Enzymes:

AST, ALT, SGOT, SGPT, and GGT and Alkaline Phosphatase are proteins called enzymes which help all the chemical activities within cells to take place. Injury to cells releases these enzymes into the blood. They are found in muscles, the liver and heart. Damage from alcohol and a number of diseases is reflected in high values.

• ***Alkaline phosphatase*** is an enzyme found primarily in bones and the liver. Expected values are higher for those who are growing (children and pregnant women), when damage to bones or liver has occurred, or with gallstones. Low values are probably not significant.

• ***GGT*** is also elevated in liver disease, particularly with obstruction of bile ducts. Unlike the alkaline phosphatase, it is not elevated with bone growth or damage.

• ***AST/SGOT*** *and* ***ALT/ SGPT*** are also liver and muscle enzymes. They may be elevated from liver problems, hepatitis, excess alcohol ingestion, muscle injury or recent heart attack.

• ***LDH*** is the enzyme present in all the cells in the body. Anything which damages cells – including drawing blood – will raise amounts in the blood. If blood is not processed promptly and properly, high levels may occur. If all values except LDH are within expected ranges, it is probably a processing error and does not require further evaluation.

• ***Bilirubin*** is a pigment removed from the blood by the liver. Low values are of no concern. If slightly elevated above the expected ranges, but with all other enzymes (LDH, GOT, GPT, GGT) within expected values, it is probably a condition known as Gilbert's syndrome and is not significant.

• ***CPK*** is an enzyme which is very useful for diagnosing diseases of the heart and skeletal muscle. This enzyme is the first to be elevated after a heart attack (within 3-4 hours). If CPK is high in the absence of heart muscle injury, this is a strong indication of skeletal muscle disease.