

Alternative Approach for the determination of Bence Jones Proteinuria (BJP), based on the IFCC Guidelines^{*1a}

Screening Test

Quantification of Free Light Chains in non-concentrated urine (ur-FLC)

Recommended Sample^{*1b}:

2nd morning void and expressing the results relative to creatinine

with **κλoneus[®]** assays

by Nephelometry (NIA) or Turbidimetry (TIA)

Recommended Detection Limit^{*1c}:
< 10 mg/L

Kappa or Lambda
>10 mg/L

Kappa and Lambda
<10 mg/L

BJP Suspicion

STOP

Confirmation Test

to determine the electrophoretic, mono, oligo or polyclonal distribution of the quantified ur-FLC by **κλoneus[®]** assays

by Immunofixation (IF)
of concentrated urine

Recommended Sensitivity^{*1e}: < 10 mg/L

the quantitative result obtained by **κλoneus[®]** is an objective guide to establish the urine concentration factor and it can also be useful in monitoring and quantitative estimation of the urinary monoclonal component ^{*1f} which is more precise and sensitive than densitometrically dosed

1. "Guidelines for the Analysis of Bence Jones Protein"

M. Graziani et al. for the IFCC Committee on Plasma Proteins
and the SIBioC Study Group on Proteins
Clin Chem Lab Med 2003; 41(3):338-346

1a. page 339:

"Alternative approaches

Immunochemical methods (nephelometry, turbidimetry) for the quantification of FLCs in urine can be used for BJP detection as an initial screening to exclude BJP, thus reducing the number of samples to process further."

1b. page 339:

"Sample

...

... we recommend the use of the second morning void (5) and expressing the concentration of BJP relative to urinary creatinine."

1c. page 340:

"Alternative approaches

...

... it is mandatory to control and avoid antigen excess and to document a detection limit below 10 mg/l."

1d. page 340:

"Alternative approaches

...

... A positive test should be followed by immunofixation (IF) for the following reasons: ..."

1e. page 339:

"Sensitivity

The indication of a detection limit for BJP can only be approximate since there is no way of obtaining an accurate quantification of the protein.

However, since the indicated amount for polyclonal LC excretion is approximately 10 mg/l (10, 11), a method with a sensitivity down to this limit is suggested."

1f.

page 340:

"Quantification

...

Despite all these drawbacks, the immunochemical estimation of BJP may be of clinical value to monitor the clone during treatment, but it is necessary to utilize the same antisera and calibrators throughout the follow-up and to keep in mind all the caveats listed above."