m/rGH-ELISA

Enzyme Immunoassay for the Quantitative Determination of

Mouse and Rat Growth Hormone (m/rGH)

English

for Research Use Only. Not for use in diagnostic procedures.

REF **E023**

2-8°C

96 wells

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	Lot-Batch Number/ Charge-Chargennummer/ Lot-Code du lot/ Lotto-Numero di lotto/ Lote-Código de lote/ Lote-Código do Lote/Lot-Partijnumme/ Lot-Batchkode/ Partisatskod/ Numer serii/ Tétel-sarzs szám/ Číslo šarže/ Číslo šarže/ Партиден номер/Partii number/ Παρτίδα-αριθμός παρτίδας/ Lot-număr lot/ Številka serije/ Erä
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	Store at between/ Lagerung bei zwischen/ Conserver à entre/ Conservare a tra/ Conservar a temp. entre/ Armazenar entre/ Bewaar bij tussen/ Opbevares mellem/ Förvaras vid/ Przechowywać w/ Tárolási tartomány/ Skladujte v rozsahu / Skladujte v rozmezí/ Температурно ограничение/ Säilitada temperatuuridel/ Φύλαξη σε θερμοκρασία/ Depozitare între/ Skladiščenje med/ Säilytys x-y Celsiusasteen lämpötilassa
	Contains sufficient for x tests/ Inhalt ausreichend für x Tests/ Contient suffisant pour x tests/ Contenuto sufficiente per x test/ Contenido suficiente para x pruebas/ Conteúdo suficiente para x testes/ Bevat voldoende voor x bepalingen/ Indeholder tilstrækkeligt til x prøver/ Innehållet räcker till x analyser/ Zawartość na x testów/ Tartalma x teszt elvégzésére elegendő/ Obsahuje materiál pre x testov/ Obsah dostačuje pro x testů/ Съдържание достатъчно за x тестове/ Sisust jätkub x katse jaoks/ Το περιεχόμενο επαρκεί για x δοκιμές/ Conţinut suficient pentru x teste/ Vsebina zadostuje za x preizkusov/ Sisältö riittää x testille
	Keep away from sunlight/ Nicht dem Sonnenlicht aussetzen/ Conserver à l´abri de la lumière/ Conservare al riparo della luce solare/ No exponer a la luz solar/ Proteger da luz solar/ Niet aan zonlicht blootstellen/ Må ikke udsættes for sollys/ Utsätt inte för solljus/ Nie wystawiać na słońce/ Napfénytől távol tartandó/ Nevystavovať slnečnému svetlu/ Nevystavovat sluwnečnímu světlu/ Да се предпазва от слънчева светлина/ Kaitsta otsese päikesekiirguse eest/ Κρατήστε το μακριά από την ηλιακή ακτινοβολία/ Ţineţi departe de lumina soarelui/ Ne izpostavljajte sončni svetlobi/ suojaa auringonvalolta
	Incubation time/ Inkubationszeit/ Temps d'incubation/ Tempo d'incubazione/ Tiempo de incubación/ Tempo de incubação/ incubatietijd/ Inkubationstid/ inkubationstid/ Czas inkubacji/ Inkubációs idő/ Inkubačná lehota/ Inkubační doba/ Инкубационен период/ Inkubatsiooniaeg/ Χρόνος επώασης/ Timp de incubare/ Inkubacijska doba/ inkubaatioaika
	Incubate at/ Inkubation bei/ Incuber à/ Incubare a/ incubar a/ Incubar a/ incubatietemperatuur/ Inkubation ved/ inkubation vid/ Inkubacja przy/ Inkubáció hőmérséklete/ Inkubácia pri/ Inkubace při/ Инкубира се при/ Inkubatsioon temperatuuril/ Επώαση στους/ Incubare la/ Inkubacija pri/ Inkubaatiolämpötila
	Mix tubes with a Vortex mixer/ Mix Röhrchen mit Vortex Mixer/ Mélanger à l'aide d'un vortex/ Miscelare la provetta con agitatore Vortex/ Tubos de mezcla con mezclador de vórtex/ Misturar os tubos com um agitador Vortex/ buisjes mengen met een Vortex/ Blanderør med Vortex-mixer/ Blanda rören med en vortexblandare/ Miksowanie rurek w mikserze Vortex/ Csövecskék keverése örvénykeverővel/ Premiešať pomocou prístroja Vortex/ Promíchat pomocí přístroje Vortex/ Разбъркване на епруветките с миксер Vortex/ Segada torukesi Vortexi mikseriga/ Αναμίξτε τους σωληνίσκους με αναδευτήρα Vortex/ Amestecaţi eprubetele cu ajutorul unui agitator vortex/ Mešanje cevčic z mešalnikom Vortex/ Sekoita putket Vortex sekoittajalla
	Miktrotiterplate/ Mikrotiterplatte/ plaque de microtitrage/ Piastra di microtitolazione/ Placa de microtitulación/ Placa de Microtitulação/ Microtiterplaat/ Mikrotiterplade/ mikrotiterplatta/ microtiterplaat/ Płytka microtiter/ Mikrotiter lap/ Mikrotitračná podložka/ Mikrotitrační podložka/ Микротитърна плака/ Mikrotiiterplaat/ Τρυβλίο μικροτιτλοδότησης/ Microplacă/ Mikrotitrska plošča/ Mikrotitrauslevy
	Reconstitute in/ Rekonstituieren in/ Reconstituer dans/ Ricostituire nel/ Reconstituir en/ Reconstituir em/ Reconstitueren in/ Rekonstituér i/ Rekonstituera/ Rekonstytuować w/ Helyreállítás/ Znovu pripraviť za/ Znovu připravit za/ Разтваряне в/ Moodustada uuesti/ Ανασυστήστε σε/ Reconstituire în/ Predelava v/ Rekonstituoi
	Sample/ Probe/ Echantillon/ Campione/ Muestra/ Amostra/ Monster/ Prøve/ prov/ Próbka/ Minta/ Vzorka/ Vzorek/ Проба/ Proov/ Δείγμα/ Probă/ Vzorec/ Näyte
	Antibody Conjugate/ Antikörperkonjugat/ Anticorps conjuguée/ Coniugato di anticorpo/ Conjugado de anticuerpos/ Conjugado anticorpo/ Antilichaamconjugaat/ Antistoffer-konjugat/ Antikroppskonjugat/ Koniugat antyciał/ Antitest páros/ Protilátkový konjugát/ Protilátkový konjugát/ Антитяло конюгат/ Antikehad konjugaat/ Σύμπλοκο αντισώματος**/** Compuşi din anticorpi/ Antitelesa konjugat/ Vasta-aine konjugaatti

CONJ	Enzyme Conjugate/ Enzymkonjugat/ Conjugué enzymatique/ Coniugato di enzima/ Conjugado de enzimas/ Conjugado Enzima/ Enzymconjugaat/ Enzym-konjugat/ Enzymkonjugat/ Koniugat enzymów/ Enzim páros/ Enzymatický konjugát/ Enzymatický konjugát/ ензим конюгат/ Ensüümi konjugaat/ Σύμπλοκο –ενζύμου/ Compuşi din enzime/ Encima konjugat/ Enzymi-konjugaatti
BUF	Buffer/ Puffer/ Tampon/ Tampone/ Tampón/ Tampão/ Buffer/ Buffer/ Buffert/ Bufor/ Puffer/ Pufer/ Pufr/ Буфер/ Puhver/ Ρυθμιστικό διάλυμα/ Tampon/ Pufer/ Puskuri
DILU **BUF** X	Dilute in Buffer X/ Verdünnen in Puffer X/ Diluer dans le tampon X/ Diluire nel tampone X/ Diluir en tampón X/ Diluir no Tampão X/ Verdunnen in buffer X/ Fortyndes i buffer X/ Späd i buffert X/ Rozcieńczanie w buforze X/ Hígítás X pufferben/ Riediť v pufri X/ Ředit v pufru X/ Разреждане в буфер X/ Lahjendada puhvris X/ Αραιώστε σε ρυθμιστικό διάλυμα X/ Diluaţi în tamponul X/ Razredčiti v pufru X/ Laimennetaan x puskuriin
STD	Standard X/ Standard X/ Etalon X/ Standard X/ Estándar X/ Standard X/ Standaard X/ Standard X/ standard X/ Standard X/ Standard X/ Štandard X/ Standard X/ Стандарт X/ Standard X/ Πρότυπο X/ Standard X/ Standardni X/ Standardi X
Control	Control Serum X/ Kontrollserum X/ Contôle sérique X/ Siero di controllo X/ Suero de control X/ Soro de Controlo X/ controleserum X/ Kontrolserum X/ Kontrollserum X/ Serum kontrolne X/ Ellenőrző szérum X/ Kontrolné serum X/ Kontrolní serum X/ Контролен серум X/ Kontrollseerum X/ Ορός ελέγχου X/ Ser de control X/ Kontrolni serum X/ Kontrolli seerumi X
WASHBUF 20x	Washing Buffer Concentrate/ Waschpufferkonzentrat/ Tampon de lavage conc./ Tampone di lavaggio concentrato/ Tampón de lavado concentrado/ Tampão de Lavagem Concentrado/ wasbuffer, geconcentreerd/ Vaskebufferkoncentrat/ Vaskebufferkoncentrat/ tvättbuffertkoncentrat/ Bufor płukania koncentrat/ Mosópuffer koncentrátum/ Koncentrát vymývacieho pufra/ Концентрат на промивен буфер/ Pesupuhvri kontsentraat/ Συμπύκνωμα ρυθμιστικού διαλύματος έκπλυσης/ Concentrat pentru tamponul de spălare/ Koncentrat izpiralnega pufra/ Pesuliuositiiviste
WASHBUF	Washing Buffer/ Waschpuffer/ Tampon de lavage/ Tampone di lavaggio/ Tampón de lavado/Tampão de Lavagem/ wasbuffer/ Vaskebuffer/ tvättbuffert/ Bufor płukania/ Mosópuffer/ Vymývací pufer/ Vymývací pufr/ Промивен буфер/ Pesupuhver/ Ρυθμιστικό διάλυμα έκπλυσης/ Tampon pentru spălare /Izpiralni pufer/ Pesuliuos
SUBST **TMB**	Substrate/ Substrat/ Substrat/ Substrato/ Substrato/ Substrato/ substraat/ Substrat/ Substrat/ Substrat/ Szubsztrátum/ Substrát/ Substrát/ Субстрат Substraat/ Υπόστρωμα/ Substrat/ Substrat/ Substraattiliuos
H_2SO_4	Stopping Solution/ Stopplösung/ Stop Solution/ Soluzione di stop/ Stop Solución/ Solução Stop/ stopoplossing/ Stopopløsning/ Stopplösning/ Stop roztwór/ Megállító oldat/ Roztok na ukončenie/ Roztok pro ukončení/ Стопиращ разтвор/ Stopp-lahus/ Διάλυμα διακοπής/ Soluţie de oprire/ Stop raztopina/ Pysäytysliuos
TAPE	Cover Plate with sealing tape/ Platte abkleben/ Recouvrir la microplaque avec bande adhésive/ Coprire la piastra con nastro adesivo/ Cubrir la placa con una cinta adhesiva/ Cobrir a Placa com fita adesiva/ plaatje met tape afdekken/ Afdækningsplade med tape/ maskera platta/ Odkleić płytkę/ Tányér leragasztása/ Oblepiť podložku lepiacou páskou/ Olepit podložku lepicí páskou/ Плака с лента за запечатване/ Katta plaat isoleerkleeplindiga/ Κολλήστε το πλακίδιο με κολλητική ταινία/ Aoperiţi placa cu o bandă adezivă/ Prelepiti ploščo/ Peitä mikrotitrauslevy oheisella teipillä
MEASURE	Measure plate within 30 min at 450 nm (Referencefilter ≥590 nm)/ Ausmessung innerhalb von 30 min bei 450 nm (Referenzfilter ≥ 590 nm)/ Mesure lábsorbance en léspace de 30 min à 450 nm avec ≥590 nm longueur dónde pour référence/ Misurazione entro 30 min. a 450 nm (filtro di riferimento ≥ 590 nm)/ Medición de la placa dentro de los siguientes 30 min a 450 nm (filtro de referencia ≥ 590nm)/ Medir a placa dentro de 30 min a 450 nm (Filtro de referência ≥ 590 nm)/ Binnen 30 minuten bij 450 nm meten (referentiefilter ≥ 590 nm)./ Mål plade i løbet af 30 min ved nm (referencefilter ≥590 nm)/ Mät inom 30 min vid 450 nm (referensfilter ≥ 590 nm)./ Pomiar w ciągu 30 min przy 450 nm (filtr odniesienia ≥ 590 nm)/ Ki mérés 30 percen belül 450 nm-nél (referenciaszűrő ≥ 590 nm)/ Merať 30 minút pri 450 nm (Referenčných filtrov ≥590 nm)/ Měřit 30 minut při 450 nm (Referenční filtr ≥ 590 nm)/ Отчитане в рамките на 30 min при 450 nm (референтен филтър ≥ 590 nm)/ Mõõtmine 30 min jooksul 450 nm korral (võrdlusfilter ≥ 590 nm)/ Mέτρηση εντός 30 min στα 450 nm (φίλτρο αναφοράς ≥ 590 nm)/ Măsurare în decurs de 30 min la 450 nm (filtru de referinţă ≥ 590 nm)/ Izmerite ploščico v 30 min pri 450 nm (referenčni filter ≥590nm)/ Mittaa 30 minuutin aikana 450 nm:ssä (referenssi suodatin ≥ 590 nm)
Literatur	Literature/ Literatur/ Bibliographie/ Letterario/ Bibliografía/ Literatura documentação/ literatuur/ Litteratur/ litteratur/ Literatura/ Irodalom/ Literatúra/ Literatura/ Литература// Kirjandus/ Βιβλιογραφία/ Bibliografie/ literatura/ Lähdeluettelo
International Test description	International test description/ internationale Testanleitung/ description internationale de test/ Istruzioni per il test internazionali/ Descripción de ensayo internacional/ Descrição internacional do teste/ internationale testbeschrijving/ internationell testbeskrivning/ Opis testu międzynarodowego/ nemzetközi teszt-útmutató/ Medzinárodný návod k testu/ Mezinárodní návod k testu/ rahvusvaheline katse kirjeldus/ Διεθνείς οδηγίες για εργαστηριακές δοκιμές/ instrucţiuni internaţionale pentru testare/ mednarodna navodila za preizkus/ Kansainvälinen käyttöohje
End	in all required wells/ in allen benötigten Vertiefungen/ dans tous les godets requis/ in tutti i pozzetti richiesti/ en todos los pozos requeridos/ em todos os tubos necessários/ in alle nodige putjes/ i alle nødvendige brønde/ i alla nödvändiga brunnar/ we wszystkich potrzebnych wgłębieniach/ minden szükséges forrásban/ vo všetkých potrebných miestach/ ve všech potřebných místech/ във всички необходими ямки/ kõigis vajalikes süvendites/ σε όλες τις απαραίτητες κοιλότητες/ în toate cavităţile necesare/ v vseh zahtevanih vdolbinah/ kaikkiin tarvittaviin mikrotitrauslevyn syvennyyksiin

Nicht für humane oder tierische, therapeutische oder diagnostische Zwecke.
Vor Gebrauch ist die gesamte Packungsbeilage zu lesen!

Not for human or animal therapeutic or diagnostic use.
Read entire protocol before use!

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Instructions for use ENGLISH

m/rGH ELISA E023	**96 Determinations**
RUO	For Research Use Only
Principle of the test	Enzyme-linked Immunoassay
Duration (Incubation period)	3 h
Antibodies	specific guinea pig and goat anti-mouse/rat-GH Antibodies
Buffer	Ready for use and 20fold concentrate
Standard	7 Single standards: (0.15 – 9.0 ng/mL), recombinant Rat GH
Assay Range	0.04 – 45 ng/mL
Control	2 Control sera, lyophilized
Sample	Mouse- and Rat-Serum /Plasma
Sample dilution	Dependent on available sample volume: **preferentially recommended 1:5** from 1:2,5 up to 1:30 (for high m/r GH levels)
Required sample volume for 1:5 Dilution	20 µL net for a single determination
Analytical Sensitivity	Ø < 0.04 µg/L
Intra- / Interassay Variance	Ø < 5% / Ø < 10%

1 Intended use

E023 ELISA is intended to be used for the measurement of Growth Hormone in mouse and rat serum and plasma samples for research use.

2 ASSAY PRINCIPLE

The Mediagnost m/rGH ELISA, E023 is a so-called sandwich-assay. It utilizes two different specific high affinity polyclonal antibodies for this protein. The GH in the samples binds quantitatively to the immobilized antibody. In the following step, the biotinylated antibody in turn binds GH. After washing, a streptavidin-peroxidase-enzyme conjugate will be added, which will bind highly specific to the biotin of the antibody. Subsequently, the peroxidase catalyzes an enzymatic reaction resulting in a blue coloration. The intensity of the blue color depends on the GH content of the sample. The reaction is stopped by the addition of stop solution and color intensity is quantified by measuring the absorption.

3 WARNINGS AND PRECAUTIONS

For In Vitro Use only. For Professional use only.
The Mediagnost kit is suitable only for in vitro and not for internal use in humans and animals. Follow strictly the test protocol. Use the valid version of the package insert provided with the kit. Be sure that everything has been understood. Mediagnost will not be held responsible for any loss or damage (except as required by statute) howsoever caused, arising out of noncompliance with the instructions provided.

Do not use obvious damaged or microbial contaminated or spilled material.

Caution: This kit contains material of human and/or animal origin. Therefore all components and patient´s specimens should be treated as potentially infectious.

Appropriate precautions and good laboratory practices must be used in the storage, handling and disposal of the kit reagents. The disposal of the kit components must be made according to the local regulations.
Animal serum: mouse / rat in the following components: KS1, KS2

Reagents AK, EK, VP, WP
Contain as preservative **5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one** (<0.015%)

H317	May cause an allergic skin reaction.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P333+P313	If skin irritation or rash occurs: Get medical advice/ attention.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P501	Dispose of contents/ container in accordance with local/ regional/ national/ international regulations.

Substrate Solution (S)
The TMB-Substrate (S) contains 3,3´,5,5´ Tetramethylbencidine (<0.05%)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305+P351+	IF IN EYES: Rinse cautiously with water for several minutes.
P338	Remove contact lenses, if present and easy to do. Continue rinsing.

Stopping Solution (SL)
The Stopping solution contains 0.2 M acid sulphur acid (H_2SO_4)

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P330+	IF SWALLOWED: rinse mouth.
P331	Do NOT induce vomiting.
P305+P351+	IF IN EYES: Rinse cautiously with water for several minutes.
P338	Remove contact lenses, if present and easy to do. Continue rinsing.
P309+P310	IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

3.1 General first aid procedures:

Skin contact: Wash affected area rinse immediately with plenty of water at least 15 minutes. Remove contaminated cloths and shoes.
Eye contact: In case of contact with eyes, rinse immediately with plenty of water at least 15 minutes. In order to assure an effectual rinsing spread the eyelids.
Ingestion: After swallowing the product, if the affected person is conscious, rinse out the mouth with plenty of water: seek medical advice immediately.

4 MATERIALS

4.1 Materials provided

The reagents listed below are sufficient for 96 wells including the standard curve.

MTP	**Microtiter plate,** ready for use, coated with goat-anti-mouse/rat-GH antibodies, wells are separately breakable.	**(8x12) wells**
A-G	**Standards,** lyophilised (recombinant rat GH), Concentrations are given on the vial labels and quality certificate.	**7 x 1 mL**
KS1	**Control Serum 1**, lyophilised, (Rat Serum), Concentration is given **on the quality certificate.**	**1x 150 µL**
KS2	**Control Serum 2**, lyophilised, (Rat Serum), Concentration is given **on the quality certificate.**	**1x 150 µL**
AK	**Antibody Conjugate**, ready for use, guinea pig anti-m/r-GH-Antibody, biotinylated.	**1 x 12 mL**
EK	**Enzyme Conjugate EK**, contains HRP (Horseradish-Peroxidase)-labeled Streptavidin.	**1 x 12 mL**
VP	**Dilution Buffer**, ready for use. **Please shake before use.**	**1 x 50 mL**
WP	**Washing Buffer WP**, 20fold concentrated solution	**1 x 50 mL**
S	**Substrate S**, ready for use, horseradish-peroxidase (HRP)-substrate, stabilised Tetramethylbencidine.	**1 x 12 mL**
SL	**Stopping Solution SL**, ready for use, 0.2 M sulphuric acid.	**1 x 12 mL**
-	**Sealing Tape for covering the microtiter plate**	**3 x**
	**Instructions for use**	**1 x**
-	**Quality Control Certificate (QC-Certificate)**	**1 x**

4.2 Materials required, but not provided

- Distilled (Aqua destillata) or deionized water for dilution of the Washing Buffer **WP (A. dest.), 950 mL**.
- Graduated cylinder for diluting Washing Buffer **WP**
- Precision pipettes and multichannel pipettes with disposable plastic tips
- Polyethylene PE/Polypropylene PP tubes for dilution of samples
- Vortex-mixer
- Microtiter plate shaker (350 rpm)
- Microtiter plate washer (recommended)
- Micro plate reader ("ELISA-Reader") with filter for 450 and ≥ 590 nm

5 SAMPLES

5.1 Sample type

Mouse-/Rat-Serum/Plasma

EDTA-plasma samples of rats were found to be increased by plus 100% in a comparative study, relating to rat serum GH-values (Lit. 1).

5.2 Specimen collection

Haemolytic conditions have to be avoided.

5.3 Requested sample volume: 20 µl net per single determination

5.4 Sample stability

- Sample transport is recommended chilled e.g. on cooling elements (blue ice) or frozen on dry ice.
- in firmly closable sample vials
- Storage at -20°C: min. 2 years
- Freeze/-thaw cycles: max. 10

It is recommended to store samples chilled as soon as possible.
For any longer time storage the sample **has to be kept frozen at -20°C.**

5.5 Sample dilution

For commercial pooled rodent sera a **1:5 dilution was found suitable.**
An extraction step is not required.

- Dilution: with Dilution Buffer **VP**:
  For a double determination: e.g. **50 µL** sample plus **200 µL** Dilution Buffer **VP**
- After mixing use **100 µL** diluted sample per well in the assay within **1 hour** of this solution.
- Where required, depending on the expected GH-values, the dilution with **Dilution Buffer VP** can be higher or lower.

Depending upon the used strain of the animals or the experimental conditions, the **endogenous content of GH can vary strongly**. It is recommended to test in advance the individual optimal sample pre-dilution under the respective conditions.

6 TECHNICAL NOTES

Storage Conditions

Store the kit at 2-8°C after receipt until its expiry date.

Storage Life

The shelf life of the components **after initial opening** is warranted for **4 weeks**, store the unused strips and microtiter wells **airtight** together with the desiccant at 2-8°C in the clip-lock bag, use in the frame provided. The 1:20 diluted Washing Buffer **WP** is 4 weeks stable at 2-8°C. The **reconstituted components** standards **A-G** and Control Sera **KS1 and KS2** must be stored at –20°C (max. 4 weeks). For further use, thaw quickly but gently (avoid temperature increase above room temperature and avoid excessive vortexing). Repeated freeze/thaw cycles have to be avoided, up to three cycles were found to have no influence.

Preparation of reagents

Bring all reagents to room temperature (20 - 25°C) before use. Possible precipitations in the buffers have to be resolved before usage by mixing and / or warming. Reagents with different lot numbers cannot be mixed.

Reconstitution

The Standards **A – G** and Control **KS1 and KS2** are reconstituted with the Dilution Buffer **VP**. It is recommended to keep reconstituted reagents at room temperature for 15 minutes and then to mix them thoroughly but gently (no foam should result) with a Vortex mixer. **Attention:** Standards should be thawed only once – where required please store aliquoted in adequate volumes.

Dilution

After reconstitution dilute the Control Sera **KS1 and KS2** with the Dilution Buffer **VP** in the same ratio e.g. (1:5) as the sample.
The required volume of Washing Buffer **WP** is prepared by 1:20 dilution of the provided 20-fold concentrate with Aqua dest.

Incubation

Incubation at room temperature means: Incubation at 20 - 25°C. The Substrate Solution **S**, stabilised H_2O_2-Tetramethylbencidine, is photosensitive–store and incubation in the dark.

Assay Procedure

When performing the assay, Blank, Standards **A-G**, Control Serum **KS** and the samples should be pipette as fast as possible (e.g. <15 minutes). To avoid distortions due to differences in incubation times, Antibody Conjugate **AK,** Enzyme Conjugate **EK** as well as the succeeding Substrate Solution **S** should be added to the plate in the same order and in the same time interval as the samples. Stopping Solution **SL** should be added to the plate in the same order as Substrate Solution **S**.
All determinations (Blank, Standards **A-G**, Control Sera **KS1 and KS2** and samples) should be assayed in duplicate. For optimal results, accurate pipetting and adherence to the protocol are recommended.

Shaking

The incubation steps should be performed at mean rotation frequency of a particularly suitable microtiter plate shaker. We are recommending 350 rpm. Due to certain technical differences deviations may occur, in case the rotation frequency must be adjusted. Insufficient shaking may lead to inadequate mixing of the solutions and thereby to low optical densities, high variations and/ or false values, excessive shaking may result in high optical densities and/ or false values. **Substrate S** Incubation without shaking.

Washing

Proper washing is of basic **importance** for a secure, reliable and precise performance of the test. Incomplete washing is common and will adversely affect the test outcome. Possible consequences may be uncontrolled unspecific variations of measured optical densities, potentially leading to false results calculations of the examined samples. Effects like high background values or high variations may indicate washing problems.

All washing must be performed with the provided Washing Buffer **WP** diluted to usage concentration. Washing volume per washing cycle and well must be 300 µL at least.

The danger of handling with potentially infectious material must be taken into account.

When using an **automatic microtiter** plate washer, the respective instructions fur use must be carefully followed. Device adjustments, e.g. for plate geometry and the provided washing parameters, must be performed. Dispensing and aspirating manifold must not scratch the inside well surface. Provisions must be made that the remaining fluid volume of every aspiration step is minimized. Following the last aspiration step of each washing cycle, this could be controlled, and possible remaining fluid could then be removed, by inverting the plate and repeatedly tapping it dry on non-fuzzy absorbent tissue.

Manual washing is an adequate alternative option. Washing Buffer may be dispensed via a multistepper device, a multichannel pipette, or a squirt bottle. The fluid may be removed by dynamical swinging out the microtiter plate over a basin. If aspirating devices are used, care has to be taken that the inside well surface is not scratched. Subsequent to every single washing step, the remaining fluid should be removed by inverting the plate and repeatedly tapping it dry on non-fuzzy absorbent tissue.

7 Assay Procedure Mediagnost Mouse-/Rat-GH ELISA

Preparation of reagents:		**Reconstitution:**	**Dilution:**
A-G	**Standards**	in **1 mL** Dilution Buffer **VP**	-
KS1	**Control Serum 1**	in **150 µL** Dilution Buffer **VP**	**1:5** with Dilution Buffer **VP**
KS2	**Control Serum 2**	in **150 µL** Dilution Buffer **VP**	**1:5** with Dilution Buffer **VP**
WP	**Washing Buffer**	-	**1:20** with **Aqua dest.**

Sample and Control Sera KS1 and KS2: dilute 1:5 with Dilution Buffer **VP**, **mix immediately, incubate max. 60 min**. **Use 100 µL** for each well in the assay.

Before assay procedure bring all reagents to room temperature **20-25°C.**

Assay Procedure in Double Determination:

Pipette	**Reagents**	**Position**
100 µL	Dilution Buffer **VP** (Blank)	A1/A2
100 µL	Standard **A** (**0.15 ng/mL**)	B1/B2
100 µL	Standard **B (0.45 ng/mL**)	C1/C2
100 µL	Standard **C** (**0.90 ng/mL**)	D1/D2
100 µL	Standard **D** (**1.8 ng/mL**)	E1/E2
100 µL	Standard **E** (**3.6 ng/mL**)	F1/F2
100 µL	Standard **F** (**6.0 ng/mL**)	G1/G2
100 µL	Standard **G** (**9.0 ng/mL**)	H1/H2
100 µL	Control Serum **KS1** (1:5 diluted)	A3/A4
100 µL	Control Serum **KS2** (1:5 diluted)	B3/A4
100 µL	Sample (1:5 diluted)	in the rest of the wells according the requirements pipettieren
Cover the wells with the sealing tape.		
Sample Incubation: 1 h at 20-25°C, 350 rpm		
5x 300 µL	Aspirate the contents of the wells and wash **5x** with **300 µL** each Washing Buffer **WP**/ **well.**	In each well
100 µL	Antibody Conjugate **AK**	In each well
Cover the wells with the sealing tape.		
Incubation: 1 h at 20-25°C, 350 rpm		
5x 300 µL	Aspirate the contents of the wells and wash **5x** with **300 µL** each Washing Buffer **WP**/ **well**.	In each well
100 µL	Enzyme Conjugate **EK**	In each well
Cover the wells with the sealing tape.		
Incubation: 0.5 h at 20-25°C, 350 rpm		
5x 300 µL	Aspirate the contents of the wells and wash **5x** with **300 µL** each Washing Buffer **WP**/ **well**.	In each well
100 µL	Substrate Solution **S**	In each well
Substrat S Incubation: 0.5 h in the Dark at 20-25°C		
100 µL	Stopping Solution **SL**	In each well
Measure the absorbance within 30 min at **450 nm** with **≥ 590 nm** as reference wavelength.		

8 Calculation of Results

8.1 Establishing the Standard Curve

For the evaluation of the assay it is preconditioned that the absorbance values of the blank should be below 0.30, these of standard G should be above 1.0.

Samples, which yield higher absorbance values than Standard G are beyond the standard curve, for reliable determinations these samples should be tested anew with a higher dilution.

Standards are provided in the following GH-concentrations:

Standard	**A**	**B**	**C**	**D**	**E**	**F**	**G**
ng/mL	0.15	0.45	0.90	1.8	3.6	6.0	9.0

1) Calculate the **mean absorbance** value for the blank from the duplicated determination (well A1/A2).

2) Subtract the mean absorbance of the blank from the mean absorbance of all other values.

3) Plot the standard concentrations on the x-axis versus the mean value of the absorbance of the standards on the y-axis.

4) Recommendation: Calculation of the standard curve should be done by using a computer program. **A higher-grade polynomial,** or **four parametric logistic (4-PL) curve fit** or **non-linear regression** are usually suitable for the evaluation (as might be spline or point-to-point alignment in individual cases).

5) The m/rGH concentration of the diluted sample or the diluted control sera KS1&2 in ng/mL is calculated in this way, the m/rGH concentration of the **undiluted sample** and of KS1 & KS2 is calculated **by multiplication** with the respective dilution factor.

8.2 Example of a typical standard curve

Standard	**Blank**	**A**	**B**	**C**	**D**	**E**	**F**	**G**
ng/mL	0	0.15	0.45	0.90	1.8	3.6	6.0	9.0
OD (450-620 nm)	0.1356	0.182	0.272	0.4	0.634	1.121	1.732	2.408

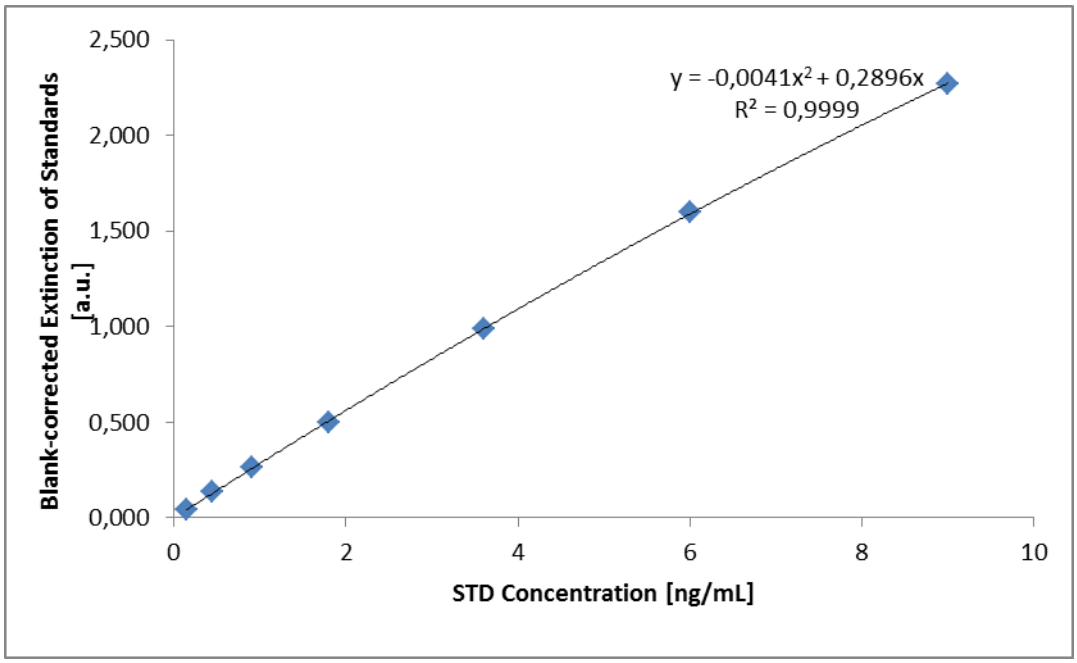

Figure 1 Exemplary Standard Curve

The exemplary shown standard curve in Fig.1 **cannot be used** for calculation of your test results. You have to establish a standard curve for each test you conduct!

Exemplary calculation of the GH concentration of a diluted sample:

OD 450 nm

Measured extinction (mean value) of your sample	1.5
Measured extinction of the blank (mean value)	0.1356

Your **measurement program** will calculate the m/rGH concentration of the sample automatically by using the difference of sample and blank for the calculation. You only have to determine the most suitable curve fit (here: polynomial 2nd degree).

In this exemplary case the following equation is solved by the program to calculate the GH concentration in the sample:

$$y = -0{,}0041x^2 + 0{,}2896x$$

$$5.09 = X$$

Multiplication by dilution factor (5) gives the GH concentration of the sample with

25.45 ng/mL

9 PERFORMANCE CHARACTERISTICS

9.1 Calibration

The Mediagnost E023 was calibrated against a recombinant rat GH preparation.

9.2 Analytical Sensitivity

The analytical sensitivity of the ELISA E023 was measured by the variability of the signal of the blank (by 15 to 16-fold determinations). Based on the twofold standard deviation of the blank the mean analytical sensitivity is < 0.04 ng/mL (Range 0.014 to 0.054 ng/mL).

9.3 Precision

The Inter- and Intra-Assay variation coefficients were on average <10% and <5%. Exemplary determinations are shown in table 1 and table 2.

Table 1 Inter-Assay-Variation (n=7)

	Mean Value (ng/mL)	Standard Deviation (ng/mL)	CV(%)
Sample 1	9.84	0.73	7.41
Sample 2	15.77	0.86	5.48

Table 2 Intra-Assay-Variation (n=12)

	Mean Value (ng/mL)	Standard Deviation (ng/mL)	CV (%)
Sample 1	10.03	0.32	3.22
Sample 2	3.74	0.17	4.55
Sample 3	16.16	0.33	2.01

9.4 Linearity

Linearity of sample dilution was tested by serial dilution of 3 rat sera. No diluted sample showed a relative standard deviation of >15 % in comparison to the respective mean rGH concentration. Linearity of sample dilution is shown by linear regression in the dilution range of 1:2.5 - 1:30 (Exemplary Sample 2 see Figure 2). We recommend preferentially a dilution of 1:5. Alternatively e.g. dilutions from 1:2.5 up to 1:30 (in case of higher rGH levels) dilutions would be suitable.

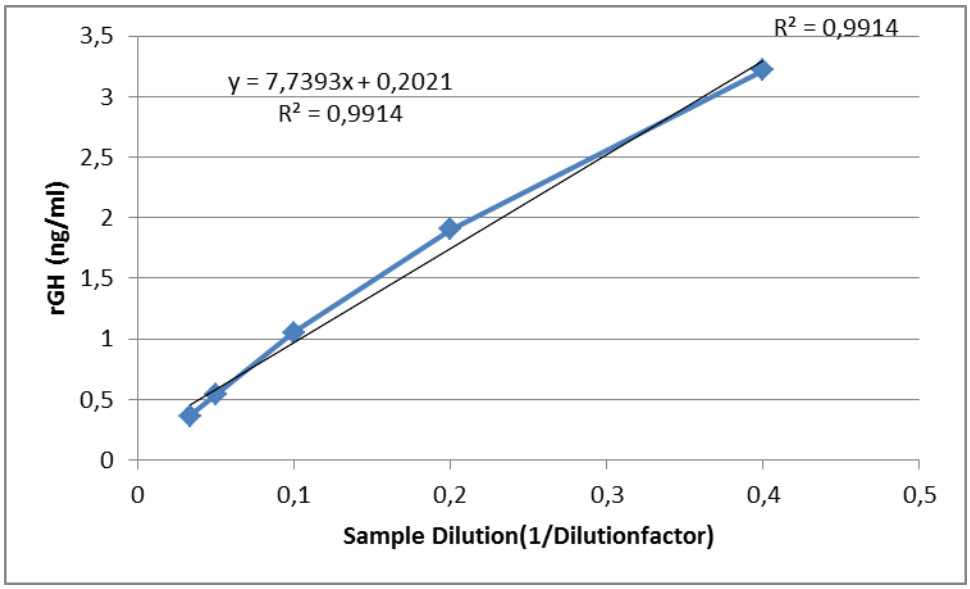

Figure 2 Exemplary regressions curve of the dilution (1:2.5 to1:30) of the rat sample.

Table 3 Linearity. Rat serum samples were diluted in VP and rGH content was calculated. Measurements results are shown in [ng/mL]. No Coefficient of Variation >15 % was detected.

Dilution:	Sample 1 (ng/mL)	Sample 2 (ng/mL)	Sample 2 (ng/mL)
1:2.5	15.1	8.0	3.968
1:5	17.7	9.5	4.62
1:10	19.6	10.5	5.329
1:20	20.8	10.8	5.508
1:30	21.3	10.8	
AV / SD / VC%	18.9 / 2.5 / 13.2	9.93 / 1.189 / 11.95	4.9 / 0.7 / 14.4

AV = Average Value, SD = Standard Deviation; VC = Coefficient of Variation

9.5 Interference

Interference of physiological appearing **Hemoglobin** with the m/rGH measurement was investigated. Serum samples have been enriched with different concentrations of possibly interfering **Hemoglobin** and the amount of m/rGH was measured and compared with the m/rGH concentration in the same sample without any enrichment. In Table the relative results are shown. **Hemoglobin did not** interfere significantly with m/rGH measurement.

Table 4Recovery [%] in comparison to the native serum.

	Hemoglobin 5 mg/mL
Sample 1	89
Sample 2	94
Sample 3	114

9.6 Species Cross-Reactivity

Serum of the different species were used as diluted samples in this assay system.
No cross reactivity was detected for:

Rabbit, Guinea pig, Dog, Cat, Chicken, Sheep, Goat, Pig, Donkey, Horse and Bovine.

No Cross reactivity was measured with recombinant human eukaryotic expressed GH (at 1 µg/mL)

10 LITERATURE / LITERATUR

1. Popp S., Bielohuby M., Meurer S., Horngacher A., Bildingmaier M.; Abstract-Nr. P2 8-5-Analysis of different blood sample pre-treatment conditions on hormone concentrations in rats*;Quelle/ Source: Abstract-CD 55.* Symposium der Deutschen Gesellschaft für Endokrinologie 2012; ISSN 1862-1503

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11 REF E023 INTERNATIONAL TEST DESCRIPTION

A-G	**STD**	**Rec in 1 mL BUF VP**	**-**
KS1	**Control**	**Rec in 150 µL BUF VP**	**1:5 DILU BUF VP**
KS2	**Control**	**Rec in 150 µL BUF VP**	**1:5 DILU BUF VP**
WP	**WASHBUF 20x**	**-**	**1:20 DILU A. dest.**
SPE			**1:5 DILU BUF VP**
°C 20-25 °C			

100 µL	**BUF VP**	A1/A2
100 µL	**STD A (0.15 ng/mL)**	B1/B2
100 µL	**STD B (0.45 ng/mL)**	C1/C2
100 µL	**STD C (0.90 ng/mL)**	D1/D2
100 µL	**STD D (1.8 ng/mL)**	E1/E2
100 µL	**STD E (3.6 ng/mL)**	F1/F2
100 µL	**STD F (6.0 ng/mL)**	G1/G2
100 µL	**STD G (9.0 ng/mL)**	H1/H2
100 µL	**CONTROL KS 1 1:5 DILU BUF VP**	A3/A4
100 µL	**CONTROL KS 2 1:5 DILU BUF VP**	B3/B4
100 µL	**SPE 1:5 DILU BUF VP**	
	TAPE	
	1 h °C 20-25 ↔ 350 rpm	
5x 300 µL	**5x WASHBUF WP**	
100 µL	**Ab AK**	
	TAPE	
	1 h °C 20-25 ↔ 350 rpm	
5x 300 µL	**5x WASHBUF WP**	
100 µL	**CONJ EK**	
	TAPE	
	0.5 h °C 20-25 ↔ 350 rpm	
5x 300 µL	**5x WASHBUF WP**	
100 µL	**SUBST TMB S**	
	0.5 h °C 20-25	
100 µL	**H_2SO_4 SL**	
	MEASURE	

12 SUMMARY - MEDIAGNOST MOUSE-/RAT-GH ELISA

Preparation of reagents:		**Reconstitution:**	**Dilution:**
A-G	**Standards**	in **1 mL** Dilution Buffer **VP**	-
KS1	**Control Serum 1**	in **150 µL** Dilution Buffer **VP**	**1:5** with Dilution Buffer **VP**
KS2	**Control Serum 2**	in **150 µL** Dilution Buffer **VP**	**1:5** with Dilution Buffer **VP**
WP	**Washing Buffer**	-	**1:20** with **Aqua dest.**
Sample and Control Sera KS1 and KS2: dilute 1:5 with Dilution Buffer **VP**, **mix immediately, incubate max. 60 min**. **Use 100 µL** for each well in the assay.			
Before assay procedure bring all reagents to room temperature **20-25°C.**			

Assay Procedure in Double Determination:		
Pipette	**Reagents**	**Position**
100 µL	Dilution Buffer **VP** (Blank)	A1/A2
100 µL	Standard **A** (**0.15 ng/mL**)	B1/B2
100 µL	Standard **B (0.45 ng/mL**)	C1/C2
100 µL	Standard **C** (**0.90 ng/mL**)	D1/D2
100 µL	Standard **D** (**1.8 ng/mL**)	E1/E2
100 µL	Standard **E** (**3.6 ng/mL**)	F1/F2
100 µL	Standard **F** (**6.0 ng/mL**)	G1/G2
100 µL	Standard **G** (**9.0 ng/mL**)	H1/H2
100 µL	Control Serum **KS1** (1:5 diluted)	A3/A4
100 µL	Control Serum **KS2** (1:5 diluted)	B3/A4
100 µL	Sample (1:5 diluted)	in the rest of the wells according the requirements
Cover the wells with the sealing tape.		
Sample Incubation: 1 h at 20-25°C, 350 rpm		
5x 300 µL	Aspirate the contents of the wells and wash **5x** with **300 µL** each Washing Buffer WP/ well.	In each well
100 µL	Antibody Conjugate **AK**	In each well
Cover the wells with the sealing tape.		
Incubation: 1 h at 20-25°C, 350 rpm		
5x 300 µL	Aspirate the contents of the wells and wash **5x** with **300 µL** each Washing Buffer **WP/ well**.	In each well
100 µL	Enzyme Conjugate **EK**	In each well
Mit Klebefolie die Vertiefungen dicht abdecken.		
Incubation: 0.5 h at 20-25°C, 350 rpm		
5x 300 µL	Aspirate the contents of the wells and wash **5x** with **300 µL** each Washing Buffer **WP/ well**.	In each well
100 µL	Substrate Solution **S**	In each well
Substrat S Incubation: 0.5 h in the Dark at 20-25°C		
100 µL	Stopping Solution **SL**	In each well
Measure the absorbance within **30 min** at **450 nm** with **≥ 590 nm** as reference wavelength.		