Unipath Specialty Laboratory Ltd

Kolkata Lab :
Block DD-30, Sector-1, "Andromeda",
Ground Floor, Salt lake, Kolkata-700064
Landline No :033-40818800/ 8885/ 8899
Email ID : kolkata@unipath.in
CIN : U85195GJ2009PLC057059

BILL CUM RECEIPT

Name : Mr. CHAMPAK KUMAR DAS GUPTA
Age : 71 Yrs
Branch : KOLKATA

Invoice No / Date : 2062109911 / 23-Jun-2022 16:28
Gender : Male
Email :
Contact No :

Doctor : Dr. SOUMYA MUKHERJEE

Test Name	Expected Report Time	Remarks	Amount
Calcium	23-Jun-2022 09:59 PM		250.00
Creatinine	23-Jun-2022 09:59 PM		200.00
CBC	23-Jun-2022 09:59 PM		300.00
IMMUNOFIXATION ELECTROPHORESIS COMPLETE PANEL WITH B-2 MICRO	27-Jun-2022 11:59 AM		7000.00
(Immunoglobulin Profile, Free Light Chain Assay, Protein Electrophoresis, Beta 2 Microglobuline,Serum, IMMUNOFIXATION ELECTROPHORESIS, Serum)			
LIVER FUNCTION TEST	24-Jun-2022 01:30 PM		600.00

Receipt No	Receipt Date	Amount	Mode	Received By
R-21-22-23-9703	23-Jun-2022 16:46	8380.00	Paytm / UPI	U2743

Gross Bill Amount	:	8350.00
Net Amount	:	8350.00
Paid Amount	:	8380.00
Balance to Pay	:	**-30.00**

Amount Paid in Words : Eight Thousand Three Hundred And Eighty Only

Authorized By : LAXMAN THAPA

Visit out website to download report. UserId: **2062109911** Password: **S40M150Q**

MC-3319

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2062109911

TEST REPORT

Reg.No	: 2062109911	**Reg.Date**	: 23-Jun-2022 16:28	**Collection**	: 23-Jun-2022 16:34
Name	: MR. CHAMPAK KUMAR DAS GUPTA			**Received**	: 23-Jun-2022 16:34
Age	: 71 Years	**Sex**	: Male	**Report**	: 23-Jun-2022 17:39
Referred By	: □			**Dispatch**	: 27-Jun-2022 08:57
Referral Dr	: DR. SOUMYA MUKHERJEE,	**Status**	: Final	**Location**	: KOLKATA

Hematology

Parameter		Result	Biological Reference Interval	
COMPLETE BLOOD COUNT (CBC)				
RBC PARAMETERS				
HAEMOGLOBIN	(Cyanide-free SLS method)	**9.6**	13 - 17	g/dL
HEMATOCRIT	(Numeric Integration)	**32.4**	40 - 50	%
RBC Count	(Electrical Impedance)	4.50	4.5 - 5.5	million/cumm
MCV	(Calculated)	**72.0**	83 - 101	fL
MCH	(Calculated)	**21.3**	27 - 32	pg
MCHC	(Calculated)	**29.6**	31.5 - 34.5	g/dL
RDW - CV	(Calculated)	**19.20**	11.6 - 14	%
WBC PARAMETERS				
WHITE BLOOD CELL COUNT (WBC-TOTAL)	(Flow Cytometry)	6930	4000 - 11000	/cumm
DIFFERENTIAL WBC COUNT(Fluorescence FlowCytometry)				
Neutrophils		55	40 - 80	%
Lymphocytes		37	20 - 40	%
Monocytes		05	2 - 10	%
Eosinophils		03	1 - 6	%
Basophils		00	<2	%
PLATELET PARAMETERS				
Platelet Count	(Electrical Impedance)	1.81	1.5 - 4.5	lakhs/cumm
PERIPHERAL SMEAR EXAMINATION				
RBC		Normocytic normochromic to microcytic hypochromic with anisocytosis.Target cells,elliptocytes noted		
WBC		Total counts within range with reactive changes in lymphocytes		
PLATELET		Adequate on smear studied		

Sample Type: Whole Blood

Dr. Mandeep Bedi
MBBS, DCP, MD (PATHOLOGY)
HEAD OF HEMATOLOGY & CLINICAL PATHOLOGY
55315 (WBMC)

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Referred By	: □			**Dispatch**	: 27-Jun-2022 08:57
Referral Dr	: DR. SOUMYA MUKHERJEE,	**Status**	: Final	**Location**	: KOLKATA

Clinical Biochemistry

Parameter	Result	Biological Reference Interval	
CREATININE	0.69	<1.20	mg/dL

Method:Jaffe Kinetic Colorimetric

Useful for

1) Diagnosing and monitoring treatment of acute and chronic renal disease.

2) adjusting dosage of renally excreted medications

3) Monitoring renal transplant recipients.

CALCIUM, TOTAL	8.9	8.8 - 10.2	mg/dL

Method:NM-BAPTA-EDTA

Sample Type: Serum

Useful for-

Diagnosis and monitoring of a wide range of disorders including diseases of bone, kidney, parathyroid gland or gastrointestinal tract.

Decreased calcium (hypocalcemia)

- Absence or impaired function of parathyroid gland.
- Impaired vitamin d synthesis
- Chronic renal failure
- Hypoalbuminemia

Increased calcium (hypercalcemia)

- Primary hyperparathyroidism
- Bone metastatsis of carcinomas

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Clinical Biochemistry

Parameter	Result	Biological Reference Interval	
LIVER FUNCTION TEST(LFT 1)			
BILIRUBIN - TOTAL Method:Colorimetric Diazo	**1.49**	<1.1	mg/dL
BILIRUBIN CONJUGATED (DIRECT BILIRUBIN) Method:Diazo	**0.77**	<=0.2	mg/dL
BILIRUBIN UNCONJUGATED (INDIRECT BILIRUBIN) Method:Calculated	0.72	<=0.9	mg/dL
ALANINE AMINOTRANSFERASE (ALT / SGPT) Method:IFCC, without P5P	12	<41	U/L
ASPARTATE AMINOTRANSFERASE (AST / SGOT) Method:IFCC, without P5P	15	<40	U/L
ALKALINE PHOSPHATASE (ALP) Method:Colorimetric IFCC	47	<119	U/L
TOTAL PROTEIN Method:Biuret	**5.81**	6.4 - 8.3	g/dL
ALBUMIN Method:Bromocresol-Green	4.57	3.97 - 4.94	g/dL
GLOBULIN Method:Calculated	**1.24**	1.8 - 3.4	g/dL
A:G RATIO Method:Calculated	**3.7**	1 - 2.5	

Sample Type: Serum

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LABORATORY REPORT

Reg. No	:	**2062109911**	Reg. Date	:	23-Jun-2022 16:28
Name	:	Mr. CHAMPAK KUMAR DAS GUPTA	Collected on	:	23-Jun-2022 16:34
Sex/Age	:	**Male / 71 Years**	Approved on	:	24-Jun-2022 18:14
Ref. By	:	Dr. SOUMYA MUKHERJEE,	Report Date	:	27-Jun-2022 08:57
Location	:		Tele. No	:	
Dispatch At	:				

Immunofixation Electrophoresis

Specimen: Serum

Method: Serum proteins are electrophoresed on Tris Barbital Buffered agarose gel and immunofixed by antisera with different specificities anti IgG, IgA, IgM heavy chains and anti kappa and lambda (free and bound) light chains. After immunofixation, the precipitated proteins are stained with acid violet.

Result: IgG kappa monoclonal protein detected.
IgG : 6.36 g/L (Normal range: 7.0 – 16.0 g/L)

Interpretation:

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

Dr. Avinash B Panchal
MBBS,DCP
G-44623

This is an electronically authenticated report.

Certification Partner Global
ISO 9001:2015

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Sample: **4**

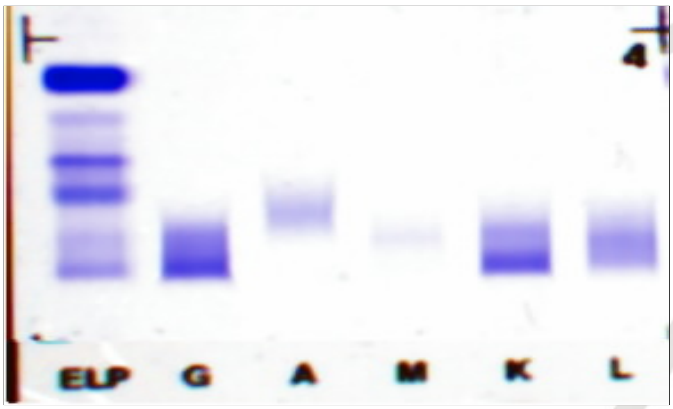
ID: **22062109911**

Date: **24/06/22**

Age :

Sex :

Serum Immunofixation



Comment:

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Referral Dr	: DR. SOUMYA MUKHERJEE,	**Status**	: Final	**Location**	: KOLKATA

Test Name		Results	Units	Bio. Ref. Interval
SERUM PROTEIN ELECTROPHORESIS				
TOTAL PROTEIN *Method:Biuret*	L	**6.00**	g/dL	6.4 - 8.2
ALBUMIN	L	**3.91**	g/dL	4.02 - 4.76
GLOBULIN		2.09	g/dL	2.0 - 3.5
A/G RATIO		1.87		1.2 - 2.2
ALPHA 1		0.26	g/dL	0.21 - 0.35
ALPHA 2		0.53	g/dL	0.51 - 0.85
BETA 1		0.41	g/dL	0.34 - 0.52
BETA 2	L	**0.22**	g/dL	0.23 - 0.47
GAMMA		**0.67**	g/dL	0.80 - 1.35
M BAND		0.26	g/dL	
INTERPRETATION		**Monoclonal protein detected. Suggest Serum immunofixation and/or serum free light chain assay for further evaluation if clinically suspicious of plasma cell dyscrasia. (if not already done / ordered)**		

Sample Type: Serum

Remarks:

1. Serum immunofixation is required in the following conditions to differentiate monoclonal and polyclonal disorders.
2.
   - A well defined 'M' band
   - Faint band
   - Chronic inflammatory pattern (decreased albumin, increased alpha, increased gamma protein) which may mask the monoclonal band.
   - Isolated increase in any region, with otherwise normal pattern.
3. Shouldering of albumin peak along anodal or cathodal side may be seen with lipoproteins, drugs, bilirubin or radiological conrast.
4. Normal serum protein electrophoresis does not rule out the monoclonal gammopathy and should not be used to screen for the disorder.
5. Approximately 11% of patients with multiple myeloma patients have completely normal serum electrophoresis with the monoclonal protein only identified by immunofixamtion electrophoresis.
6. Approximately 8% of multiple myeloma patients have hypogammaglobulinemia without a quantifiable M-spike on protein electrophoresis bu identified by immunofixation electrophoresis.

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Name : CHAMPAK KUMAR DAS GU

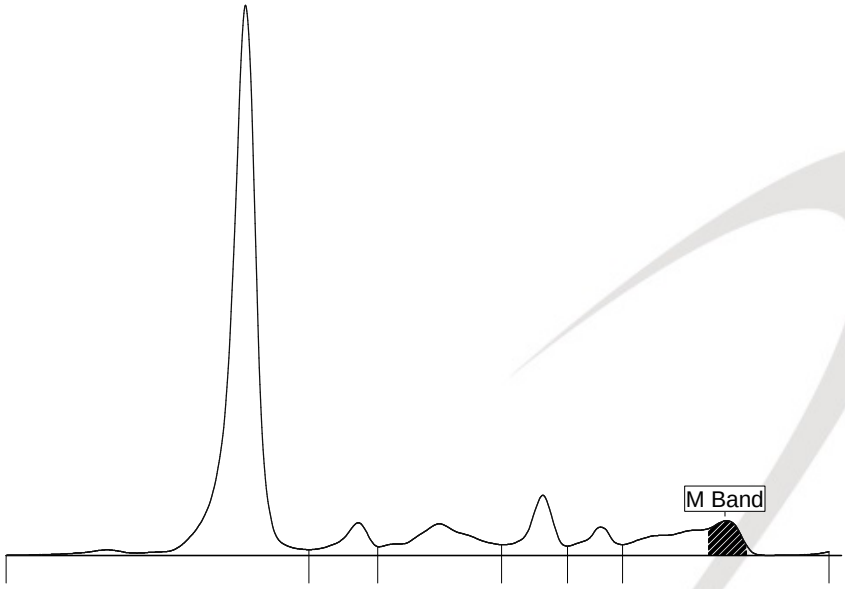
Lab ID : **22062109911**

Age : 71

Sex : M

Date : 24/06/2022

Capillary Electrophoresis by Sebia



Serum protein electrophoresis

Fractions	%	Conc. (g/dL)	Ref. (g/dL)
Albumin	**65.1**	**3.91** <	4.02 - 4.76
Alpha 1	**4.3**	**0.26**	0.21 - 0.35
Alpha 2	**8.8**	**0.53**	0.51 - 0.85
Beta 1	**6.9**	**0.41**	0.34 - 0.52
Beta 2	**3.7**	**0.22** <	0.23 - 0.47
Gamma	**11.2**	**0.67** <	0.80 - 1.35

Peaks	%	g/dl
M Band	4.4	0.26

A/G Ratio: **1.87**

T.P.: **6** g/dL

Signature

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PROTEIN ELECTROPHORESIS

Interferences:

Components	Compositions	Interferences
Albumin	Albumin	Lipoproteins, drugs, bilirubin, radiological contrast.
Alpha - 1 globulins	α -1 antitrypsin, α -1 acid glycoprotein	-
Alpha - 2 globulins	α -2 macroglobulin, haptoglobulin	Haptoglobin – haemoglobin complex
Beta globulins	Transferrin, β-lipoprotein, IgA, IgM & sometimes IgG with complement protein	*Fibrinogen
Gamma globulins	IgG, IgA, IgM, IgD, IgE	CRP

***** Fibrinogen band mimic monoclonal protein in gamma fraction of protein electrophoresis. Fibrinogen is due to the use of plasma or serum not fully clot from a patient under heparin therapy or dialysis. The antisera in immunofixation will not react with fibrinogen.

Interpretation:

1. The major clinical application of serum protein electrophoresis is the detection of monoclonal immunoglobulins (paraproteins) to assist in the diagnosis and monitoring of multiple myeloma and related disorders.
2. Serum protein can be grouped in to 5 fractions by protein electrophoresis Albumin, Alpha-1, Alpha-2, Beta and Gamma globulins.
3. The concentration of these fractions and characteristic electrophoretic pattern is useful in the diagnosis of certain disorders.

Electrophoretic characteristics of serum proteins in certain clinical conditions						
	Total protein	**Albumin**	**Alpha 1**	**Alpha 2**	**Beta**	**Gamma**
Acute inflammation		↓N	↑	↑		N↓
Subacute inflammation	N	N↓	N	↑	N	N
Chronic inflammation		↓N	↑	↑	N↑	↑
Sever hepatitis	↓N	↓↓	↓	↓	↓	↓
Chronic cirrhosis	↓N or ↑	↓↓		↓	↓	↑
Acute cirrhosis	↓N or ↑	↓↓		↓	Beta-gamma bridge	
Nephrotic syndrome	↓↓	↓↓		↑↑		N↓
Hypogammaglobulinemia						↓↓↓
Paraprotein	N or ↑	↓	↓	↓	Homogeneous peak	
Hyergammaglobulinemia	↑N	↓				↑
Hypoproteinemia (protein loss)	↓↓	↓↓	N↑	N↑	↓	↓N or
Alpha 1 antitrypsin deficiency			↓↓			
N: Normal, ↑: Increase, ↓: Decrease						

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Referral Dr	: DR. SOUMYA MUKHERJEE,	**Status**	: Final	**Location**	: KOLKATA

Clinical Biochemistry

Parameter	Result	Biological Reference Interval	
IgA	0.88	0.70 - 4.00	g/L

Nephlometry

Useful for detection or monitoring of IgA monoclonal gammopathies and IgA-related immune deficiencies. Increased serum immunoglobulin concentrations occur due to polyclonal or oligoclonal immunoglobulin proliferation in hepatic disease (hepatitis, liver cirrhosis), connective tissue diseases, acute and chronic infections, as well as in the cord blood of neonates with intrauterine and perinatal infections. Elevation of immunoglobulin A may occur in monoclonal gammopathies such as multiple myeloma, primary systemic amyloidosis, monoclonal gammopathy of undetermined significance, and related disorders. Decreased levels are found in patients with primary or secondary immune deficiencies.

IgM	**0.28**	0.40 - 2.30	g/L

Nephlometry

Increased serum immunoglobulin concentrations occur due to polyclonal or oligoclonal immunoglobulin proliferation in hepatic disease (hepatitis, liver cirrhosis), connective tissue diseases, acute and chronic infections, as well as in the cord blood of neonates with intrauterine and perinatal infections. Elevation of immunoglobulin M may occur in monoclonal gammopathies such as macroglobulinemia, primary systemic amyloidosis, monoclonal gammopathy of undetermined significance, and related disorders. Decreased levels are found in patients with primary or secondary immune deficiencies.

IgG	**6.36**	7.0 - 16.0	g/L

Nephelometry

Useful for detecting or monitoring of IgG monoclonal gammopathies and immune deficiencies. In normal serum, about 80% is immunoglobulin G (IgG). Increased serum immunoglobulin concentrations occur due to polyclonal or oligoclonal immunoglobulin proliferation in hepatic disease (hepatitis, liver cirrhosis), connective tissue diseases, acute and chronic infections, as well as in the cord blood of neonates with intrauterine and perinatal infections. Elevation of immunoglobulin G may occur in monoclonal gammopathies such as multiple myeloma, primary systemic amyloidosis, monoclonal gammopathy of undetermined significance, and related disorders. Decreased levels are found in patients with primary or secondary immune deficiencies.

FREE LIGHT CHAIN ASSAY

FREE KAPPA LIGHT CHAIN	**22.57**	3.3 - 19.4	mg/L

Immunoturbidimetric Method.

Useful as a diagnostic test in patients in whom there is a suspicion of primary systemic amyloidosis, light chain deposition disease, or non-secretory myeloma. The specificity of this assay for detection of monoclonal light chains relies on the ratio of free kappa and lambda (K/L) light chains. Once an abnormal free light chain (FLC) K/L ratio has been demonstrated and a diagnosis has been made, the quantitation of the monoclonal light chain is useful for monitoring disease activity. Elevated kappa and lambda (K/L) free light chain (FLC) may occur due to polyclonal hypergammaglobulinemia or impaired renal clearance. A specific increase in FLC (eg, FLC K:L ratio) must be demonstrated for diagnostic purposes.

Moderate-to-marked lipemia may interfere with the ability to perform testing.

FREE LAMBDA LIGHT CHAIN, Serum	17.02	5.71 - 26.3	mg/L

Immunoturbidimetric Method.

KAPPA/LAMBDA RATIO	1.33	0.26 - 1.65	

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Dr Chinka Patel

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Interpretation:

1. In patients with monoclonal lambda chain, ratio is < 0.26
2. In patients with monoclonal kappa chain, ratio is >1.65
3. Both elevated kappa and lambda free light chain (FLC) may occur due to polyclonal hypergammaglobulinemia or impaired renal clearance.

B-2 MICROGLOBULINE

B-2 MICROGLOBULINE	2.05	<3.0 mg/L	mg/L

CLIA

Sample Type: Serum

ß2 microglobulin also known as B2M is a component of MHC class 1 molecules, present on all nucleated cells. Levels of ß2 microglobulin can be elevated in multiple myeloma and lymphoma.
In patients on long-term hemodialysis, it can aggregate into amyloid fibers that deposit in joint spaces, a disease, known as dialysis-related amyloidosis. It can be used in assessing renal function, particularly in kidney-transplant recipients and in patients suspected of having renal tubulointerstitial disease.

---------- End Of Report ----------

Dr. Jwalant Shah
M.D. Pathology
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Dr Chinka Patel