٥٣ protein and it is essential to regulate a variety genes involved in cell cycle and apoptosi (programmed cell death). Under normal conditions, low basal level of p٥٣ protein is maintained through mdm٢-mediated ubiquitination followed by proteasome degradation [١]. In ٥٠ percent cases of solid tumors, p٥٣ gene is mutated and p٥٣ protein loss its anti-proliferative function [٢] and over-expression of altered p٥٣ protein has been reported. Hence, the detection of p٥٣ protein in human blood/sera could be instrumental in managing this disease in early stage. It can be identified via various assays including electrochemical [٣, ٤], QCM [٥], Immunomagnetic-electrochemiluminescent [٦]. Each method uses different approaches to selectively recognize p٥٣ protein, such as biotin-avidin [٧], histidine protein [٨], antigen-antibody [٩] and oligonucleotides [١٠]. Of these, the electrochemical methods have still been widely applied for the detection of p٥٣ protein because of low cost, fast, imple and high sensitivity