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Sirius Red staining of murine tissues

PLOS One

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ABSTRACT

Sirius Red staining is a usefull staining to study collagen distribution. In adipose tissue development during obesity the extracellular matrix is being remodeled and this can be analyzed using Sirius Red staining. In addition, fibrosis in livers from mice suffering from non-alcoholic steatohepatitis can be identified using this staining. Moreover, scar formation after the induction of a myocardial infarct can be illustrated using the Sirius Red staining.

GUIDELINES

To weigh off Picric acid, the entire bottle is weighed before and after some Picric acid is transfered to another recipient.

MATERIALS

STEP MATERIALS

Picric acid Merck MilliporeSigma (Sigma-Aldrich) Catalog #197378
Direct-Red 80 Merck MilliporeSigma (Sigma-Aldrich) Catalog #365548
DPX Merck Millipore (EMD Millipore) Catalog #1.00579.0500
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red, extracellular matrix,
fibrosis

-Due to its explosive characteristics Picric acid is delivered as a solution (powder moistened with water) and is kept within a locked separate ventilated cabinet.

-Waste is collected in a separate dedicated waste container.

-Due to toxicity of xylene, steps 1-5 and steps 10-13 are performed in a fume hood and xylene is handled with xylene-resistant gloves.

- 1 5 min xylene x 2
- 2 3 min 100% ethanol x 2
- 3 3 min 70% ethanol x 1
- 4 3 min 50% ethanol x 1
- 5 3 min denatured water (AD)
- 6 10 min TAP water (running water)
- 7 5 min AD

- 8 90 min Sirius Red solution
- * 8g Picric acid in 200 ml AD (= 4% saturated solution)
 - * Stirr 30 min
 - * Filter
 - * Add 0.2g Direct-Red
 - * Stirr
 - * Filter

Picric acid Merck MilliporeSigma (Sigma-Aldrich) Catalog
#197378

Direct-Red 80 Merck MilliporeSigma (Sigma-Aldrich) Catalog
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- 9 2 min HCl 0.01N (1,015x dilution: 1.97 ml saturated HCl + 2,000 ml AD)

- 10 45 sec 70% ethanol

- 11 5 min 100% ethanol x 2

- 12 5 min xylene x 2

- 13 Mount coverslip with DPX

DPX Merck Millipore (EMD Millipore) Catalog
#1.00579.0500