Insulin Blood Level IMPC_INS_003

Purpose

The insulin concentration in the blood is an important indicator of diabetes.

Ontological description: abnormal circulating insulin level [MP:0001560]; increased circulating insulin level [MP:0002079]; decreased circulating insulin level [MP:0002727].

Experimental Design

- **Minimum number of animals :** 7M + 7F
- **Age at test:** Week 16
- **Sex:** We would expect the results of this test to show sexual dimorphism

Equipment

1. ELISA plate reader / MSD Sector Imager
2. Vortex
3. Refrigerated centrifuge
4. Eppendorf tubes
5. Calibrated Pipettes

Procedure

1. Blood is collected by the relevant blood collection procedure (see IMPC protocol "Blood collection by retro-orbital puncture"). Blood is collected in lithium heparin tubes and the samples are kept on ice for a maximum of 2 hours prior to isolation of the plasma.
2. Blood samples are centrifuged at 5,000 x g for 10 minutes at 8ºC and the plasma removed and aliquoted for analysis or for freezing (-70ºC).
3. Plasma samples are subsequently defrosted and the required amount of sample is used to perform the analysis (e.g. by ELISA or MSD).

Notes

Blood collection for Insulin Blood Level is performed as a non-fasting, terminal procedure.

The information about the date of the experiment, that is the date when the measurement is performed, is an important parameter which is to be submitted in the Experiment xml file (dateOfExperiment="2013-02-28").

Data QC

1. Plasma samples must be free of Fibrin clots in order to be analysed.
2. Badly hemolysed samples should not be included in the analysis.

Example Metadata

Metadata	Example	Required for data upload	Required for data analysis
Type of kit	The kit used for analysing the blood samples. E.g. Mouse Insulin kit	YES	NO
Kit manufacturer	Manufacturer of the kit. E.g. MORINAGA (Yokohama, Japan)	YES	NO
Kit lot number		YES	NO
Equipment ID	ID of the machine used when more than 1 is used having same model and manufacturer. E.g. machine 1, machine 2, machine Minnie, machine Mickey Mouse, etc.	YES	NO
Equipment manufacturer	Manufacturer of the equipment. E.g. Thermo scientific.	YES	YES
Equipment model	Model of the equipment. E.g. Multiskan JX.	YES	YES
Blood collection tubes	The tubes used for blood collection. E.g. Sarstedt Li-Heparin gel tubes or Kabe Labortechnik Lithium heparin coated tubes.	NO	YES
Anesthesia used for blood collection	The anesthetic used during blood collection. E. g. Isofluorane.	YES	YES
Method of blood collection	Concise description of the method used for blood collection. E.g. retro-orbital puncture.	YES	YES

Anticoagulant	Anticoagulant used for blood collection. E.g. Li-Heparin.	YES	YES
Date and time of blood collection	Time of day for collection is in the morning, starting no earlier than 07: 30. E.g. Year, month, day, time.	YES	YES
Date of measurement	The day of blood analysis. Year, month, day.	YES	YES
Sample status	Indicate if the sample were frozen (analysis on the same day of collection not possible) or fresh (analysis on the same day of collection). E.g. Fresh/Frozen.	YES	YES
Samples kept on ice between collection and analysis	Yes/No.	YES	YES
Plasma dilution	Dilution is highly discouraged but if necessary indicate here. E.g. "No dilution" or 1:2. Note that results submitted to DCC are assumed to be already corrected for any dilutions made.	YES	YES
Replicates	Please specify whether samples were measured once, in duplicate or in triplicate. E.g. 1 or 2 or 3.	YES	NO
ID of blood collection SOP	ID of the protocol followed for blood collection. Can be a centre specific protocol. E.g. ESLIM_024_001.	YES	YES
Hemolysis status	The gauged degree of hemolysis. E. g. slight/moderate/marked.	NO	YES
	An ID of any format to be used coherently both inside the same		

Blood collection experimenter ID	procedure and for all procedures indicating the experimenter who collected the blood. E.g. Harw_001, or 1/2/3.	YES	NO
Blood analysis experimenter ID	An ID of any format to be used coherently both inside the same procedure and for all procedures indicating the experimenter who analyzed the blood. E.g. Harw_001, or 1/2/3.	YES	NO
Date equipment last calibrated	Most recent date in which the equipment (or any part of) used in the procedure was subject to a calibration event.	NO	NO

Parameters and Metadata

Insulin IMPC_INS_001_001 | v1.3

simpleParameter

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

Unit Measured: pg/ml

Description: insulin

Type of kit IMPC_INS_002_001 | v1.0

procedureMetadata

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

Description: type_of_kit

Options: Mouse Insulin kit, K152BZC, Ultrasensitive Mouse Insulin ELISA, MSD PANEL2, MSD PANEL3,

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Kit manufacturer IMPC_INS_003_001 | v1.0

procedureMetadata

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

Description: kit_manufacturer

Options: MORINAGA (Yokohama, Japan), Meso Scale Discovery, Mercodia, MSD HMGU Custom,

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Kit lot number IMPC_INS_004_001 | v1.0

procedureMetadata

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

Description: kit_lot_number

Equipment ID IMPC_INS_005_001 | v1.0

procedureMetadata

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

Description: equipment_id

Equipment manufacturer IMPC_INS_006_001 | v1.0

procedureMetadata

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

Description: equipment_manufacturer

Options: Thermo scientific, Meso Scale Discovery, Tecan,

Equipment model IMPC_INS_007_001 | v1.0

procedureMetadata

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

Description: equipment_model

Options: Multiskan JX, SECTOR Imager 2400, SECTOR Imager 6000, Genios Pro, MESO QuickPlex SQ 120,

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Blood collection tubes IMPC_INS_008_001 | v1.1

procedureMetadata

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

Description: blood_collection_tubes

Options: Sarstedt Li-Heparin gel tubes, Kabe Labortechnik Lithium heparin coated tubes, BD Microtainer silicone and micronized silica coated serum separator tubes,

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Anesthesia used for blood collection IMPC_INS_009_001 | v1.0

procedureMetadata

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

Description: anesthesia_used_for_blood_collection

Options: Isofluorane, None,
Injection narcosis with Ketamine (100mg/kg)/Xylazine (10mg/kg),
Injection narcosis with Tribromoethanol (Avertin),
Injection narcosis with Ketamine (137mg/kg)/Xylazine (6.6mg/kg),

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Method of blood collection IMPC_INS_010_001 | v1.0

procedureMetadata

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

Description: method_of_blood_collection

Options: Retro-orbital puncture, Cardiac puncture,

Anticoagulant IMPC_INS_011_001 | v1.1

procedureMetadata

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

Description: anticoagulant

Options: Li-Heparin, No,

Date and time of blood collection IMPC_INS_012_001 | v1.3

procedureMetadata

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

Description: date_and_time_of_blood_collection

Sample status IMPC_INS_014_001 | v1.1

procedureMetadata

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

Description: sample_status

Options: Fresh, Frozen,

Samples kept on ice between collection and analysis IMPC_INS_015_001 | v1.0

procedureMetadata

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

Description: samples_kept_on_ice_between_collection_and_analysis

Options: Yes, No,

Sample dilution IMPC_INS_016_001 | v1.2

procedureMetadata

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

Description: sample_dilution

Options: Neat plasma, 1:2, Neat serum,

Replicates IMPC_INS_017_001 | v1.0

procedureMetadata

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

Description: replicates

Options: 1, 2, 3,

ID of blood collection SOP IMPC_INS_018_001 | v1.1

procedureMetadata

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

Description: id_of_blood_collection_sop

Options: ESLIM_024_001, PHENO_CBC, sop.inv.019,

Hemolysis status IMPC_INS_019_001 | v1.1

procedureMetadata

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

Description: hemolysis_status

Options: Slight, Moderate, Marked,

Blood collection experimenter ID IMPC_INS_020_001 | v1.0

procedureMetadata

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

Description: blood_collection_experimenter_id

Blood analysis experimenter ID IMPC_INS_021_001 | v1.0

procedureMetadata

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

Description: blood_analysis_experimenter_id

Date equipment last calibrated IMPC_INS_022_001 | v1.1

procedureMetadata

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

Description: date_equipment_last_calibrated

Sample type IMPC_INS_023_001 | v1.0

procedureMetadata

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

Options: Serum, Plasma,