



Roma, 9-12 novembre 2017



ITALIAN CHAPTER



IL LABORATORIO NELL'INQUADRAMENTO DEL DIABETE

Insulina, Peptide C: metodiche di dosaggio e pitfall

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Conflitti di interesse



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Ai sensi dell'art. 3.3 sul conflitto di interessi, pag 17 del Regolamento Applicativo Stato-Regioni del 5/11/2009, dichiaro che negli ultimi 2 anni non ho avuto rapporti diretti di finanziamento con i seguenti soggetti portatori di interessi commerciali in campo sanitario.



Insulina, Peptide C: metodiche di dosaggio e pitfall

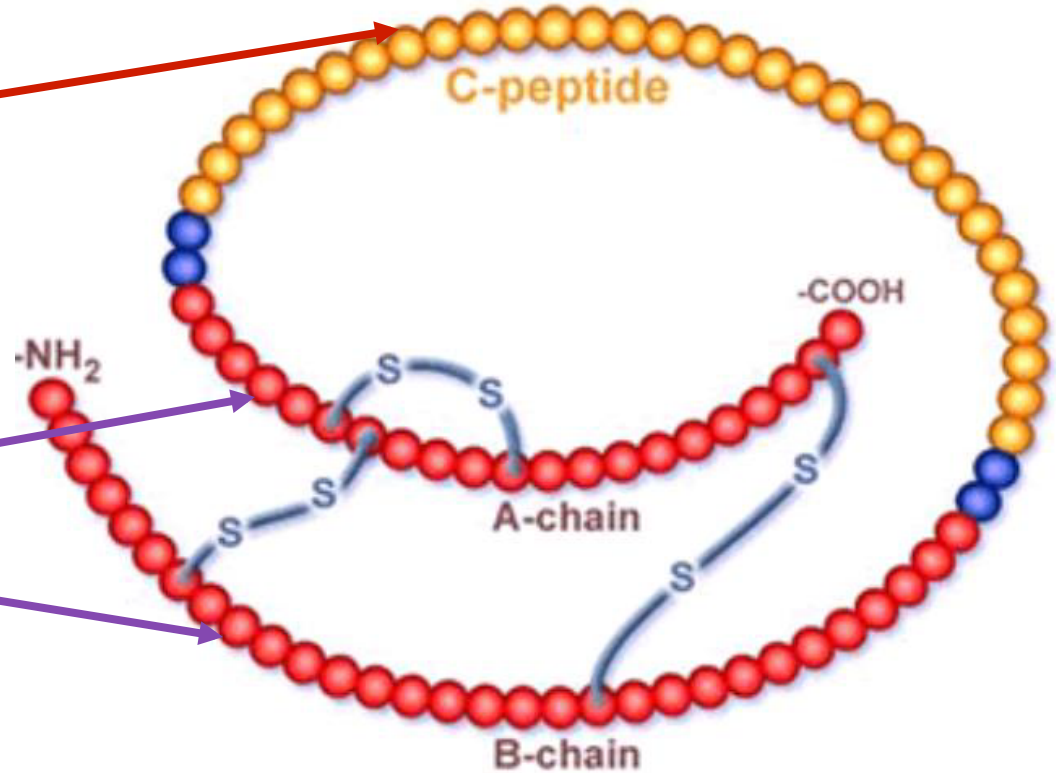


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➤ Peptide C

➤ Insulina





Caratteristiche

ORMONE	Emivita (min)	Concentrazione	IR
INSULINA	5-6		2.6-24.9 uU/ml
PEPTIDE C	35		S/P 1.1-4.4 ng/ml Ur 17.2-181 ug/24h
Pro-Insulina	3-5		0.05 – 0.4 ng/ml



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ITALIAN CHAPTER

Roma, 9-12 novembre 2017

Metodiche

ORMONE	METODI	Standard di riferimento WHO	Campione biologico
INSULINA	RIA, CLIA, ECLIA	IRP 66/304 (NIBSC)	Siero, plasma
PEPTIDE C	RIA, CLIA, ECLIA	IRR 84/510 (NIBSC)	Siero, plasma, urine
Pro-Insulina	RIA	NO	Siero

➤ Peptide C urinario (*Urinary C-Peptide Creatinine Ratio: UCPRC*)

- ✓ Controllo glicemico instabile
- ✓ Valutazione della riserva ormonale in pz con DMT1
- ✓ Quando il prelievo di sangue è poco pratico (bambini)



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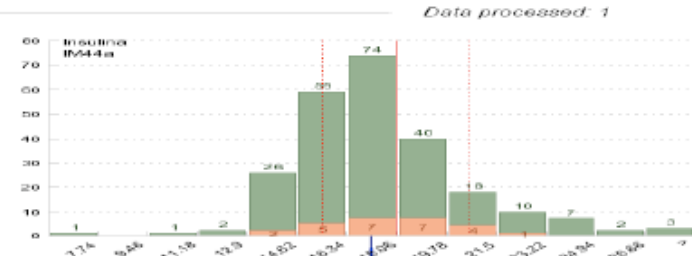


Insulina, microIU/mL Lab. Code:

■ CONS (all results)
 ▲ your result
 | Target
 ± 2SD

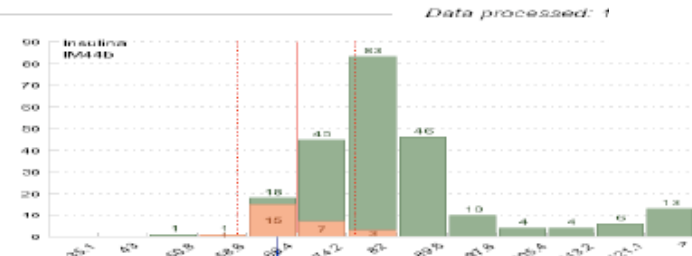
Sample: IM44a

your result	vs IMM2	vs CONS	z-value vs IMM2	score		
17.1	-4.5%	-0.6%	-0.6	3		
method	n.res	n.out	mean	CV%	min	max
CONS	243	10	17.2	13.2	10.1	23.6
IMM2	26	0	17.9	12.3	13.8	22.8
ROCX	50	2	13.9	5.4	14.8	19.3
ACC	40	1	14.7	6.2	12.7	16.6
ARC	32	1	18.1	3.4	15.0	17.4
CENT	28	1	22.6	9.5	19.2	26.3
AIA	22	2	17.8	5.3	15.6	19.6
LSN	22	3	18.2	9.2	13.6	21.0
CIS	7	0	18.5	10.6	15.8	21.0
IMT	3	1	15.9	3.6	15.5	16.3



Sample: IM44b

your result	vs IMM2	vs CONS	z-value vs IMM2	score		
62.9	-4.6%	-19.5%	-0.7	3		
method	n.res	n.out	mean	CV%	min	max
CONS	231	22	78.1	11.2	49.4	107.4
IMM2	26	0	65.9	7.8	58.5	77.9
ROCX	47	1	66.4	4.4	72.0	69.8
ACC	39	1	74.1	5.9	64.7	86.1
ARC	29	0	75.2	3.4	70.1	80.4
CENT	25	0	121.3	12.9	98.3	160.0
AIA	21	2	65.1	3.4	77.3	88.3
LSN	21	2	84.5	8.9	69.5	96.0
CIS	7	0	90.6	4.2	84.0	95.3
IMT	3	1	80.8	4.7	78.1	83.5





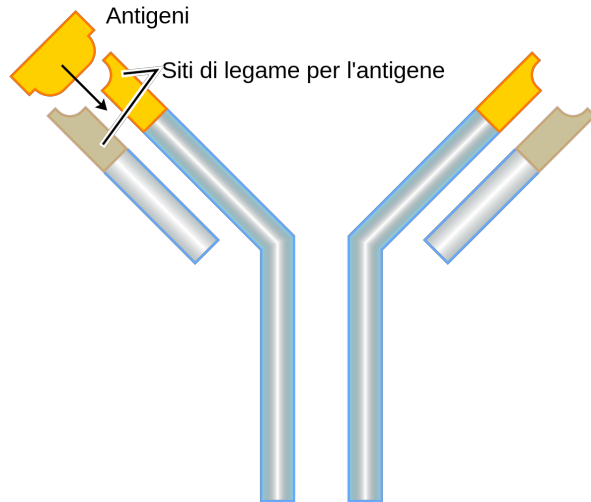
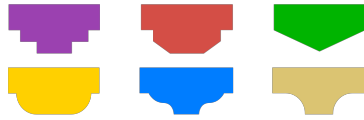
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Antigeni



Anticorpo

Eur J Clin Chem Clin Biochem. 1997 May;35(5):365-7.

Anti-insulin antibodies in insulin immunometric assays: a still possible pitfall.

Sapin R.

Laboratoire Universitaire de Biophysique, CNRS URA 1173, Faculté de Médecine, Strasbourg, France

Abstract

Insulin was assayed directly using radioimmunoassay and immunometric assay in 31 sera containing anti-insulin antibodies. Anti-insulin antibodies were determined by radio-binding-assay. Insulin measurements were compared with those of free (unbound to antibodies, polyethylene glycol precipitated) insulin measurements. **Compared with free insulin concentrations, radioimmunoassay and immunometric assay yielded falsely increased insulin results.** The degree of overestimation by radioimmunoassay and by immunometric assay correlated with the anti-insulin antibody value. **Anti-insulin antibodies still remain a possible pitfall in the insulin-specific immunometric assays which are now being widely used.**



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ITALIAN CHAPTER

Roma, 9-12 novembre 2017



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Cross-reactivity of insulin analogues with three insulin assays

A Dayaldasani, M Rodríguez Espinosa, P Ocón Sánchez and V Pérez Valero

Table 1. Mean insulin values (mIU/L) and standard deviation of the control sample and the different analogues under study.

	Control	Aspart	Detemir	Glargine	Glulisine	Lispro
Elecsys® E170						
Mean	12.7	12.6	9.9	137.6	13.5	13.5
SD	0.83	0.76	0.39	9.27	1.01	1.21
Advia Centaur® XP						
Mean	41.8	*	*	296.7	46.2	288.1
SD	7.37	*	*	12.74	8.13	34.44
Immulite® 2000						
Mean	13.7	238.2	*	225.3	7.6	210.2
SD	1.73	96.53	*	96.88	2.69	112.30

SD: standard deviation;

*: values exceeding the upper assay limit.

Analogue concentration in samples: 1000 mIU/L.



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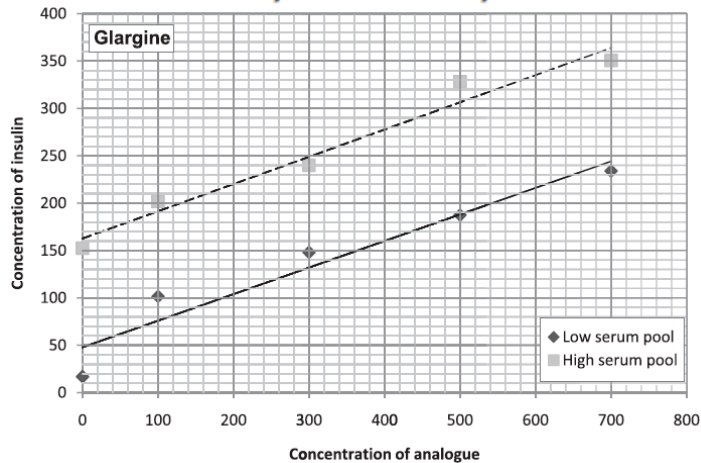
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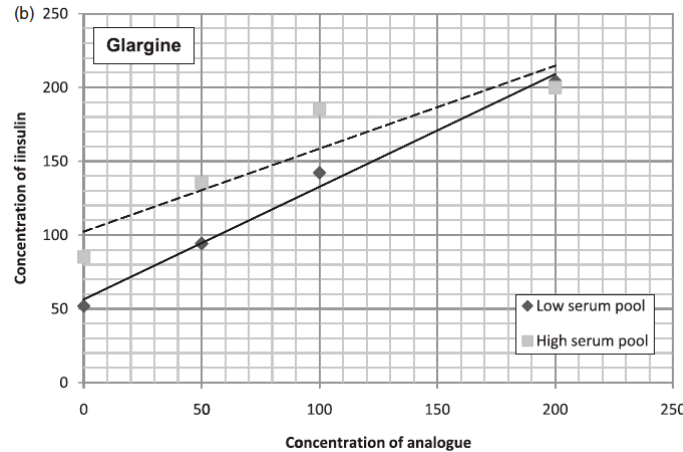
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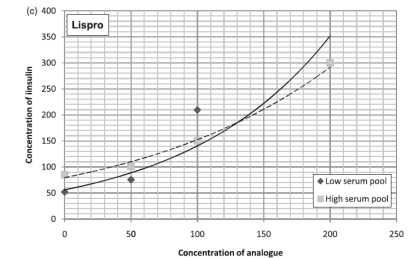
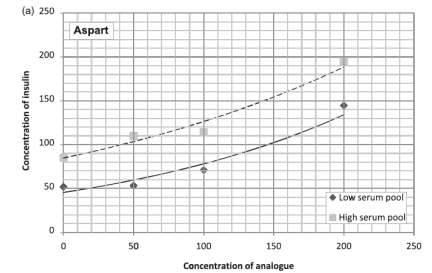
Elecsys E-170 analyser.



Immulite® 2000 analyser.



Immulite® 2000 analyser.





Indicazioni alla richiesta

➤ Insulina

- ✓ Valutazione dell'ipoglicemia a digiuno
- ✓ Nel sospetto di ipoglicemia factitia (insieme al Peptide C)

➤ Peptide C

- ✓ Valutazione della riserva pancreatica dell'ormone
- ✓ Nel sospetto di ipoglicemia factitia (insieme all'insulina)
- ✓ Dopo stimolo con glucagone nella diagnosi differenziale tra DMT2 e LADA