UNIVERSITI PUTRA MALAYSIA

HISTOPATHOLOGY AND IMMUNOHISTOCHEMISTRY (IHC) STUDY OF AFRICAN SWINE FEVER (ASF) IN DOMESTIC PIG TISSUE

HUAM ZE SHIUN

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FPV 2022 81

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FACULTY OF VETERINARY MEDICINE

UNIVERSITI PUTRA MALAYSIA

SERDANG, SELANGOR

2022/2023

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HUAM ZE SHIUN

December

CERTIFICATION

I hereby certified that I have read this project paper entitled "[illegible]", by [illegible] and in my opinion this project paper is adequate in terms of scope and quality for the purpose of [illegible].

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ACKNOWLEDGMENT

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVATION

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LIST OF APPENDICES

ABSTRAK

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KAJIAN HISTOPATOLOGI DAN IMMUNOHISTOKIMIA PENYAKIT DEMAM BABI AFRIKA (ASF) DALAM TISU BABI DOMESTIK

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Huam Ze Shiun

2022

Penyelia: Dr. Nurul Izzati Uda Zahli

Penyelia bersama: Profesor Madya Dr Ooi Peck Toung, Dr Michelle Fong Wai Cheng

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Kata Kunci: ***Demam babi Afrika, Histopatologi, Immunohistokimia, Babi***
.

ABSTRACT

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Huam Ze Shiun

2022

Supervisor: Dr. Nurul Izzati Uda Zahli

Co-supervisors: Assoc. Prof Dr Ooi Peck Toung, Dr. Michelle Fong Wai Cheng

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[illegible] embedded [illegible] buffered saline and pig's lymph node tissue [illegible]

Keywords: [illegible]

1.0 INTRODUCTION

1.1 Epidemiology

[illegible] *Asfarviridae* [illegible] *Ornithodoros erraticus* [illegible] *O.moulata* *procinus* [illegible] *Ornithodoros* [illegible]

1.2 ASF in Asia

[illegible] Democratic People's Republic of Korea, Lao People's Democratic [illegible]

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bre e re re

1.2.1 ASF in Malaysia

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r ed b er r e r M c rmed

Me er r d e er emb d b r

ere d e ere de ec ed r e ce cre ed

r e e re er e r bre M

1.3 Histopathology of ASF

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e r e ee r m e

er em c red e re ed er r c e ce debr d e e

c be ee e er e Be de em rr e c be ee

r d e ed c r m cr e e d e

bee re r ed re c e e d e ce d r e e

e d e e b em rr e m cc r e e r er e C rr c e

re c d e ce m be ee

1.4 Immunohistochemistry of ASF

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e e C rre e m e e b r r me d de ec

R CR r D c be de ec ed r m e e b d r er m e

ec ed m er e r e ec b R CR b C e

1.5 Objective

1.6 Hypothesis

Null hypothesis

Alternative hypothesis

1.7 Justification

2.0 LITERATURE REVIEW

2.1 Clinical form

[illegible]

2.1.1 Peracute ASF

[illegible]

2.1.2 Acute ASF

[illegible]

2.1.3 Subacute ASF

[illegible]

2.1.4 Chronic ASF

C r c ed b r e r d ed r r m c ecr re rded r r re r r d re d b r B
C

2.2 Gross Lesion

2.2.1 Peracute ASF

r e re d d r m r em e m

2.2.2 Acute ASF

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b er ed d r m r em e m ee e r ed d r c r
d r b e re cc r e ce e bd m c c be ee
M c em rr c m de e ec d m c e e c e
M c r de re d em rr e m de e em m rb
e ec em rr e re re e ee e r ce e d e
d r ec ere re dd e e c be ee m em re
em rr e e m c r er r r r c r e d m
e e e e c rd m e e r r r r b dder c e e

2.2.3 Subacute ASF

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e me me re e ee m c ed d m m m
em rr c e me ee c e ere be e er m
de e b d em rr e e d e c e b e ec

2.2.4 Chronic ASF

2.3 Pathogenesis

2.3.1 Pathogenesis of Lymphoid Depletion

“Cytokine storm” is the main mechanism that induces apoptosis in lymphocytes

2.3.2 Pathogenesis of vascular changes

2.4 Diagnostic methods

3.0 METHODOLOGY

3.1 Samples

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3.2 H&E Staining

3.2.1 Materials

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3.2.2 Procedure

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3.3 Immunohistochemistry

3.3.1 Materials

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3.3.2 Procedure

4.0 RESULTS

4.1 Histopathology lesion

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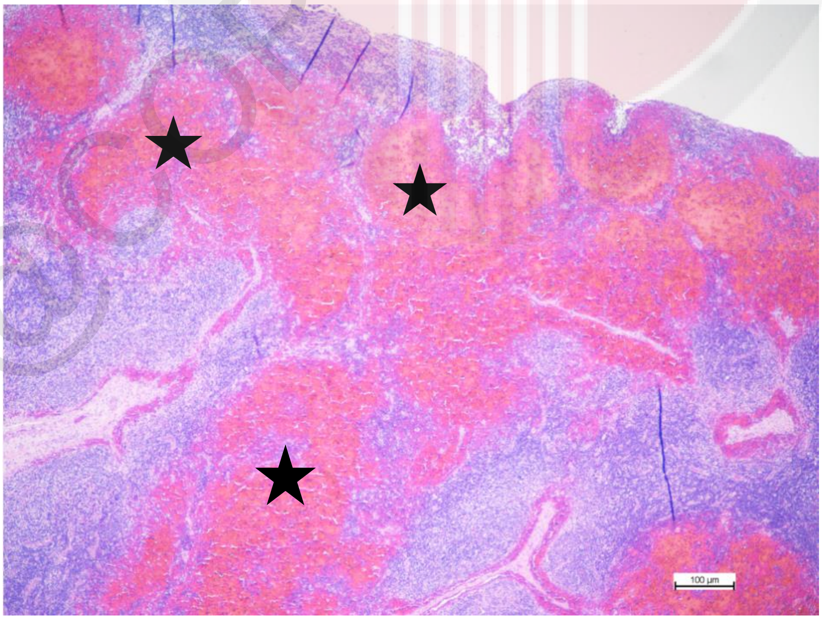
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

4.1.1 Pig 1

4.1.1.1 Lymph node



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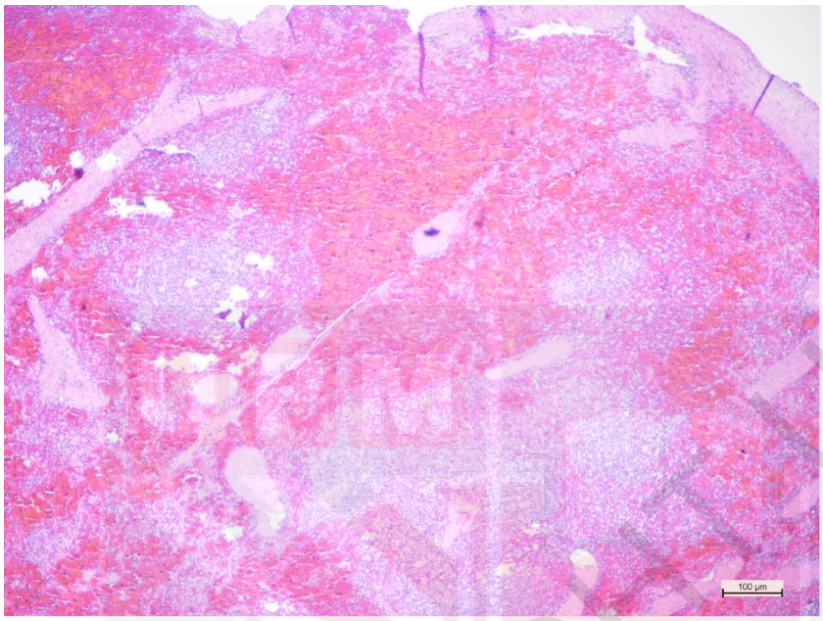
4.1.1.2 Spleen



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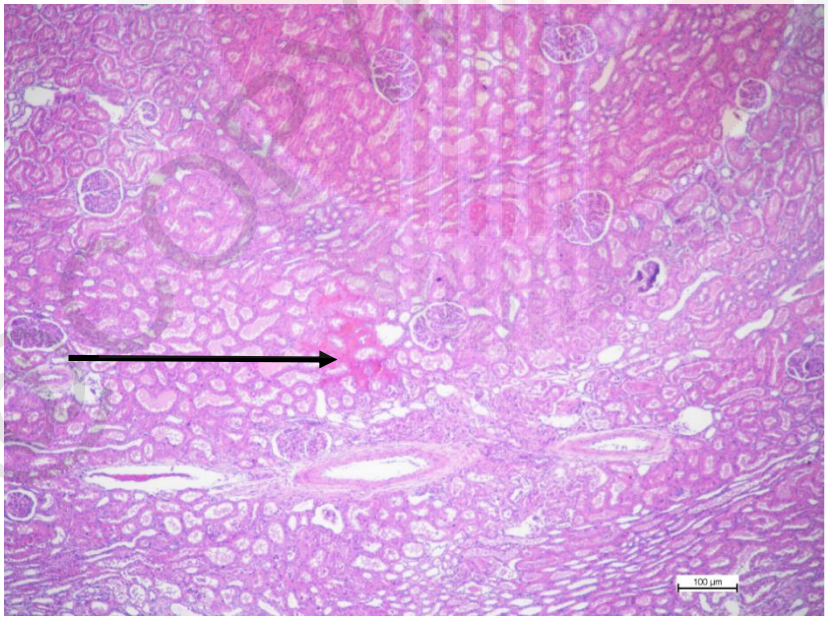
4.1.1.3 Kidney



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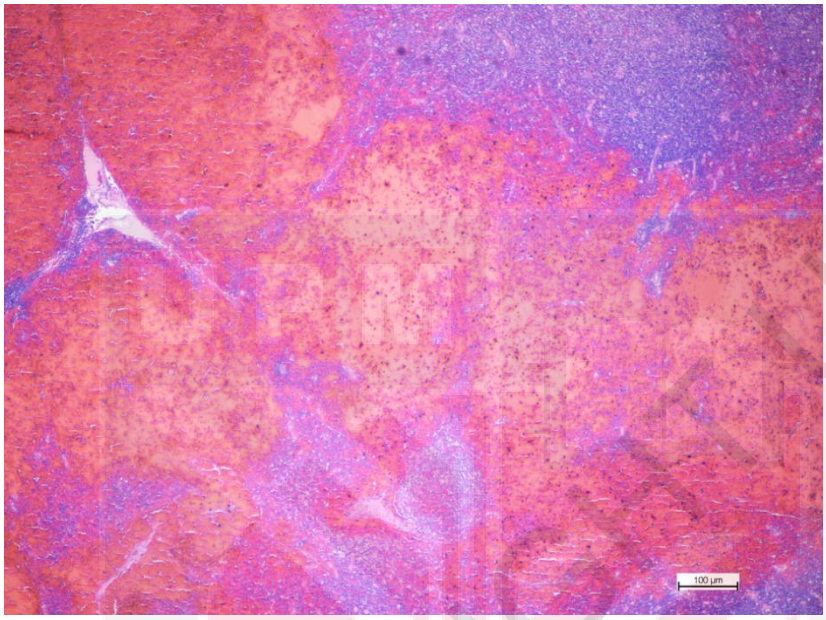
4.1.2 Pig 2

4.1.2.1 Lymph node



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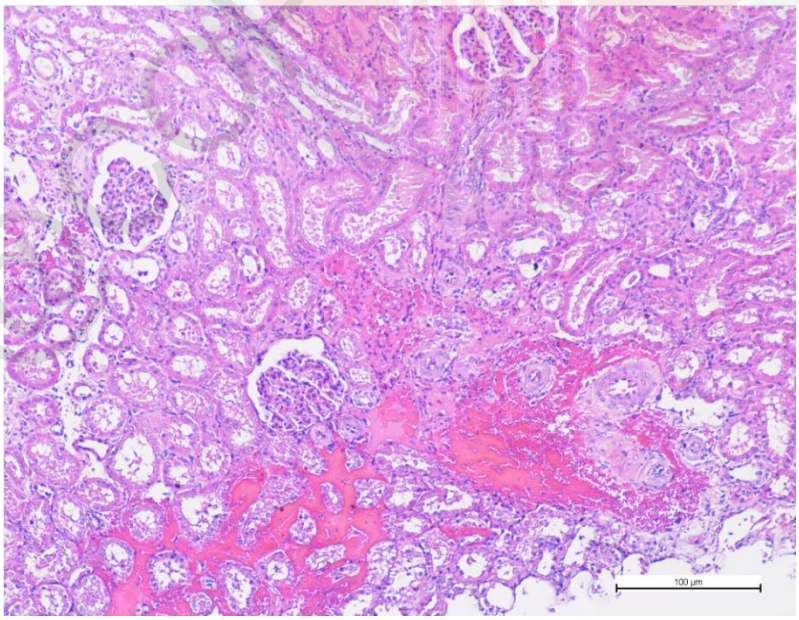
4.1.2.2 Kidney



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4.1.3 Pig 3

4.1.3.1 Kidney

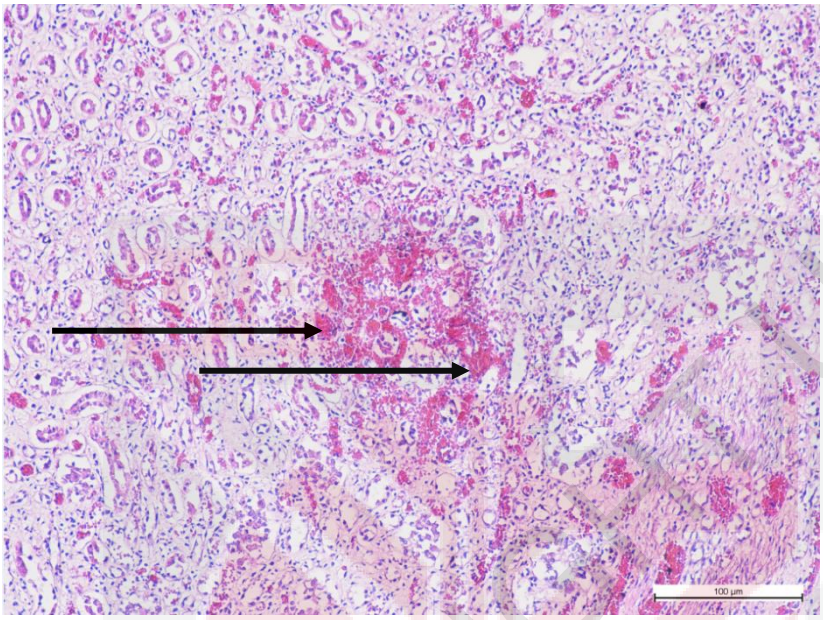

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Figure 4.1.3.2: Spleen

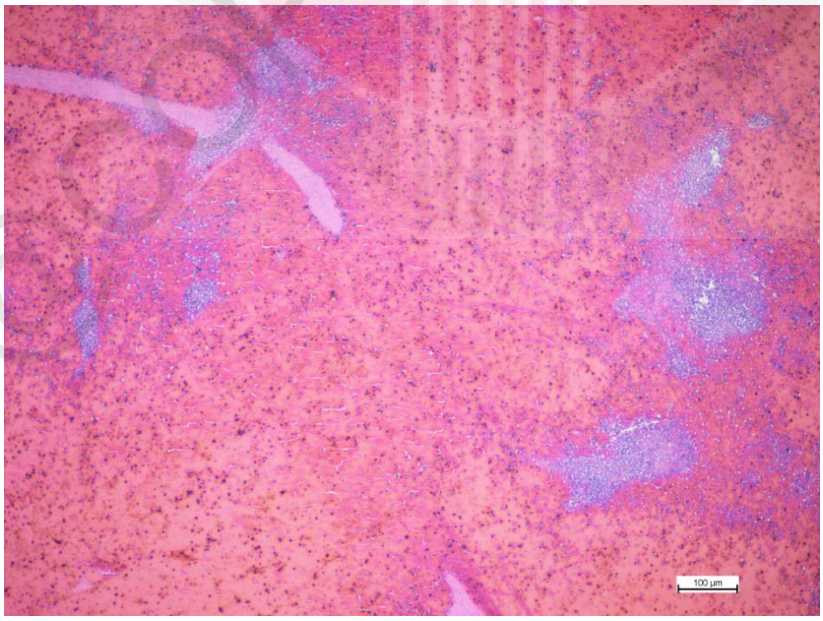

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Figure 4.1.3.3: Lymph node

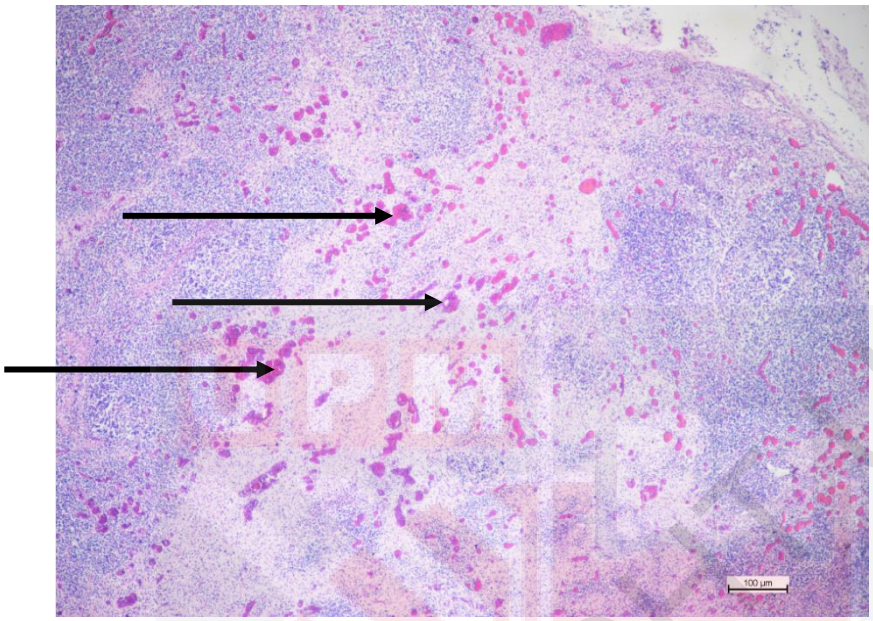

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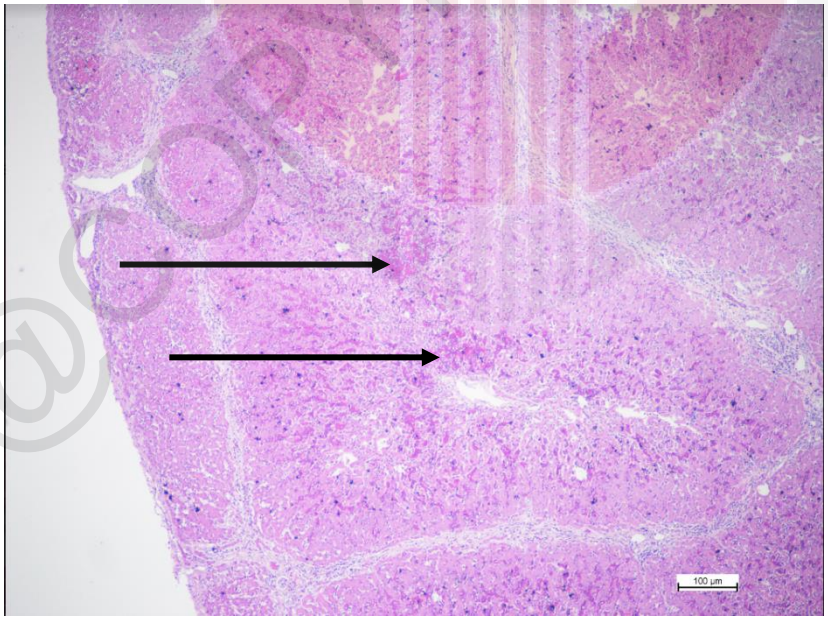
Figure 4.1.3.4: Liver



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4.2 Immunohistochemistry

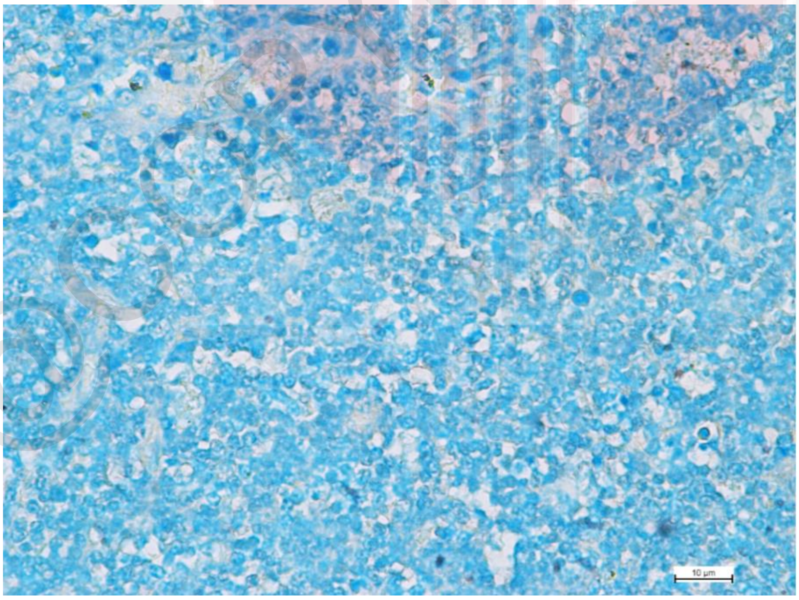
	Kidney	Spleen	Liver	Lung	Tonsil	Lymph Node
Pig 1	+	+	Nil	Nil	+	+
Pig 2	+	Nil	Nil	Nil	+	-
Pig 3	+	+	+	+	+	+
Negative Control (B22/573)	Nil	Nil	Nil	Nil	Nil	Nil

[illegible]

+ [illegible] - [illegible] **Nil** = [illegible]

4.2.1 Negative control

4.2.1.1 Negative tissue control



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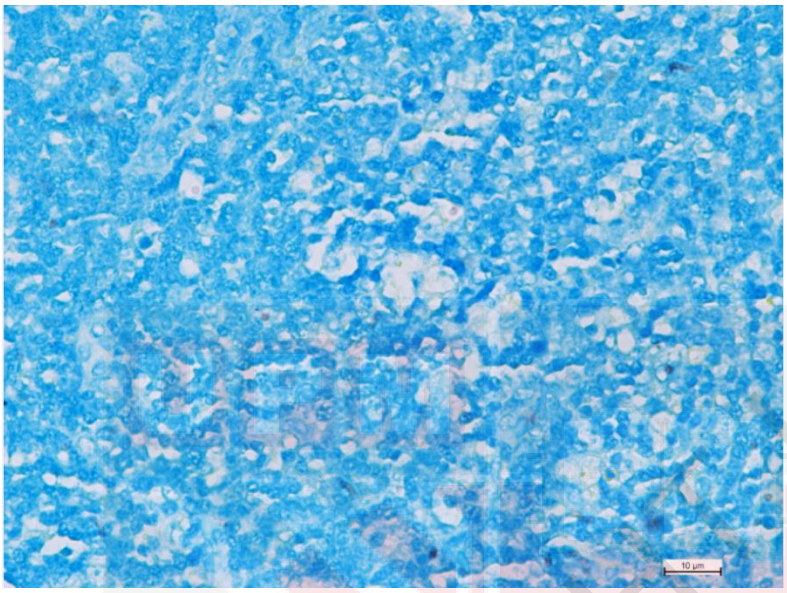
4.2.1.2 Negative antibody control



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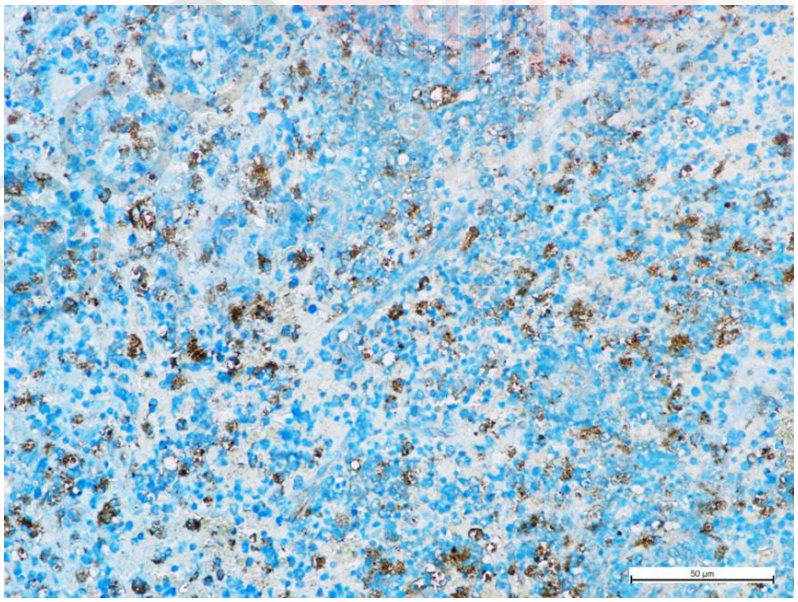
4.2.2 Pig 1

4.2.2.1 Spleen



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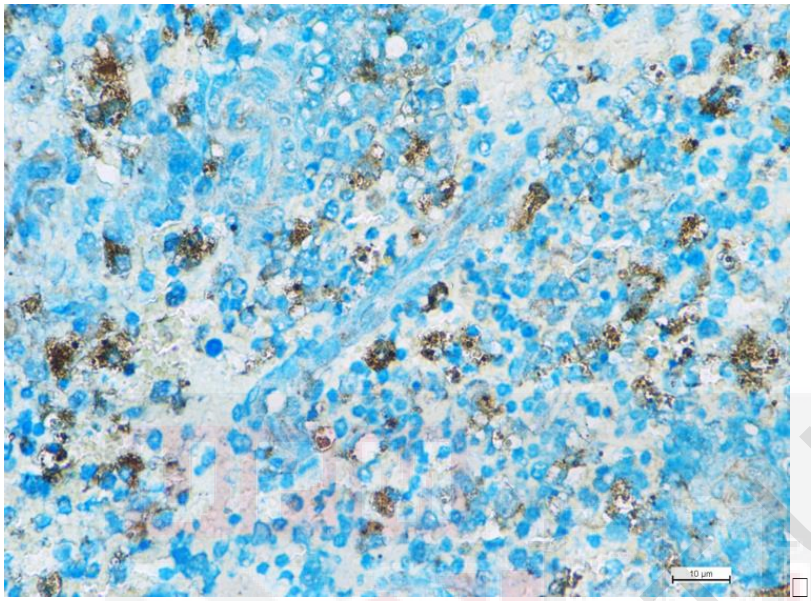

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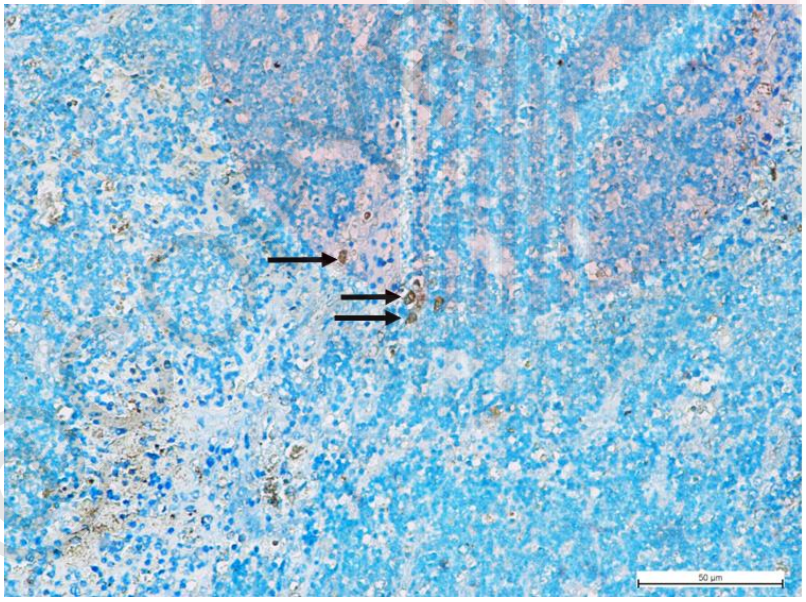
4.2.2.2 Lymph node



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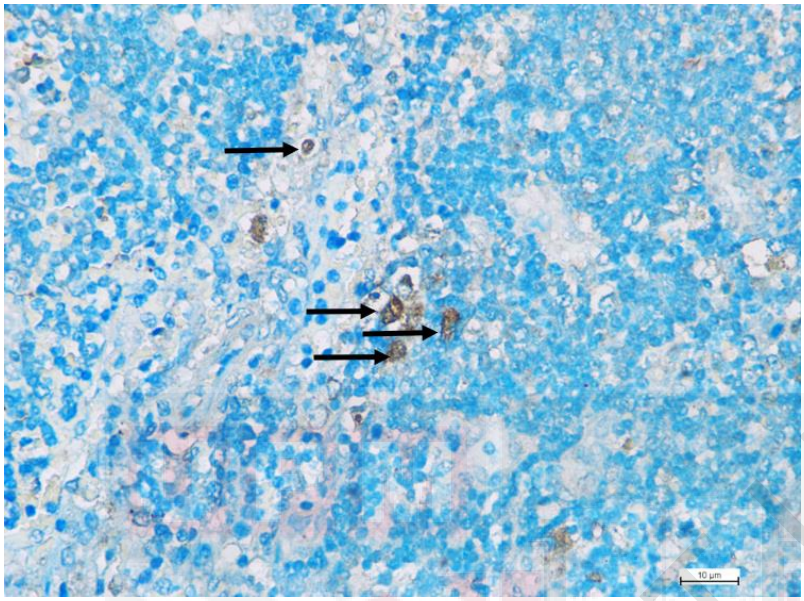

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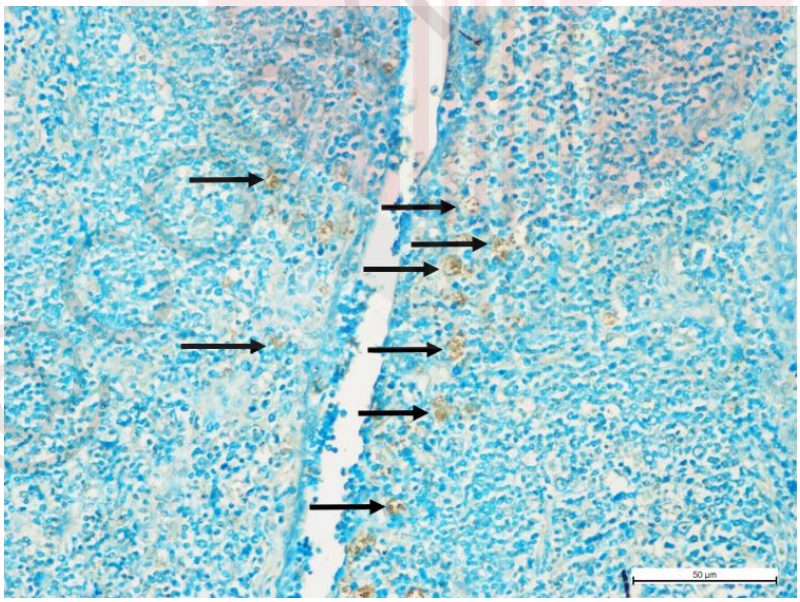
4.2.3 Pig 2

4.2.3.1 Tonsil



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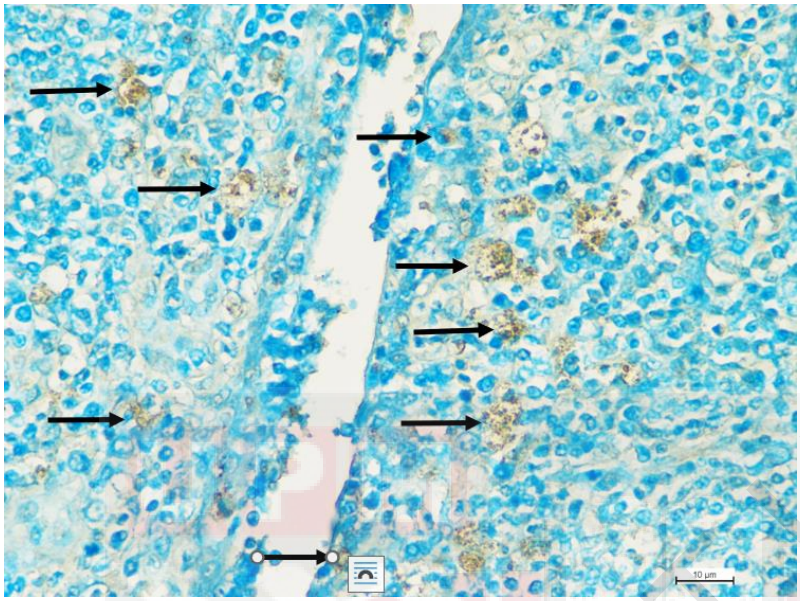

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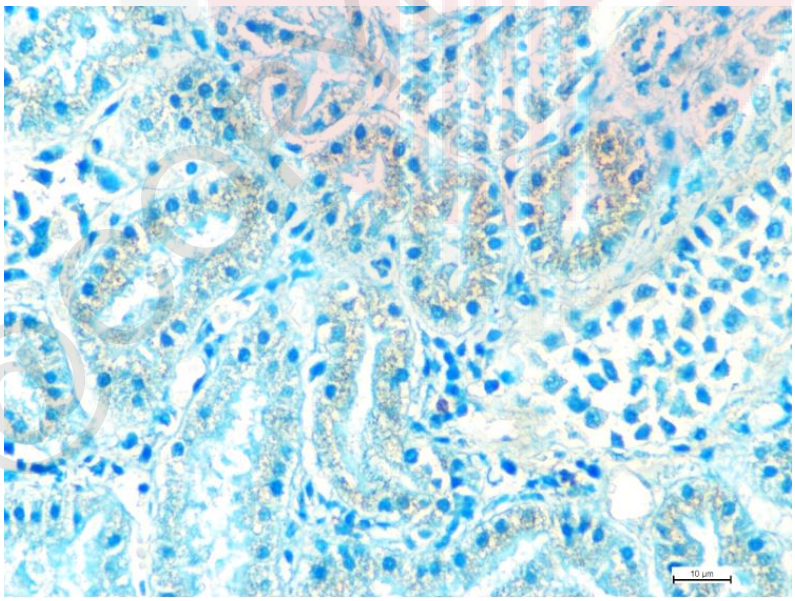
4.2.4 Pig 3

4.2.4.1 Kidney



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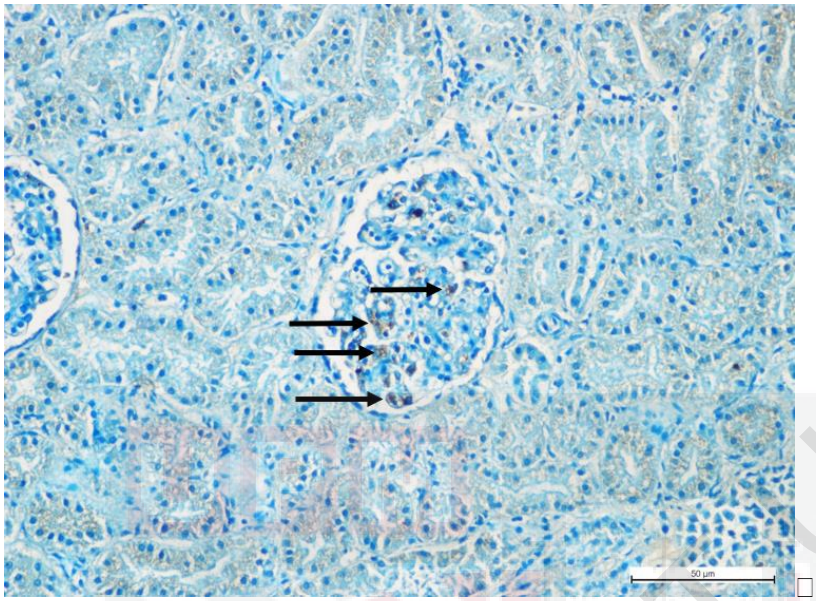

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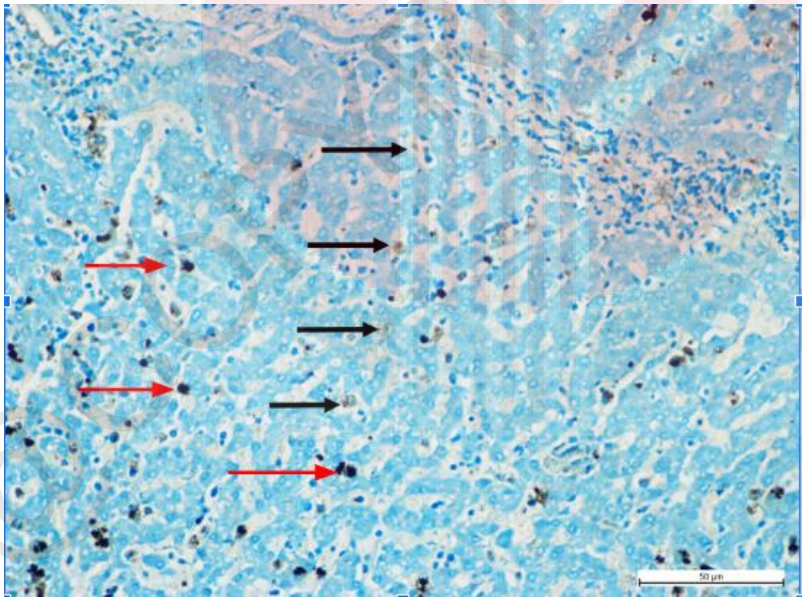
4.2.4.2 Liver



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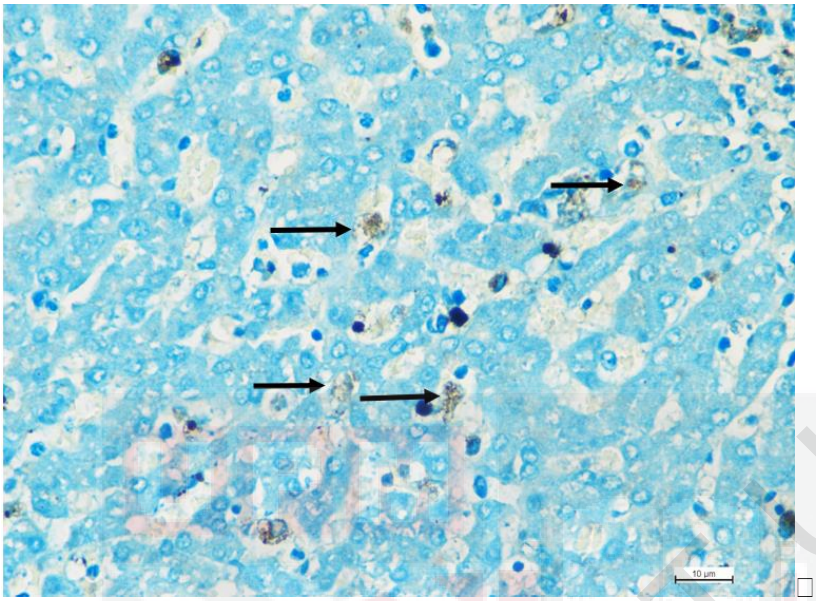

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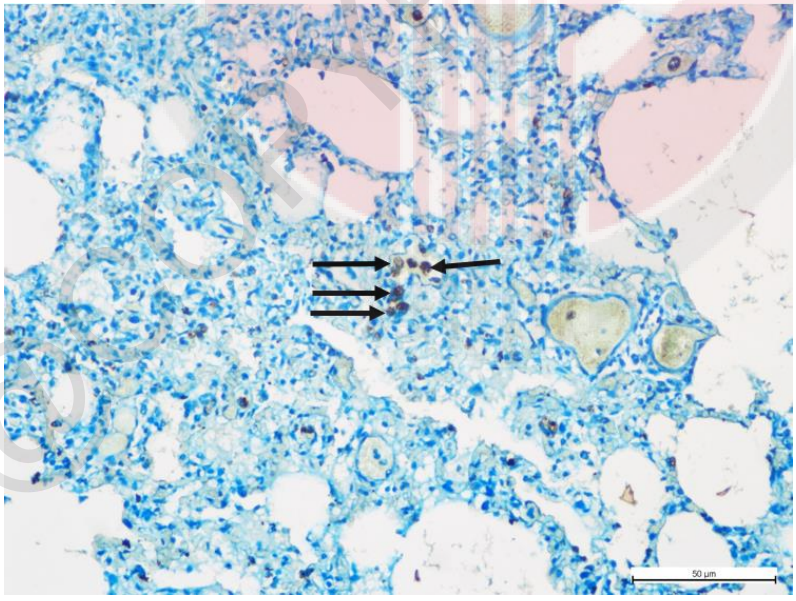
4.2.4.3 Lungs



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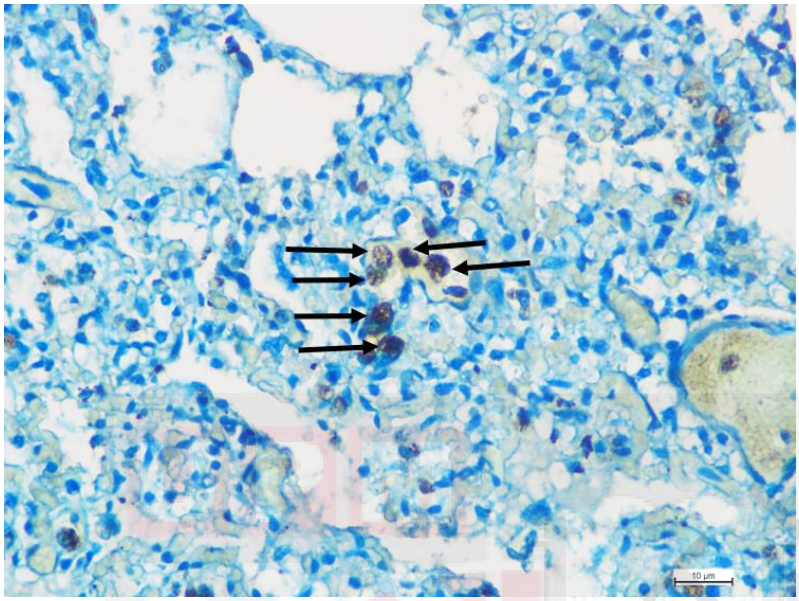

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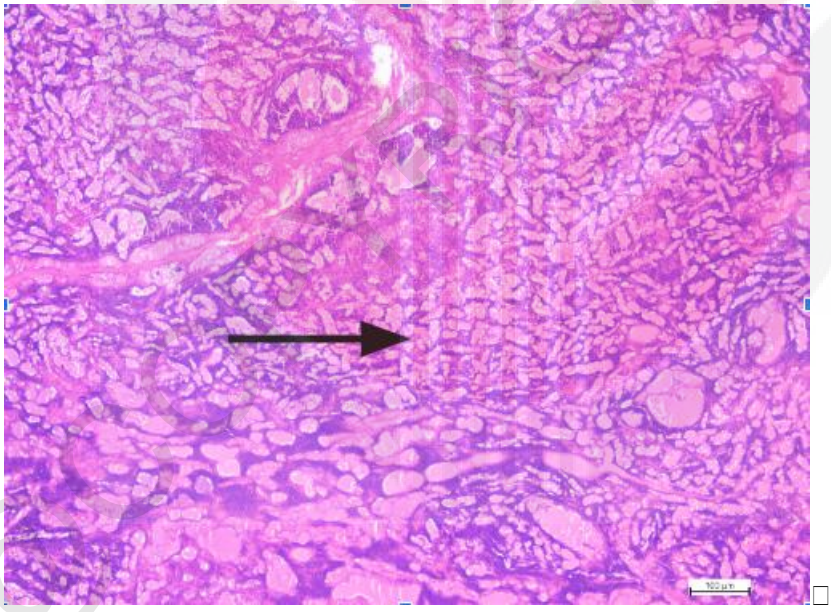
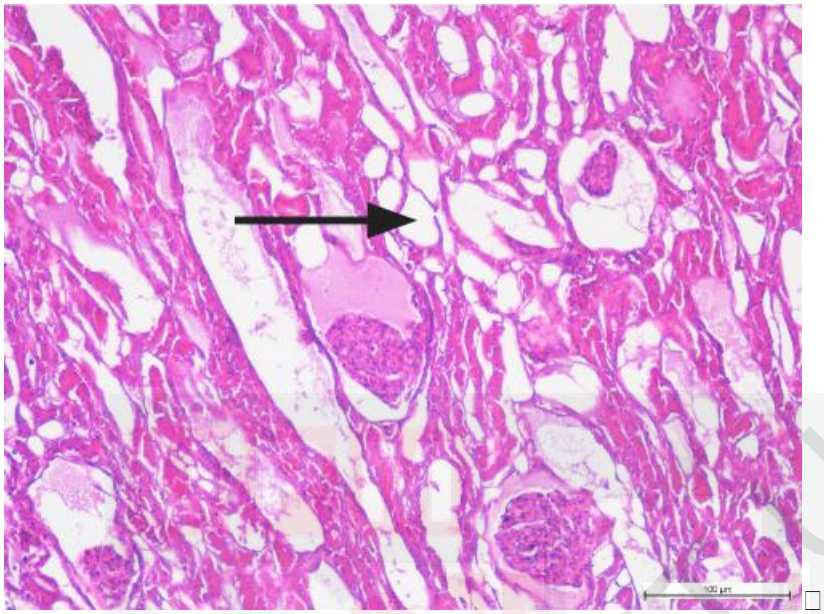
5.0 DISCUSSION

5.1 Freezing artefacts





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5.2 Optimization for Immunohistochemistry

Microwave setting	50W for 15 minutes		100W for 10 minutes	
Primary antibody concentration	□□e□□□□	□□e□c□□r□□□	□□e□□□□	□□e□c□□r□□□
1:500	□□	□□	□□	□□
1:1000	□□	□□	□□	□□
1:1500	□□	□□	□□	□□
PBS	□□	□□	□□	□□

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5.2.1 Primary antibody concentration

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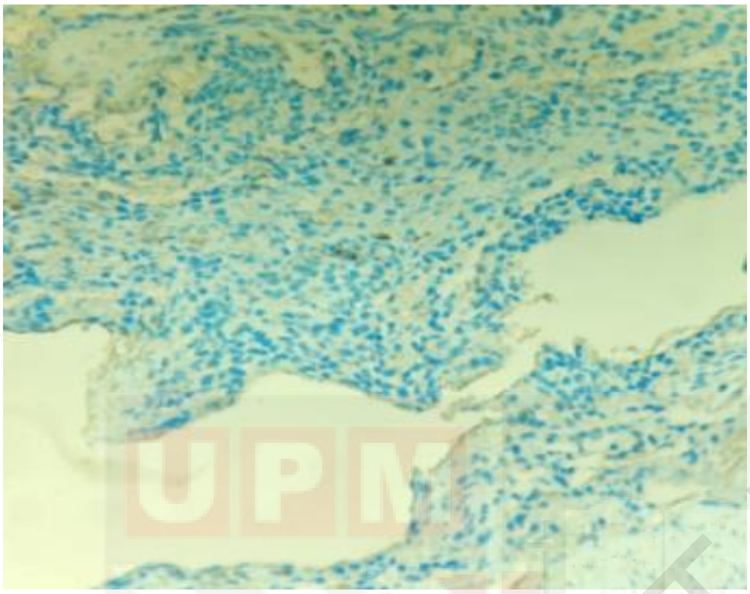

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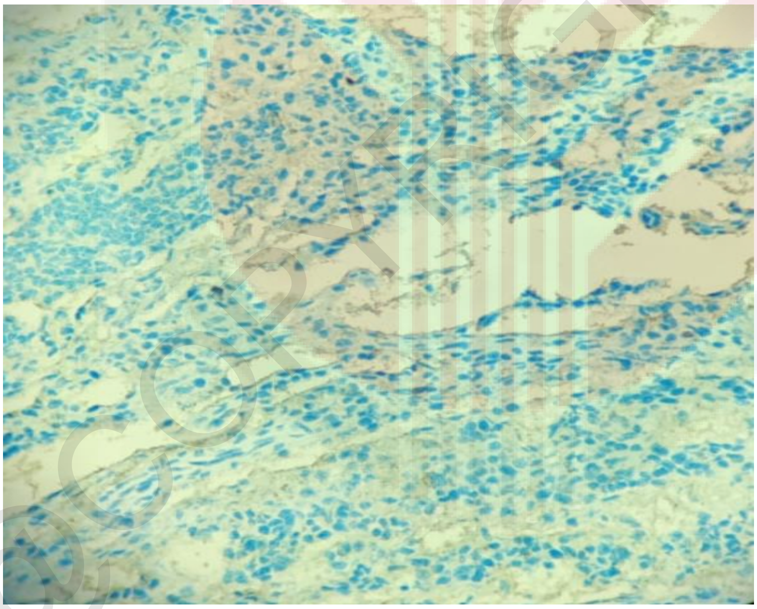

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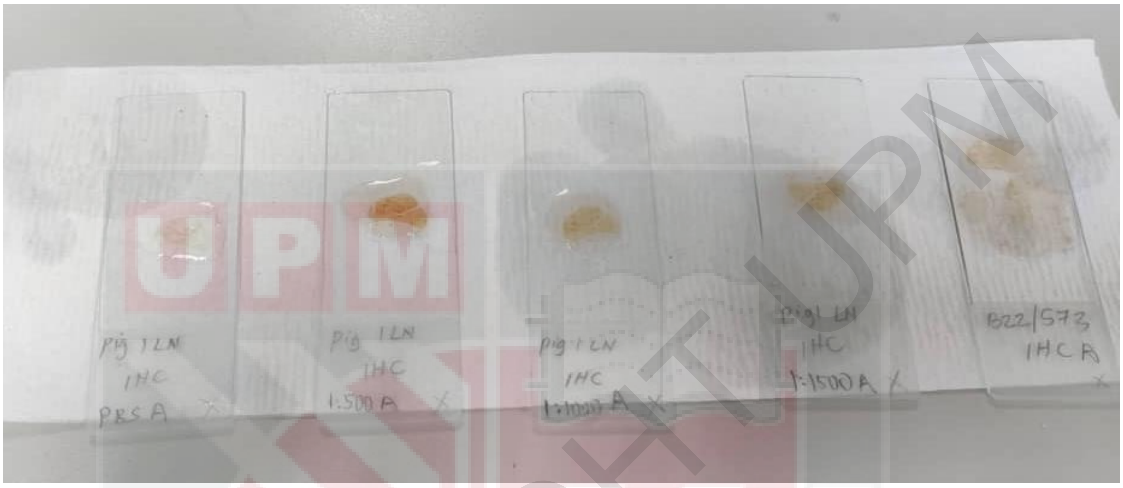

Figure 5.2.1c [illegible]

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5.2.2 Microwave setting

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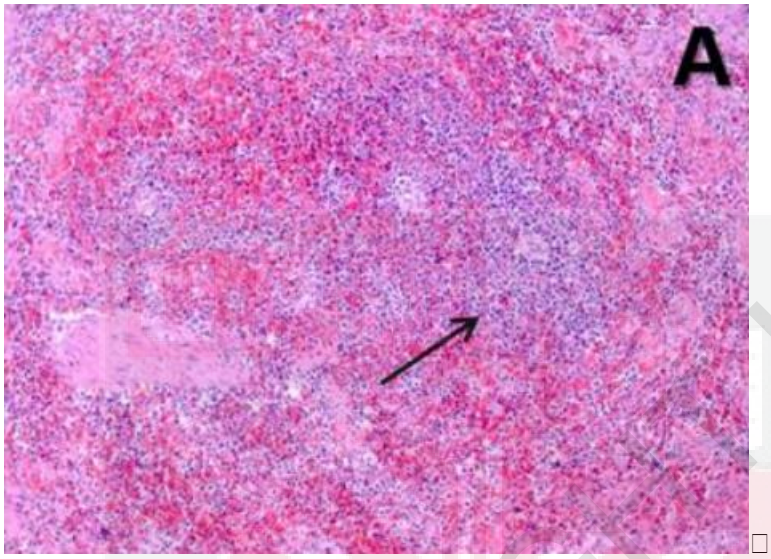
5.3 Comparison of results

5.3.1 Histopathology



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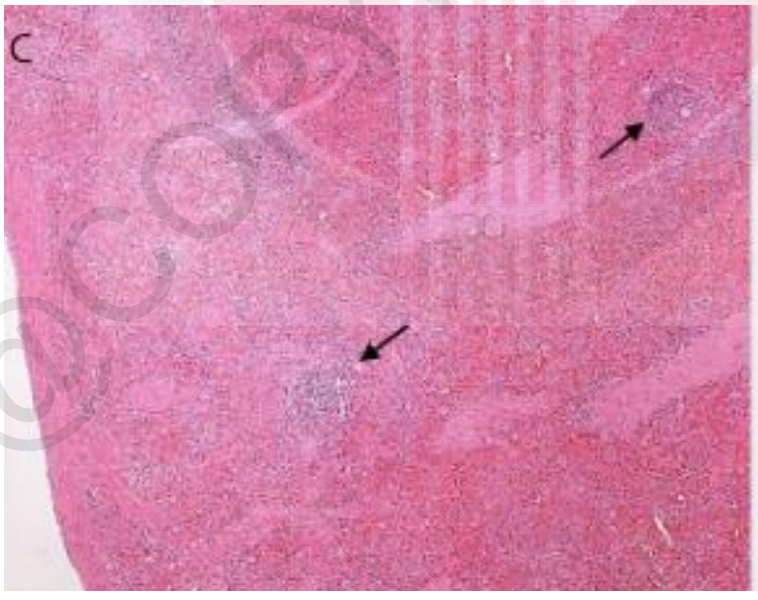

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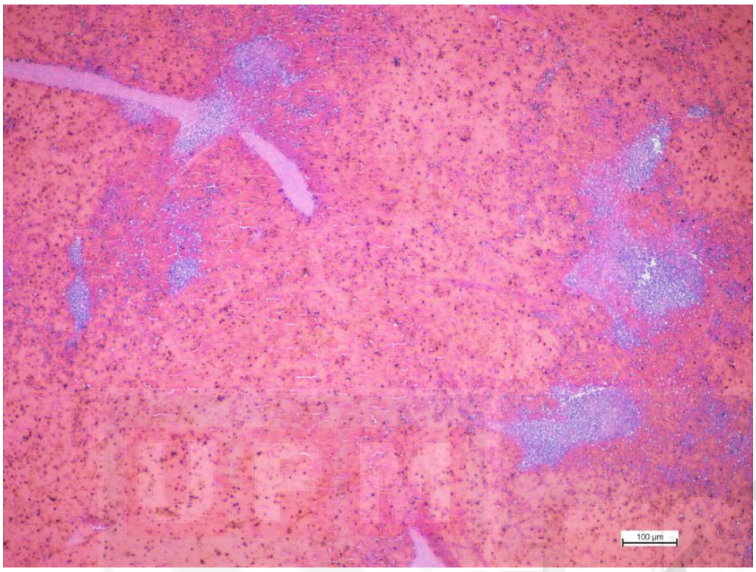

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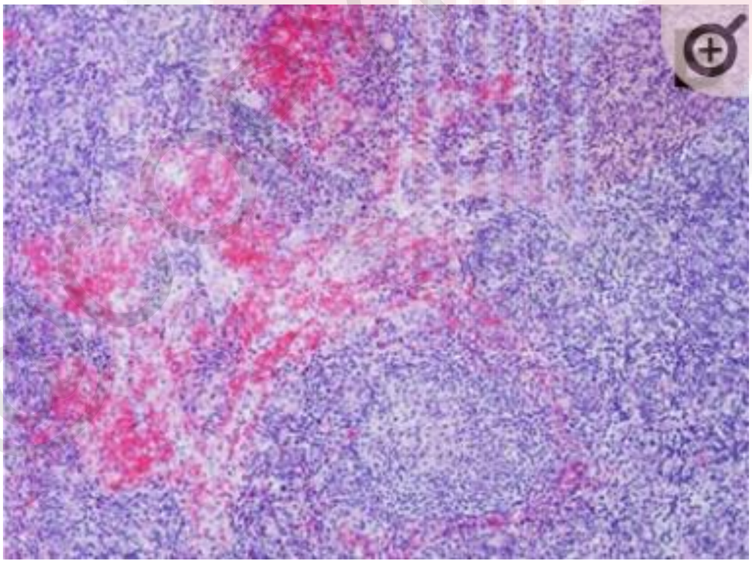
[illegible]re [illegible] c [illegible] e [illegible] ee [illegible] r m [illegible] re [illegible] m [illegible] r e [illegible] re [illegible] d [illegible] ee r m [illegible] em rr [illegible] e [illegible] e red [illegible] c [illegible] RBC [illegible] re ee [illegible] e red [illegible]



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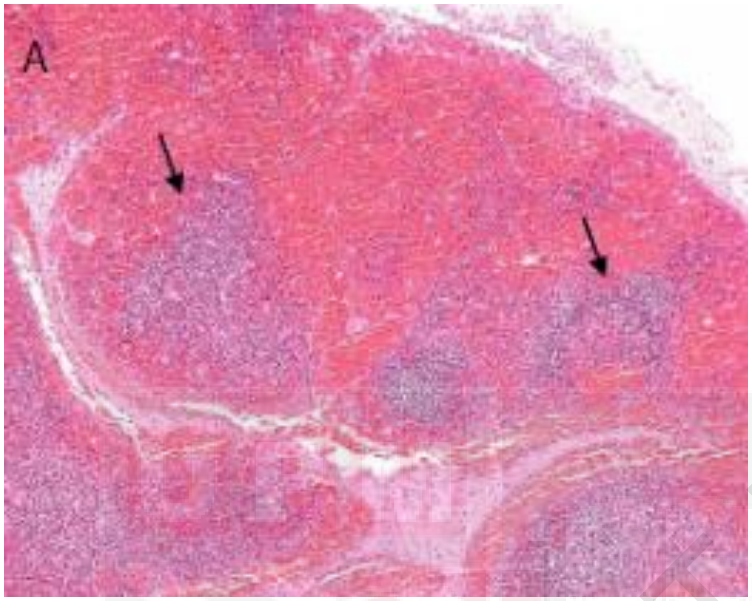

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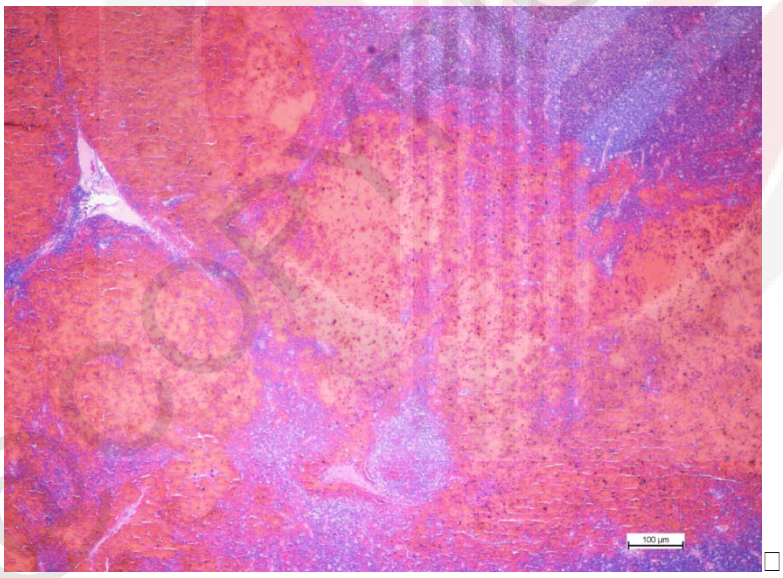

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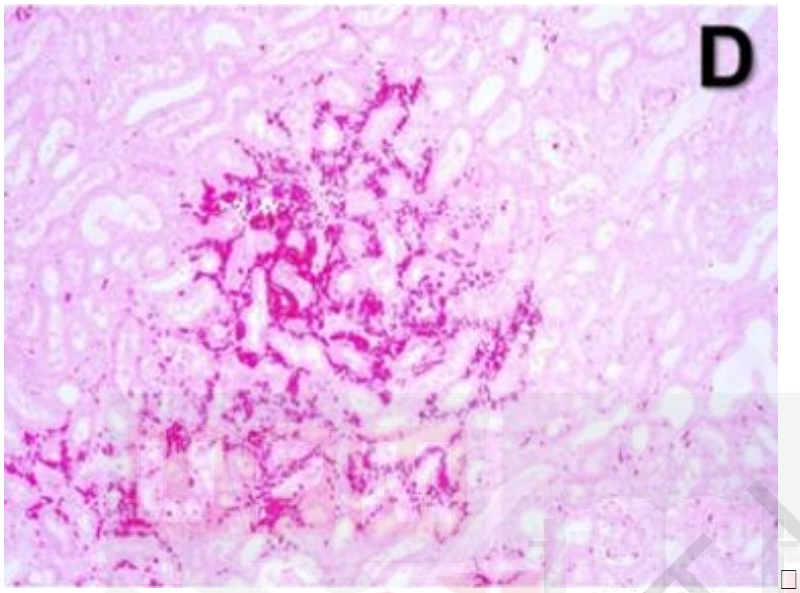

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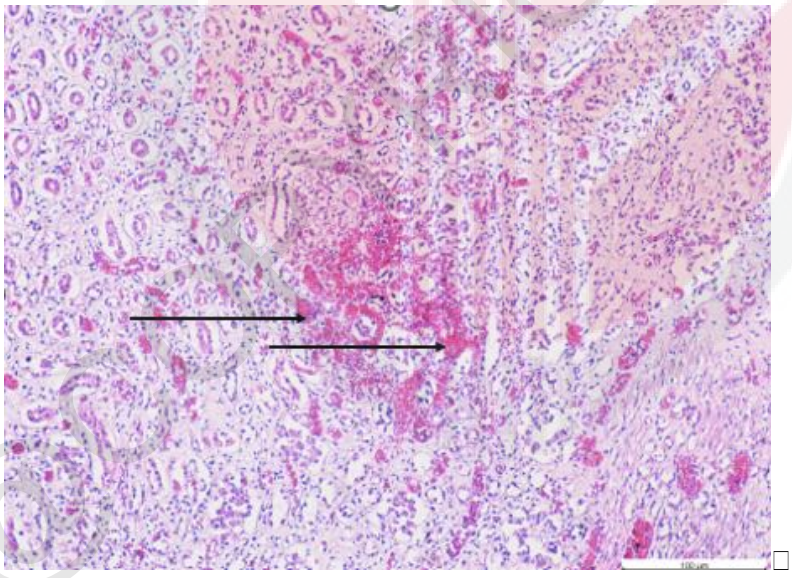

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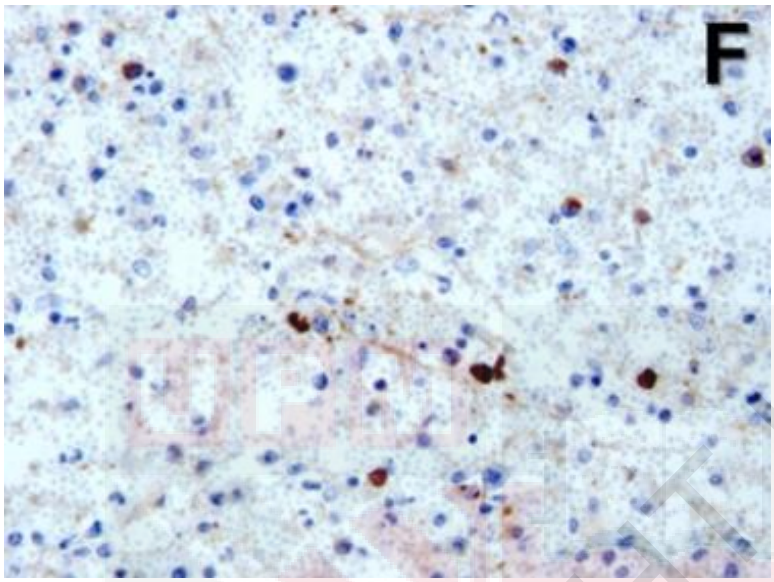
5.3.2 Immunohistochemistry



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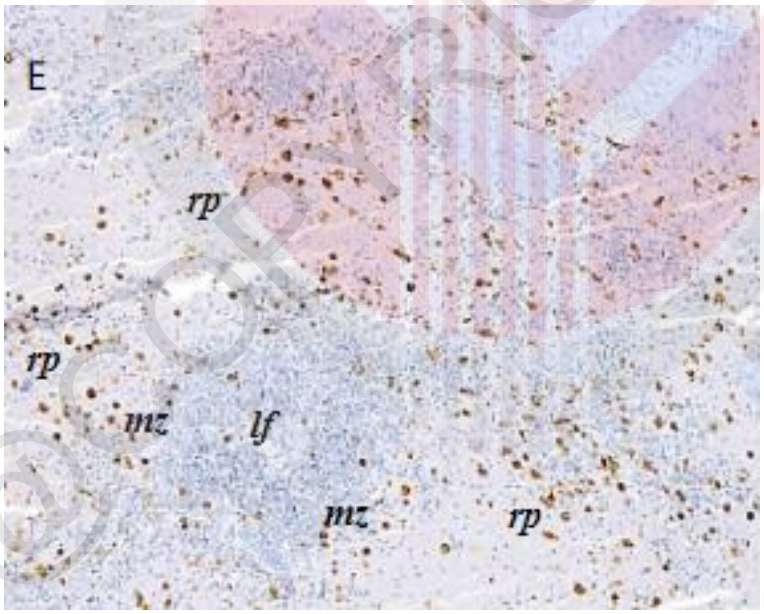

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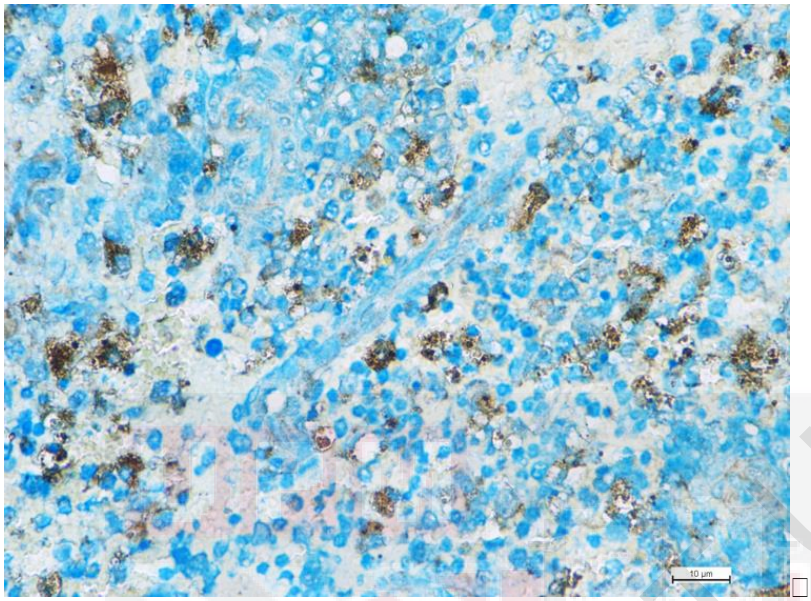

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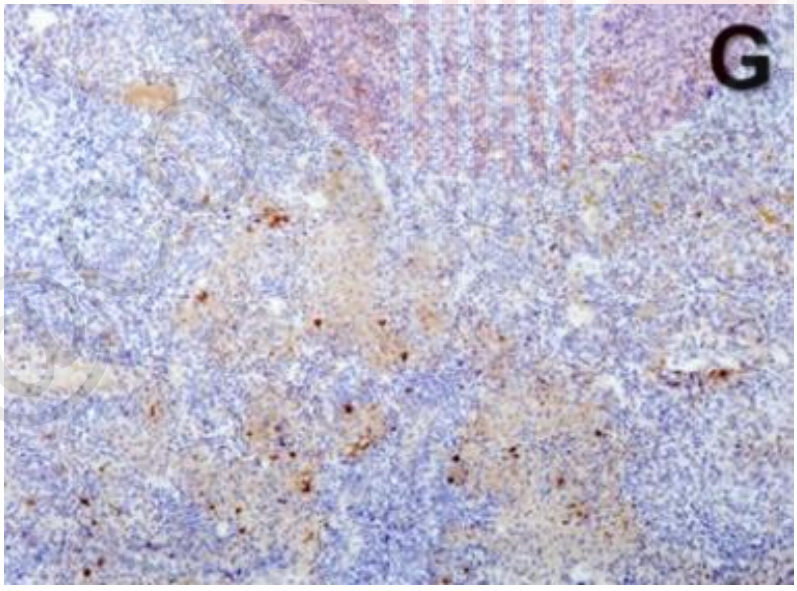

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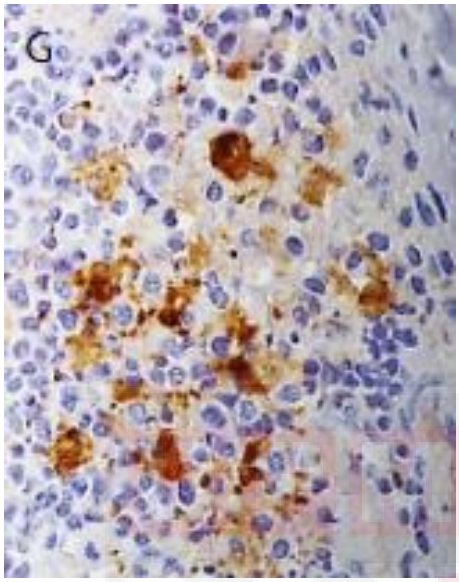

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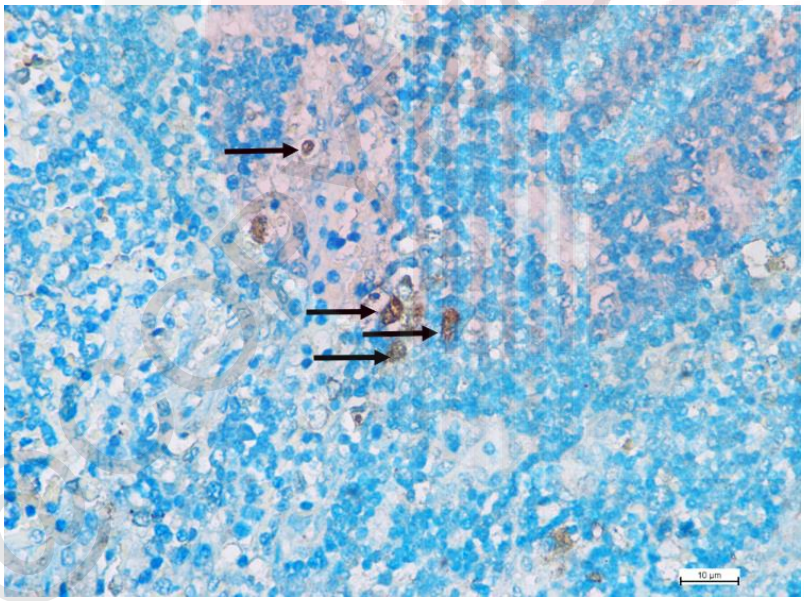

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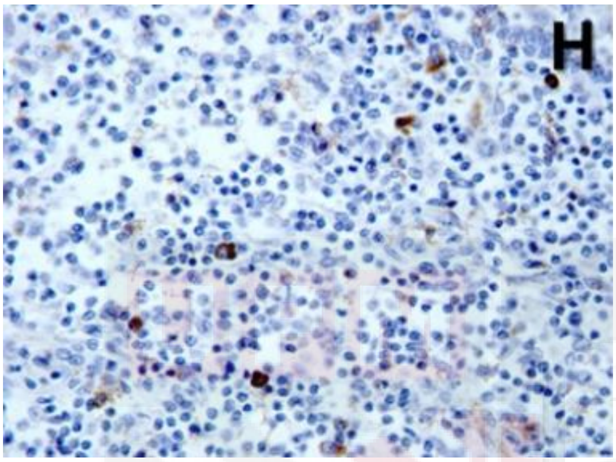

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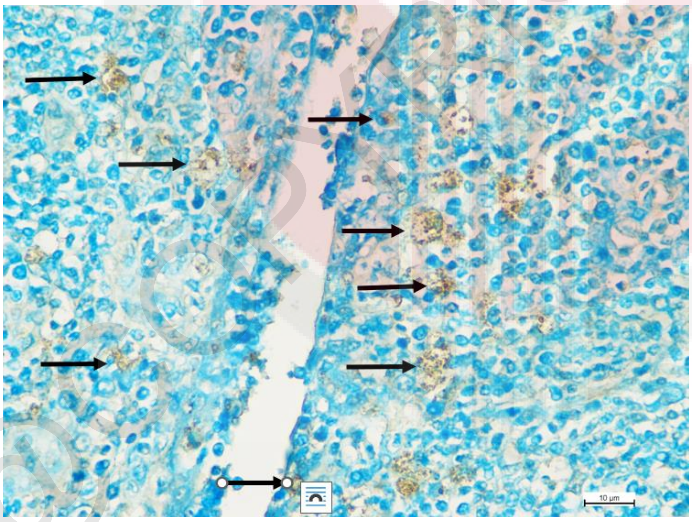

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6.0 CONCLUSION

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7.0 RECOMMENDATIONS

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8.0 REFERENCES

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APPENDIX

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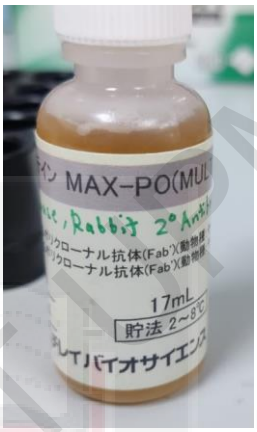

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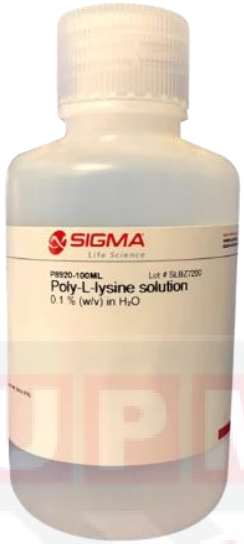

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