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Protocol status: Working

Hematoxylin and eosin staining of murine adipose and liver tissues

PLOS One

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ABSTRACT

Diet-induced obesity through administration of a western-type diet high in fat and sugar to mice can result in a higher weight of adipose and liver tissues. The increased adipose tissue weight can be due to hypertrophy (bigger cells) or hyperplasia (more cells) of adipocytes, or a combination of both. Hematoxylin and eosin (H&E) staining of adipose tissue sections allows you to investigate the size of the individual adipocytes. A western-type diet can induce accumulation of fat (= steatosis) in the liver, which is nicely illustrated by an H&E stain.

GUIDELINES

-Make sure during the hydration (step 1-5) and dehydration (10-14) steps that you allow most of each solution to drip off, before you transfer your slides into the next solution. This is to prevent contamination of the following solutions. This is especially critical in the dehydration steps as otherwise too much water is transferred to the jars containing xylene and too many water droplets will have entered your mounted slides.

MATERIALS

STEP MATERIALS

⊗ DPX Merck Millipore (EMD Millipore) Catalog #1.00579.0500

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Created: Oct 11, 2017

SAFETY WARNINGS

Last Modified: Mar 19, 2018

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Keywords: diet-induced
obesity, liver, fat, H&E staining

-The hydration and rehydration steps and the mounting of the slides are done in a fume hood due to xylene. Exposure to xylene can occur via inhalation, eyes, ingestion or skin contact. Xylene causes health effects from both acute (<14 days) and chronic (>365 days) exposure. In addition, the health effect will be different depending on the amount a person has been exposed to. Therefore, to avoid exposure to xylene via the skin, special xylene-resistant gloves are worn during xylene handling.

BEFORE START INSTRUCTIONS

-Filter hemalun solution using a round Whatmann paper when the solution is covered with a film.

- 1 5 min xylene x 2
- 2 3 min 100% ethanol x 2
- 3 3 min 70% ethanol
- 4 3 min 50% ethanol
- 5 3 min denatured water (AD)
- 6 2.5 min hemalun

- 7** 10 min TAP (running water)
- 8** 10 sec eosin
- 9** Rinse twice in AD (not long)
- 10** Up and down 50% ethanol (3x)
- 11** Up and down 70% ethanol (3x)
- 12** Up and down 100% ethanol (3x)
- 13** 3 min 100% ethano (2x)
- 14** 5 min xylene x 2

15 Mount coverslip with DPX

DPX Merck Millipore (EMD Millipore) Catalog #1.00579.0500