



# CMHD Pathology Report



## CMHD Pathology Core

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ReportID: Report Date: September 06,  
2013  
Pathologist: Dr. H. Adissu

## Mouse Genetics Project

Wellcome Trust Sanger  
Institute  
Wellcome Trust Genome  
Campus  
Hinxton, Cambridge  
CB10 1SA  
UK

CMHD LabID: N13-564

## Relevant History:

Phenotypes:

hyperalbuminemia  
increased circulating total protein level  
increased circulating LDL cholesterol level  
increased circulating cholesterol level

**AnimalID: M00947198 (Male)**

## Histopathology Findings:

### lymph node (MA:0000139)

#### Histopath Description:

The mesenteric lymph node is markedly enlarged (greater than four fold). The medulla is particularly expanded by chords and sheets of plasmatoid cells. There are prominent germinal centers within the medulla

#### Morphological Diagnosis:

**Distribution:** Diffuse; **Severity:** moderate; **MPATH Diagnosis:** hyperplasia MPATH:134

#### Definitive Diagnosis:

Lymphoid hyperplasia

#### Histopathology Comments:

The changes in the mesenteric lymph node are suggestive of draining of a regional inflammatory process. However, such a process was not observed in the tissues examined. Early marginal center lymphoma is suspected.

### liver (MA:0000358)

#### Histopath Description:

Most hepatocytes contain a large well-defined single rounded vacuole (macrovesicular lipidosis).

#### Morphological Diagnosis:

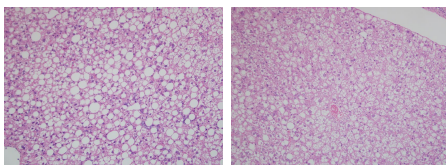
**Distribution:** diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622

#### Definitive Diagnosis:

hepatic steatosis

#### Histopathology Comments:

Marked macrovesicular lipidosis is seen in the liver in this line; this feature may have significance in relation to the metabolic phenotypes observed



Liver,  
macrovesicular  
lipidosis, 20x. HE

Liver, WT,  
microvesicular  
lipidosis, 20x. HE

**stomach (MA:0000353)****Histopath Description:**

mild neutrophilic gastritis; there is also mild epithelial proteinosis

**Morphological Diagnosis:**

**Distribution:** multifocal; **Severity:** mild;

**Definitive Diagnosis:**

Mild neutrophilic gastritis with epithelial proteinosis

**salivary gland (MA:0000346)****Histopath Description:**

There are multifocal perivascular mononuclear inflammatory cell aggregates.

**Morphological Diagnosis:**

**Distribution:** multifocal; **Severity:** mild;

**Definitive Diagnosis:**

Interstitial inflammatory aggregates

**Organ/Tissue Analyzed:**

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, testis, epididymis, seminal vesicle, and prostate.

**AnimalID: M00933215 (Male)****Histopathology Findings:****lymph node (MA:0000139)****Histopath Description:**

The mesenteric lymph node is markedly enlarged (greater than four fold). The medulla is particularly expanded by chords and sheets of plasmotoid cells. There are prominent germinal centers within the medulla

**Morphological Diagnosis:**

**Distribution:** Diffuse; **Severity:** moderate; **MPATH Diagnosis:** hyperplasia MPATH:134

**Definitive Diagnosis:**

Lymphoid hyperplasia

**Histopathology Comments:**

The changes in the mesenteric lymph node are suggestive of draining of a regional inflammatory process. However, such a process was not observed in the tissues examined. Early maginal center lymphoma is suspected.

**liver (MA:0000358)****Histopath Description:**

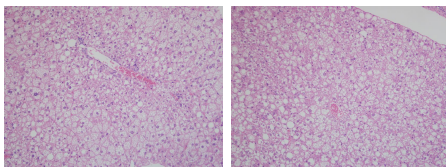
Most hepatocytes contain numerous small lipid vacuoles (microvesicular lipidosis)

**Morphological Diagnosis:**

**Distribution:** diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622

**Definitive Diagnosis:**

hepatic steatosis



Liver,  
microvesicular  
lipidosis, 20x. HE

Liver, WT,  
microvesicular  
lipidosis, 20x. HE

**Organ/Tissue Analyzed:**

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine

pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, testis, epididymis, seminal vesicle, and prostate.

### AnimalID: M00933219 (Female)

#### Histopathology Findings:

##### lymph node (MA:0000139)

###### Histopath Description:

The mesenteric lymph node is markedly enlarged (greater than four fold). The medulla is particularly expanded by chords and sheets of plasmotoid cells. There are prominent germinal centers within the medulla

###### Morphological Diagnosis:

**Distribution:** Diffuse; **Severity:** moderate; **MPATH Diagnosis:** hyperplasia MPATH:134

###### Definitive Diagnosis:

Lymphoid hyperplasia

###### Histopathology Comments:

The changes in the mesenteric lymph node are suggestive of draining of a regional inflammatory process. However, such a process was not observed in the tissues examined. Early marginal center lymphoma is suspected.

##### liver (MA:0000358)

###### Histopath Description:

Most hepatocytes contain a large well-defined single rounded vacuole (macrovesicular lipidosis).

###### Morphological Diagnosis:

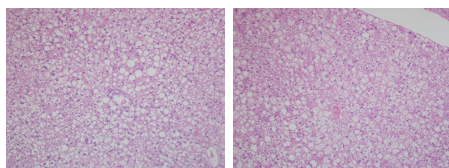
**Distribution:** diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622

###### Definitive Diagnosis:

hepatic steatosis

###### Histopathology Comments:

Marked macrovesicular lipidosis is seen in the liver in this line; this feature may have significance in relation to the metabolic phenotypes observed



Liver,  
macrovesicular  
lipidosis, 20x. HE

Liver, WT,  
microvesicular  
lipidosis, 20x. HE

##### thymus (MA:0000142)

###### Histopath Description:

There are two 50 um diameter epithelial cysts.

###### Morphological Diagnosis:

**Distribution:** multifocal; **MPATH Diagnosis:** cyst MPATH:62

###### Definitive Diagnosis:

Epithelial cyst

###### Histopathology Comments:

This is a developmental abnormality commonly seen in mice.

##### salivary gland (MA:0000346)

###### Histopath Description:

There are multifocal perivascular mononuclear inflammatory cell aggregates.

###### Morphological Diagnosis:

**Distribution:** multifocal; **Severity:** mild;

###### Definitive Diagnosis:

Interstitial inflammatory aggregates

#### Organ/Tissue Analyzed:

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine

pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, uterus, oviduct, and ovary, and mammary gland.

### AnimalID: M00933217 (Female)

#### Histopathology Findings:

##### lymph node (MA:0000139)

###### Histopath Description:

The mesenteric lymph node is markedly enlarged (greater than four fold). The medulla is particularly expanded by chords and sheets of plasmotoid cells. There are prominent germinal centers within the medulla

###### Morphological Diagnosis:

**Distribution:** Diffuse; **Severity:** moderate; **MPATH Diagnosis:** hyperplasia MPATH:134

###### Definitive Diagnosis:

Lymphoid hyperplasia

###### Histopathology Comments:

The changes in the mesenteric lymph node are suggestive of draining of a regional inflammatory process. However, such a process was not observed in the tissues examined. Early marginal center lymphoma is suspected.

##### liver (MA:0000358)

###### Histopath Description:

Most hepatocytes contain a large well-defined single rounded vacuole (macrovesicular lipidosis).

###### Morphological Diagnosis:

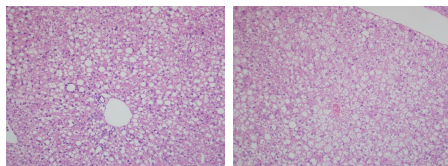
**Distribution:** diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622

###### Definitive Diagnosis:

hepatic steatosis

###### Histopathology Comments:

Marked macrovesicular lipidosis is seen in the liver in this line; this feature may have significance in relation to the metabolic phenotypes observed



Liver,  
macrovesicular  
lipidosis, 20x. HE

Liver, WT,  
microvesicular  
lipidosis, 20x. HE

##### brain (MA:0000168)

###### Histopath Description:

There is mild dilation of the lateral ventricles

###### Morphological Diagnosis:

**Distribution:** bilateral; **Severity:** mild;

###### Definitive Diagnosis:

Dilation of the brain ventricles

###### Histopathology Comments:

Mild dilation of the lateral ventricles is a background condition in mice of C57BL/6N background (Brayton et al., 2004).

##### thymus (MA:0000142)

###### Histopath Description:

There are two 50 um diameter epithelial cysts.

###### Morphological Diagnosis:

**Distribution:** multifocal; **MPATH Diagnosis:** cyst MPATH:62

###### Definitive Diagnosis:

Epithelial cyst

###### Histopathology Comments:

This is a developmental abnormality commonly seen in mice.

**Organ/Tissue Analyzed:**

Histopathology examination included the following organs and tissues: brain, trigeminal ganglion, eyes, salivary glands, trachea, lungs, heart, thymus, thyroid gland, parathyroid gland, exocrine and endocrine pancreas, oesophagus, stomach, small intestine, large intestine, liver, gall bladder, spleen, kidneys, adrenal gland, lymph nodes, spinal cord, bone marrow, sternum, femur and tibia with associated skeletal muscles, brown fat, pinna, skin, uterus, oviduct, and ovary, and mammary gland.

**Report Summary and Recommendation:**

All mice have marked and diffuse hepatic lipidosis consistent with high fat diet. However, the presence of predominantly macrovesicular lipidosis may be significant in light of abnormal lipid profile in this line (increased circulating LDL cholesterol level and increased circulating cholesterol level). Both macrovesicular and microvesicular hepatic steatosis are observed in nutritional disturbances as is the case in high fat diet. Macrovesicular lipidosis is considered to be the result of coalescing of small (micro) lipid vesicles; hence may reflect severity.