

## 20. Alpha-foetoprotein

<b>Ward</b>	Emergency unit	<b>D.O.B/Age</b>	07/08/1968
<b>Consultant</b>	Dr C. Hudson		

Request form: No clinical information provided

Unavailable.

Unavailable.

Sodium		<b>130</b>	<b>L</b>
mmol/L	136 – 145		
Potassium		<b>3.7</b>	
mmol/L	3.5 – 5.1		
Urea		<b>2.9</b>	
mmol/L	2.1 – 7.1		
Creatinine		<b>64</b>	
umol/L	49 – 90		
eGFR (MDRD formula)		<b>&gt;60</b>	<b>mL/min/1.73</b>
m2			

### Glycated haemoglobin (HbA1c):

Glycated haemoglobin (NGSP)	<b>6.5</b>	<b>%</b>
Glycated haemoglobin (IFCC)		<b>48</b>
mmol/mol		
Estimated average glucose (eAG)	<b>7.8</b>	<b>mmol/L</b>

Calcium	<b>2.20</b>
mmol/L	2.15 – 2.50

Total protein	<b>86</b>	<b>H</b>
g/L	60 – 78	

Albumin	<b>28</b>	<b>L</b>
g/L	35 – 52	

Total bilirubin	<b>26</b>	<b>H</b>
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umol/L	5 – 21		
Conjugated bilirubin (DBil)		25	H
umol/L	0 – 3		
Alanine transaminase (ALT)		65	H
U/L	7 – 35		
Aspartate transaminase (AST)		444	H
U/L	13 – 35		
Alkaline phosphatase (ALP)		568	H
U/L	42 – 98		
Gamma-glutamyl transferase (GGT)		662	H
U/L	<40 Lipase		
91 H U/L	13 – 60		
Alpha-feto protein (AFP)		545010.0	H
ug/L	0.0 – 7.0		
Thyroid stimulating hormone		6.61	H
mIU/L	0.27 – 4.20		
Thyroxine (free T4)		13.7	
pmol/L	12.0 – 22.0		
White Cell Count		8.93	x
10 <sup>9</sup> /L	3.90 – 12.60		
Red Cell Count		2.92	L x
10 <sup>12</sup> /L	3.80 – 4.80		
Haemoglobin		9.4	L
g/dL	12.0 – 15.0		
Haematocrit		0.278	L
L/L	0.360 – 0.460		
MCV		95.2	
fL	78.9 – 98.5		
MCH		32.2	
pg	26.1 – 33.5		
MCHC		33.8	
g/dL	32.7 – 34.9		
Red Cell Distribution Width		19.5	H
%	12.4 – 17.3		
Platelet Count		246	x

Medical Validation : (Authorise By Episode)

Option Mode Inquire Function Audit Print Help Result

Episode No. [redacted] MRN [redacted] HPRN [redacted] Stat [redacted]

[redacted] F 51 y 07/08/1968

Hos Groote Schuur Hospital wc GSH 021 404 9111 Collection 30/12/2019 13:04

Wrd C15 Emergency Unit 404 5208 / 09 Received 30/12/2019 13:18

Doc [redacted] Registered 30/12/2019 13:20

ePR Detail

Visit Test Set(s)

(A) TREQ <M entry>  
(A) SPARE1 <A entry>  
(A) HBA1C <A entry>  
(A) CA <A entry>  
(A) LIPASE <A entry>  
(E) AFP # <M entry>[VQ:CR]  
(A) TSH <A entry>  
(\* Curr.) (# In List)

Update Authorise  
Amend Fully Authorise  
Clear Cancel  
Notes Graph

Test Set	Staff Notes	Test Item	Result	Units	Normal Values	Previous Result 1	Previous Result 2	Previous Result 3	Previous Result 4	Previous Result 5
ALB		Albumin	28	g/L	35 - 52					
TBIL		Total bilirubin	26	umol/L	5 - 21					
		Total bilirubin auto com								
CBIL		Conjugated bilirubin (Df	25	umol/L	0 - 3					
ALT		Alanine transaminase (A	65	U/L	7 - 35					
AST		Aspartate transaminase	444	U/L	13 - 35					
ALP		Alkaline phosphatase (A	568	U/L	42 - 98					
GGT		Gamma-glutamyl transfe	662	U/L	<40					
LIPASE		Lipase	91	U/L	13 - 60					
AFP	<input checked="" type="checkbox"/>	Alpha-feto protein (AFP)	545,010.0	ug/L	0.0 - 7.0					
		Machine (Serum)	COB							
		AFP auto comment	AFPCOB							
TSH		Thyroid stimulating hor	6.61	mIU/L	0.27 - 4.20					
FT4		Thyroxine (free T4)	13.7	pmol/L	12.0 - 22.0					
SIND		Serum haemoglobin inc	0							
		Serum bilirubin index	1							
		Serum lipaemia index	0							
		Serum haemoglobin va	0.00							

Staff Notes : C136

Help

[30/12/2019 22:34] [redacted] AFP Checked.

R1 - >1210  
R2 - >60500 1:50  
R3 - >121000 1:100  
R4 - >484000 1:400  
R5 - 545010 1:1000  
[30/12/2019 22:42 bilqeess.jacobs] Result verified

OK Cancel

Abdominal ultrasound +/- CT scan may be helpful in detecting presence of liver mass +/- intra-abdominal masses.

## Final diagnosis

?Hepatocellular carcinoma

This case allowed me to become familiar with the concepts related to limitations of an assay. Having come across the need for dilution and the concept of high-dose hook effect, I found it interesting to see the gradual increase in AFP value as further dilutions were done. These are terms and concepts that this case allowed me to become familiar with.

**Limit of Blank:** This is the highest apparent analyte concentration expected to be found when replicates of a blank sample (containing no analyte) are tested. Detects "noise" that could interfere with the result.

**Limit of Detection:** This refers to the lowest analyte concentration likely to be reliably distinguished from the limit of blank and at which detection is feasible. LoD is determined using measured limit of blank, and test replicates known to contain a low concentration of an analyte.

**Limit of Quantitation:** This is the lowest concentration at which the analyte can not only be reliably detected but also at which some predefined goals for precision and bias are met. The LoQ may be equivalent to the LoD or it could be at a higher concentration. This is the limit that is clinically significant.