

FINAL REPORT OF LABORATORY EXAMINATION

4011 Discovery Drive, Columbia, MO 65201

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IDEXX BioAnalytics Case # 35225-2019

Received: 12/18/2019

Completed: 12/27/2019

Submitted By

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Specimen Description

Species: mouse  
 Breed/Strain: CR ATH HE  
 Description: Whole Animal  
 Number of Specimens/Animals: 11  
 Building/Facility: Discovery Ridge

Client ID	Investigator	Room #	Species	Strain /Breed	Sex	Rack	Date Placed
116-A	Franklin	W116	mouse	CR ATH HE	F	1	9/16/2019
116-B	Franklin	W116	mouse	CR ATH HE	F	3	9/16/2019
116-C	Franklin	W116	mouse	CR ATH HE	F	4	9/16/2019
116-D	Franklin/Bryda	W116	mouse	CR ATH HE	F	5	9/16/2019
116-E	Franklin	W116	mouse	CR ATH HE	F	6	9/16/2019
113-A	Bryda	W113	mouse	CR ATH HE	F	2	9/16/2019
113-B	Bryda	W113	mouse	CR ATH HE	F	3	9/16/2019
113-C	Bryda	W113	mouse	CR ATH HE	F	4	9/16/2019
113-D	Bryda	W113	mouse	CR ATH HE	F	5	9/16/2019
113-E	Bryda	W113	mouse	CR ATH HE	F	6	9/16/2019
114-D	Bryda	W114	mouse	CR ATH HE	F	4	9/16/2019

Services/Tests Performed: MU MMRRC Mouse Quarterly Sentinel and Rederivation Surrogate Profile (1-11)

**Serologic evaluation for antibodies to:** *Mycoplasma pulmonis*, *Pneumocystis murina*, Ectromelia, EDIM, LCMV, MAV1, MAV2, MHV, MNV, MPV, MVM, Polyoma, PVM, REO3, Sendai, TMEV

**PCR evaluation for:** *Helicobacter bilis*, *Helicobacter ganmani*, *Helicobacter hepaticus*, *Helicobacter mastomyrinus*, *Helicobacter rodentium*, *Helicobacter spp.*, *Helicobacter typhlonius*, *Mycoplasma pulmonis*, *Streptococcus sp.* beta hemolytic Group A, *Streptococcus sp.* beta hemolytic Group B, *Streptococcus sp.* beta hemolytic Group C, *Streptococcus sp.* beta hemolytic Group G

**Parasitologic evaluation for:** fur mites, mesostigmatid mites, lice, Spironucleus muris, Giardia muris, large

intestinal flagellates and amoeba, pinworms and tapeworms

**Microbiologic evaluation for:** *Bordetella hinzii*, *Citrobacter rodentium*, *Klebsiella oxytoca*, *Klebsiella pneumoniae*, *Pasteurella pneumotropica* biotype Heyl, *Pasteurella pneumotropica* biotype Jawetz, *Salmonella enterica*, *Streptococcus pneumoniae*

**General Comments:** Discovery Ridge - 2019 Q4 'A' room mouse sentinel necropsies

**Summary:** Low level reactivity to MAV2 was detected by MFI in sample 116-C; however, the MAV2 IFA test result was negative. The overall conclusion is that the sample is negative for antibodies to MAV2.

Reactivity to MNV native virus was detected by MFI in sample 113-C. The corresponding MNV VP1 recombinant MFI and IFA test results were negative. For these reasons, the overall conclusion is that the sample is negative for antibodies to MNV. Please see the report for details.

## NECROPSY

No gross lesions were detected in any of the body systems and organs examined.

## SEROLOGY SUMMARY

	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
Ectromelia	-	-	-	-	-	-	-	-	-
EDIM	-	-	-	-	-	-	-	-	-
LCMV	-	-	-	-	-	-	-	-	-
<i>Mycoplasma pulmonis</i>	-	-	-	-	-	-	-	-	-
MAV1	-	-	-	-	-	-	-	-	-
MAV2	-	-	-	-	-	-	-	-	-
MHV	-	-	-	-	-	-	-	-	-
MNV	-	-	-	-	-	-	-	-	-
MPV	-	-	-	-	-	-	-	-	-
MVM	-	-	-	-	-	-	-	-	-
<i>Pneumocystis murina</i>	-	-	-	-	-	-	-	-	-
Polyoma	-	-	-	-	-	-	-	-	-
PVM	-	-	-	-	-	-	-	-	-
REO3	-	-	-	-	-	-	-	-	-
TMEV	-	-	-	-	-	-	-	-	-
Sendai	-	-	-	-	-	-	-	-	-
Mouse IgG	N	N	N	N	N	N	N	N	N

	113-E	114-D
Ectromelia	-	-
EDIM	-	-
LCMV	-	-
<i>Mycoplasma pulmonis</i>	-	-
MAV1	-	-
MAV2	-	-
MHV	-	-
MNV	-	-
MPV	-	-
MVM	-	-
<i>Pneumocystis murina</i>	-	-
Polyoma	-	-
PVM	-	-
REO3	-	-
TMEV	-	-
Sendai	-	-

	113-E	114-D
Mouse IgG	N	N

**Legend:** + = positive - = negative blank = test not performed EQ = equivocal HE = hemolysis precluded testing I = insufficient W = weak positive WB = Western Blot confirmatory analysis pending NS = non-specific reactivity N = normal IgG L = less than normal IgG

## PCR EVALUATION

feces	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
<i>Helicobacter</i> spp.	-	-	-	-	-	-	-	-	-
<i>Helicobacter bilis</i>	-	-	-	-	-	-	-	-	-
<i>Helicobacter ganmani</i>	-	-	-	-	-	-	-	-	-
<i>Helicobacter hepaticus</i>	-	-	-	-	-	-	-	-	-
<i>Helicobacter mastomyrinus</i>	-	-	-	-	-	-	-	-	-
<i>Helicobacter rodentium</i>	-	-	-	-	-	-	-	-	-
<i>Helicobacter typhlonius</i>	-	-	-	-	-	-	-	-	-

feces	113-E	114-D
<i>Helicobacter</i> spp.	-	-
<i>Helicobacter bilis</i>	-	-
<i>Helicobacter ganmani</i>	-	-
<i>Helicobacter hepaticus</i>	-	-
<i>Helicobacter mastomyrinus</i>	-	-
<i>Helicobacter rodentium</i>	-	-
<i>Helicobacter typhlonius</i>	-	-

oral swab	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
<i>Mycoplasma pulmonis</i>	-	-	-	-	-	-	-	-	-
<i>Streptococcus</i> sp. beta hemolytic Group A	-	-	-	-	-	-	-	-	-
<i>Streptococcus</i> sp. beta hemolytic Group B	-	-	-	-	-	-	-	-	-
<i>Streptococcus</i> sp. beta hemolytic Group C	-	-	-	-	-	-	-	-	-
<i>Streptococcus</i> sp. beta hemolytic Group G	-	-	-	-	-	-	-	-	-

oral swab	113-E	114-D
<i>Mycoplasma pulmonis</i>	-	-
<i>Streptococcus</i> sp. beta hemolytic Group A	-	-
<i>Streptococcus</i> sp. beta hemolytic Group B	-	-

oral swab	113-E	114-D
<i>Streptococcus</i> sp. beta hemolytic Group C	-	-
<i>Streptococcus</i> sp. beta hemolytic Group G	-	-

Legend: + = positive - = negative id:id = pooled sample range id+id+id = non-range pooled sample NT or blank = no test performed wps = weak positive XX = Testing in progress

## PARASITOLOGY

	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
parasites	-	-	-	-	-	-	-	-	-

	113-E	114-D
parasites	-	-

## MICROBIOLOGY

Specimen/Source: cecum

Isolate	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
<i>Citrobacter rodentium</i>	-	-	-	-	-	-	-	-	-
<i>Klebsiella oxytoca</i>	-	-	-	-	-	-	-	-	-
<i>Klebsiella pneumoniae</i>	-	-	-	-	-	-	-	-	-
<i>Salmonella enterica</i>	-	-	-	-	-	-	-	-	-

Specimen/Source: cecum

Isolate	113-E	114-D
<i>Citrobacter rodentium</i>	-	-
<i>Klebsiella oxytoca</i>	-	-
<i>Klebsiella pneumoniae</i>	-	-
<i>Salmonella enterica</i>	-	-

Specimen/Source: oral swab

Isolate	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
<i>Bordetella hinzii</i>	-	-	-	-	-	-	-	-	-
<i>Pasteurella pneumotropica</i> biotype Heyl	-	-	-	-	-	-	-	-	-
<i>Pasteurella pneumotropica</i> biotype Jawetz	-	-	-	-	-	-	-	-	-
<i>Streptococcus pneumoniae</i>	-	-	-	-	-	-	-	-	-

Specimen/Source: oral swab

Isolate	113-E	114-D
<i>Bordetella hinzii</i>	-	-
<i>Pasteurella pneumotropica</i> biotype Heyl	-	-

Isolate	113-E	114-D
<i>Pasteurella pneumotropica</i> biotype Jawetz	-	-
<i>Streptococcus pneumoniae</i>	-	-

Legend: + = agent recovered - = agent not recovered blank = test not performed n = no growth X = Preliminary

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IDEXX BioAnalytics Case # 35225-2019

Received: 12/18/2019

Completed: 12/27/2019

SEROLOGY DETAILS

	Baseline	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
<b>Ectromelia</b>										
Ectromelia purified virus	MFI > 2.000	-	-	-	-	-	-	-	-	-
<b>EDIM</b>										
EDIM purified virus	MFI > 4.000	-	-	-	-	-	-	-	-	-
EDIM VP6 recombinant	MFI > 2.500	-	-	-	-	-	-	-	-	-
<b>LCMV</b>										
LCMV recombinant	MFI > 3.000	-	-	-	-	-	-	-	-	-
<b>Mycoplasma pulmonis</b>										
<i>M. pulmonis</i> purified bacteria	MFI > 4.250	-	-	-	-	-	-	-	-	-
<b>MAV1</b>										
MAV1 purified virus	MFI > 3.750	-	-	-	-	-	-	-	-	-
<b>MAV2</b>										
MAV2 purified virus	MFI > 4.500	-	-	EQ	-	-	-	-	-	-
MAV2 virus	IFA			-						
<b>MHV</b>										
MHV purified virus	MFI > 2.500	-	-	-	-	-	-	-	-	-
MHV NC recombinant	MFI > 2.500	-	-	-	-	-	-	-	-	-
<b>MNV</b>										
MNV purified virus	MFI > 3.000	-	-	-	-	-	-	-	+5	-
MNV VP1 recombinant	MFI > 4.000	-	-	-	-	-	-	-	-	-
MNV virus	IFA								-	
<b>MPV</b>										
MPV VP2 recombinant	MFI > 2.000	-	-	-	-	-	-	-	-	-
NS1 <sup>1</sup>	MFI > 3.750	-	-	-	-	-	-	-	-	-
<b>MVM</b>										
MVM VP2 recombinant	MFI > 2.000	-	-	-	-	-	-	-	-	-
NS1 <sup>1</sup>	MFI > 3.750	-	-	-	-	-	-	-	-	-

	Baseline	116-A	116-B	116-C	116-D	116-E	113-A	113-B	113-C	113-D
<b>Pneumocystis murina</b>										
<i>P. murina</i>	MFI > 0.750	-	-	-	-	-	-	-	-	-
<b>Polyoma</b>										
Polyoma purified virus	MFI > 3.750	-	-	-	-	-	-	-	-	-
<b>PVM</b>										
PVM purified virus	MFI > 2.500	-	-	-	-	-	-	-	-	-
<b>REO3</b>										
REO3 purified virus	MFI > 4.900	-	-	-	-	-	-	-	-	-
<b>TMEV</b>										
TMEV purified virus	MFI > 2.250	-	-	-	-	-	-	-	-	-
RTV purified virus	MFI > 2.750	-	-	-	-	-	-	-	-	-
<b>Sendai</b>										
Sendai purified virus	MFI > 3.750	-	-	-	-	-	-	-	-	-

	Baseline	113-E	114-D
<b>Ectromelia</b>			
Ectromelia purified virus	MFI > 2.000	-	-
<b>EDIM</b>			
EDIM purified virus	MFI > 4.000	-	-
EDIM VP6 recombinant	MFI > 2.500	-	-
<b>LCMV</b>			
LCMV recombinant	MFI > 3.000	-	-
<b>Mycoplasma pulmonis</b>			
<i>M. pulmonis</i> purified bacteria	MFI > 4.250	-	-
<b>MAV1</b>			
MAV1 purified virus	MFI > 3.750	-	-
<b>MAV2</b>			
MAV2 purified virus	MFI > 4.500	-	-
MAV2 virus	IFA		
<b>MHV</b>			
MHV purified virus	MFI > 2.500	-	-
MHV NC recombinant	MFI > 2.500	-	-
<b>MNV</b>			
MNV purified virus	MFI > 3.000	-	-
MNV VP1 recombinant	MFI > 4.000	-	-
MNV virus	IFA		
<b>MPV</b>			
MPV VP2 recombinant	MFI > 2.000	-	-
NS1 <sup>1</sup>	MFI > 3.750	-	-
<b>MVM</b>			



	Baseline	113-E	114-D
MVM VP2 recombinant	MFI > 2.000	-	-
NS1 <sup>1</sup>	MFI > 3.750	-	-
<b><i>Pneumocystis murina</i></b>			
<i>P. murina</i>	MFI > 0.750	-	-
<b>Polyoma</b>			
Polyoma purified virus	MFI > 3.750	-	-
<b>PVM</b>			
PVM purified virus	MFI > 2.500	-	-
<b>REO3</b>			
REO3 purified virus	MFI > 4.900	-	-
<b>TMEV</b>			
TMEV purified virus	MFI > 2.250	-	-
RTV purified virus	MFI > 2.750	-	-
<b>Sendai</b>			
Sendai purified virus	MFI > 3.750	-	-

**NS1<sup>1</sup>:** NS1 protein is highly conserved among rodent parvoviruses and thus serves as a generic assay for parvovirus seroconversion.

**Legend:** + = positive - = negative blank = test not performed EQ = equivocal HE = hemolysis precluded testing I = insufficient W = weak positive WB = Western Blot confirmatory analysis pending NS = non-specific reactivity N = normal IgG L = less than normal IgG Positive MFI results are reported as "+" followed by a number from 1 to 33 in thousands rounded off to the nearest thousand.

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IDEXX BioAnalytics Case # 35675-2019

Received: 12/18/2019

Completed: 12/20/2019

Submitted By

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University of Missouri-RCA-MMRRC  
Columbia, MO 65201

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[dewitta@missouri.edu](mailto:dewitta@missouri.edu); [sharmaabh@missouri.edu](mailto:sharmaabh@missouri.edu)

Specimen Description

Species: mouse

Description: Pelt Swab

Number of Specimens/Animals: 5

Building/Facility: Discovery Ridge

ID	Client ID	Investigator	Room #	Species
1	W113 mouse pin worm and fur mite swab	Bryda	W113	mouse
2	W114 mouse pin worm and fur mite swab	Bryda	W114	mouse
3	W116 mouse pin worm and fur mite swab GM-1	Bryda	W116	mouse
4	W116 mouse pin worm and fur mite swab GM-3	Bryda	W116	mouse
5	W116 mouse pin worm and fur mite swab GM-4	Bryda	W116	mouse

**Services/Tests Performed:** Pinworm and Fur Mite Panel - mouse (1-5)

**PCR evaluation for:** *Aspicularis tetraptera*, *Myocoptes*, *Radfordia/Myobia*, *Syphacia muris*, *Syphacia obvelata*

**General Comments:** AOBQuarterly pin worm and fur mite testing.

**Summary:** All test results were negative.

## PCR EVALUATION

pelt swab	1	2	3	4	5
<i>Aspiculuris tetraptera</i>	-	-	-	-	-
<i>Syphacia muris</i>	-	-	-	-	-
<i>Syphacia obvelata</i>	-	-	-	-	-
<i>Myocoptes</i>	-	-	-	-	-
<i>Radfordia/Myobia</i>	-	-	-	-	-

Legend: + = positive - = negative id:id = pooled sample range id+id+id = non-range pooled sample NT or blank = no test performed wps = weak positive XX = Testing in progress

# Test Results

Order #: **2019057680**

LTM Customer ID: 39099  
University of Missouri  
U Missouri OAR

Charles River Research Animal Diagnostic Services  
(CR RADS)  
261 Ballardvale Street  
Receiving Dock, Bldg 22  
Wilmington MA 01887 USA

OAR Room 01  
1720 E Campus Drive  
Columbia, MO 65201 USA

## Billing Information

### Payment Method

Standing Purchase PO#: COLUM-C0000431778  
Order Exp. 6/2020

University of Missouri  
1720 E Campus Drive  
Columbia, MO 65201 USA

## Details

Sample(s) from: DCRC

Collection Date  
18-Dec-2019

Arrival Date  
26-Dec-2019

Approval Date  
31-Dec-2019

## Notes

Disco - 2019 Q4 - Mice sentinel PCR "A" rooms

## Diagnostic Summary

Test	Colony	Tested	+	+/-	?	PDG
All results NEGATIVE						

+ = Positive, +/- = Equivocal, ? = Indeterminate, PDG = Pending

To assure the health status of your research animal colonies, it is essential that you understand the sources, pathobiology, diagnosis and control of pathogens and other adventitious infectious agents that may cause research interference. We have summarized this important information in infectious agent **Technical Sheets**, which you can view by visiting [http://www.criver.com/info/disease\\_sheets](http://www.criver.com/info/disease_sheets).

# Test Results

Order #: 2019057680

LTM Customer ID: 39099  
University of Missouri  
U Missouri OAR

Charles River Research Animal Diagnostic Services  
(CR RADS)  
261 Ballardvale Street  
Receiving Dock, Bldg 22  
Wilmington MA 01887 USA

OAR Room 01  
1720 E Campus Drive  
Columbia, MO 65201 USA

Sample(s) from: DCRC

## Notes

Disco - 2019 Q4 - Mice sentinel PCR "A" rooms

## Molecular Diagnostics: Infectious Disease PCR

Results approved by Peck, DiAnne on 31 Dec 2019

### U Missouri Mite and Pinworm Screen PCR

	<u>1</u> 113	<u>2</u> 116	<u>3</u> 114
<b>Mite PCR</b>	-	-	-
<b>Pinworm PCR</b>	-	-	-

## Remarks

- = Negative, +/- = Equivocal; + = Positive; I = Inconclusive.

An equivocal result indicates inconsistent amplification detected by real-time PCR.

Inconclusive indicates failure of control result.

Nucleic Acid Recovery Control (NRC)/Inhibition Control: A low copy exogenous nucleic acid was added to sample lysis prior to nucleic acid isolation to serve as both a control to monitor for nucleic acid recovery and PCR inhibition. An RNA NRC also monitors reverse transcription for RNA virus assays. Nucleic acid recovery and PCR inhibition is monitored by a PCR assay specific for the NRC template. Unless otherwise stated, the control results passed for this order.

Any samples reported as equivocal or positive result in this report has been confirmed by re-extracting nucleic acid and repeating real-time PCR amplification to confirm the initial testing result.

Recommended sample types are essential to accurate results. Missing or inappropriate sample types can effect detection. If this report contains an unexpected result or are unsure of recommended sample types, please contact Lab Services@crl.com before taking any action. Additional or alternative testing may be essential to reaching an accurate diagnosis. We will be glad to test newly submitted samples for the positive agents up to the number of unexpected results in this order.

# Test Results

Order #: **2019057680**

LTM Customer ID: 39099  
University of Missouri  
U Missouri OAR

Charles River Research Animal Diagnostic Services  
(CR RADS)  
261 Ballardvale Street  
Receiving Dock, Bldg 22  
Wilmington MA 01887 USA

OAR Room 01  
1720 E Campus Drive  
Columbia, MO 65201 USA

Sample(s) from: DCRC

## Notes

Disco - 2019 Q4 - Mice sentinel PCR "A" rooms

## Sample Information

Number	Code	Species	Colony	Investigator	Facility	Location	Strain	Placem ent Date
1	113	Mouse	DCRC Sentinel	Bryda	Discovery Ridge	W113	CR ATH HE	9/16/19
2	116	Mouse	DCRC Sentinel	Franklin / Bryda	Discovery Ridge	W116	CR ATH HE	9/16/19
3	114	Mouse	DCRC Sentinel	Bryda	Discovery Ridge	W114	CR ATH HE	9/16/19