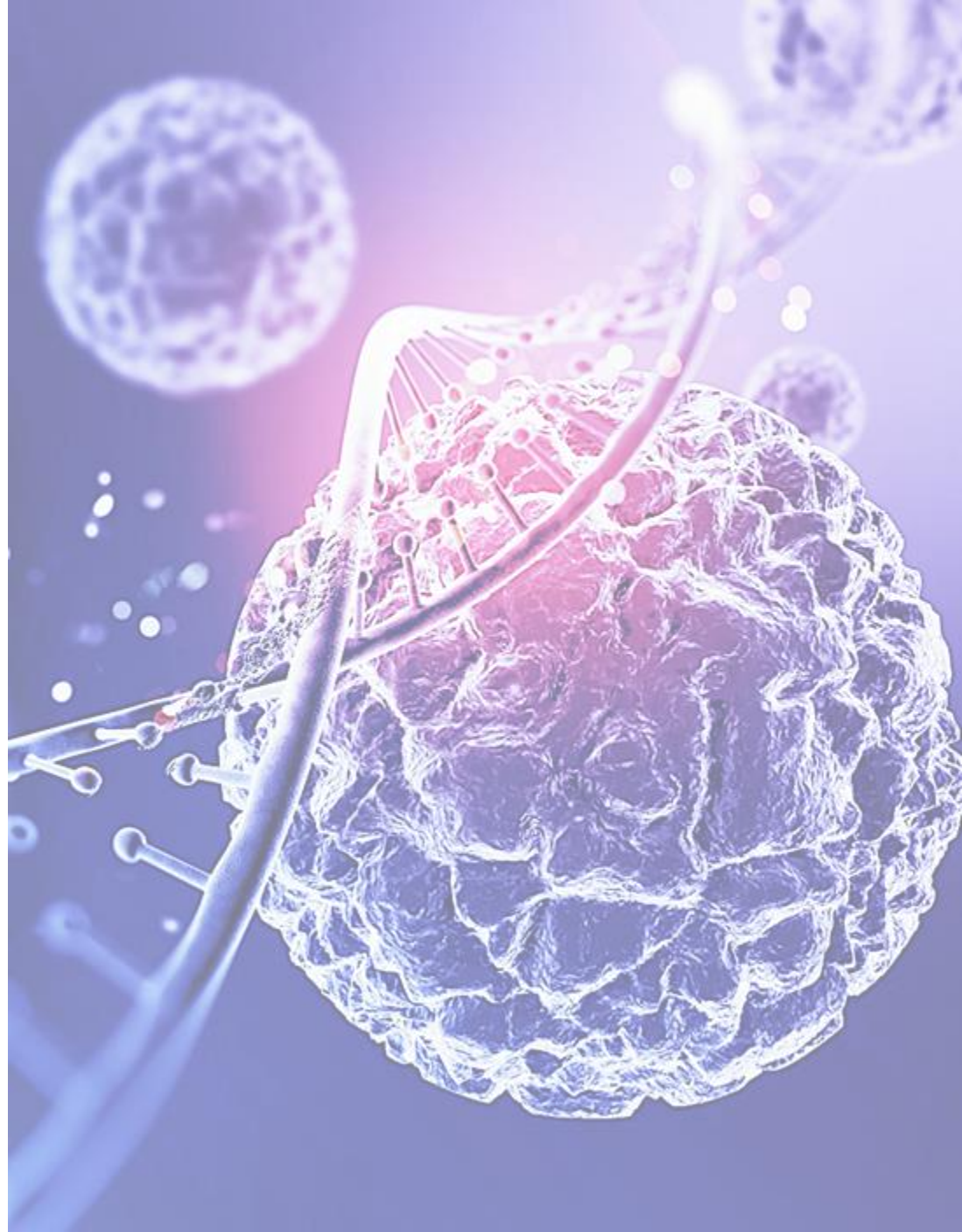


## Lab Incubator Decontamination: WHY, WHEN and HOW



**Randy Engler**  
Co-Founder & COO, MycoFog™





- Introduction
- Types of contamination
- Sources of biocontamination
- Cleaning & Disinfection methods
- The MycoFog™ Advantage

Contamination of cell cultures by bacteria and fungi almost invariably results in (1) ill humor in the laboratory lasting from hours to days; and (2) one or many discarded cell cultures. Accompanying these two major reactions are the following: (a) soul searching; (b) culturing of all media components, usually in thioglycolate broth alone; (c) scrubbing of the laboratory; (d) tightening of techniques; (e) no further contamination (temporarily) because of (c) and/or (d).

Donald Armstrong, Contamination of Tissue Culture by Bacteria and Fungi in “Contamination in Tissue Culture”, Fogh J. Ed., 1973

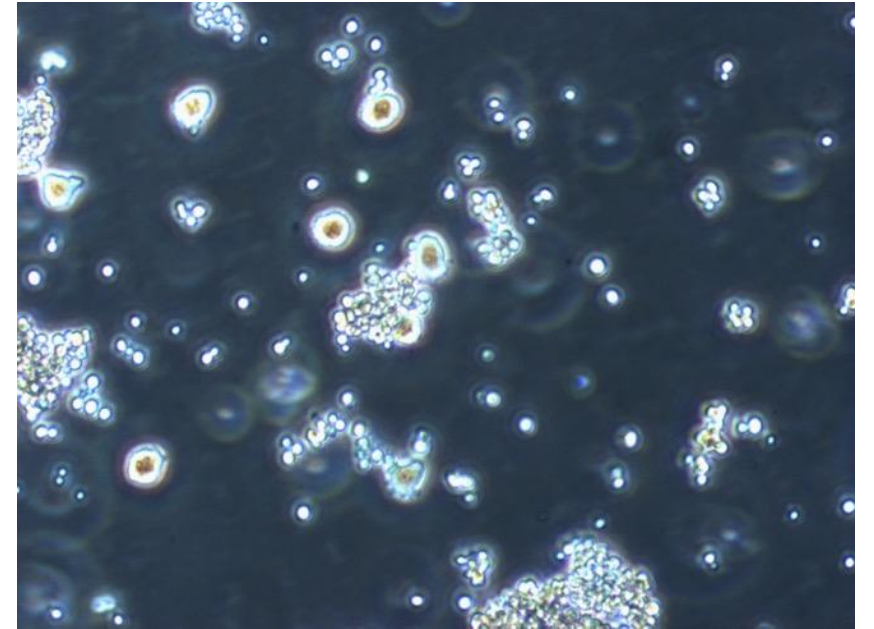
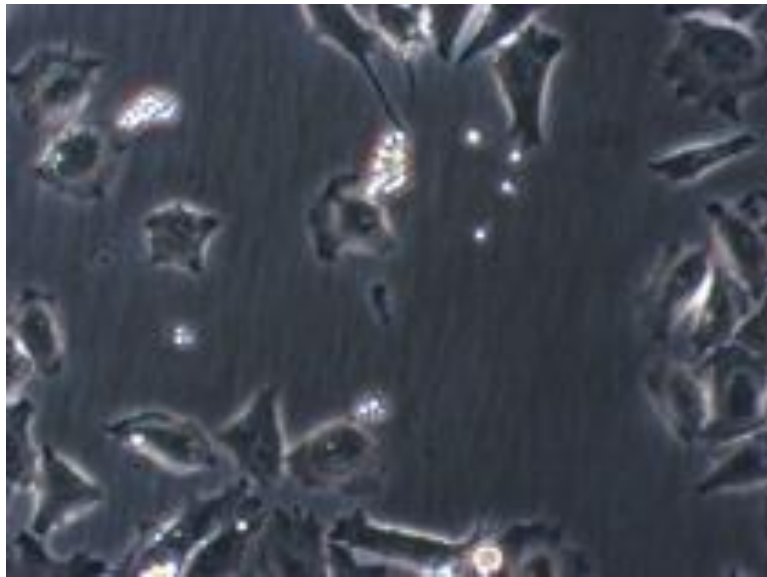


Image of U937 cells (large, white with yellow center) contaminated with yeast cells (small bright white spots) PromoCell GmbH

## Types of Contamination of Laboratory Incubators



Sub-confluent HeLa cells with yeast contamination  
PromoCell GmbH

### Biodecontamination

- Microbiological contamination (e.g. bacteria, mycoplasmas, yeast, fungi)
- Viral contaminations (SMRV, CMV, EBV, HIV, HCV)

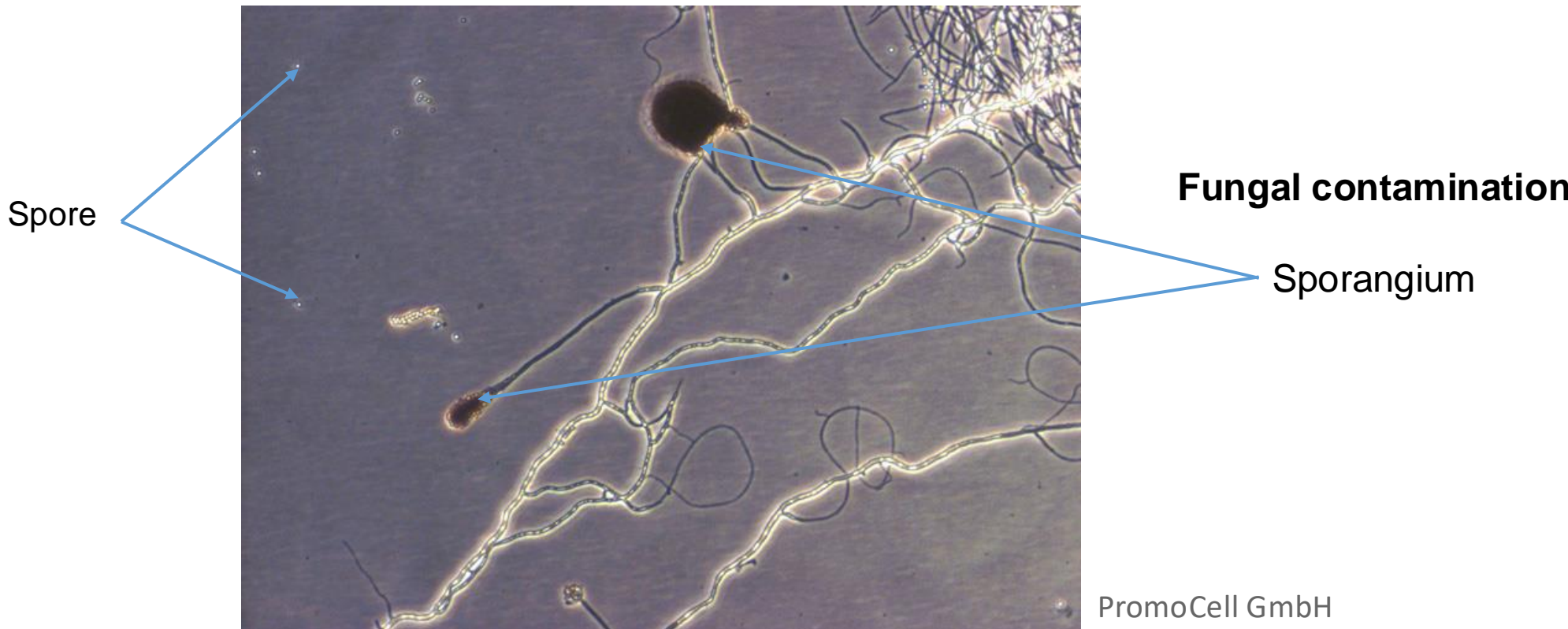
- ~~Protein contamination (prions, allergens)~~
- ~~Chemical contamination (leachables and extractables from plastic ware, heavy metals, endotoxins)~~

A grayscale, high-magnification microscopic image of biological cells, likely yeast or similar microorganisms, showing detailed surface textures and internal structures. The cells are scattered across the frame, with some in sharp focus and others blurred in the background.

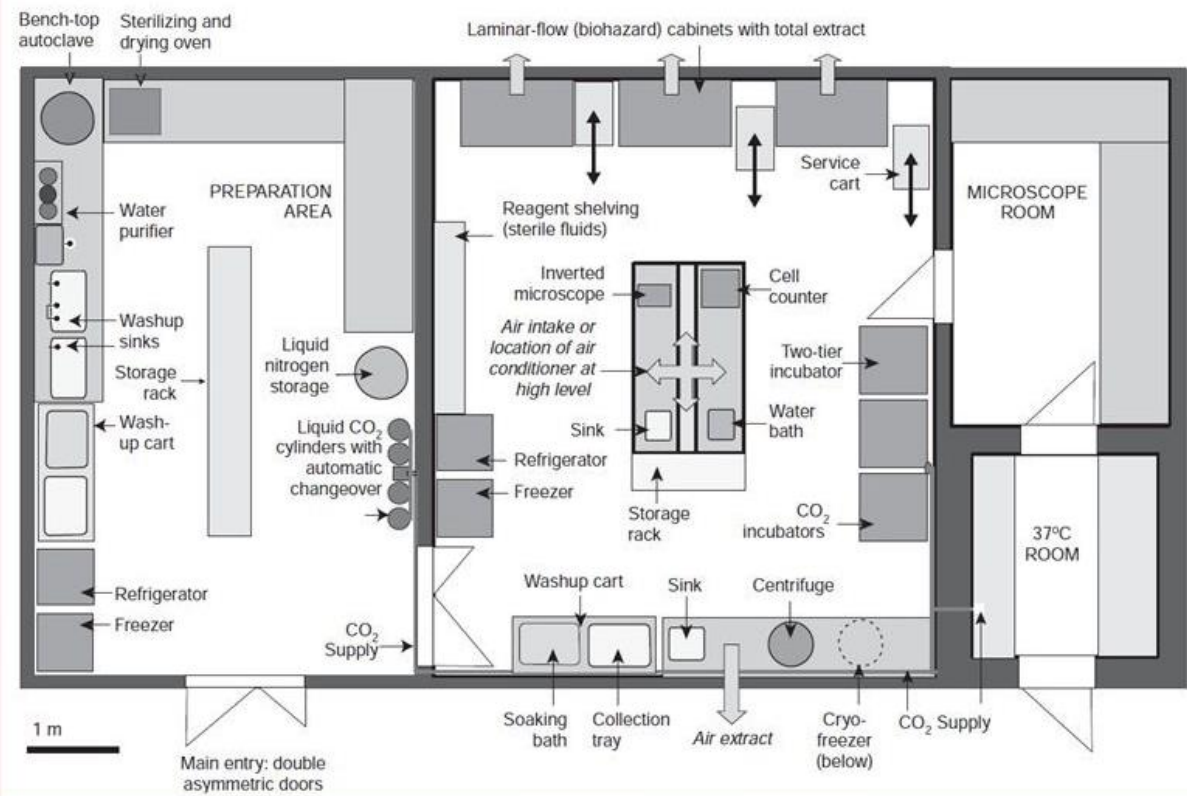
# Audience Poll

**Scintica:**

# Types of Biocontamination of Laboratory Incubators



# Sources of Contamination of Laboratory Incubators



## It's not you, it's me!

“The problem with your cell culture contamination is....  
your hands and the way you touch the material before  
cell culture.”

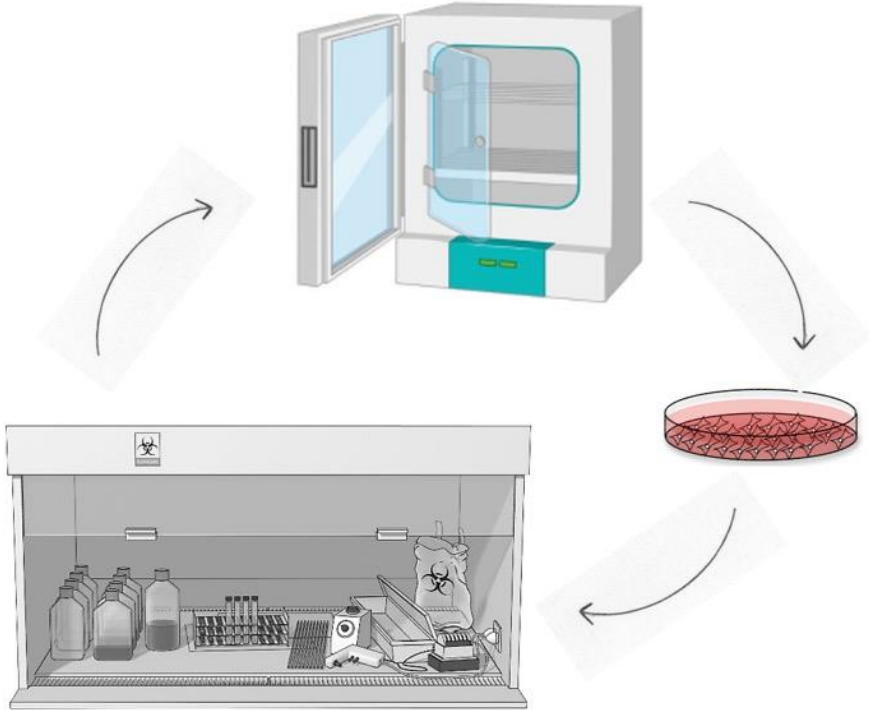
Fernando Cardoso  
Universidade NOVA de Lisboa



**70% of cell culture contaminations are caused by a failure  
to follow established aseptic technique protocols!**



# Sources of Contamination of Laboratory Incubators



## Cleaning and Disinfection Methods



“We recently experienced fungal contamination in our incubators. We treated the incubators in the following way; and we do not have problems anymore:

- 1) take out all the parts of the incubator, screws included
  - 2!) wash all the parts with soap, also the inside of the incubator, and rinse carefully with water
  - 3\*) spray all the parts with special anti-fungi spray, screws included (we used Biocidal ZF), take care to spray also the inner parts of the incubator that are less accessible, let dry.
  - 4\*) spray all the parts with ethanol and let dry
  - 5!) place all the removable parts in a dry heat oven (that goes up to 200 C) and sterilize for at least 4 hours - plastic parts should not be included in this step
  - 6) mount all the pieces back in the incubator
  - 7) fill the waterbath with autoclaved water
- Check weekly if the water in the waterbath looks clean. If the contamination is still detected repeat the procedure.”

## An Ounce of Prevention is Worth a Pound of Cure

“Preventative vigilance is better than any remedial suggestion mentioned above.

Lastly, the most important factor is good technique.

No amount of antibiotics or antimycotics can substitute.”

Gerald Waneck  
Curtin University



A grayscale, high-magnification microscopic image of various cells, likely from a tissue sample. The cells are irregular in shape and some show internal structures like nuclei. The image is semi-transparent, serving as a background for the text.

# Audience Poll

**Scintica:**

## The MycoFog™ Advantage



The MycoFog™ Biodecontamination System is a new system for convenient biodecontamination of laboratory incubators and closed workstations, comprised of the MycoFog™ Fogger and MycoFog™ Reagent that work together as an aid in your contamination control procedures.

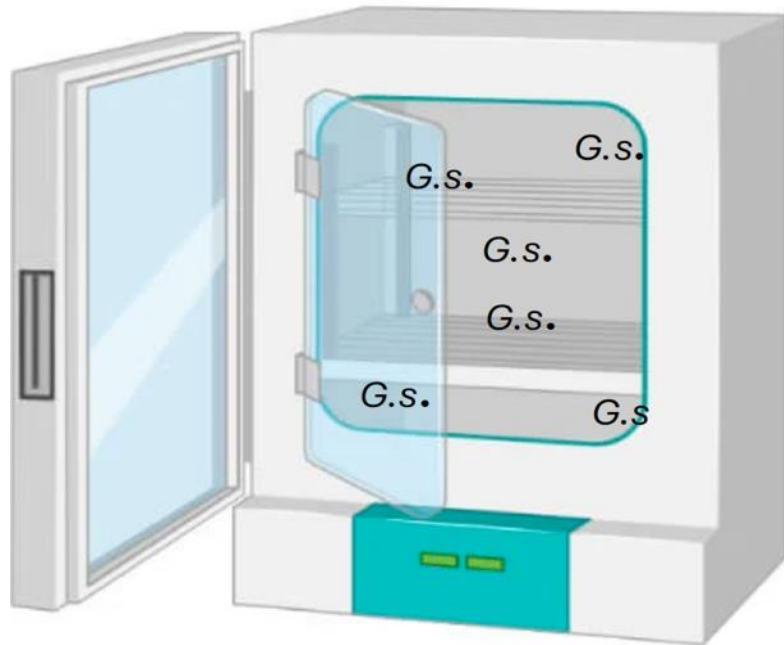


## The MycoFog™ Advantage

The Reagent is dispensed into the incubator chamber with the hands-free, automatic MycoFog™ Fogger, a battery-powered, piezo-driven nebulizing instrument. The MycoFog™ Fogger delivers a measured dose of (H<sub>2</sub>O<sub>2</sub>) vapor to the incubator chamber that is dispersed throughout, killing bacteria, fungi, spores (bacterial and fungal) and viruses, even in the nooks and crannies where only vapor can go!

Set-up is easy!

## Efficacy Validation of MycoFog™



Cartoon representation of possible location of biological indicators in biodecontamination testing.



Self-contained biological indicators

## Efficacy Validation of MycoFog™

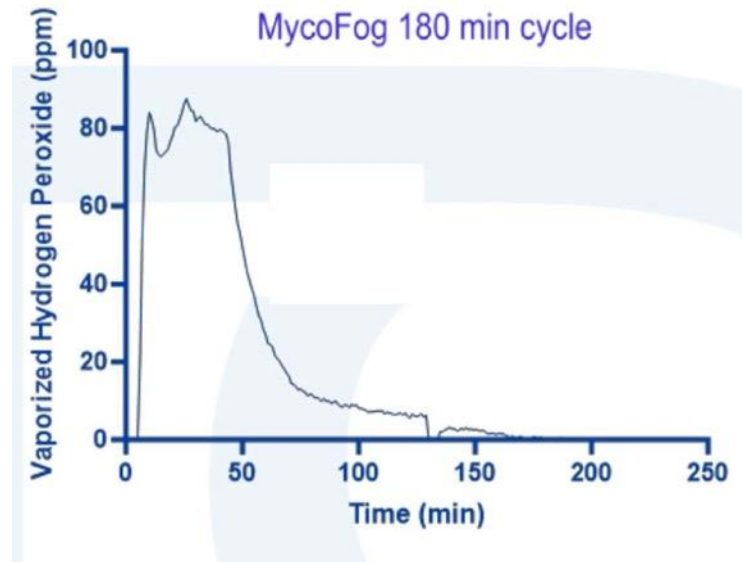
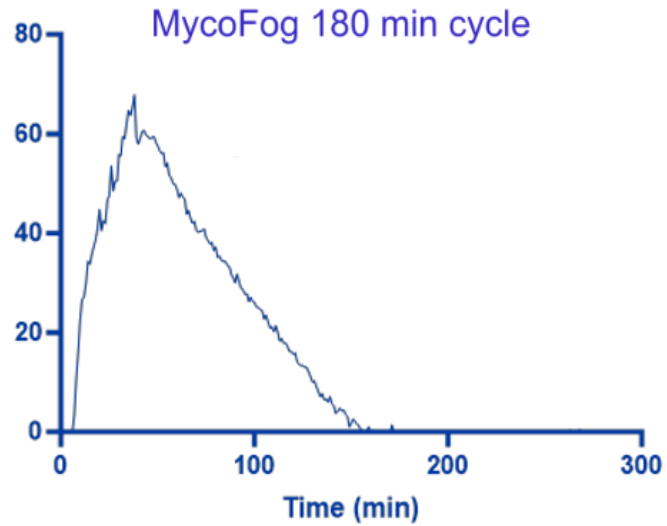
Table 1

Performed by	Date	Incubator Type	URF	URR	LRF	LRR	ULF	ULR	LLF	LLR	C	Control
Partner	Aug 2023	Thermo Forma	N			N					N	Y
7.8 BIO	Sept 2023	VWR/Sheldon		N					N		N	Y
Partner	Sept 2023	PCHBI	N			N					N	Y
7.8 BIO	Oct 2023	VWR/Sheldon		N			N				N	Y
7.8 BIO	Dec 2023	VWR/Sheldon			N			N			N	Y
Partner	Dec 2023	Thermo Heracell		N		N					N	Y
Partner	Jan 2024	*Baker-Ruskinn			N			N			N	Y
7.8 BIO	Feb 2024	VWR/Sheldon	N							N	N	Y

Table 1 Key: URF= Upper Right Front, URR=Upper Right Rear, LRF=Lower Right Front, LRR=Lower Right Rear, ULF=Upper Left Front, ULR=Upper Left Rear, LLR=Lower Left Rear, LLR=Lower Left Right, C=Center, Control is and untreated BI (on the lab bench), N=Location tested, no growth, Y=Location tested, growth, BLANK=Location not tested



## Safety Validation of MycoFog™



## Testimonial

So far, I have had a chance to use it twice on our incubators. We tested after the first one using settle plates and found no contamination where we were observing consistent contamination. Repeating the testing on a second incubator yielded similar results. The system is very easy to use, instructions are fine. I like your product.

*Donald Pijak  
Manager, Research Facility Operations  
University of Pennsylvania*

## Conclusion

- Proper training and implementation of aseptic technique in the lab is key to contamination control and prevention.
- Incubator cleaning and disinfection should be done on a regular basis, best if done prophylactically.
- MycoFog™ Biodecontamination system is a convenient, safe, efficacious and economical way to supplement cleaning protocols for contamination prevention.

# Thank You!

## Q&A Session

Please enter your questions  
in the Q&A section.



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