

Troubleshooting Guide for Cell Culture Contamination

Common cell culture contaminants, their sources, detection, and prevention



Type	Source	Detection	Prevention
Bacteria (Gram +, Gram -)	<ul style="list-style-type: none"> • Lab personnel • Unfiltered air • Humidified incubators • Purified water • Insects • Plants • Contaminated cell stock • Media • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Microbial culture • Gram's stain test • Visual turbidity • pH becomes acidic 	<ul style="list-style-type: none"> • Aseptic technique • Antibiotics • Filtration (<0.22 μm) • Use of sterile products • Disinfection of CO₂ incubators • Daily cleaning of hood space with 70% alcohol, as well as monthly cleaning with 10% bleach or equivalent products • Daily, or at minimum weekly, emptying of used media traps • Storing cell line stocks in vapor phase of liquid nitrogen (LN₂), not in liquid phase
Yeast	<ul style="list-style-type: none"> • Humidified incubators • Lab personnel • Unfiltered air • Contaminated cell stock • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Microbial culture • Visual turbidity • Odor 	<ul style="list-style-type: none"> • Aseptic technique • Antimycotics • Filtration (<0.5 μm) • Use of sterile products • Disinfection of CO₂ incubators • Daily cleaning of hood space with 70% alcohol, as well as monthly cleaning with 10% bleach or equivalent products • Daily, or at minimum weekly, emptying of used media traps • Storing cell line stocks in vapor phase of LN₂, not in liquid phase
Fungus	<ul style="list-style-type: none"> • Fruit • Cellulose products (cardboard) • Plants • Unfiltered air • Lab personnel • Contaminated cell stock • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Microbial culture • Visual particulates, visual mycelia 	<ul style="list-style-type: none"> • Aseptic technique • Antimycotics • Filtration (<0.5 μm) • Use of sterile products • Daily cleaning of hood space with 70% alcohol, as well as monthly cleaning with 10% bleach or equivalent products • Daily, or at minimum weekly, emptying of used media traps • Storing cell line stocks in vapor phase of LN₂, not in liquid phase
Virus	<ul style="list-style-type: none"> • Original tissues • Serum • Cross-contamination • Lab personnel • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Co-cultivation • PCR • Electron microscopy • <i>In vivo</i> testing • Assays 	<ul style="list-style-type: none"> • Aseptic technique • Ultrafiltration • Chemical treatment • Gamma-irradiated serum • Use animal-free products • Storing cell line stocks in vapor phase of LN₂, not in liquid phase
Endotoxin	<ul style="list-style-type: none"> • Serum • Bacterial contamination • Contaminated or improperly maintained water supply • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Limulus amoebocyte lysate (LAL) assay 	<ul style="list-style-type: none"> • Aseptic technique • Ultrafiltration (<5,000 daltons) • Endotoxin-specific affinity or size exclusion chromatography • Use animal-free products
Mycoplasma	<ul style="list-style-type: none"> • Contaminated cell lines • Serum • Media • Lab personnel • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Hoechst stain • Microbial culture • Specialized kits • PCR 	<ul style="list-style-type: none"> • Aseptic technique • Antibiotics • Ultrafiltration (<0.04 μm) • Use of sterile products • Use animal-free products • Storing cell line stocks in vapor phase of LN₂, not in liquid phase
Cellular	<ul style="list-style-type: none"> • Cross-contamination of cultures • Cross-use or sharing of media from a different cell line • Equipment (Biosafety cabinets) 	<ul style="list-style-type: none"> • Cell authentication to determine identity and species of cells 	<ul style="list-style-type: none"> • Work with only one cell line at a time • Thoroughly clean before and after introducing a new cell line into the laminar flow hood • Daily cleaning of hood space with 70% alcohol, as well as monthly cleaning with 10% bleach or equivalent products • Storing cell line stocks in vapor phase of LN₂, not in liquid phase

NOTE: When applicable, resterilize media using a Corning® syringe filter or bottle-top filter.

Corning® media products used for the prevention of contamination

Sterile Media and Reagents

Cat. No.	Description	Size	Qty/Pk
25-950-CQC	Dimethyl Sulfoxide (DMSO)	250 mL	1
35-070-CV	Fetal Bovine Serum (FBS), premium, US Origin (gamma irradiated)	500 mL	1

Antibiotics and Antimycotics

Cat. No.	Description	Size	Qty/Pk
30-001-CI	Pen-Strep solution, 50X	100 mL	6
30-002-CI	Pen-Strep solution, 100X	100 mL	6
30-003-CF	Amphotericin B, liquid	50 mL	6
30-004-CI	Antibiotic-Antimycotic solution	100 mL	6
30-005-CR	Gentamicin Sulfate, liquid	10 mL	10
30-006-CF	Kanamycin Sulfate, liquid	50 mL	6
30-009-CI	Pen-Strep-L-Glutamine, 100X	100 mL	6
61-238-RH	Ampicillin, Sodium Salt, powder	10 g	1
61-238-RM	Ampicillin, Sodium Salt, powder	100 g	1
61-239-RI	Chloramphenicol, powder	25 g	1
61-277-RF	Ciprofloxacin Hydrochloride, powder	1 g	1
61-277-RG	Ciprofloxacin Hydrochloride, powder	5 g	1

For more specific information on claims, visit www.corning.com/certificates.

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications.

Cultek S.L.U.

Your partner in life sciences



917 290 333



info@cultek.com



www.cultek.com

For additional product or technical information, visit www.corning.com/lifesciences or call 800.492.1110. Outside the United States, call +1.978.442.2200 or contact your local Corning sales office.

CORNING

Corning Incorporated
Life Sciences

836 North St.
Building 300, Suite 3401
Tewksbury, MA 01876
t 800.492.1110
t 978.442.2200
f 978.442.2476

www.corning.com/lifesciences

ASIA/PACIFIC

Australia/New Zealand
t 61 427286832

Chinese Mainland
t 86 21 3338 4338
f 86 21 3338 4300

India
t 91 124 4604000
f 91 124 4604099

Japan

t 81 3-3586 1996
f 81 3-3586 1291

Korea

t 82 2-796-9500
f 82 2-796-9300

Singapore

t 65 6572-9740
f 65 6735-2913

Taiwan

t 886 2-2716-0338
f 886 2-2516-7500

EUROPE

CSEurope@corning.com

France

t 0800 916 882
f 0800 918 636

Germany

t 0800 101 1153
f 0800 101 2427

The Netherlands

t 020 655 79 28
f 020 659 76 73

United Kingdom

t 0800 376 8660
f 0800 279 1117

All Other European Countries

t +31 (0) 206 59 60 51
f +31 (0) 206 59 76 73

LATIN AMERICA

grupoLA@corning.com

Brazil

t 55 (11) 3089-7400

Mexico

t (52-81) 8158-8400