



CMHD Pathology Report



CMHD Pathology Core

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ReportID: Report Date: September 18,
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Mouse Genetics Project

Wellcome Trust Sanger
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Hinxton, Cambridge
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CMHD LabID: N13-574

Relevant History:

Phenotype:
MP:0004889 increased energy expenditure
MP:0005289 increased oxygen consumption

AnimalID: M00698954

Histopathology Findings:

brown fat (MA:0000057)

Histopath Description:

Representing less than 10% of the examined brown fat, there are areas focal to multifocal clusters of plump cells with basophilic cytoplasm and plump spindloid nucleus (interpreted as preadiposites) and small adipocytes with basophilic microvesiculated cytoplasm and central basophilic round nucleus (interpreted as young adipocytes). There are rare lymphocyte-like cells associated with these foci (it was not possible to determine with certainty if these represented degenerating adipocytes or inflammatory cells).

Morphological Diagnosis:

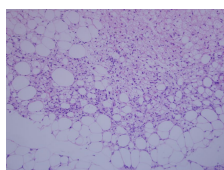
Distribution: multifocal; **Severity:** mild;

Definitive Diagnosis:

Multifocal adipogenesis and lipogenesis

Histopathology Comments:

These focal changes are occasionally seen in mice usually associated with mild inflammation (usually described as proliferative steatitis). The inflammatory component is very minimal in this case. We are not certain if the lesion represents a post inflammatory regeneration or a primary impairment of lipogenesis or blocked adipogenesis (differentiation of preadipocytes to adipocytes). Note that three mice in this line have various degrees of this lesion in either the brown or white fat (see summary)



Brown fat,
hyperplasia, 20x,
HE

liver (MA:0000358)

Histopath Description:

diffuse lipidosis

Morphological Diagnosis:

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

Definitive Diagnosis:

hepatic steatosis

eye (MA:0000261)**Histopath Description:**

Involving one eye, there are clusters of external nuclear structures within the internal plexiform layer.

Morphological Diagnosis:

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

Definitive Diagnosis:

Retinal dysplasia

AnimalID: M00848244**Histopathology Findings:****brown fat (MA:0000057)****Histopath Description:**

Representing less than 20% of the examined brown fat, there are areas focal to multifocal clusters of plump cells with basophilic cytoplasm and plump spindloid nucleus (interpreted as preadiposites) and small adipocytes with basophilic microvesiculated cytoplasm and central basophilic round nucleus (interpreted as young adipocytes). Moderate numbers of lymphocytes and macrophages are present within the interstitium. There is mild hemorrhage in the interstitium.

Morphological Diagnosis:

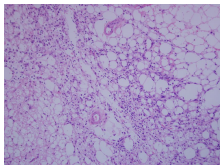
Distribution: multifocal; **Severity:** mild;

Definitive Diagnosis:

Steatitis with regenerative hyperplasia

Histopathology Comments:

These focal changes are occasionally seen in mice usually associated with mild inflammation (usually described as proliferative steatitis). The inflammatory component is very minimal in this case. We are not certain if the lesion represents a post inflammatory regeneration or a primary impairment of lipogenesis or blocked adipogenesis (differentiation of preadipocytes to adipocytes). Note that three mice in this line have various degrees of this lesion in either the brown or white fat (see summary)



Brown fat, Steatitis with regenerative hyperplasia, 20x, HE

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

moderate lipidosis

Morphological Diagnosis:

Distribution: multifocal to coalescing; **Severity:** moderate; **MPATH Diagnosis:** steatosis
MPATH:622

Definitive Diagnosis:

hepatic steatosis

brain (MA:0000168)**Histopath Description:**

There is mild dilation of the lateral ventricles

Morphological Diagnosis:

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

Definitive Diagnosis:

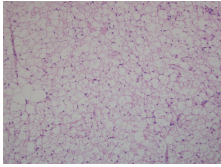
Dilation of the brain ventricles

Histopathology Comments:

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

AnimalID: M00668506**Histopathology Findings:****brown fat (MA:0000057)****Histopath Description:**

normal

Brown fat, normal,
20x, HE**brain (MA:0000168)****Histopath Description:**

There is mild dilation of the the cerebral aqueduct

Morphological Diagnosis:**Distribution:** bilateral; **Severity:** mild;**Definitive Diagnosis:**

Dilation of the brain ventricles

Histopathology Comments:

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

eye (MA:0000261)**Histopath Description:**

Involving one eye, there are clusters of external nuclear structures within the internal plexiform layer.

Morphological Diagnosis:**Distribution:** multifocal; **Severity:** mild;**Definitive Diagnosis:**

Retinal dysplasia

thymus (MA:0000142)**Histopath Description:**

There is a 50 um diameter epithelial cyst within the medulla.

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

Epithelial cyst

Histopathology Comments:

This is a developmental abnormality commonly seen in mice.

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

diffuse lipidosi

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

hepatic steatosis

AnimalID: M00805352**Histopathology Findings:**

brown fat (MA:000057)**Histopath Description:**

Representing less than 10% of the examined brown fat, there are areas focal to multifocal clusters of plump cells with basophilic cytoplasm and plump spindloid nucleus (interpreted as preadipocytes) and small adipocytes with basophilic microvesiculated cytoplasm and central basophilic round nucleus (interpreted as young adipocytes). There are rare lymphocytes and macrophages in these foci (it was not possible to determine with certainty if these represented degenerating adipocytes or inflammatory cells).

Morphological Diagnosis:

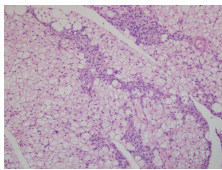
Distribution: multifocal; **Severity:** mild;

Definitive Diagnosis:

Multifocal adipogenesis and lipogenesis with mild inflammation

Histopathology Comments:

These focal changes are occasionally seen in mice usually associated with mild inflammation (usually described as proliferative steatitis). The inflammatory component is very minimal in this case. We are not certain if the lesion represents a post inflammatory regeneration or a primary impairment of lipogenesis or blocked adipogenesis (differentiation of preadipocytes to adipocytes). Note that three mice in this line have various degrees of this lesion in either the brown or white fat (see summary)



Brown fat,
hyperplasia, 20x,
HE

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

diffuse lipidosis

Morphological Diagnosis:

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

Definitive Diagnosis:

hepatic steatosis

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).

lymph node (MA:0000139)**Histopath Description:**

early lymphoma

Morphological Diagnosis:

MPATH Diagnosis: lymphoid neoplasms MPATH:513

Definitive Diagnosis:

Early lymphoma

Report Summary and Recommendation:

Three mice in this line showed brown adipose tissue hyperplasia with adipogenesis and lipogenesis associated with mild inflammation. These lesions may represent regeneration following traumatic injury to the subcutaneous fat (likely from bite wounds). However, the lesions may have relevance in view of the metabolic phenotypes observed in this line. Other lesions are incidental or attributable to diet or strain

background.

Summary: Brown fat: Multifocal brown fat hyperplasia (adipogenesis and lipogenesis) with mild inflammation (3/4)