

Laboratory evaluation of plasma proteins and the use of tumor markers

1. What laboratory tests would you perform in case of an upper respiratory inflammatory disease accompanied with fever? Mention a few positive and negative acute phase proteins!
2. What is the significance of an elevated ESR?
3. A 54-year male patient complains of dysuria. He voids frequently, but little amount. The laboratory tests show an elevated PSA value.
What may be the cause of the symptoms and the laboratory result? What other tests would you perform?
4. What would be the characteristics of an ideal tumor marker?
5. A middle aged hemophiliac patient, who has had numerous blood transfusions before, is admitted to a hospital, to drain her huge ascites. The laboratory tests show an elevated AFP level. Laparoscopy performed at the time of draining the ascites fluid revealed several large solid lesions in the liver.
What is a likely explanation of these findings?
6. The plasma AFP level was found to be abnormal on screening a pregnant woman. What do you think this means, and what other tests should be done? What is the significance of an abnormal AFP level in a man or non-pregnant woman?
7. Evaluation of the plasma proteins of a 50-year-old male patient gives the following results:
total serum protein: 90 g/l
A/G quotient: 0.38
albumin: 27%
globulins:
 α_1 : 4% (normal)
 α_2 : 6% (normal)
 β : 8% (normal)
 γ : 55% (↑↑↑)
IgG: 56 g/l (↑)
IgA: 0 g/l (↓)
IgM: 0.6 g/l (↓)
CRP: normal
ESR: 100 mm/h
serum Ca^{++} : 2.71 mmol/l
uric acid: 708 $\mu\text{mol/l}$
Anti-IgG and anti-kappa antibodies are strongly positive.
What is the most likely diagnosis and what diagnostic procedure would you order?