CMHD Pathology Report

CMHD Pathology Core
Toronto Centre for Phenogenomics
25 Orde St. 3rd fl.
Toronto, Ont. M5T 3H7
Tel.(416) 586-8375
Fax (416) 586-5993

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

contact: Dr. Susan Newbigging
email: newbigging@lunenfeld.ca

ReportID: Report Date: April 02, 2013
Pathologist: H. Adissu

CMHD LabID: N13-239

Relevant History:
increased circulating alkaline phosphatase level
increased energy expenditure
increased oxygen consumption
increased carbon dioxide production

AnimalID: M00198182

Histopathology Findings:

liver (MA:0000358)

Histopath Description:
moderate lipidosis

Morphological Diagnosis:
Distribution: multifocal; **Severity:** moderate; **MPATH Diagnosis:** steatosis MPATH:622

Definitive Diagnosis:
Moderate lipidosis

spleen (MA:0000141)

Histopath Description:
mild erythroid hyperplasia

Morphological Diagnosis:
Distribution: multifocal; **Severity:** mild; **MPATH Diagnosis:** extramedullary hemopoiesis MPATH:595

Definitive Diagnosis:
Splenic erythroid hyperplasia

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

knee (MA:0000046)

Histopath Description:
The overall subgross anatomical organization of the femur, tibia, and the knee joint are within normal limits. Histologically, there is focal fraying (fibrillation) and mild erosion of the superficial (gliding) zone of the anterior margin of the femoral articular cartilage

Morphological Diagnosis:
Duration: chronic; **Distribution:** focally extensive; **Severity:** mild; **MPATH Diagnosis:** degenerative change MPATH:14

Definitive Diagnosis:
Mild fibrillation of the superficial zone of femoral articular cartilage - consistent with low grade degenerative joint disease (DJD)

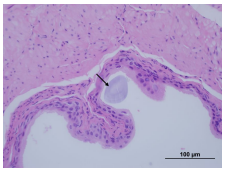
Histopathology Comments:
The histological changes within the superficial articular cartilage are indicative of early and very mild DJD. The lesions are likely age-associated. DJD occurs in all inbred strains of mice as part of the aging process.

urinary bladder (MA:0000380)

Histopath Description:
There is a 100 um oval homogenous lightly basophilic material within the lumen in contact with surface epithelium

Morphological Diagnosis:
Distribution: focal; **Severity:** mild;

Definitive Diagnosis:
Cystolithiasis



Urinary bladder, urolith

AnimalID: M00202503

Histopathology Findings:

liver (MA:0000358)

Histopath Description:
Diffuse lipidosis

Morphological Diagnosis:
Distribution: diffuse; **Severity:** severe; **MPATH Diagnosis:** steatosis MPATH:622

Definitive Diagnosis:
Diffuse hepatic steatosis

adrenal gland (MA:0000116)

Histopath Description:
There is a small, well-circumscribed mass in the cortex. It is encapsulated by a thin layer of pale eosinophlic material and fusiform cells (connective tissue with fibroblasts) and is made of nests of polygonal cells interspersed by a very thin fibrovascular membrane. The architecture is reminisecent of the zona glomerulosa and zona fasciculate of the mature adrenal gland.

Morphological Diagnosis:
Distribution: focal;

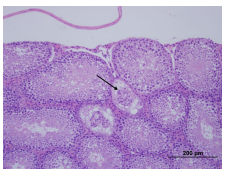
Definitive Diagnosis:
accessory adrenal cortical tissue

testis (MA:0000411)

Histopath Description:
There rare foci of vacuolar degeneration and atrophy of the seminiferous tubule

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

Definitive Diagnosis:
Testicular degeneration and atrophy



Testis, degeneration and atrophy, 20x

AnimalID: M00422815

Histopathology Findings:

liver (MA:0000358)

Histopath Description:
minimal lipidosis

Morphological Diagnosis:
Distribution: multifocal; **Severity:** mild; **MPATH Diagnosis:** steatosis MPATH:622

Definitive Diagnosis:
minimal lipidos

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

lymph node (MA:0000139)

Histopath Description:
The mesenteric lymph node is enlarged (greater than three-fold). There are multiple follicles with large germinal centers. The sinuses contain large numbers of mature lymphocytes.

Morphological Diagnosis:
Duration: Sub-acute; **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.

retina (MA:0000276)

Histopath Description:
There is a focally extensive folding of the retina at the optic nerve.

Morphological Diagnosis:
Distribution: Focal; **Severity:** mild;

Definitive Diagnosis:
Retinal folding (dysplasia)

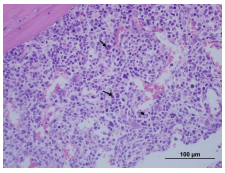
bone marrow (MA:0000134)

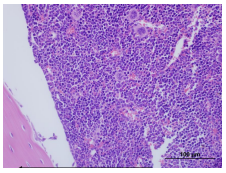
Histopath Description:
The marrow cellularity is reduced (70-80%). Numerous poorly differentiated blastic cells are present within the marrow. Cells are round to oblong and have eosinophilic cytoplasm and large nucleus. Mitosis is numerous (average 6/high power field (400x). Apoptotic cells are also frequently seen. Granulopoietic myeloid precursors with band neucleus and hypereosinophilic cytoplasma are frequently observed. Maturing granulocytic and erythroid cells are markedly decreased. Megakaryocytes are also rare and many of them are nearly half the normal size with hypolobulated nucleus (micromegakaryocytes). The stroma is increased and marrow stomal or hemoreticular cells are prominently seen.

Morphological Diagnosis:
Distribution: diffuse; **Severity:** severe; **MPATH Diagnosis:** myelodysplastic disorder MPATH:341

Definitive Diagnosis:
Myelodysplasia with trilinieage hypoplasia

Histopathology Comments:
The presence of blastic cell population, apoptosis, increased stroma, trilineage hematopoietic hypoplasia, dysplastic granulopoietic cells, micromegakaryocytes and compensatory splenic hematopoiesis are suggestive of myelodysplasitc disorder. The blast population is low to consider leukemia.


Bone marrow, myelodysplasia, 40x


Bone marrow, normal, 40x

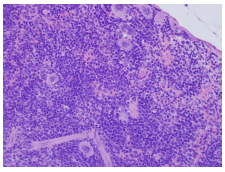
spleen (MA:0000141)

Histopath Description:
Marked erythropoiesis and moderate granulopoiesis and megakaryopoiesis

Morphological Diagnosis:
Distribution: multifocal to coalescing; **Severity:** moderate; **MPATH Diagnosis:** extramedullary hemopoiesis MPATH:595

Definitive Diagnosis:
Marked erythropoiesis and moderate granulopoiesis and megakaryopoiesis

Histopathology Comments:
Compensatory extramedullary hematopoiesis is a common feature of myelodysplastic disorders


Spleen, extramedullary hematopoiesis, note marked erythropoiesis and clusters of megakaryocytes, 40x

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AnimalID: M00202507

Histopathology Findings:

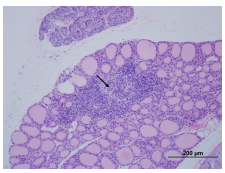
thyroid gland (MA:0000129)

Histopath Description:
Unilaterally, nearly 1/6th of the thyroid gland gland is replaced by predominantly lymphocytic inflammatory infiltrate.

Morphological Diagnosis:
Distribution: Unilateral; **Severity:** mild; **MPATH Diagnosis:** inflammation MPATH:212

Definitive Diagnosis:
Thyroiditis, lymphocytic, mild.

Histopathology Comments:
Thyroiditis is commonly seen in some strains of aging mice (such as B6;129); females are markedly overrepresented.


Thyroid, inflammation, 20x

liver (MA:0000358)

Histopath Description:
minimal lipidosis

Morphological Diagnosis:
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Definitive Diagnosis:
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Definitive Diagnosis:
Interstitial inflammatory aggregates

Report Summary and Recommendation:
Myelodysplastic disorder is a rare condition in young mouse. Immunohistochemistry is required to establish cell lineage with cetainity. Urinary caliculi are rarely seen in B6 mice. Its presence/absence in the other mice could not be confirmed since calculi could be washed out during tissue processing. Increased alkaline phosphatase activity has been associated with calcium nephrolithiasis in human patients (Arrabal-Polo et al., 2012). The thyroid inflammation is focally extensive and its significance in presence of abundant and normal glandular structures is uncertain. We did not find histological correlates to the metabolic phenotypes in this line. Other lesions are considered incidental and attributable to diet or strain background.

References:
Arrabal-Polo MA, et al. (2012). Biochemical determinants of severe lithogenic activity in patients with idiopathic calcium nephrolithiasis.Urology. 79(1):48-54.