



CMHD Pathology Report



CMHD Pathology Core

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Mouse Genetics Project

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CMHD LabID: N13-702

Relevant History:

Phenotypes:

Heterozygote- decreased leukocyte cell number
Homozygous - partial lethality (P14)

AnimalID: M00842298 (Male)

Histopathology Findings:

stomach (MA:0000353)

Histopath Description:

moderate neutrophilic gastritis; there is also mild epithelial proteinosis

Morphological Diagnosis:

Distribution: multifocal; **Severity:** moderate; **MPATH Process Term:** inflammation MPATH:212

Definitive Diagnosis:

Moderate neutrophilic gastritis with epithelial proteinosis

retina (MA:0000276)

Histopath Description:

There are multifocal retinal folds involving the outer nuclear layer

Morphological Diagnosis:

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

Definitive Diagnosis:

Retinal folding (dysplasia)

liver (MA:0000358)

Histopath Description:

diffuse lipidosis

Morphological Diagnosis:

Distribution: diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622; **MPATH Process Term:** lipid deposition MPATH:42

Definitive Diagnosis:

hepatic steatosis

brain (MA:0000168)

Histopath Description:

There is mild dilation of the lateral ventricles

Morphological Diagnosis:

Distribution: bilateral; **Severity:** mild; **MPATH Process Term:** degenerative change MPATH:14

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:**

Overall, the mesenteric lymph node is distinctly basophilic. Its architecture is disrupted by diffuse sheets of monotypic round cells that distended the subcapsular, medullary and occasional transverse sinuses. The cells have scant or no visible cytoplasm, round nuclei with stippled chromatin and a central distinct nucleolus (interpreted as lymphocytes). Rare apoptotic bodies and mitotic figures are present within occasional germinal centers.

Morphological Diagnosis:

MPATH Diagnosis: lymphoid neoplasms MPATH:513; **MPATH Process Term:** neoplasia MPATH:218

Definitive Diagnosis:

Lymphoma

Histopathology Comments:

The presence of diffuse sheets of monomorphic lymphocytes within the sinuses is suggestive of lymphoma. Note all mice in this line have mesenteric lymphoma.

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

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

Morphological Diagnosis:

Distribution: focal; **MPATH Diagnosis:** cyst MPATH:62; **MPATH Process Term:** developmental and structural abnormality MPATH:55

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, testis, epididymis, seminal vesicle, and prostate.

AnimalID: M00842293 (Male)**Histopathology Findings:****retina (MA:0000276)****Histopath Description:**

There are multifocal retinal folds involving the outer nuclear layer

Morphological Diagnosis:

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

Definitive Diagnosis:

Retinal folding (dysplasia)

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

diffuse lipodosis

Morphological Diagnosis:

Distribution: diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622; **MPATH Process Term:** lipid deposition MPATH:42

Definitive Diagnosis:

hepatic steatosis

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;
MPATH Process Term: 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.

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: M00842301 (Female)

Histopathology Findings:

retina (MA:0000276)

Histopath Description:

There is a focal retinal fold involving the outer nuclear layer

Morphological Diagnosis:

Distribution: focal; **Severity:** mild;

Definitive Diagnosis:

Retinal folding (dysplasia)

liver (MA:0000358)

Histopath Description:

diffuse lipidosis

Morphological Diagnosis:

Distribution: diffuse; **Severity:** extreme; **MPATH Diagnosis:** steatosis MPATH:622; **MPATH Process Term:** lipid deposition MPATH:42

Definitive Diagnosis:

hepatic steatosis

spleen (MA:0000141)

Histopath Description:

mild erythropoiesis

Morphological Diagnosis:

Distribution: multifocal to coalescing; **Severity:** moderate; **MPATH Diagnosis:** extramedullary hemopoiesis MPATH:595; **MPATH Process Term:** hyperplasia MPATH:134

Definitive Diagnosis:

mild erythropoiesis

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;
MPATH Process Term: 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.

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: M00842291 (Female)

Histopathology Findings:

retina (MA:0000276)

Histopath Description:

There is a focal retinal fold involving the outer nuclear layer

Morphological Diagnosis:

Distribution: focal; **Severity:** mild;

Definitive Diagnosis:

Retinal folding (dysplasia)

liver (MA:0000358)

Histopath Description:

moderate ipidosis

Morphological Diagnosis:

Distribution: multifocal to coalescing; **Severity:** moderate; **MPATH Diagnosis:** steatosis MPATH:622; **MPATH Process Term:** lipid deposition MPATH:42

Definitive Diagnosis:

hepatic steatosis

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 promient germinal centers within the medulla

Morphological Diagnosis:

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Lymphoid hyperplasia

Histopathology Comments:

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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:

Retinal dysplasia is observed in all mice. This retinal lesion is consistent with those reported as a background lesion in C57BL/6N lines (Mattapallil et al., 2012). However the presence of this lesion in all mice in this line may be significant considering the role of this gene in the regulation of proliferation and differentiation of retina (Close et al., 2006; Lillien et al., 1988). There are no lesions to explain the decreased leukocyte cell number documented in this line. In contrast, lymphoid proliferative changes are observed in the mesenteric lymph node. hyperplasia or lymphoma is observed in this line. There are no lesions predictive of partial lethality in homozygotes. Analysis of preweaning homozygotes is required to determine cause of mortality.

Line summary:

Mesenteric lymph node: Hyperplasia (3/4); lymphoma (1/4)

Eye: Retina, Retinal dysplasia (4/4)

References:

Close JL, Liu J, Gumuscu B, Reh TA. Glia. 2006. Epidermal growth factor receptor expression regulates proliferation in the postnatal rat retina. 54:94-104 Lillien L, Wancio D. (1988). Changes in epidermal growth factor receptor expression and competence to generate glia regulate timing and choice of differentiation in the retina. Mol Cell Neurosci. (5-6):296-308.