Name	: **Mr. MALAR MARBAN S T**		
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Investigation	Observed Value	Unit	Biological Reference Interval
BLOOD GROUPING AND Rh TYPING (EDTA Blood/*Agglutination)*	'O' 'Positive'		

INTERPRETATION: Reconfirm the Blood group and Typing before blood transfusion

Complete Blood Count With - ESR

Haemoglobin (EDTA Blood/*Spectrophotometry)*	15.5	g/dL	13.5 - 18.0
Packed Cell Volume(PCV)/Haematocrit (EDTA Blood/*Derived from Impedance)*	46.4	%	42 - 52
RBC Count (EDTA Blood/*Impedance Variation)*	5.35	mill/cu.mm	4.7 - 6.0
Mean Corpuscular Volume(MCV) (EDTA Blood/*Derived from Impedance)*	86.9	fL	78 - 100
Mean Corpuscular Haemoglobin(MCH) (EDTA Blood/*Derived from Impedance)*	29.0	pg	27 - 32
Mean Corpuscular Haemoglobin concentration(MCHC) (EDTA Blood/*Derived from Impedance)*	33.4	g/dL	32 - 36
RDW-CV (EDTA Blood/*Derived from Impedance)*	13.7	%	11.5 - 16.0
RDW-SD (EDTA Blood/*Derived from Impedance)*	41.6	fL	39 - 46
Total Leukocyte Count (TC) (EDTA Blood/*Impedance Variation)*	7700	cells/cu.mm	4000 - 11000
Neutrophils (EDTA Blood/*Impedance Variation & Flow Cytometry)*	66.4	%	40 - 75
Lymphocytes (EDTA Blood/*Impedance Variation & Flow Cytometry)*	**17.8**	%	20 - 45
Eosinophils (EDTA Blood/*Impedance Variation & Flow Cytometry)*	5.6	%	01 - 06

DR GURUPRIYA J
PATHOLOGIST
Reg No : 13-48036

VERIFIED BY

Dr.E.Saravanan M.D(Path)
Consultant Pathologist
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The results pertain to sample tested.

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Investigation	Observed Value	Unit	Biological Reference Interval
Monocytes (EDTA Blood/*Impedance Variation & Flow Cytometry)*	9.1	%	01 - 10
Basophils (EDTA Blood/*Impedance Variation & Flow Cytometry)*	1.1	%	00 - 02
INTERPRETATION: Tests done on Automated Five Part cell counter. All abnormal results are reviewed and confirmed microscopically.			
Absolute Neutrophil count (EDTA Blood/*Impedance Variation & Flow Cytometry)*	5.1	10^3 / µl	1.5 - 6.6
Absolute Lymphocyte Count (EDTA Blood/*Impedance Variation & Flow Cytometry)*	**1.4**	10^3 / µl	1.5 - 3.5
Absolute Eosinophil Count (AEC) (EDTA Blood/*Impedance Variation & Flow Cytometry)*	0.4	10^3 / µl	0.04 - 0.44
Absolute Monocyte Count (EDTA Blood/*Impedance Variation & Flow Cytometry)*	0.7	10^3 / µl	< 1.0
Absolute Basophil count (EDTA Blood/*Impedance Variation & Flow Cytometry)*	0.1	10^3 / µl	< 0.2
Platelet Count (EDTA Blood/*Impedance Variation)*	275	10^3 / µl	150 - 450
MPV (EDTA Blood/*Derived from Impedance)*	8.8	fL	7.9 - 13.7
PCT (EDTA Blood/*Automated Blood cell Counter)*	0.241	%	0.18 - 0.28
ESR (Erythrocyte Sedimentation Rate) (Blood/*Automated - Westergren method)*	16	mm/hr	< 20
BUN / Creatinine Ratio	12.4		6.0 - 22.0
Glucose Fasting (FBS) (Plasma - F/*GOD-PAP)*	84.3	mg/dL	Normal: < 100 Pre Diabetic: 100 - 125 Diabetic: >= 126

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Investigation	Observed Value	Unit	Biological Reference Interval

INTERPRETATION: Factors such as type, quantity and time of food intake, Physical activity, Psychological stress, and drugs can influence blood glucose level.

Glucose, Fasting (Urine) (Urine - F/*GOD - POD)*	Negative		Negative
Glucose Postprandial (PPBS) (Plasma - PP/*GOD-PAP)*	95.0	mg/dL	70 - 140

INTERPRETATION:
Factors such as type, quantity and time of food intake, Physical activity, Psychological stress, and drugs can influence blood glucose level. Fasting blood glucose level may be higher than Postprandial glucose, because of physiological surge in Postprandial Insulin secretion, Insulin resistance, Exercise or Stress, Dawn Phenomenon, Somogyi Phenomenon, Anti- diabetic medication during treatment for Diabetes.

Urine Glucose(PP-2 hours) (Urine - PP*)*	Negative		Negative
Blood Urea Nitrogen (BUN) (Serum/*Urease UV / derived)*	12.4	mg/dL	7.0 - 21
Creatinine (Serum/*Modified Jaffe)*	1.00	mg/dL	0.9 - 1.3

INTERPRETATION: Elevated Creatinine values are encountered in increased muscle mass, severe dehydration, Pre-eclampsia, increased ingestion of cooked meat, consuming Protein/ Creatine supplements, Diabetic Ketoacidosis, prolonged fasting, renal dysfunction and drugs such as cefoxitin, cefazolin, ACE inhibitors, angiotensin II receptor antagonists,N-acetylcysteine, chemotherapeutic agent such as flucytosine etc.

Uric Acid (Serum/*Enzymatic)*	4.5	mg/dL	3.5 - 7.2

Liver Function Test

Bilirubin(Total) (Serum/*DCA with ATCS)*	0.60	mg/dL	0.1 - 1.2
Bilirubin(Direct) (Serum/*Diazotized Sulfanilic Acid)*	0.18	mg/dL	0.0 - 0.3
Bilirubin(Indirect) (Serum/*Derived)*	0.42	mg/dL	0.1 - 1.0
SGOT/AST (Aspartate Aminotransferase) (Serum/*Modified IFCC)*	38.0	U/L	5 - 40
SGPT/ALT (Alanine Aminotransferase) (Serum/*Modified IFCC)*	**46.9**	U/L	5 - 41

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Investigation	Observed Value	Unit	Biological Reference Interval
GGT(Gamma Glutamyl Transpeptidase) (Serum/*IFCC / Kinetic)*	32.0	U/L	< 55
Alkaline Phosphatase (SAP) (Serum/*Modified IFCC)*	72.0	U/L	56 - 119
Total Protein (Serum/*Biuret)*	7.05	gm/dl	6.0 - 8.0
Albumin (Serum/*Bromocresol green)*	4.01	gm/dl	3.5 - 5.2
Globulin (Serum/*Derived)*	3.04	gm/dL	2.3 - 3.6
A : G RATIO (Serum/*Derived)*	1.32		1.1 - 2.2
Lipid Profile			
Cholesterol Total (Serum/*CHOD-PAP with ATCS)*	190.0	mg/dL	Optimal: < 200 Borderline: 200 - 239 High Risk: >= 240
Triglycerides (Serum/*GPO-PAP with ATCS)*	105.1	mg/dL	Optimal: < 150 Borderline: 150 - 199 High: 200 - 499 Very High: >= 500

INTERPRETATION: The reference ranges are based on fasting condition. Triglyceride levels change drastically in response to food, increasing as much as 5 to 10 times the fasting levels, just a few hours after eating. Fasting triglyceride levels show considerable diurnal variation too. There is evidence recommending triglycerides estimation in non-fasting condition for evaluating the risk of heart disease and screening for metabolic syndrome, as non-fasting sample is more representative of the ñusualò circulating level of triglycerides during most part of the day.

HDL Cholesterol (Serum/*Immunoinhibition)*	**33.5**	mg/dL	Optimal(Negative Risk Factor): >= 60 Borderline: 40 - 59 High Risk: < 40

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Investigation	Observed Value	Unit	Biological Reference Interval
LDL Cholesterol (Serum/*Calculated)*	**135.5**	mg/dL	Optimal: < 100 Above Optimal: 100 - 129 Borderline: 130 - 159 High: 160 - 189 Very High: >= 190
VLDL Cholesterol (Serum/*Calculated)*	21	mg/dL	< 30
Non HDL Cholesterol (Serum/*Calculated)*	156.5	mg/dL	Optimal: < 130 Above Optimal: 130 - 159 Borderline High: 160 - 189 High: 190 - 219 Very High: >= 220

INTERPRETATION: 1.Non-HDL Cholesterol is now proven to be a better cardiovascular risk marker than LDL Cholesterol.
2.It is the sum of all potentially atherogenic proteins including LDL, IDL, VLDL and chylomicrons and it is the "new bad cholesterol" and is a co-primary target for cholesterol lowering therapy.

Total Cholesterol/HDL Cholesterol Ratio (Serum/*Calculated)*	5.7		Optimal: < 3.3 Low Risk: 3.4 - 4.4 Average Risk: 4.5 - 7.1 Moderate Risk: 7.2 - 11.0 High Risk: > 11.0
Triglyceride/HDL Cholesterol Ratio (TG/HDL) (Serum/*Calculated)*	3.1		Optimal: < 2.5 Mild to moderate risk: 2.5 - 5.0 High Risk: > 5.0
LDL/HDL Cholesterol Ratio (Serum/*Calculated)*	4		Optimal: 0.5 - 3.0 Borderline: 3.1 - 6.0 High Risk: > 6.0

Glycosylated Haemoglobin (HbA1c)

HbA1C (Whole Blood/*HPLC)*	5.6	%	Normal: 4.5 - 5.6 Prediabetes: 5.7 - 6.4 Diabetic: >= 6.5

INTERPRETATION: If Diabetes - Good control : 6.1 - 7.0 % , Fair control : 7.1 - 8.0 % , Poor control >= 8.1 %

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Investigation	Observed Value	Unit	Biological Reference Interval
Estimated Average Glucose (Whole Blood)	114.02	mg/dL	

INTERPRETATION: Comments
HbA1c provides an index of Average Blood Glucose levels over the past 8 - 12 weeks and is a much better indicator of long term glycemic control as compared to blood and urinary glucose determinations.
Conditions that prolong RBC life span like Iron deficiency anemia, Vitamin B12 & Folate deficiency, hypertriglyceridemia,hyperbilirubinemia,Drugs, Alcohol, Lead Poisoning, Asplenia can give falsely elevated HbA1C values.
Conditions that shorten RBC survival like acute or chronic blood loss, hemolytic anemia, Hemoglobinopathies, Splenomegaly,Vitamin E ingestion, Pregnancy, End stage Renal disease can cause falsely low HbA1c.

Prostate specific antigen - Total(PSA) (Serum/*Manometric method)*	0.66	ng/mL	Normal: 0.0 - 4.0 Inflammatory & Non Malignant conditions of Prostate & genitourinary system: 4.01 - 10.0 Suspicious of Malignant disease of Prostate: > 10.0

INTERPRETATION: REMARK : PSA alone should not be used as an absolute indicator of malignancy.

THYROID PROFILE / TFT

T3 (Triiodothyronine) - Total (Serum/*Chemiluminescent Immunometric Assay (CLIA))*	1.16	ng/ml	0.4 - 1.81

INTERPRETATION:
Comment :
Total T3 variation can be seen in other condition like pregnancy, drugs, nephrosis etc. In such cases, Free T3 is recommended as it is Metabolically active.

T4 (Tyroxine) - Total (Serum/*Chemiluminescent Immunometric Assay (CLIA))*	8.25	µg/dl	4.2 - 12.0

INTERPRETATION:
Comment :
Total T4 variation can be seen in other condition like pregnancy, drugs, nephrosis etc. In such cases, Free T4 is recommended as it is Metabolically active.

TSH (Thyroid Stimulating Hormone) (Serum/*Chemiluminescent Immunometric Assay (CLIA))*	1.14	µIU/mL	0.35 - 5.50

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Investigation	Observed Value	Unit	Biological Reference Interval

INTERPRETATION:
Reference range for cord blood - upto 20
1 st trimester: 0.1-2.5
2 nd trimester 0.2-3.0
3 rd trimester : 0.3-3.0
(Indian Thyroid Society Guidelines)
Comment :
1.TSH reference range during pregnancy depends on Iodine intake, TPO status, Serum HCG concentration, race, Ethnicity and BMI.
2.TSH Levels are subject to circadian variation, reaching peak levels between 2-4am and at a minimum between 6-10PM.The variation can be of the order of 50%,hence time of the day has influence on the measured serum TSH concentrations.
3.Values&amplt;0.03 µIU/mL need to be clinically correlated due to presence of rare TSH variant in some individuals.

Urine Analysis - Routine

COLOUR (Urine)	Pale yellow		Yellow to Amber
APPEARANCE (Urine)	**Slightly Turbid**		Clear
Protein (Urine/*Protein error of indicator)*	Negative		Negative
Glucose (Urine/*GOD - POD)*	Negative		Negative
Pus Cells (Urine/*Automated ï Flow cytometry)*	**1 - 2**	/hpf	NIL
Epithelial Cells (Urine/*Automated ï Flow cytometry)*	**Occasional**	/hpf	NIL
RBCs (Urine/*Automated ï Flow cytometry)*	NIL	/hpf	NIL
Casts (Urine/*Automated ï Flow cytometry)*	NIL	/hpf	NIL
Crystals (Urine/*Automated ï Flow cytometry)*	**Amorphous Urates Present.**	/hpf	NIL
Others (Urine)	NIL		

INTERPRETATION: Note: Done with Automated Urine Analyser & Automated urine sedimentation analyser. All abnormal reports are reviewed and confirmed microscopically.

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