Plasma Chemistry JAX_PLC_001

Purpose

Clinical chemistry determines biochemical parameters in plasma including enzymatic activity, specific substrates and electrolytes.

Ontological description: MP:0001545 – blood physiology abnormalities.

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 13
- **Sex:** We would expect the results of this test to show sexual dimorphism

Equipment

1. Clinical chemistry analyser
2. Refrigerated centrifuge
3. Eppendorf tubes
4. Pipettes (200-1000 ul)

Procedure

Set up the clinical chemistry analyser and perform QC analyses of the control reagents in accordance with the equipment guidelines.

Sample collection and preparation:

a. Collect the appropriate volume of blood required (160-200l of plasma), for the clinical chemistry analyser being used for assessment, in a BD Microtainer tube containing Lithium Heparin with the relevant blood collection procedure (see IMPC protocol Blood collection by retro-orbital puncture). Time of day for collection is in the morning, starting no earlier than 07:30.
b. Keep whole blood samples on ice until centrifugation. If plasma samples cannot be analysed immediately, keep them in the fridge until analysis.
c. Analysis of samples is optimally done on the day of collection. When not possible the plasma samples can be stored at 2-8°C. If samples require storage for > 48 hours, freeze plasma at -20 °C in single aliquots. All samples are allowed to come to room temperature prior to analysis.
d. Use plasma samples undiluted or diluted to a ratio of 1:2 with deionised water if the volume is insufficient.

e. briefly centrifuge them at ~5000 x g for 10 minutes. If necessary, remove fibrin clots using a wooden applicator.

Notes

Blood collection for Clinical Chemistry and Hematology is performed as a fasting (after 4 hours) procedure, with some mice being used for subsequent gross pathology and other clinic-specific parameters included in terminal assessments.

Dilution. Dilution of blood is highly discouraged, but is allowed when the total necessary amount is not obtained. If dilution is necessary then the assays should be done in one run.

1. Plasma samples must be free of Fibrin clots in order to be analysed.
2. Each morning, all parameters are tested with control sera (see ESLIM_015_001_Annex_3: Controls for biochemistry on AU400). Some parameters are tested with control serum level 1 (Beckman Coulter System Reagent, ODC0003) and control serum level 2 (Beckman Coulter System Reagent, ODC0004), which consists of lyophilised human plasma with a normal and a pathological concentration. Other parameters are tested with specific controls from other suppliers.
3. Controls are thawed and vortexed before utilisation and loaded according to the analyser's display. Control values must lie within the acceptable range indicated by the manufacturer, otherwise the specific tests must be recalibrated and specific measurements repeated. Controls can be stored in 200l aliquots at -20°C for up to 1 week.

Parameters and Metadata

Total cholesterol JAX_PLC_001_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: mg/dl

HDL cholesterol JAX_PLC_002_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: mg/dl

Triglycerides JAX_PLC_003_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: mg/dl

Glucose JAX_PLC_004_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: mg/dl

Free fatty acids JAX_PLC_005_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** true **Is Annotated:** true

Unit Measured: mmol/l

Equipment ID JAX_PLC_006_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Beckman chemistry analyzer,

Equipment manufacturer JAX_PLC_007_001 | v1.1

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Beckman Coulter,

Equipment model JAX_PLC_008_001 | v1.1

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: AU 680, UniCel 600 Pro,

Anesthesia used for blood collection JAX_PLC_009_001 | v1.1

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

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Method of blood collection JAX_PLC_010_001 | v1.1

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

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Anticoagulant JAX_PLC_011_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Fasting prior to experiment JAX_PLC_012_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Yes, No,

Moved from cage for fasting JAX_PLC_013_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Yes, No,

Approximate period for fasting JAX_PLC_014_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Unit Measured: Hours

Samples kept on ice between collection and analysis JAX_PLC_015_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Yes, No,

Sample status JAX_PLC_016_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

Options: Fresh, Frozen,

Plasma dilution JAX_PLC_017_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

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ID of blood collection SOP JAX_PLC_018_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** true **Is Annotated:** false

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Date and time of blood collection JAX_PLC_019_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Hemolysis status JAX_PLC_020_001 | v1.1

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

Options: Slight, Moderate, Marked,

Blood analysis experimenter ID JAX_PLC_021_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** true **Is Annotated:** false

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Blood collection tubes JAX_PLC_022_001 | v1.0

procedureMetadata

Req. Analysis: false **Req. Upload:** false **Is Annotated:** false

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