

# **C-Reactive Protein and Immunglobulins in the Elderly: Senior Labor-Study FM255-Beaulieu-Lausanne 2011**

*Sakem B, Nydegger U, Medina P, Risch L, Risch M*

Labormedizinisches Zentrum Dr. Risch

Waldeggstrasse 37, 3097 Liebefeld-Bern

Correspondence: [nyu@lmz-risch.ch](mailto:nyu@lmz-risch.ch)

*Current practice* Values of elderly patients are referenced to intervals established with younger people

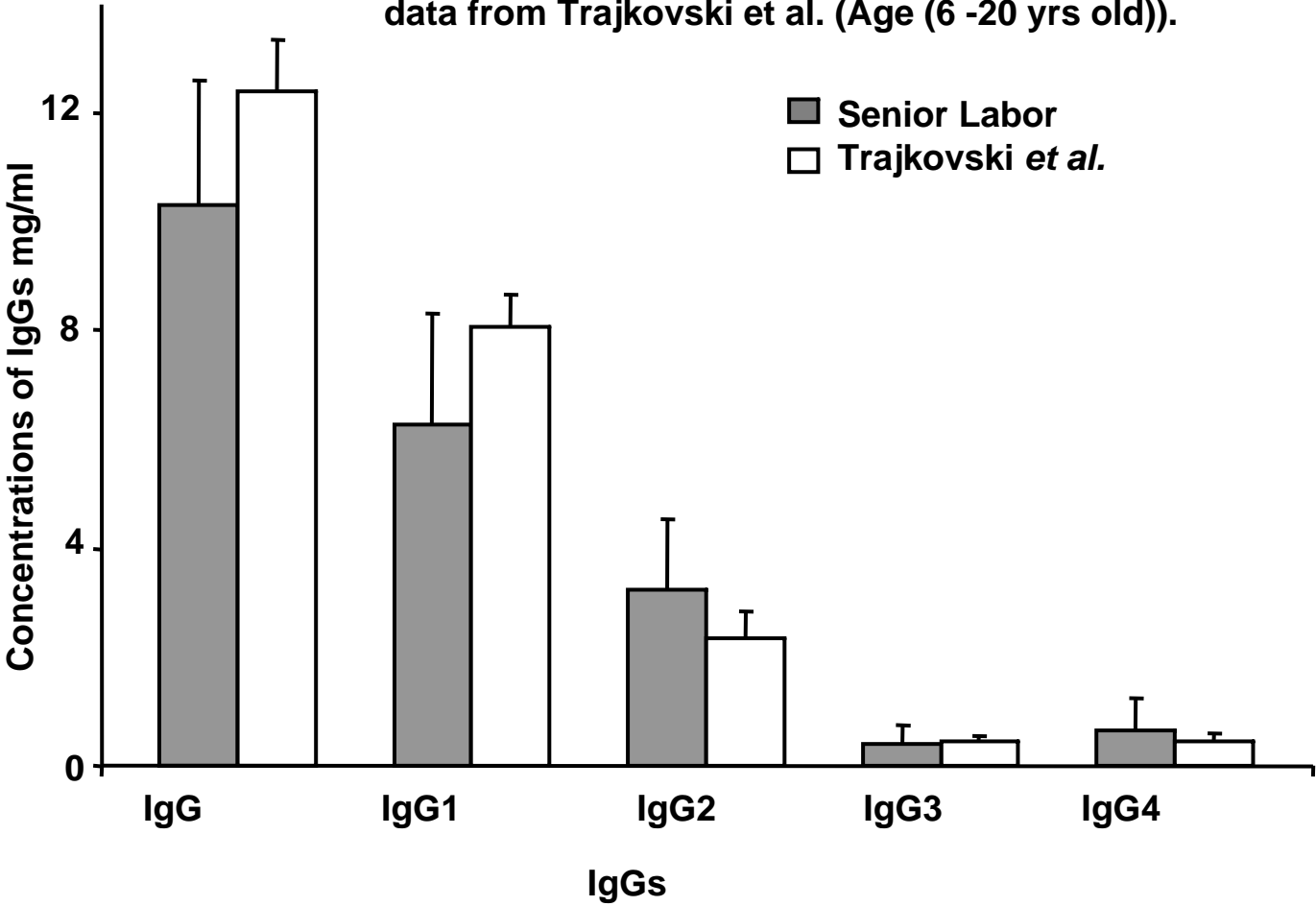
*Aim of present study* Values of elderly patients will be referenced to intervals established with fit aging individuals – sexagenarians through centenarians

→ Enrollment of the elderly

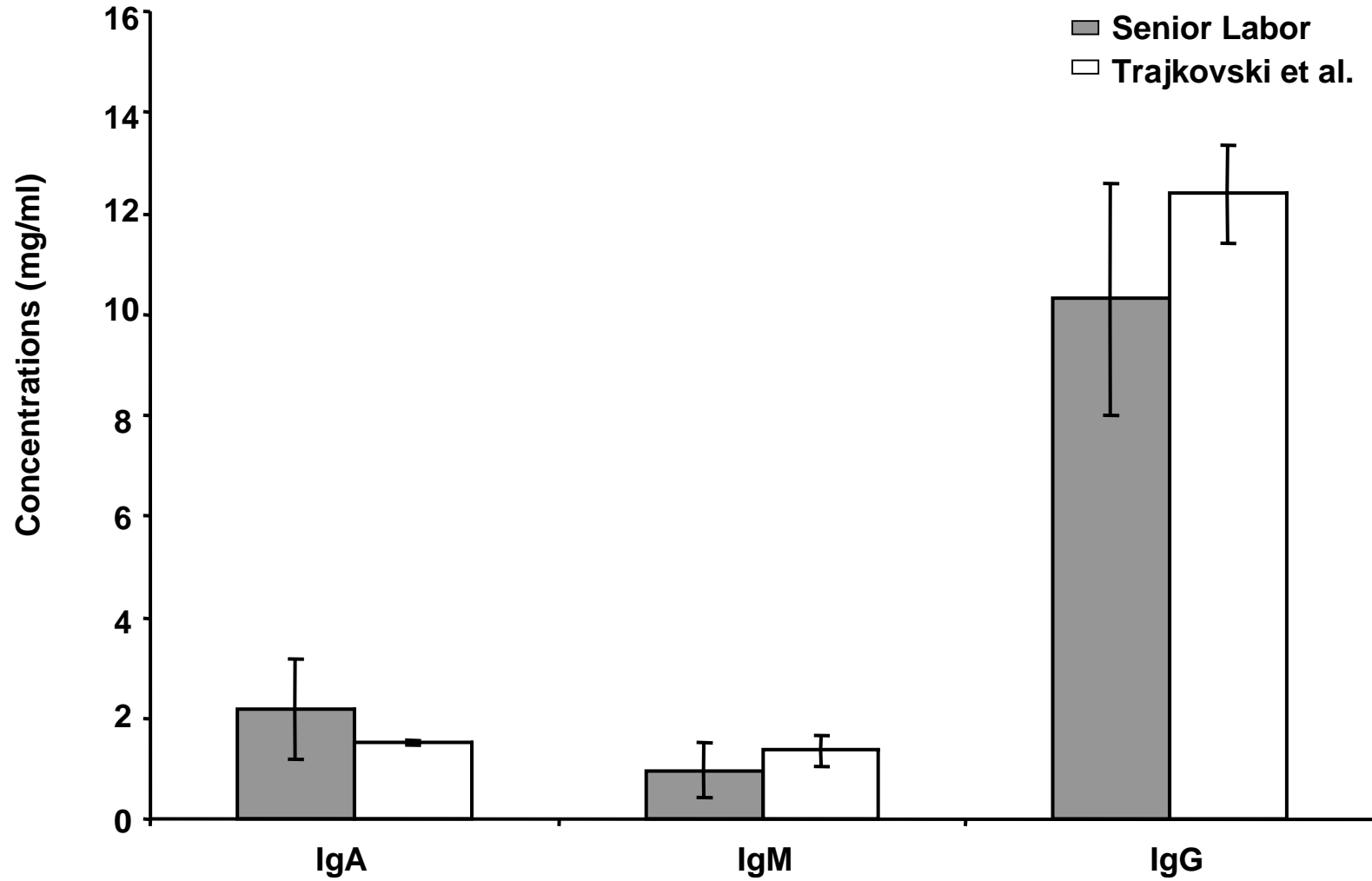
→ Laboratory methods

- Selection of volunteers compliant with local ethical committee (KEK No 166/08)
- IgM, IgG, IgA: using mAbs of The Binding Site on a ProSpec Nephelometer
- C-Reactive Protein: Latex-enhanced turbidimetry on a Cobas Roche Integra

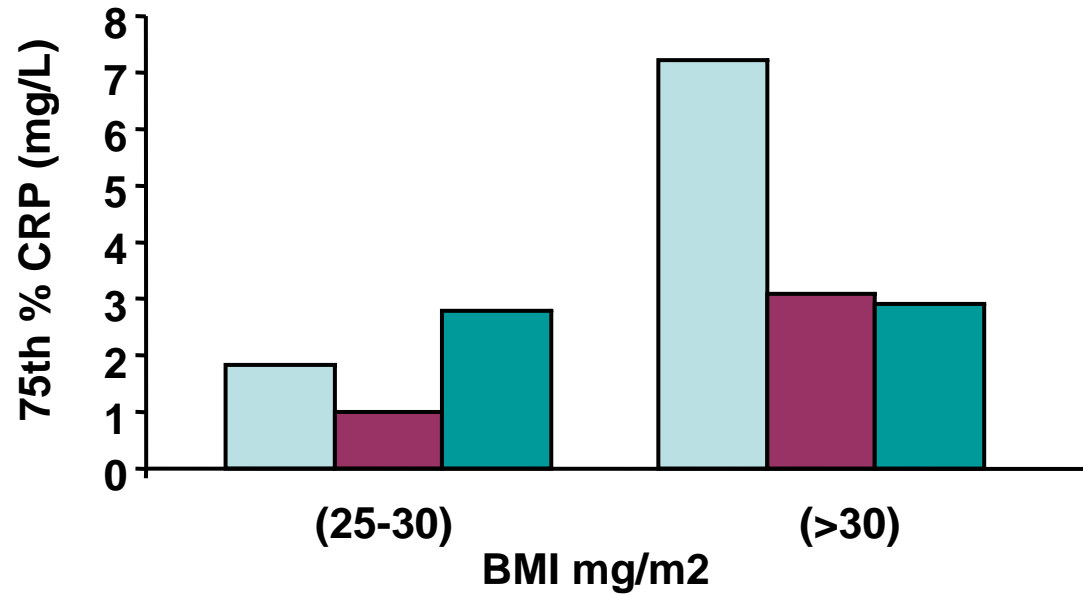
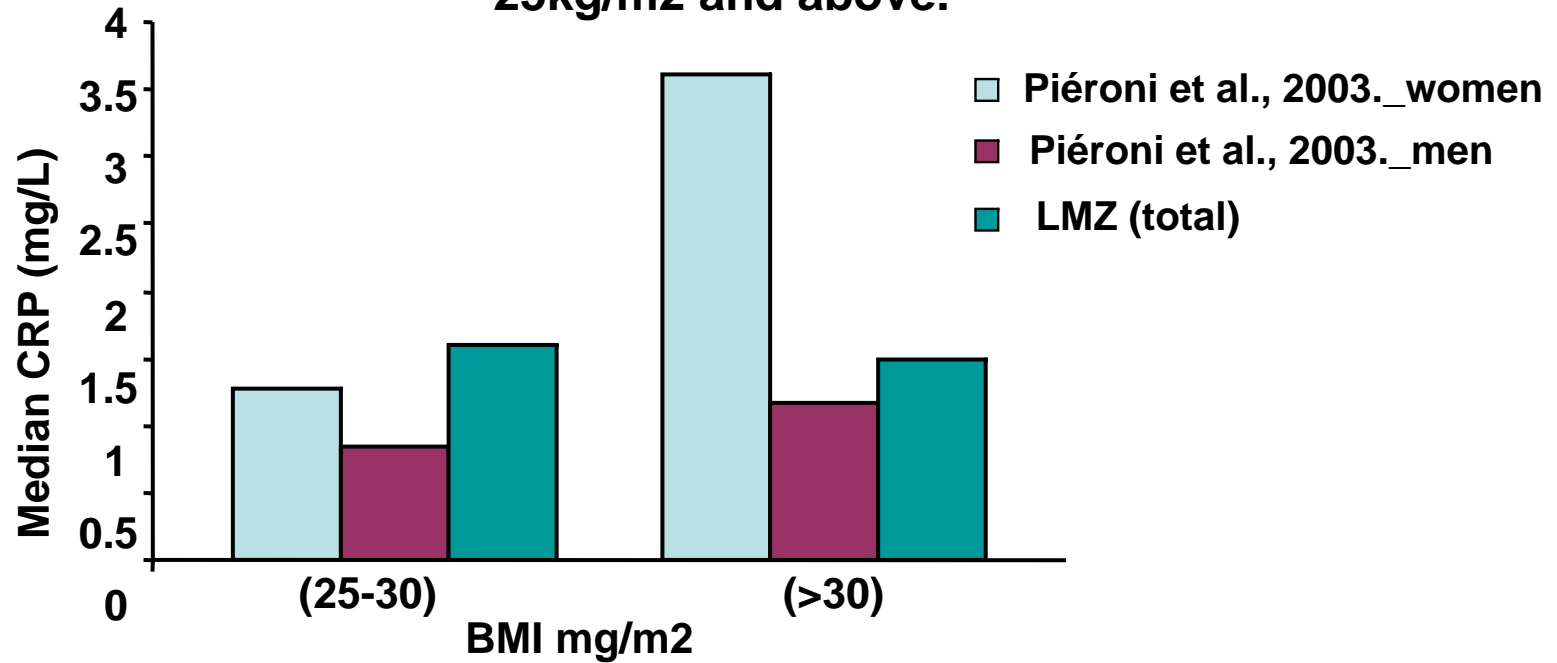
IgGs concentrations in mg/ml in Elderly Swiss population compared to data from Trajkovski et al. (Age (6 -20 yrs old)).



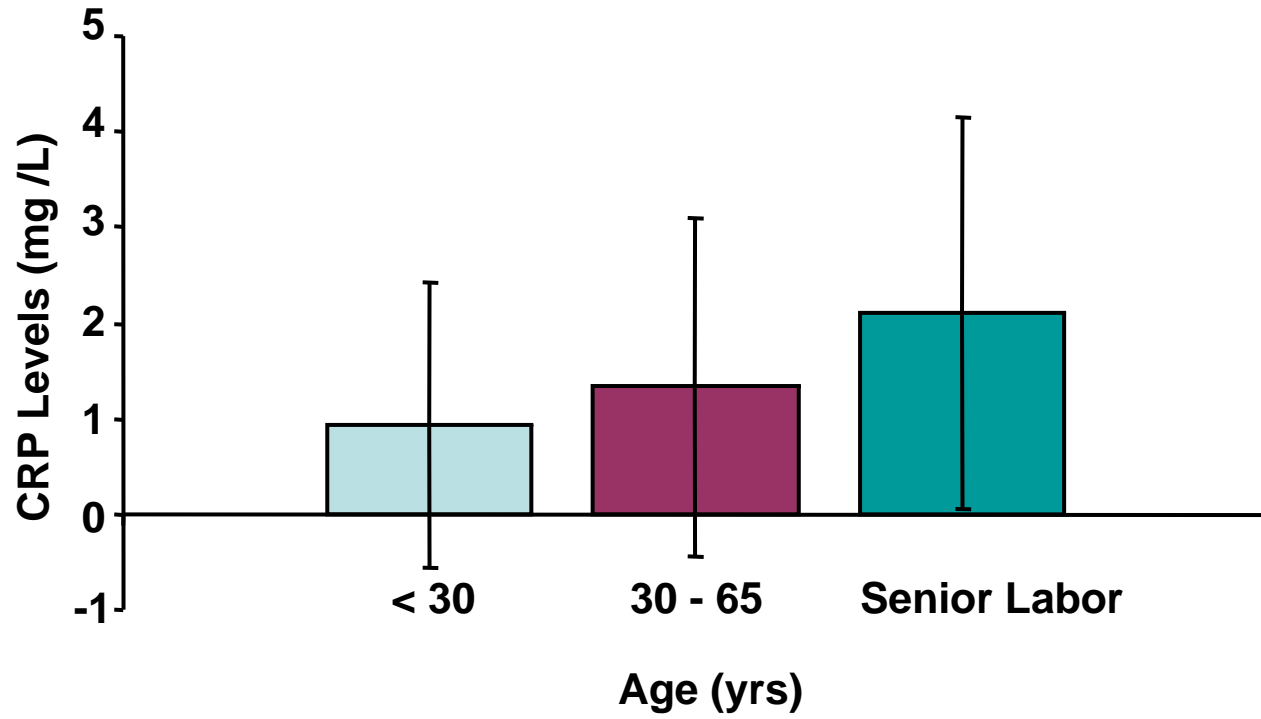
### Immunoglobulin concentrations in mg/ml



# Comparism of Median, 75(th) percentile CRP values for patients with BMI 25kg/m2 and above.



**Strong correlation of mean CRP values with age.  
(Piéroni et al., 2003 and Senior labor)**



# Conclusion

- IgM and IgG levels of the elderly tend towards the lower limit of a normal range established with younger adults
- Elderly subjects mount an appropriate innate immunity dependent CRP response and their CRP levels overlap with cutoffs set by the reagent providing industry.

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# Thyroid testing in the elderly – a survey in the framework of the seniorlabor study

Medina Escobar P<sup>1</sup>, Nydegger U<sup>1</sup>, Risch M<sup>1</sup>, Lenggenhager E<sup>1</sup>, Risch L<sup>1,2</sup>

Labormedizinische zentren Dr. Risch<sup>1</sup>, Private University Liechtenstein<sup>2</sup>

## Background

Although reference ranges for thyroid function tests are used without regard to age, it is unclear whether the common reference intervals also apply to the elderly

## Aim

To determine the prevalence of hypothyreosis in a cohort of subjectively healthy elderly individuals, who were participants at the www.seniorlabor.ch-study.

## Methods

Serum samples from morning fasting state were analyzed using ultrasensitive assays for TSH, (FT3) and FT4.

A detailed medical history was taken. Known thyroid disease, diabetes mellitus, hypertension, kidney disease, carcinoma, reduced cognitive function, smoking and alcohol abuse were considered as exclusion criteria.

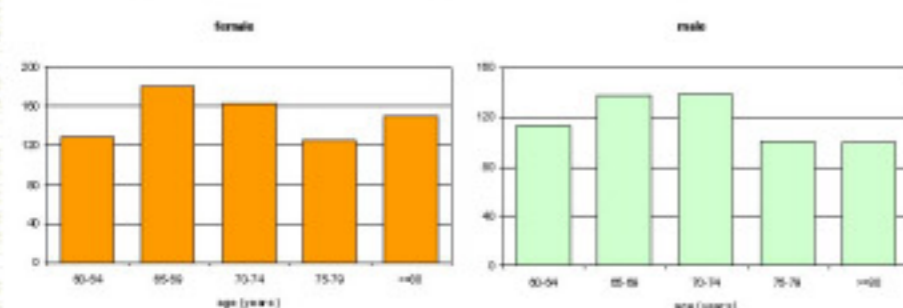
The ARCHITECT Abbott (Baar, Switzerland) TSH, FT3 and FT4 assays involving light generation using C16H15NO3S upon reaction of the analyte with antibody-coated paramagnetic particles was used.

The current normal ranges valid at our institution are the following:  
TSH: 0.35 – 4.94 mU/L, FT3: 2.6-6.4 pmol/l and FT4: 9.1-23.8 pmol/l.

## Results

A total of 1345 participants (591 male/ 748 female) was included into the study

The age distribution stratified to gender is shown below.



## Results

Elevated levels of TSH were found in

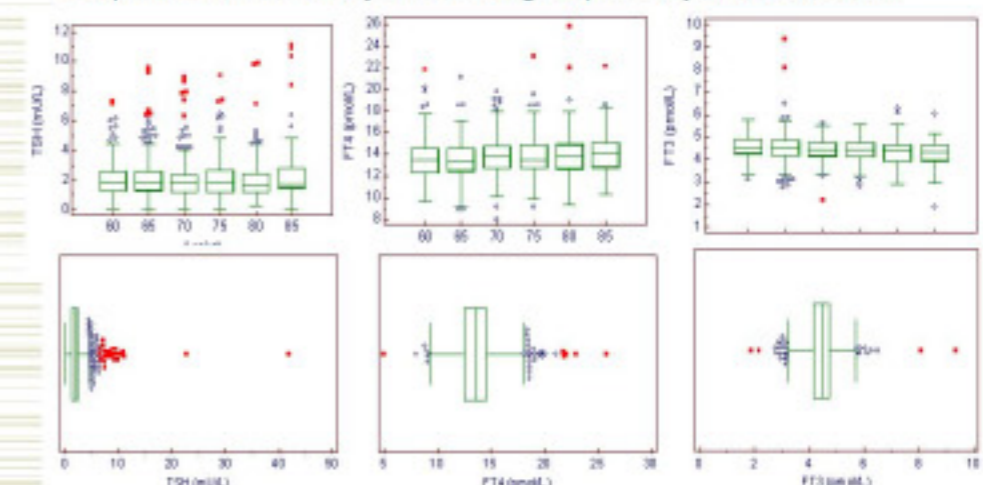
45 elderly, 3.35% (95% CI 2.51-4.45)  
24/591 males: 4.06% (95%CI 2.73-5.92)  
21/748 females: 2.80% (95% CI 1.85-4.25).

Of these 45 individuals none had a reduced FT3 and only one of them had FT4 concentration below 9.1 pmol/l.

In the individuals with deviating results from the normal range comparison to the clinical records on file could not uncover signs nor symptoms of hypothyroidism.

## Results

The distributions of the three parameters is shown below stratified to age and collapsed. Within the elderly there is no age dependency of concentrations.



## Results

The following table displays double sided 95% reference intervals as obtained with the non-parametric method according to CLSI C28-A3 guideline.

The obtained reference intervals differ from those proposed by the manufacturer.

	Lower limit [90% CI]	Upper limit [90% CI]
TSH	0.45 [0.34,0.5]	5.71 [5.29,6.40]
FT4	10.6 [10.5,10.8]	17.7 [17.3,18.4]
FT3	3.33 [3.26,3.42]	5.47 [5.43,5.51]

## Conclusions

Subclinical hypothyroidism can be found in a substantial proportion of subjectively healthy elderly.

Although age gender seems to play a minor role in thyroid function tests, the reference intervals obtained in our cohort differ substantially from those recommended by the manufacturers, especially

at the upper limit of TSH  
at the lower and upper limit of FT4  
at the lower and upper limit of FT3