

Patient Name : Mr. Sivanesan P
Age / Gender : 53 Y / Male
Referred By : Dr. Rajshree Sonavane
SID No. : 41012057

Reg.Date / Time : 13/01/2024 / 10:53:08
Report Date / Time : 13/01/2024 / 19:44:17
MR No. : 0470008

Page 1 of 15

Final Test Report

Specimen	Test Name / Method	Result	Units	Biological Reference Interval
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HAEMATOLOGY

COMPLETE BLOOD COUNT WITH PLATELETS

EDTA WHOLE BLOOD

HAEMOGLOBIN, RED CELL COUNT & INDICES

HAEMOGLOBIN (Spectrophotometry)	15.0	gm%	13-17
PCV (Electrical Impedance)	39.1	%	40 - 50
MCV (Calculated)	85.5	fL	83-101
MCH (Calculated)	32.7	pg	27.0 - 32.0
MCHC (Calculated)	38.3	g/dl	31.5-34.5
RDW-CV (Calculated)	16	%	11.6-14.0
RDW-SD (Calculated)	52	fL	36 - 46
TOTAL RBC COUNT (Electrical Impedance)	4.58	Million/cmm	4.5-5.5
TOTAL WBC COUNT (Electrical Impedance)	6990	/cumm	4000-10000

DIFFERENTIAL WBC COUNT

NEUTROPHILS (Flow cell)	47.1	%	40-80
LYMPHOCYTES (Flow cell)	46.3	%	20-40
EOSINOPHILS (Flow cell)	1.8	%	1-6
MONOCYTES (Flow cell)	3.2	%	2-10
BASOPHILS (Flow cell)	1.6	%	1-2

ABSOLUTE WBC COUNT

ABSOLUTE NEUTROPHIL COUNT (Calculated)	3270	/cumm	2000-7000
ABSOLUTE LYMPHOCYTE COUNT (Calculated)	3230	/cumm	1000-3000

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MR No. : 0470008

Page 2 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------


HAEMATOLOGY

ABSOLUTE WBC COUNT

ABSOLUTE EOSINOPHIL COUNT (Calculated)	130	/cumm	200-500
ABSOLUTE MONOCYTE COUNT (Calculated)	220	/cumm	200-1000
ABSOLUTE BASOPHIL COUNT (Calculated)	110	/cumm	0-220
PLATELET COUNT (Electrical Impedance)	194000	/cumm	150000-410000
MPV (Calculated)	8.7	fL	6.78-13.46
PDW (Calculated)	13.6	%	11-18
PCT (Calculated)	0.170	%	0.15-0.50

PERIPHERAL BLOOD SMEAR

COMMENTS
(Microscopic) Normocytic Normochromic RBCs

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MD,PATHOLOGY

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MR No. : 0470008

Page 3 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------

HAEMATOLOGY

EDTA Blood **ABO BLOOD GROUP**

BLOOD GROUP (Erythrocyte-Magnetized Technology)	B
Rh TYPE (Erythrocyte-Magnetized Technology)	POSITIVE

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Page 4 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------

BIOCHEMISTRY

**COMPREHENSIVE LIVER PROFILE
SERUM**

BILIRUBIN TOTAL (Diazotization)	0.78	mg/dl	0.2 - 1.3
BILIRUBIN DIRECT (Diazotization)	0.28	mg/dl	0.1-0.4
BILIRUBIN INDIRECT (Calculation)	0.50	mg/dl	0.2 - 0.7
ASPARTATE AMINOTRANSFERASE(SGOT) (IFCC)	24	U/L	<40
ALANINE TRANSAMINASE (SGPT) (IFCC without Peroxidase)	35	U/L	<41
ALKALINE PHOSPHATASE (Colorimetric IFCC)	61	U/L	40-129
GAMMA GLUTAMYL TRANSFERASE (GGT) (IFCC)	19	U/L	<70
TOTAL PROTEIN (Colorimetric)	7.30	gm/dl	6.6-8.7
ALBUMIN (Bromocresol Green)	4.40	gm/dl	3.5 - 5.2
GLOBULIN (Calculation)	2.90	gm/dl	2.0-3.5
A/G RATIO (Calculation)	1.5		1-2

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MR No. : 0470008

Page 5 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------

BIOCHEMISTRY

**COMPREHENSIVE RENAL PROFILE
SERUM**

CREATININE (Jaffe Method)	0.8	mg/dl	0.6 - 1.3
BLOOD UREA NITROGEN (BUN) (Kinetic with Urease)	7.3	mg/dl	6 - 20
BUN/CREATININE RATIO (Calculation)	9.1		10 - 20
URIC ACID (Uricase Enzyme)	5.5	mg/dl	3.7 - 7.7
CALCIUM (Bapta Method)	9.0	mg/dl	8.6-10
PHOSPHORUS (Phosphomolybdate)	3.3	mg/dl	2.5-4.5

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MR No. : 0470008

Page 6 of 15

Final Test Report

Specimen	Test Name / Method	Result	Units	Biological Reference Interval
----------	--------------------	--------	-------	-------------------------------

BIOCHEMISTRY

LIPID PROFILE

SERUM	TOTAL CHOLESTEROL (Enzymatic colorimetric (PHOD))	204	mg/dl	Desirable : < 200 Borderline: 200-239 High : > 239
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Notes : Elevated concentrations of free fatty acids and denatured proteins may cause falsely elevated HDL cholesterol results.

Abnormal liver function affects lipid metabolism; consequently, HDL and LDL results are of limited diagnostic value. In some patients with abnormal liver function, the HDL cholesterol result may significantly differ from the DCM (designated comparison method) result due to the presence of lipoproteins with abnormal lipid distribution.

Reference: Dati F, Metzmann E. Proteins Laboratory Testing and Clinical Use, Verlag: DiaSys; 1. Auflage (September 2005), page 242-243; ISBN-10: 3000171665.

SERUM	TRIGLYCERIDES (Enzymatic Colorimetric GPO)	86	mg/dl	Normal : <150 Borderline : 150-199 High : 200-499 Very High : >499
SERUM	CHOLESTEROL HDL - DIRECT (Homogenize Enzymatic Colorimetry)	46	mg/dl	Low:<40 High:>60
SERUM	LDL CHOLESTEROL (Calculation)	141	mg/dl	Optimal : <100 Near Optimal/ Above optimal :100-129 Borderline High: 130-159 High : 160-189 Very High : >= 190
SERUM	VLDL (Calculation)	17	mg/dl	15-40
SERUM	CHOL / HDL RATIO	4.4		3-5
SERUM	LDL /HDL RATIO (Calculation)	3.0		0 - 3.5

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MR No. : 0470008

Page 7 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------

BIOCHEMISTRY

FLOURIDE PLASMA	BLOOD GLUCOSE FASTING (Hexokinase)	170	mg/dl	70 - 110
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Notes : An early-morning increase in blood sugar (glucose) which occurs to some extent in all individuals, more relevant to people with diabetes can be seen (The dawn phenomenon) . Chronic Somogyi rebound is another explanation of phenomena of elevated blood sugars in the morning. Also called the Somogyi effect and posthypoglycemic hyperglycemia, it is a rebounding high blood sugar that is a response to low blood sugar.

References:

<http://www.ucdenver.edu/academics/colleges/medicalschool/centers/BarbaraDavis/Documents/book-understandingdiabetes/ud06.pdf>, Understanding Diabetes.

FLOURIDE PLASMA	BLOOD GLUCOSE POST PRANDIAL (Hexokinase)	252	mg/dl	70 - 140
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EDTA WHOLE BLOOD GLYCOSYLATED HAEMOGLOBIN (HbA1C)

HbA1C (High Performance Liquid Chromatography)	9.9	%(NGSP)	Non Diabetic Range: <= 5.6 Prediabetes :5.7-6.4 Diabetes: >= 6.5
ESTIMATED AVERAGE BLOOD GLUCOSE (Calculated)	237	mg/dl	

Notes : HbA1c reflects average plasma glucose over the previous eight to 12 weeks (1). The use of HbA1c can avoid the problem of day-to-day variability of glucose values, and importantly it avoids the need for the person to fast and to have preceding dietary preparations. HbA1c can be used to diagnose diabetes and that the diagnosis can be made if the HbA1c level is =6.5% (2). Diagnosis should be confirmed with a repeat HbA1c test, unless clinical symptoms and plasma glucose levels >11.1mmol/l (200 mg/dl) are present in which case further testing is not required.

HbA1c may be affected by a variety of genetic, hematologic and illness-related factors (Annex 1, https://www.who.int/diabetes/publications/report-hba1c_2011.pdf) (3). The most common important factors worldwide affecting HbA1c levels are haemoglobinopathies (depending on the assay employed), certain anaemias, and disorders associated with accelerated red cell turnover such as malaria.

References: (1). Nathan DM, Turgeon H, Regan S. Relationship between glycated haemoglobin levels and mean glucose levels over time. Diabetologia, 2007, 50:2239-2244. (2). International Expert Committee report on the role of the A1c assay in the diagnosis of diabetes. Diabetes Care, 2009, 32:1327-1334. (3). Gallagher EJ, Bloomgarden ZT, Le Roith D. Review of hemoglobin A1c in the management of diabetes. Journal of Diabetes, 2009, 1:9-17.

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MR No. : 0470008

Page 8 of 15

Final Test Report

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MR No. : 0470008

Page 9 of 15

Final Test Report

Specimen	Test Name / Method	Result	Units	Biological Reference Interval
----------	--------------------	--------	-------	-------------------------------

BIOCHEMISTRY

EDTA	ESR(ERYTHROCYTE	3	mm / 1 hr	0-20
WHOLE	SEDIMENTATION RATE)			
BLOOD	(Photometric Capillary)			

Notes : The given result is measured at the end of first hour.

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MR No. : 0470008

Page 10 of 15

Final Test Report

Specimen	Test Name / Method	Result	Units	Biological Reference Interval
----------	--------------------	--------	-------	-------------------------------

BIOCHEMISTRY

Urine	URINE GLUCOSE FASTING (Urodip)	ABSENT		
Urine	URINE GLUCOSE POST PRANDIAL (Urodip)	PRESENT(++)		

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MR No. : 0470008

Page 11 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------

IMMUNOLOGY

THYROID PROFILE - TOTAL SERUM

TOTAL TRIIODOTHYRONINE (T3) (ECLIA)	1.06	ng/ml	0.7-2.04
TOTAL THYROXINE (T4) (ECLIA)	6.50	ug/dl	4.6 - 10.5
THYROID STIMULATING HORMONE (TSH) (ECLIA)	3.520	uIU/ml	0.27 - 4.20

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MR No. : 0470008

Page 12 of 15

Final Test Report

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----------	--------------------	--------	-------	-------------------------------

IMMUNOLOGY

Notes : TSH is formed in specific cells of the anterior pituitary gland and is subject to a circadian Variation. The Release of TSH is the central regulating mechanism for the biological action of thyroid hormones. TSH has a stimulating action in all stages of thyroid hormone (T3/T4) formation and secretion and it also has a growth effect on Thyroid gland. Even very slight changes in the concentrations of the free thyroid hormones (FT3/FT4) bring about much greater opposite changes in the TSH level. The determination of TSH serves as the initial test in thyroid diagnostics. (1)

Patterns of Thyroid Function Tests (2)

- Low TSH, Low FT4 - Central hypothyroidism.
- Low TSH, Normal FT4, Normal FT3- Subclinical hyperthyroidism.
- Low TSH, High FT4- Hashimoto's thyroiditis, Grave's disease, Molar pregnancy, Choriocarcinoma, Hyperemesis, Thyrotoxicosis, Lithium, Multinodular goiter, Toxic adenoma, Thyroid carcinoma, Iodine ingestion.
- Normal TSH, Low FT4- Hypothyroxinemia, Nonthyroidal illness, Possible secondary hypothyroidism, Medications.
- Normal TSH, High FT4- Euthyroid hyperthyroxinemia, Thyroid hormone resistance, Familial dysalbuminemic hyperthyroxinemia, Medications (Amiodarone, beta-blockers, Oral contrast), Hyperemesis, Acute psychiatric illness, Rheumatoid factor.
- High TSH, Low FT4- Primary hypothyroidism.
- High TSH, Normal FT4- Subclinical hypothyroidism, Nonthyroidal illness, Suggestive of follow-up and recheck.
- High TSH, High FT4- TSH mediated hyperthyroidism

Note:

1. Isolated Low TSH -especially in the range of 0.1 to 0.4 often seen in elderly & associated with Non-Thyroidal illness
2. Isolated High TSH especially in the range of 4.7 to 15 uIU/ml is commonly associated with Physiological & Biological TSH Variability.
3. Normal changes in thyroid function tests during pregnancy include a transient suppression of thyroid-stimulating hormone. T4 and total T3 steadily increase during pregnancy to approximately 1.5 times the non-pregnant level. Free T4 and Free T3 gradually decrease during pregnancy

References:

1. Pim-eservices.roche.com. (2018). Customer Self-Service Technical Documentation Portal.
2. "Interpretation of Thyroid Function Tests". 2018. Obfocus.Com.
3. Interpretation of thyroid function tests. Dayan et al. The Lancet, Vol 357, February 24, 2001.
4. Interpretation of thyroid function tests. Supit et al. South Med journal, 2002, 95, 481-485.

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MR No. : 0470008

Page 13 of 15

Final Test Report

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MR No. : 0470008

Page 14 of 15

Final Test Report

Specimen	Test Name / Method	Result	Units	Biological Reference Interval
----------	--------------------	--------	-------	-------------------------------

CLINICAL PATHOLOGY

Urine URINE ANALYSIS

PHYSICAL EXAMINATION

VOLUME (Volumetric)	30		
COLOR (Visual Examination)	PALE YELLOW		
APPEARANCE (Visual Examination)	CLEAR		

CHEMICAL EXAMINATION

SP.GRAVITY (Indicator System)	1.010		1.005 - 1.030
REACTION(pH) (Double indicator)	ACIDIC		
PROTEIN (Protein-error-of-Indicators)	ABSENT		
GLUCOSE (GOD-POD)	ABSENT		Absent
KETONES (Legal's Test)	ABSENT		Absent
OCCULT BLOOD (Peroxidase activity)	ABSENT		Absent
BILIRUBIN (Fouchets Test)	ABSENT		Absent
UROBILINOGEN (Ehrlich Reaction)	NORMAL		
NITRITE (Griess Test)	ABSENT		

MICROSCOPIC EXAMINATION

ERYTHROCYTES (Microscopy)	ABSENT	/hpf	0-2
PUS CELLS (Microscopy)	2-3	/hpf	0-5
EPITHELIAL CELLS (Microscopy)	2-3	/hpf	0-5
CASTS (Microscopy)	ABSENT		
CRYSTALS (Microscopy)	ABSENT		
ANY OTHER FINDINGS	NIL		

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Page 15 of 15


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