	Bacterial growth	-
	Fungal growth	-
Mycoplasma sp.	-	

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### Third-Party Certified Quality Assurance

Since 2023, IDEXX has conducted STR profiling, species-specific pathogen testing, and species contamination analysis to ensure the authenticity, purity, and safety of our cell lines.

IDEXX BioAnalytics

The information provided is believed to be accurate, but both the information and product are offered without warranty for any applications beyond those specified. This certificate confirms that the material has been tested and is pure to the best of our knowledge.

This product is intended solely for laboratory research use and is not for use in humans, animals, or diagnostics. Proper Biosafety Level practices are required.

Cytion products may not be resold, modified for resale, or used commercially without prior written consent from Cytion.

Manufactured in Germany under our ISO 9001:2015 certified Quality Management System, ensuring high standards of quality and reliability.

*Dr. R. Steubing*

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November 28, 2025 01:27 PM CET

Qualified personnel have validated the test results of this Certificate of Analysis and attested with their signature that the tests were conducted as reflected in the results presented here.