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Gesellschaft für Forschung und Herstellung von Diagnostika GmbH
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Insulin-like Growth Factor-I ELISA E20

Insulin-like growth factors (IGF) I and II play a pivotal role in regulating the proliferation, differentiation and specific functions of many cell types. IGF-I has a molecular weight of 7.649 kDa. Its major regulators are growth hormone (GH) and nutrition. In contrast to many other peptide hormones, IGFs are avidly bound to specific binding proteins (IGFBP).

Physiological function of IGF-I is manifold. It is involved in several growth and maturation processes. Stimulating cell division and cell differentiation in target tissues. In human serum IGF-I is bound to its binding proteins and only a very small amount exists as free and biological active form.

Clinical Relevance

For clinical practice, one of the most important regulatory factors of IGF-I is GH. In growth disorders IGF-I serum concentration allows secure diagnostics, especially in connection with IGFBP-3 concentration. Deviant IGF-I levels are found in states of malnutrition / malabsorption, hypothyroidism, liver disease, untreated diabetes mellitus, chronic inflammatory disease, malignant disease or polytrauma.

Low levels, i.e. close to or below the age-related 5th percentile, would indicate the necessity of further diagnostic efforts. For differentiation of healthy short children without GH deficiency and children with "classical" GH deficiency, the 0.1st percentile proved to be an appropriate cut-off point, especially after the age of eight. In contrast, acromegaly is characterized by pathologically elevated IGF-I levels which apparently reflect the severity of the disease better than GH-levels.

Mediagnost IGF-I ELISA

Our ELISA is suited for measuring IGF-I in human **serum, and other human biological fluids** (e.g. follicular fluid) or cell culture supernatants and is **calibrated against** the international standard of the WHO (**WHO NIBSC 02/254)**. **No cross reactivity** to other components of the IGF system of relevance is known. Small sample requirement is ideal for use in paediatrics.

Reference Values

	Percentile				
Age	**0.1**	**5**	50	**95**	99
0-2 y.	**13**	**28**	66	**156**	220
2-4 y.	**20**	**40**	87	**189**	260
4-6 y.	**26**	**50**	108	**233**	320
6-7 y.	**34**	**62**	124	**248**	332
7-8 y.	**45**	**78**	148	**281**	364
8-9 y. boys	**54**	**90**	160	**284**	362
girls	**55**	**99**	193	**376**	496
9-10 y. boys	**63**	**102**	176	**304**	379
girls	**68**	**114**	205	**369**	469
10-11 y. boys	**77**	**117**	189	**305**	370
girls	**81**	**134**	239	**426**	539
11-12 y. boys	**85**	**129**	209	**339**	413
girls	**91**	**160**	305	**581**	758
12-13 y. boys	**881**	**141**	243	**419**	525
girls	**16**	**201**	377	**707**	914
13-14 y. boys	**111**	**179**	311	**540**	677
girls	**163**	**256**	428	**716**	884
14-15 y. boys	**140**	**229**	404	**691**	896
girls	**193**	**284**	443	**713**	832
15-16 y. boys	**176**	**269**	433	**697**	849
girls	**187**	**279**	442	**700**	845
16-17 y. boys	**178**	**267**	424	**673**	814
girls	**183**	**270**	422	**660**	792
17-18 y. boys	**173**	**243**	358	**527**	618
girls	**176**	**246**	362	**533**	624
18-19 y. boys	**167**	**235**	347	**512**	600
girls	**167**	**233**	341	**499**	797
19-20 y.	**158**	**220**	322	**471**	550
20-30 y.	**72**	**115**	198	**340**	425
30-40 y.	**68**	**109**	188	**324**	404
40-50 y.	**64**	**103**	178	**310**	385
50-60 y.	**60**	**97**	169	**292**	369
60-70 y.	**55**	**91**	161	**282**	362
70-80 y.	**25**	**47**	98	**207**	276
>80 y.	**21**	**40**	85	**184**	245

Serum levels are given as ng/ml.

Mediagnost IGF-ELISA has a **European Approval for Clinical Diagnostics:** EC Directive 98/79EG **(CE).**

Assay Features E20

- ✓ **No extraction required because of IGF-II excess!**
- ✓ Results on your hands **in less than 2h**
- ✓ Analytical sensitivity of **0.09 ng/ml**
- ✓ 5 single standards included (2-50 ng/ml)
- ✓ Assay range **0.09 to 1050 ng/ml** (with recommended dilution)
- ✓ 2 human native control sera included
- ✓ Minimal cross-reactivity to IGF-II (0.055%)

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Mediagnost IGF-I ELISA E20

Reconstitution / Dilution of Reagents		
Standards A-E	Reconstitution in **Sample Buffer PP**	**500µl**
Control Serum KS1	Reconstitution in **Sample Buffer PP**	**500 µl**
Control Serum KS2	Reconstitution in **Sample Buffer PP**	**500 µl**
Wash Buffer WP	dilute in **A. dest.** (e.g. total volume of 50 ml in a graduated flask and fill up to 1000 ml)	**1:20**
Sample + Control Sera KS1 and KS2: dilute **1:21** in Sample Buffer **PP**, mix immediately, incubate max. 2h. Use 20 µl for each well in the assay.		
Before conducting the assay equilibrate all **reagents to room temperature.**		

Assay Procedure for Double Determinations:

Pipette	Reagent	Position
80 µl	**Antibody Conjugate** AK	in **all** wells used
20 µl	Sample Buffer **PP** (blank)	A1 and A2
20 µl	Standard **A** (**2 ng/ml**)	B1 and B2
20 µl	Standard **B** (**5 ng/ml**)	C1 and C2
20 µl	Standard **C** (**15 ng/ml**)	D1 and D2
20 µl	Standard **D** (**30 ng/ml**)	E1 and E2
20 µl	Standard **E** (**50 ng/ml**)	F1 and F2
20 µl	Control Serum **KS1**	G1 and G2
20 µl	Control Serum **KS2**	H1 and H2
20 µl	Samples	following wells
Cover the wells with the sealing tape.		

Incubation: 1 h **at** RT**,** 350 rpm

5x 300 µl	Aspirate the contents of the wells and wash **5x** with **300 µl Wash Buffer WP**	each well
100 µl	Enzyme Conjugate **EK**	each well

Incubation: 30 min **at** RT**,** 350 rpm

5x 300 µl	Aspirate the contents of the wells and wash **5x** with **300 µl Wash Buffer WP**	each well
100 µl	Substrate **S**	each well

Incubation: 15 min in the dark **RT**

100 µl	Stop Solution **SL**	each well
Measure the absorbance within **30 min** at **450 nm** with **≥ 590 nm** as reference wavelength.		

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