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Summary

The Tecniplast Interceptor, designed for Tecniplast caging systems, offers a more accurate and sensitive environmental health monitoring alternative to the soiled-bedding method commonly utilised in IVCs. Samples are gathered via the exhaust air dust (EAD®) collection technique and analysed by PCR.

360 DIAGNOSTICS™

Environmental Health Monitoring with the Tecniplast Interceptor

Key Benefits of EAD® Testing with the Tecniplast Interceptor

- High data quality allows detection of previously undetectable agents
- Reduces the number of animals used
  - Supports the 3Rs
  - Saves time and money
  - Frees up caging for study animals
- Simplifies the sample collection process
- Compatible with existing Tecniplast IVC systems
- Closed system prevents sample contamination (patent pending)

In response to the growing demand for environmental microbiological monitoring systems, Tecniplast S.p.A. has developed the Interceptor – a revolutionary air dust collection unit specifically designed for Tecniplast caging systems. When in place, air dust particles accumulate on specialised media. Sample collection from the IVC occurs in a contamination-free manner, enabling the safe transfer of the sample from the microbiological unit under investigation to the laboratory. The media is then submitted to Charles River 360 Diagnostics™ for PCR testing.

In order to validate the accuracy and sensitivity of the system, three independent European research institutions conducted studies that compared results from the Interceptor with the traditional sentinel-based method. The results of these studies have been compiled and combined in Table 1.

The results show a much higher efficiency for the Interceptor (48.9%) across all types of pathogens as compared to sentinel animal testing (7.4%).

Table 1: Summary of agent groups detected via soiled-bedding method versus EAD® PCR using the Tecniplast Interceptor. Study data combines nine IVCs from three independent European facilities.

Agents	Percentage of Detected Agents	
	Interceptor plus PCR (N=15)	Soiled-Bedding Method (N=26)
MNV	46.7%	42.3%
Bacteria (N=9)	54.8%	4.7%
Parasites (N=2)	23.3%	1.9%
Average	48.9%	7.4%

EVERY STEP OF THE WAY

The Tecniplast Interceptor

Simple in its design, the Interceptor is made of two components: a stainless steel frame designed to sit inside existing Tecniplast Air Handling Units (AHUs), and an irradiated sliding filter which captures dust particles for microbiological monitoring. Following the recommended period of air flow monitoring, the Interceptor media is removed from the filter and submitted to Charles River for PCR testing. For further information on the Interceptor, please visit the Tecniplast website.

EAD® (Exhaust Air Dust) Testing from Charles River (Patent Pending)

EAD is a qualified alternative method of screening environmental samples via PCR that overcomes the known limitations of soiled-bedding sentinel health monitoring (patent pending). Charles River's testing platform is perfectly compatible with the media that collects the dust particles from Tecniplast's Interceptor.

Programme Overview

After the Tecniplast Air Handling Unit has been integrated into a Tecniplast rack, allow it to collect exhaust air dust for the duration of the regular health monitoring interval. When it is time to test the rack, simply remove the Interceptor collection media, replace it with a new one, place the media for testing into a sample collection container, and ship to Charles River. Sample submission can be scheduled in Charles River's online Laboratory Testing Management® (LTM™) data management platform. Options include selecting EAD (Environmental) PRIA Panels that vary in level, from Prevalent to Complete, with custom panels available upon request. Charles River's experts can help determine programme frequency and ideal testing profiles. Example programmes are outlined below.

	Annual Frequency			
Programme Type	**Month 3**	**Month 6**	**Month 9**	**Month 12**
Sentinel-Free – Rack-Level Monitoring	SF*	SF	SF	SF
Hybrid – Rack-Level Monitoring	SF	S†	SF	S

* SF= Exhaust Air Dust (EAD) PCR testing on Tecniplast Interceptor filter. Non-invasive fecal samples can be collected from resident or sentinel rodents and pooled with EAD samples.

† S= Sentinel monitoring via traditional methods (e.g., serology, PCR, whole-animal screening) performed on either resident (immunocompetent only) or sentinel animals.

Programme Development

Not all laboratory animal facilities are the same, and quite often require health monitoring (HM) programs that are specifically designed around the institution's infectious agent exclusion list, study protocols, or type of research animals being utilized. Charles River 360 Diagnostics experts work directly with clients to develop a customized HM program that meets their budgetary and surveillance requirements. Programme development can include:

- Consultation to assess biosecurity risk
- Step-by-step assessment of current HM processes
- Preventative training and education
- Facility design consultation

To request a consultation, please go to www.criver.com/360consultation.

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