Insulin Blood Level HMGULA_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 80
- **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

Blood collection experimenter ID HMGULA_INS_020_001 | v1.0

procedureMetadata

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

---

ID of blood collection SOP HMGULA_INS_018_001 | v1.1

procedureMetadata

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

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

Sample dilution HMGULA_INS_016_001 | v1.2

procedureMetadata

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

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

Method of blood collection HMGULA_INS_010_001 | v1.0

procedureMetadata

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

Options: Retro-orbital puncture, Cardiac puncture,

Replicates HMGULA_INS_017_001 | v1.0

procedureMetadata

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

Options: 1, 3, 2,

Insulin HMGULA_INS_001_001 | v1.3

simpleParameter

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

Unit Measured: pg/ml

Type of kit HMGULA_INS_002_001 | v1.0

procedureMetadata

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

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

---

Equipment ID HMGULA_INS_005_001 | v1.0

procedureMetadata

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

---

Equipment manufacturer HMGULA_INS_006_001 | v1.0

procedureMetadata

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

Options: Thermo scientific, Meso Scale Discovery, Tecan,

Samples kept on ice between collection and analysis HMGULA_INS_015_001 | v1.0

procedureMetadata

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

Options: No, Yes,

Sample status HMGULA_INS_014_001 | v1.1

procedureMetadata

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

Options: Fresh, Frozen,

Date and time of blood collection HMGULA_INS_012_001 | v1.3

procedureMetadata

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

---

Blood analysis experimenter ID HMGULA_INS_021_001 | v1.0

procedureMetadata

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

---

Anesthesia used for blood collection HMGULA_INS_009_001 | v1.0

procedureMetadata

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

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

---

Date equipment last calibrated HMGULA_INS_022_001 | v1.1

procedureMetadata

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

---

Kit manufacturer HMGULA_INS_003_001 | v1.0

procedureMetadata

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

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

---

Equipment model HMGULA_INS_007_001 | v1.0

procedureMetadata

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

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

---

Blood collection tubes HMGULA_INS_008_001 | v1.1

procedureMetadata

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

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

Sample type HMGULA_INS_023_001 | v1.0

procedureMetadata

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

Options: Plasma, Serum,

Anticoagulant HMGULA_INS_011_001 | v1.1

procedureMetadata

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

Options: No, Li-Heparin,

Hemolysis status HMGULA_INS_019_001 | v1.1

procedureMetadata

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

Options: Slight, Moderate, Marked,

Kit lot number HMGULA_INS_004_001 | v1.0

procedureMetadata

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

---