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## ABSTRACTS SELECTED FOR POSTER PRESENTATIONS

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# Detection of *K-ras* Mutation in Serum DNA of Colon Cancer Patients

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**Background:** Activating mutations of the *K-ras* gene, a known oncogene, are found in a large proportion of human tumors. In particular, up to 80~90% of colon cancers contain *K-ras* mutations, which are associated with treatment failure and poor prognosis. In current clinical diagnostic procedures, however, archival tissue is required to determine *K-ras* mutation status. Therefore, our aim is to develop a diagnostic tool for detecting *K-ras* mutation that is present in serum DNA of colon cancer patients.

**Methods:** An "enriched" polymerase chain reaction - restriction fragment length polymorphism (PCR-RFLP) assay was performed by tracking point mutations of the *K-ras* oncogene, based on mismatch primers and restriction enzyme *BstXI*. All of PCR-RFLP results were confirmed by direct sequencing. The sensitivity and specificity of PCR-RFLP in the detection of *K-ras* mutation was confirmed in cancer cells with wild-type (H1703) and mutant (A549) *K-ras* genes and in a serial dilution assay.

**Results:** The results confirmed that PCR-RFLP was able to detect a mutation in a sample containing a mixture of mutant and wild-type DNA in a 1:10 ratio. Then, using the serum DNA of 12 colon cancer patients with *K-ras* mutation detected in tissue DNA, we were able to confirm the presence of *K-ras* mutation in serum DNA from 3 of 5 patients with known *K-ras* mutation.

**Conclusion:** The PCR-RFLP assay is a useful tool for detecting *K-ras* mutations from serum DNA and allows early diagnosis of molecular determinants in colon cancer patients.

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