

# Paraproteins in the QAP

AACB/AIMS 2010

Loretta Wheatland  
RCPA Immunology QAP



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- ❖ Target Setting
- ❖ Data Analysis
- ❖ Nomenclature
- ❖ Educational Module



## PP Module

- ❖ 1 Urine sample
- ❖ 7 Serum samples
- ❖ Clinical History
- ❖ Serum Free Light Chains from 2008



# Target Setting



- Qualitative
- Consensus
- Mode
- Clinical



# Consensus Guidelines

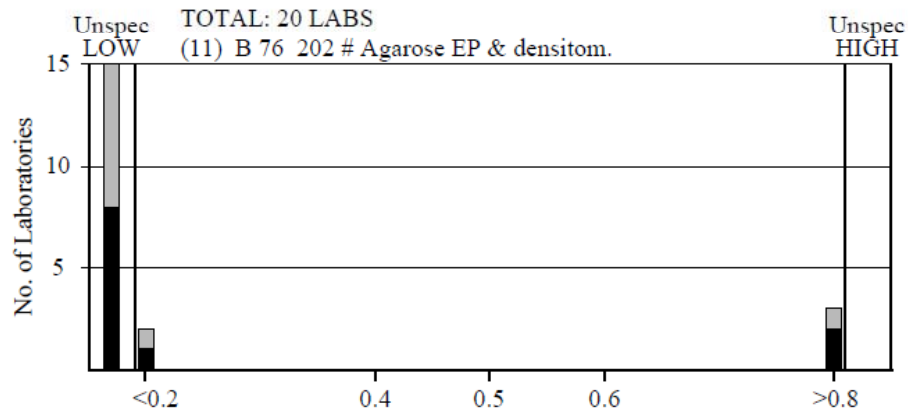
**Observed consensus required to ensure that lower 95% confidence limit on observed consensus is greater than 80%**

<b>Sample Size</b>	<b>Number not in Consensus</b>	<b>%</b>
0-25	0	100%
26-33	$\leq 1$	>96.1%
34-40	$\leq 2$	>94.1%
41-47	$\leq 3$	>92.7%
48-54	$\leq 4$	>91.7%
55-61	$\leq 5$	>90.9%
62-68	$\leq 6$	>90.4%

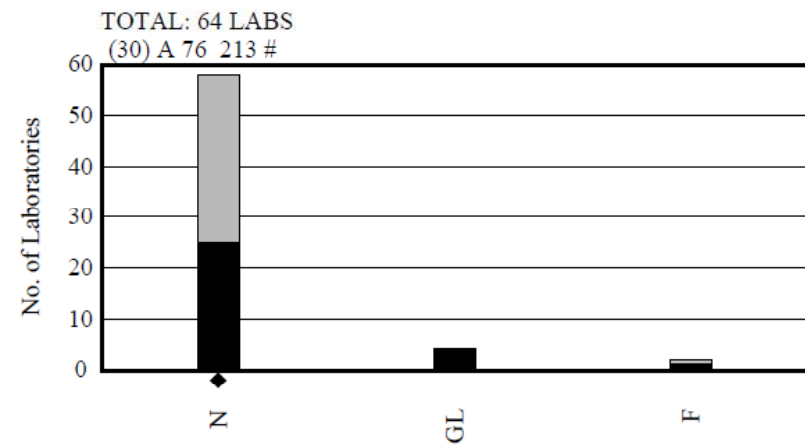


# 2009 PP13.06 NHS

## M Band %



## M Band ID



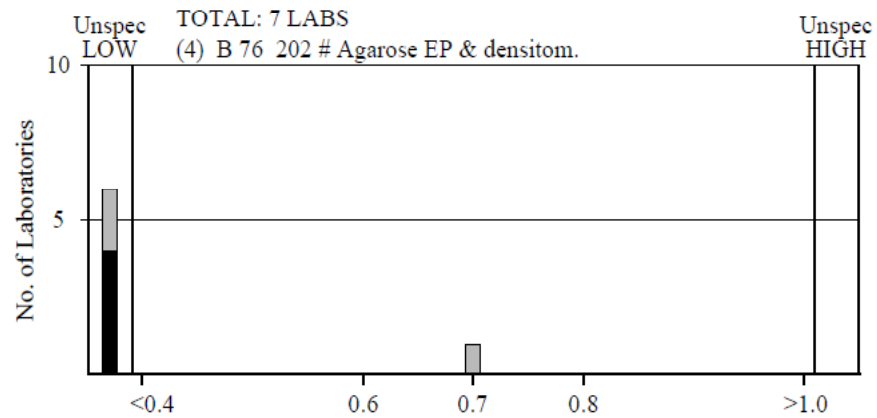
Designated Result: Negative  
Clinical: Normal Human Serum



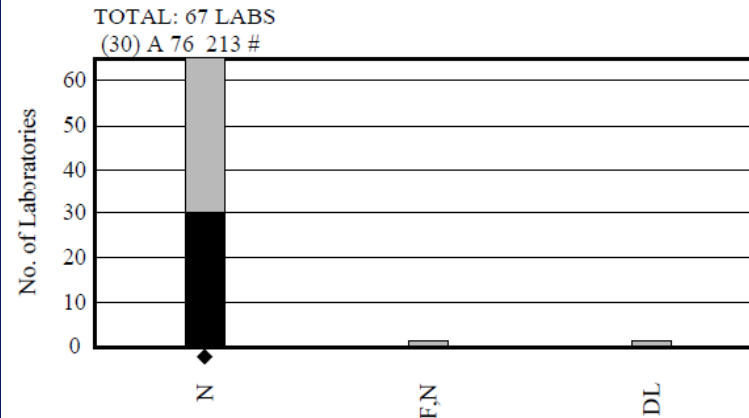
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# 2010 PP14.03 NHS

## M Band %



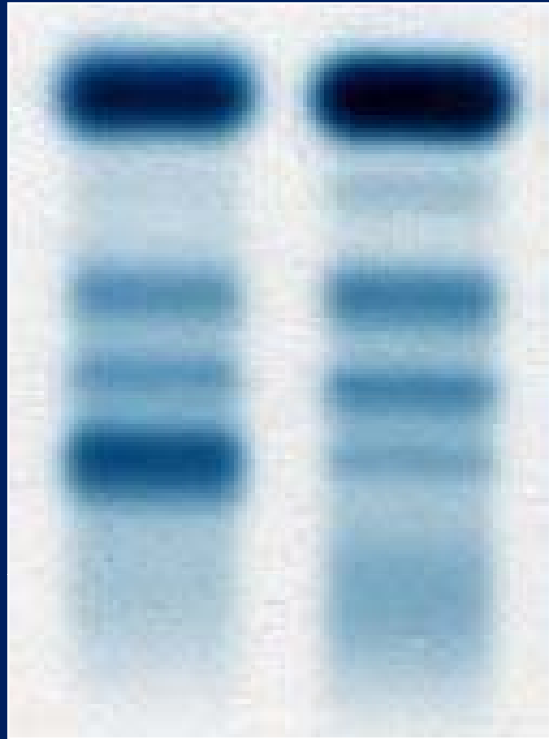
## M Band ID



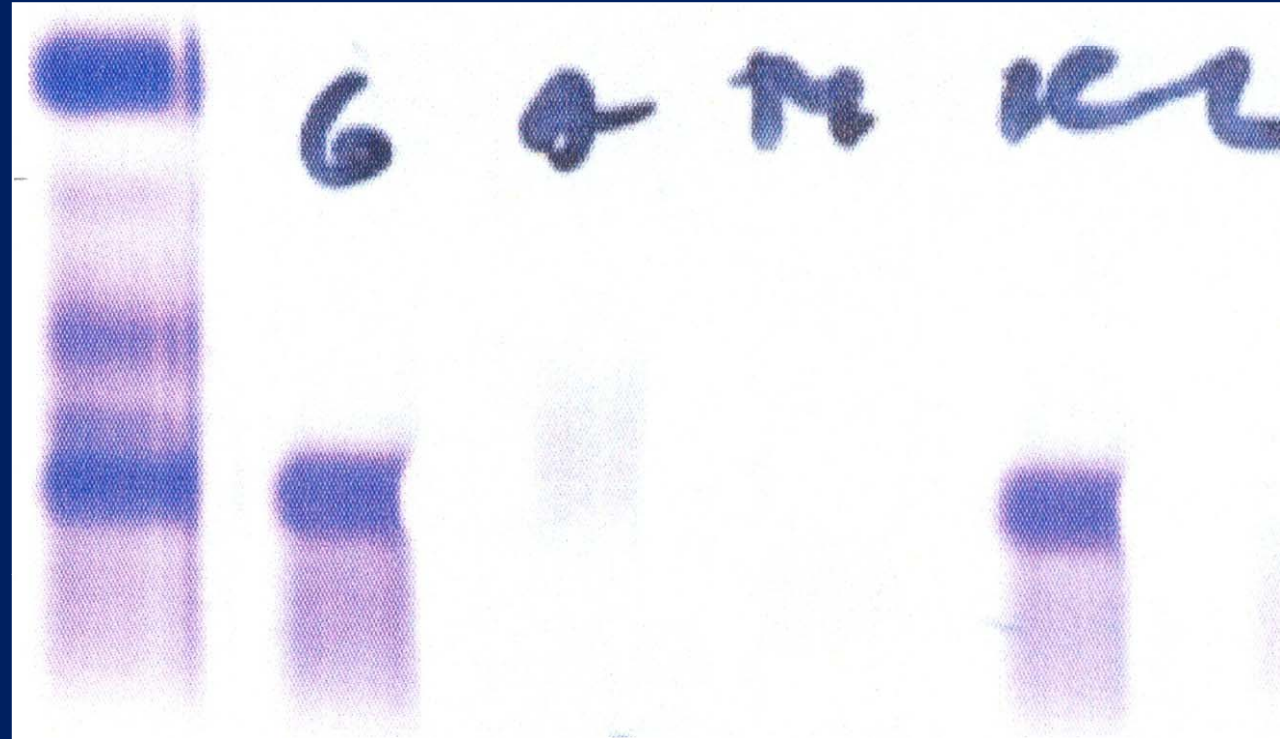
Designated Result: Negative  
Clinical: Normal Human Serum



# PP13.02



PP13.02 Normal



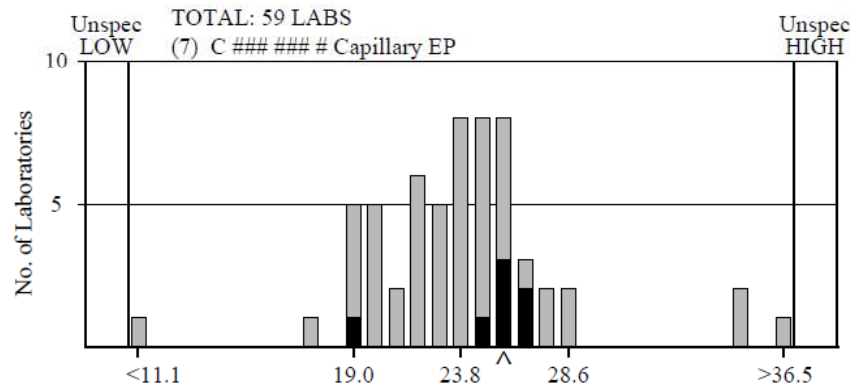
IgG Kappa paraprotein

Designated Result: IgG Kappa  
Clinical: 67 year old female with MGUS

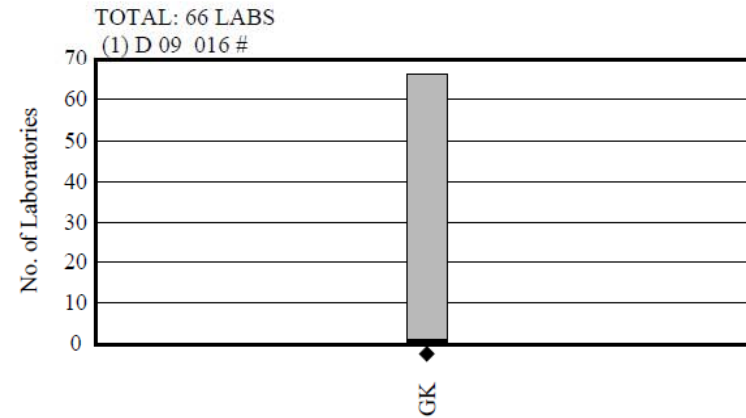


# PP13.02

## M Band %



## M Band ID



Range: 7- 41%

SD: 4.5

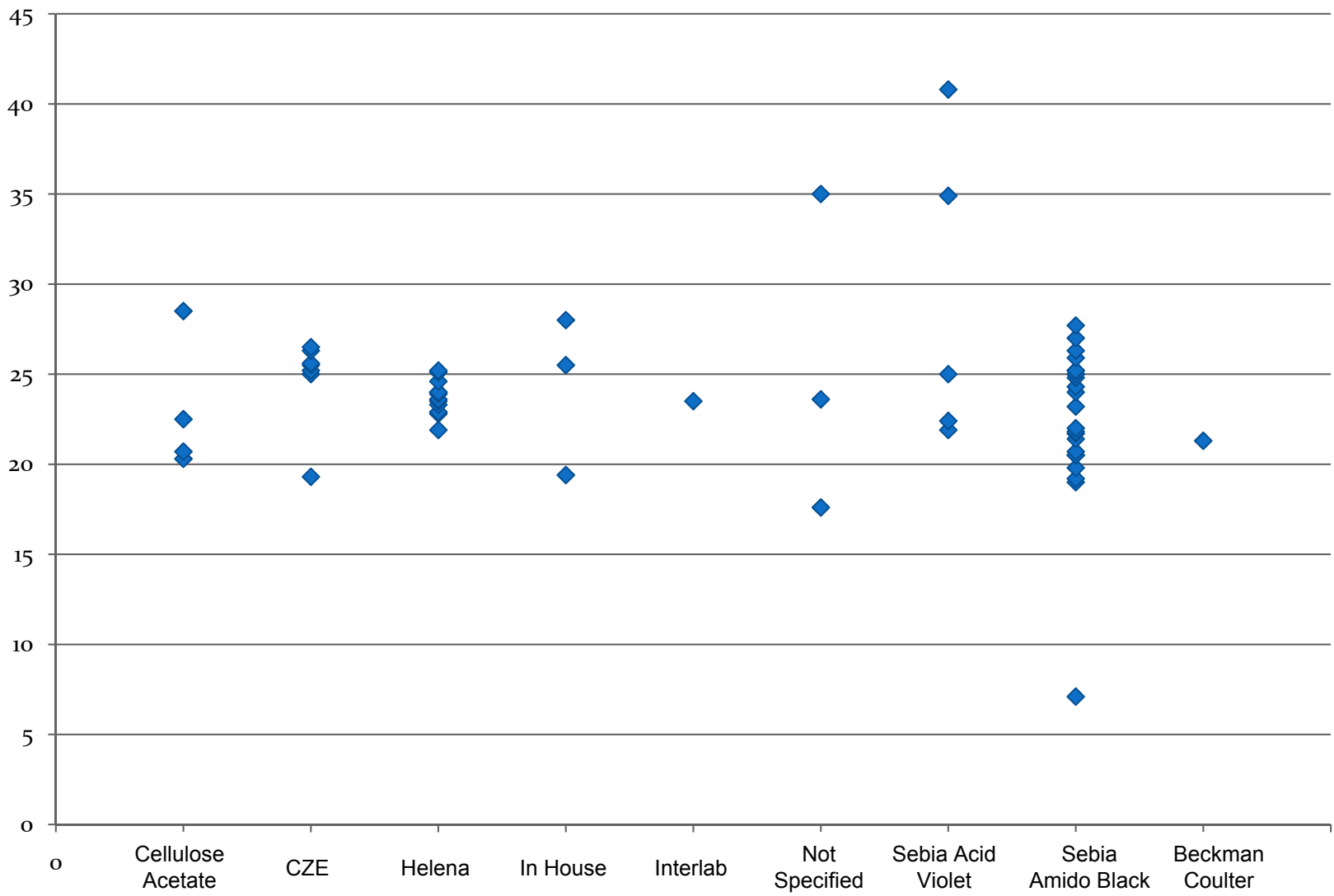
%CV: 18.8

Designated Result: IgG Kappa

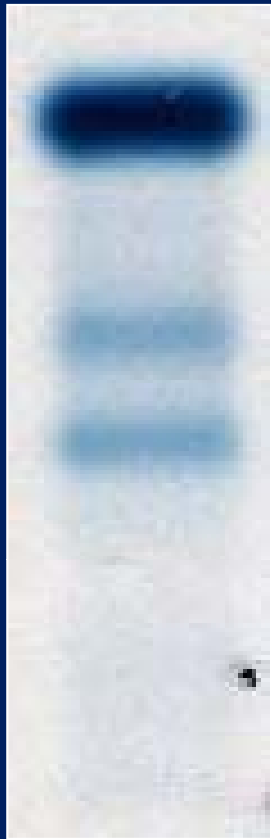
Clinical: 67 year old female with MGUS



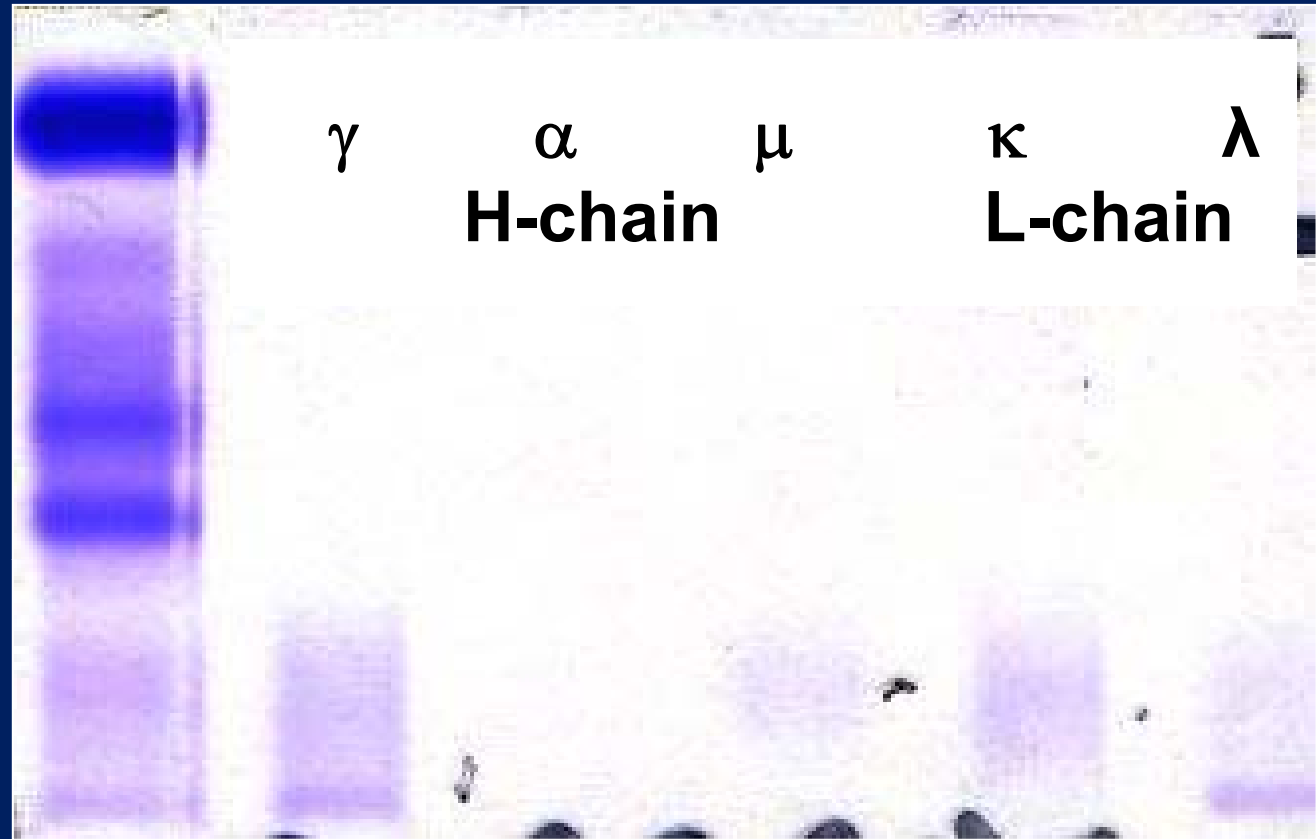
# PP13.02 Paraprotein %



PP13.04



PP13.04



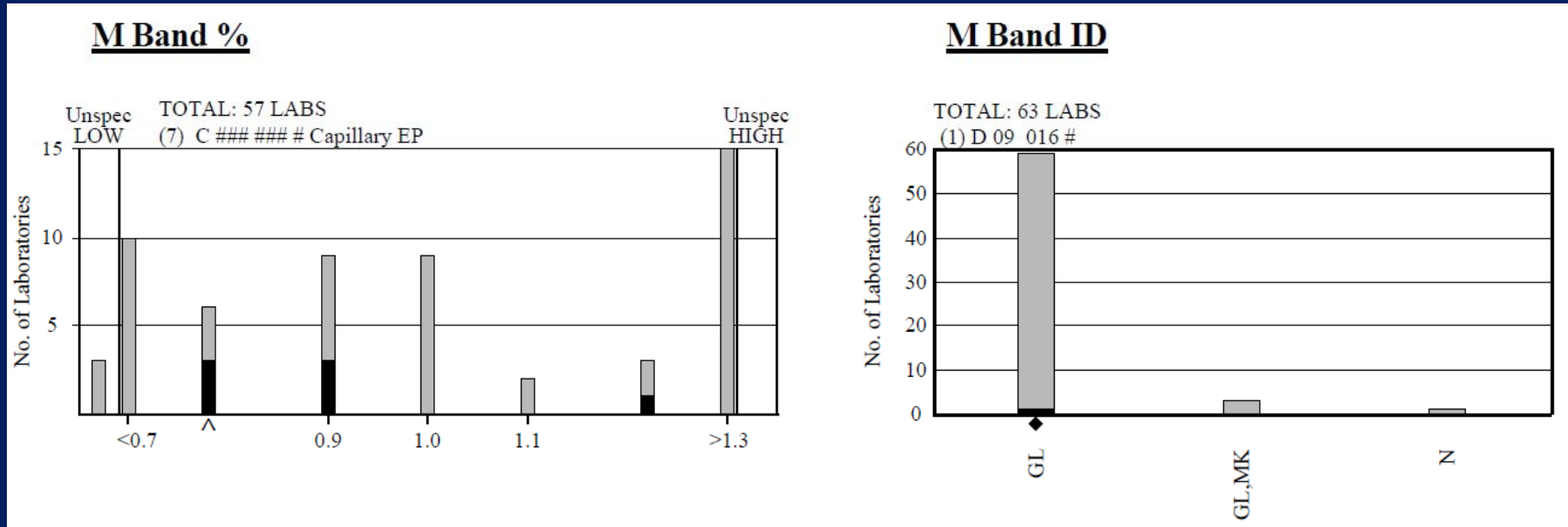
IgG Lambda paraprotein

Designated Result: IgG Lambda  
Clinical: 68 year old male with Multiple Myeloma



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# PP13.04



Range: <1 – 13.2% (0.3 – 3.7%)

SD: 0.6

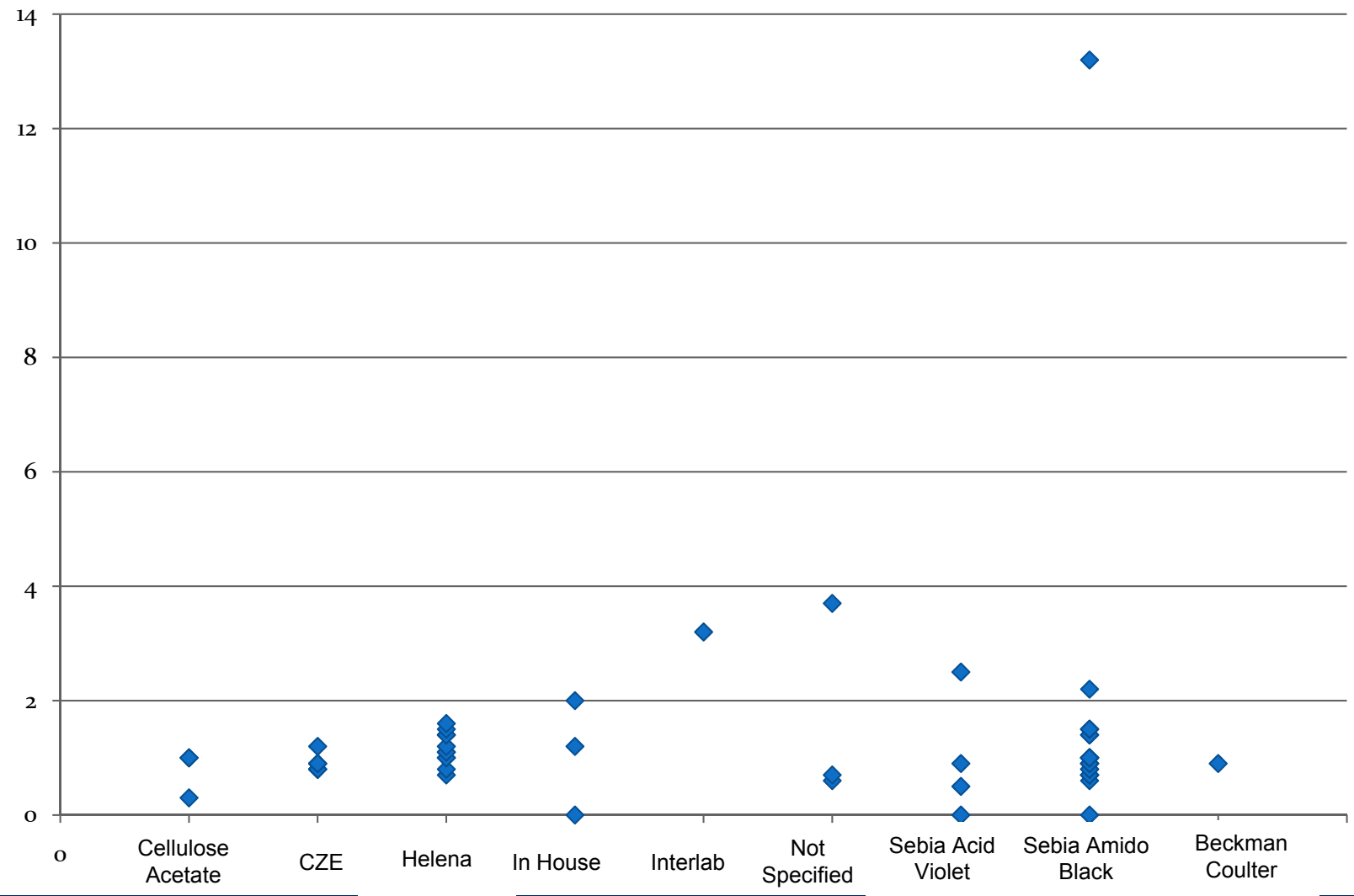
%CV: 53.8

Designated Result: IgG Lambda

Clinical: 68 year old male with Multiple Myeloma

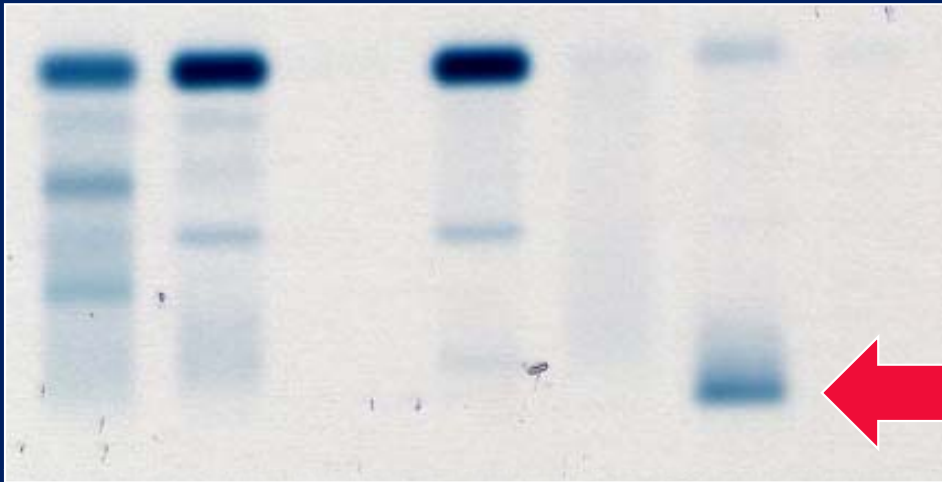


# PP13.04 Paraprotein %



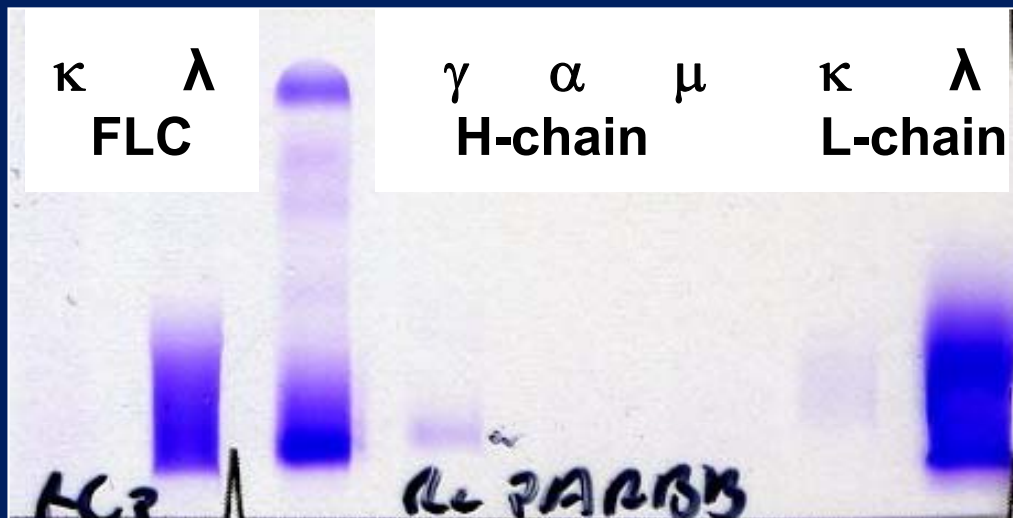
# PP14.01

## Urine protein electrophoresis



- Gamma band – median 62%
- Urine total protein – median 1.3 g/L

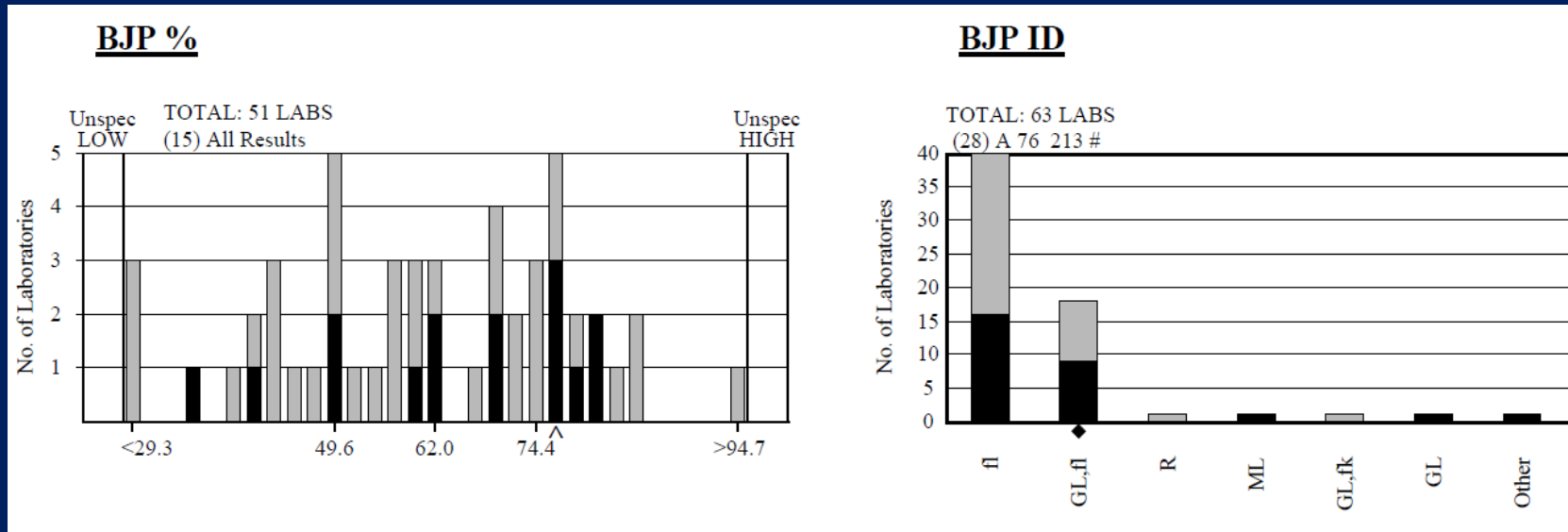
## Immunofixation



- IFE: Lambda BJP – 1.25 g/L
- IFE: IgG Lambda paraprotein in trace

Lambda BJP

# PP14.01



BJP%

Range: 1-97%

SD: 18.3

%CV: 30.5

UTP g/L

Range: 0.1-2%

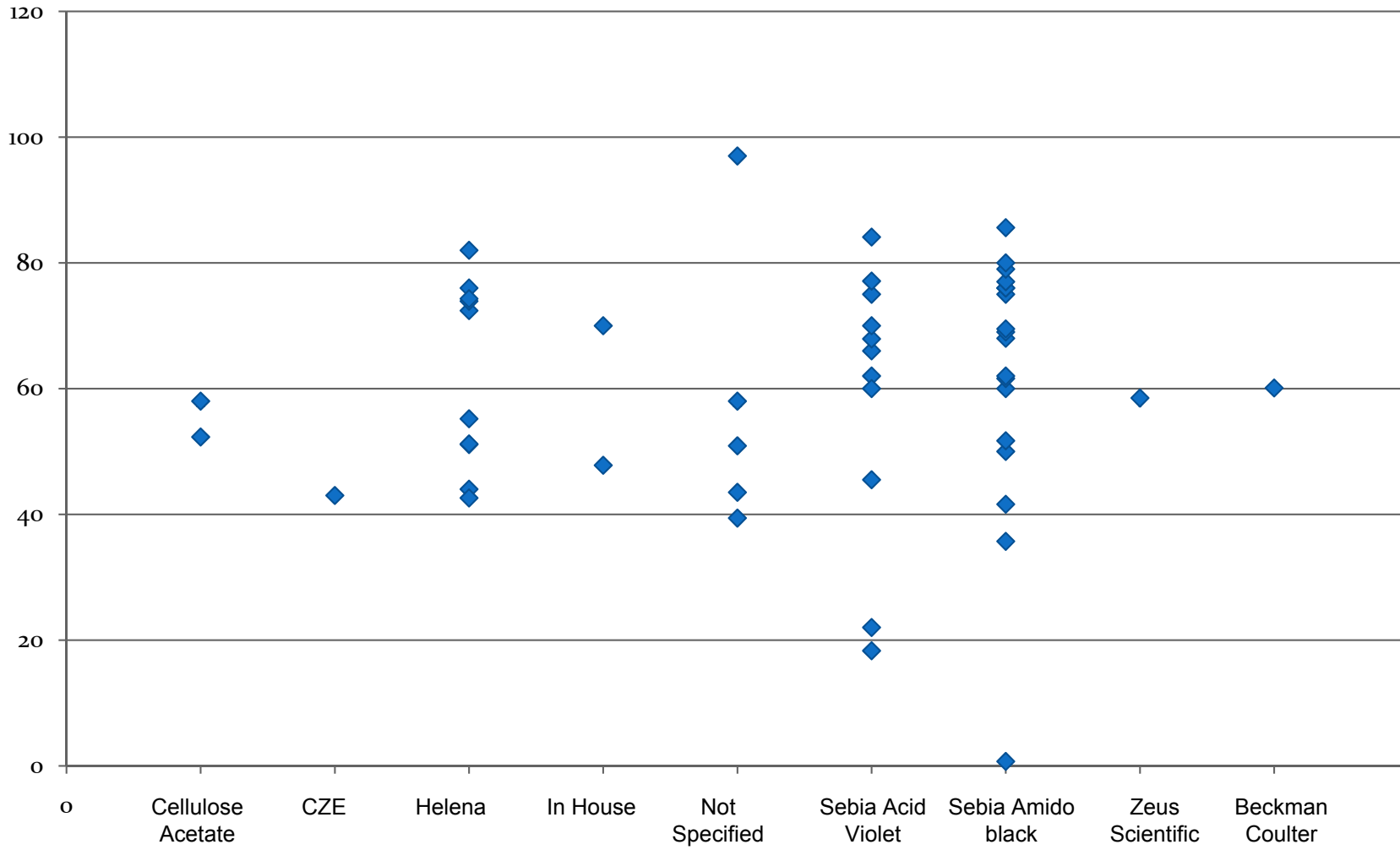
SD: 0.4

%CV: 36.3

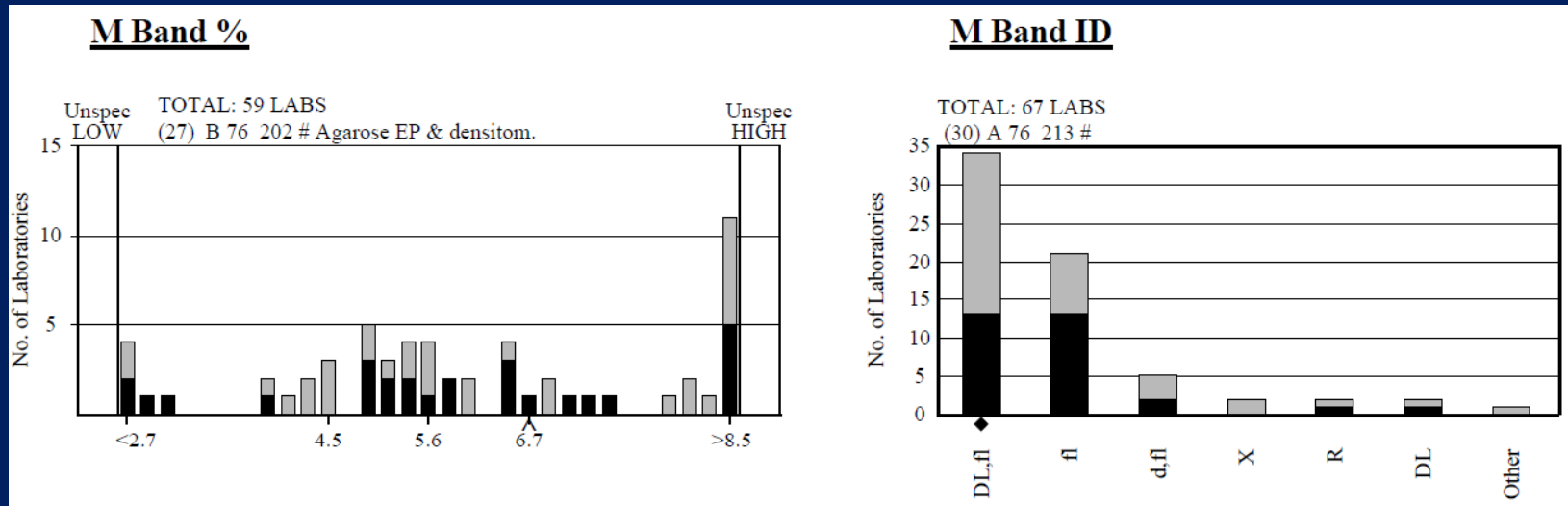
Designated Result: Free Lambda light chains  
 Clinical: 85 year old male with Multiple Myeloma



# PP14.01 BJP %



# PP14.04



Designated Result: IgD lambda and free lambda light chains

Clinical: 67 year old male with anaemia, back pain and weight loss

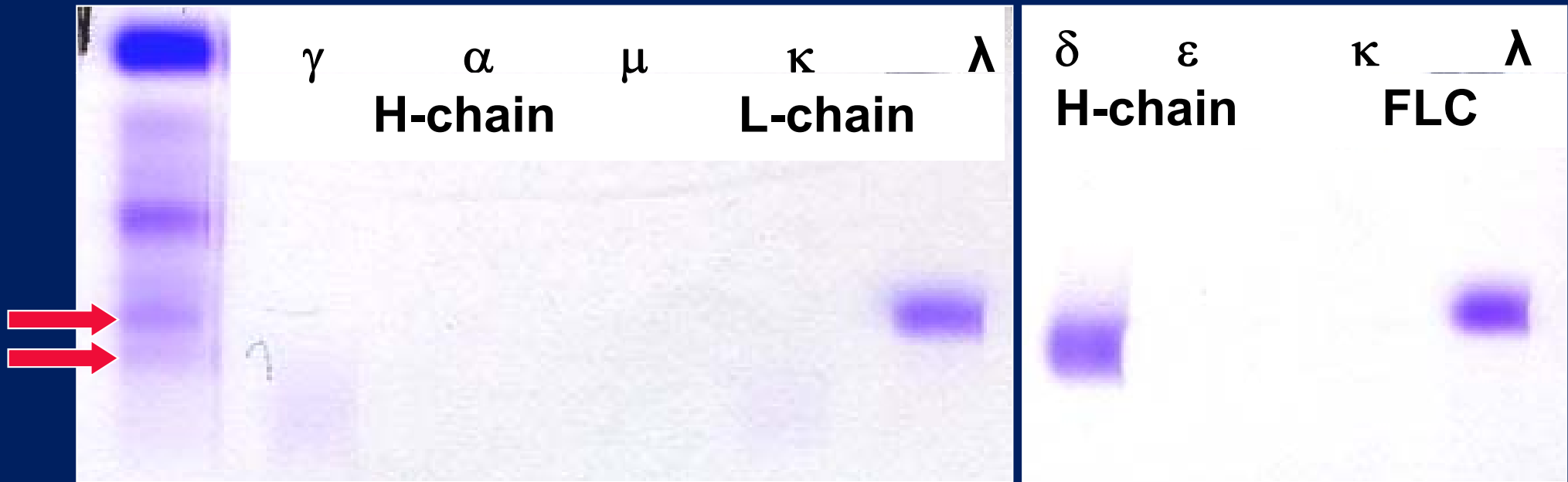


# PP14.04



Designated Result: IgD Lambda and free lambda light chains

Clinical: 67 year old male with anaemia, back pain and weight loss



Free lambda light chains

IgD Lambda PP

# A Healthy Young Man Presenting with Multiple Rib Fractures

Harle L et al Clin Chem 56:9 1390-3 (2010)

- “Clinical features associated with IgD myeloma, as opposed to IgG or IgA myeloma, include young age of onset, rapid disease progression, and increased rate of amyloidosis and bone involvement.
- SPEP may reveal a small or absent monoclonal spike in IgD myeloma.
- Most laboratories do not routinely perform immunofixation for IgD or IgE. Reflex testing for IgD and IgE should be performed when serum immunofixation demonstrates a monoclonal light chain without a corresponding monoclonal IgG, IgA, and IgM band.
- SPEP without a distinct monoclonal band in the  $\beta$  or  $\gamma$  region and monoclonal light chains on serum or urine immunofixation without a corresponding IgA, IgG, or IgM component are consistent with both light chain disease and IgD myeloma, and should prompt immunofixation for IgD.
- Hypogammaglobulinemia is a common finding in multiple myeloma patients, and thus should raise the consideration for immunofixation studies. Furthermore, depressed concentrations of nonmonoclonal immunoglobulin concentrations are associated with adverse prognosis.”



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# Recommendations for Standardised Reporting of Protein Electrophoresis in Australia and New Zealand

Jillian Tate, Peter Mollee, Grahame Caldwell, James Daly, David Gillis, Margaret Jenkins, Sue Jovanovich, Helen Martin, Richard Steele, Louise Wienholt

- AACB Working Party on Standardised Reporting of Protein Electrophoresis
- Changes to QAP Report Nomenclature:
  - M Band % to Paraprot.%
  - SPP to SPEP
- Final draft available for comment



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# Educational Program 2010

- Free of charge
- “Monitoring Amyloidosis with Serum Free Light Chain Assay”
- 2 serum samples
- Clinical notes and EPG results provided
- Lab to test SFLC



# Educational Module 2011

- Free of charge
- 2 per year
- Case study based
- Scans available on web – on line EPG resource
- Lab to provide details of extra testing/clinical comments
- Report to include references and Standardised Comments



## Acknowledgments:

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