



Biochemistry of the GIT

2nd Practical Class

Liver Function Test

Done By:

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Q1: What are the liver function tests (LFT's)? must memorize

Liver chemistry test	Clinical implication of abnormality
Alanine aminotransferase	Hepatocellular damage
Aspartate aminotransferase	Hepatocellular damage
Bilirubin	Cholestasis, impaired conjugation, or biliary obstruction
Alkaline phosphatase	Cholestasis, infiltrative disease, or biliary obstruction
Prothrombin time	Synthetic function
Albumin	Synthetic function
γ-glutamyltransferase	Cholestasis or biliary obstruction
Bile acids	Cholestasis or biliary obstruction
5'-Nucleotidase	Cholestasis or biliary obstruction
Lactate dehydrogenase	Hepatocellular damage, not specific for hepatic disease

Q2: What is Bilirubin and how it is produced in the body?

- Bilirubin is a yellow bile pigment.
- Bilirubin is produced from the degradation of heme. Heme is one of the breakdown products of red blood cells.

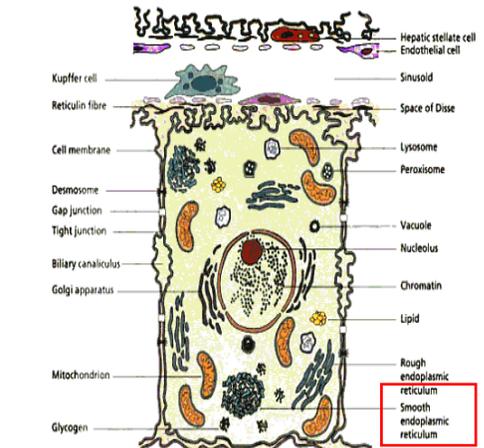
Q3: Which form of bilirubin is carried to the liver and how?

- The unconjugated form of bilirubin is carried to the liver
- Bilirubin forms a complex with albumin to be transported

Q4: A: Why is bilirubin conjugated?

- Bilirubin is conjugated to glucuronic acid in the hepatocytes
- The conjugated-bilirubin is water soluble and can be excreted in the urine and feces
- This prevents precipitation and deposition in tissues and prevents bilirubin from entering the brain.

B: Mark the intracellular location for the process of conjugation?

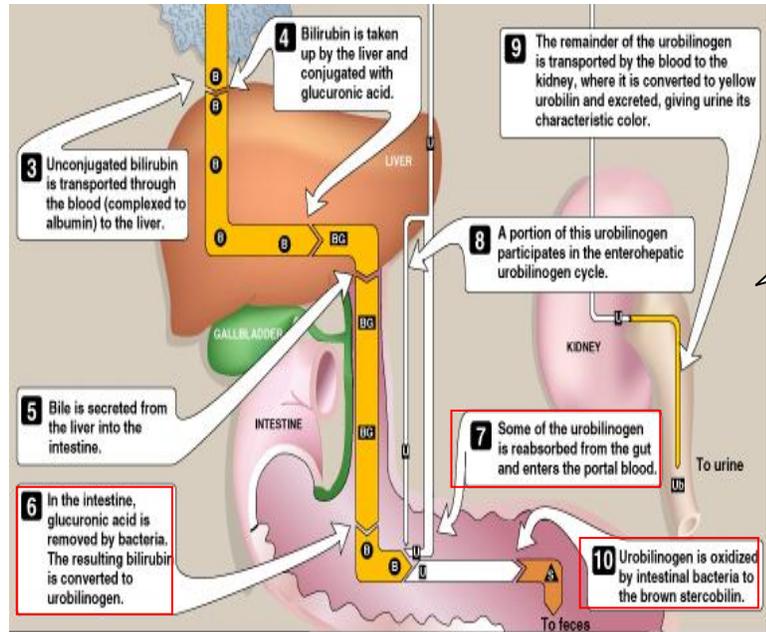


Q5: A: How is bilirubin eliminated from the body?

- Two ways:
- 1- urobilinogen → in urine
 - 2- Stercobilinogen → in feces

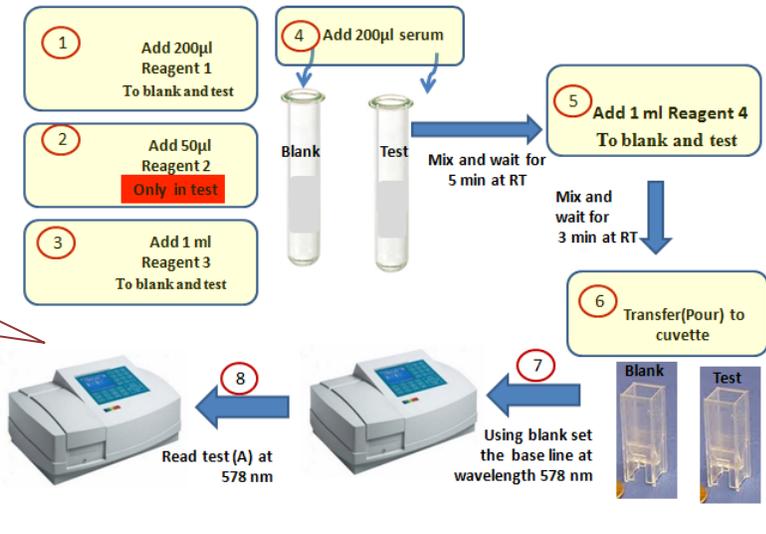
B: What are the fates of bilirubin in the intestine?

- 1- Reabsorbed into the enterohepatic circulation
- 2- excreted



Must memorize the steps

Measurement of Total Bilirubin



At the hospital, each sample is tested twice and the mean is calculated due to results

Calculation of total bilirubin concentration

Conc. of serum total bilirubin:

$$A \times 185 = \dots \mu\text{mol/L}$$

Note- (Normal range: 2 – 17 $\mu\text{mol/L}$)

- A will be given in the question