

Exhaust Air Debris (EADx) Testing

Testing Method Comparison for Animal Health Monitoring

Goal: To determine the effectiveness of Exhaust Air Debris from ventilated cage racks for detection of infectious agents.

- Mice were naturally infected with one of the following organisms: Astrovirus, MNV, MHV, MPV, *Helicobacter* spp., *Pasteurella pneumotropica*, *Entamoeba muris*, pinworms, furmites
- Housed 3/cage on Tecniplast ventilated racks
- EAD samples collected from the rack pre-filter weekly
- Fecal samples collected weekly from infected cages
- All samples evaluated by Real-Time PCR

Table 1: Tecniplast rack 1 (5 cages per group)

AGENT	Mouse PCR results ¹						Serology ²	Pre-filter test results							
	0	7	14	21	28	84		0	7	14	21	28	56	84	
MNV	3/5	5/5	5/5	5/5	5/5	1/5	15/15	-	-	-	-	-	-	-	
MPV	4/5	4/5	4/5	4/5	4/5	4/5	12/15	-	-	+	-	-	-	-	
MHV	5/5	5/5	5/5	5/5	2/5	0/5	15/15	-	+	+	+	+	+	+	
<i>Helicobacter</i> spp.	5/5	5/5	5/5	5/5	5/5	5/5		-	+	+	+	+	+	+	
<i>P. pneumotropica</i>	5/5	5/5	5/5	5/5	5/5	5/5		-	+	+	+	+	+	+	
<i>E. muris</i>	5/5	5/5	5/5	5/5	5/5	5/5		-	+	+	+	+	+	+	
<i>T. muris</i>	5/5	5/5	5/5	5/5	5/5	5/5		-	-	+	+	+	+	-	
Pinworms	5/5	5/5	5/5	4/5	4/5	4/5		-	+	+	+	+	+	+	
Furmites	5/5	5/5	5/5	5/5	5/5	5/5		-	+	+	+	+	+	+	

¹Number of positive cages out of number of cages tested

²Number of positive mice out of number of mice tested

Table 2: Innovive rack (5 cages per group)

AGENT	Mouse PCR results ¹						Serology ²	Pre-filter test results							
	0	7	14	21	28	84		0	7	14	21	28	56	84	
MNV	5/5	5/5	5/5	5/5	5/5	2/5	15/15	-	-	-	-	-	-	-	
MPV	5/5	5/5	5/5	5/5	5/5	5/5	15/15	-	-	-	-	-	-	-	
MHV	5/5	5/5	5/5	4/5	3/5	0/5	15/15	-	-	-	-	-	-	-	
<i>Helicobacter</i> spp.	5/5	5/5	5/5	5/5	5/5	5/5		-	-	-	-	-	-	-	
<i>P. pneumotropica</i>	5/5	5/5	5/5	5/5	5/5	5/5		-	-	-	-	-	-	-	
<i>E. muris</i>	4/5	5/5	5/5	5/5	5/5	5/5		-	-	-	-	-	-	-	
<i>T. muris</i>	4/5	5/5	5/5	4/5	5/5	5/5		-	-	-	-	-	-	-	
Pinworms	5/5	5/5	5/5	5/5	5/5	5/5		-	-	-	-	-	-	-	
Furmites	5/5	5/5	5/5	5/5	5/5	5/5		-	-	-	-	-	-	-	

¹Number of positive cages out of number of cages tested

²Number of positive mice out of number of mice tested

Table 3: Tecniplast rack 2 (1 cage per group)

AGENT	Mouse PCR results ¹						Serology ²	Pre-filter test results							
	0	7	14	21	28	84		0	7	14	21	28	56	84	
MNV	0/1	0/1	1/1	1/1	1/1	0/1	3/3	-	-	-	-	-	-	-	
MPV	1/1	1/1	1/1	1/1	1/1	1/1	3/3	-	-	-	-	-	+	-	
MHV	0/1	1/1	1/1	1/1	1/1	0/1	3/3	-	+	+	+	+	+	-	
<i>Helicobacter</i> spp.	1/1	1/1	1/1	1/1	1/1	1/1		-	-	+	+	+	+	+	
<i>P. pneumotropica</i>	1/1	1/1	1/1	1/1	1/1	1/1		-	-	-	-	-	+	+	
<i>E. muris</i>	1/1	1/1	1/1	1/1	1/1	1/1		-	-	-	-	+	+	+	
<i>T. muris</i>	1/1	0/1	0/1	1/1	1/1	1/1		-	-	-	-	-	+	+	
Pinworms	1/1	1/1	1/1	1/1	1/1	1/1		-	+	+	+	+	+	+	
Furmites	1/1	1/1	1/1	1/1	1/1	1/1		-	+	+	+	+	+	+	

¹Number of positive cages out of number of cages tested

²Number of positive mice out of number of mice tested