



ANGAD SINGH

PID NO: P54190205016

Age: 69 Year(s) Sex: Male

Reference:

Sample Collected At:  
DR VINAY KUMAR CHOPRA  
KOS Diagnostic Lab, 6349/I, Nicholson  
Road, Ambala Cantt, HRY 133001.  
133001

VID: 54193506415

Registered On:  
15/10/2019 01:30 PM  
Collected On:  
14/10/2019  
Reported On:  
17/10/2019 05:39 PM

Immunofixation- Qualitative, Serum\*

(Serum)

Investigation

Observed Value

Electrophoretic Zone

IgG	Absent
IgM	Absent
IgA	Absent
Kappa	Absent
Lambda	Absent
M-Band	Absent

Impression

NO MONOCLONAL GAMMOPATHY SEEN

Interpretation:

Bands in serum protein electrophoresis	Serum Immunofixation		Result
	Anti heavy chain antisera (IgG/ IgM/IgA)	Anti Light chain Kappa/Lambda	
Remark 1 1 band present	+	+	Presence of monoclonal
Remark 2 1 band present	-	+	1.Light chain disease,suggest urine Immunofixation 2.IgD or IgE disease 3.Multiple bands in lambda region indicates polymerised form
Remark 3 1 band present	+	-	Heavy chain disease.
Remark 4 Faint band present	Faint band	-	Cryoglobulin
Remark 5 2 band present	2 band with same or different anti-heavy chain sera	2 band with same different anti-light chain sera	1. Biclonal gammopathy 2. Paraprotein monomer/polymer of Immunoglobulins).

Dr. Asim Israr Khan  
M.D (Pathology)



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**Immunofixation-qualitativeSerum**  
**SERUM, PROTEIN ELECTROPHORESIS**  
(Serum)

<u>Investigation</u>	<u>Observed Value</u>	<u>Unit</u>	<u>Biological Reference Interval</u>
<b>Total Protein</b> (Biuret)	<b>6.1</b>		6.2-8.1
<b>Serum Albumin</b>	3.75	g/dL	3.57-5.42
<b>Alpha 1 Globulin</b>	0.28	g/dL	0.19-0.40
<b>Alpha 2 Globulin</b>	<b>1.07</b>	g/dL	0.45-0.96
<b>Beta 1 Globulin</b>	0.38	g/dL	0.30-0.59
<b>Beta 2 Globulin</b>	0.28	g/dL	0.20-0.53
<b>Gamma Globulin</b>	<b>0.34</b>	g/dL	0.71-1.54
<b>Albumin, Globulin Ratio</b>	1.60		1.1-2.2
<b>"M" Band</b>	<b>See comment</b>		Absent
<b>Comment</b>	Distortion seen in gamma region ( Hypogammaglobulinemia ( Raised Alpha-2.)		

**Interpretation :**

1. Serum protein electrophoresis is commonly used to identify multiple myeloma & related disorders.
2. Electrophoresis is a method of separating proteins based on their physical properties & the pattern is dependant on the fractions of 2 types of protein: Albumin & Globulin (alpha1, alpha2, beta & gamma).

<b>Components</b>	<b>Compositions</b>	<b>Interferences</b>
Albumin	Albumin	Lipoproteins, Drugs, Bilirubin, Radiological contrast
Alpha1 - globulins	α-1 antitrypsin, α-1 acid glycoprotein	-
Alpha2 - globulins	α-2 macroglobulin, haptoglobin	Haptoglobin - haemoglobin complex
Beta globulins	Transferrin, β-lipoprotein, IgA, IgM & sometimes IgG with complement protein	Fibrinogen
Gamma globulins	IgG, IgA, IgM, IgD, IgE	CRP

Direct detection at 200 nm in capillaries yields relative concentrations (percentages) of individual protein zones.

**Remarks :**

1. The following conditions require serum immunofixation to differentiate monoclonal and polyclonal disorders. (A) A well defined 'M' band (B) Faint band.  
(C) Chronic inflammatory pattern (decreased Albumin, increased Alpha, increased Gamma region), which may mask the monoclonal band.  
(D) Isolated increase in any region, with otherwise normal pattern.

2. Shouldering of albumin peak along anodal or cathodal side may be seen with lipoproteins, drugs, bilirubin or radiological contrast.  
Method : Capillary Electrophoresis

