Double mutant P96S/S120G of Nm23-H1 abrogates its NDPK activity and motility-suppressive ability

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Background: The Nm23-H1 gene is a metastasis suppressor gene. However, its biochemical mechanism of suppressing the metastatic potential of cancer cells is still unknown. The previous hypothesis that a histidine protein kinase activity may contribute to the motility-suppressive effect of Nm23-H1 could not explain why the H118F mutant, a kinase-deficient mutant, still had motility-suppressive ability.

Methods: We conducted a study on the double mutant P96S/S120G of Nm223-H1 and succeeded in introducing the RP-HPLC method in NDPK assay.

Results: The results showed that double mutant P96S/S120G, when expressed in the bacteria, was completely aggregated in inclusion bodies; prompted that the deficiency of motility-suppressive function of 120G, P96S, and P96S/S120G mutants was due to their altered structure, which might deprive Nm23-H1 of most activities including kinase activity or interactions with other proteins.

Conclusions: Double mutant P96S/S120G of Nm23-H1 abrogates its NDPK activity and motility-suppressive ability in the human high-metastatic large cell lung cancer cell line L9881.

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Reverse transcriptase polymerase chain reaction assay designed for the detection of LUNX-mRNA to compare the micrometastasis during chemotherapy in patients with non-small cell lung cancer

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Objective: To compare the micrometastasis during chemotherapy in patients with non-small cell lung cancer.

Material and Methods: To detect the expression of the lung tissue specific gene named LUNX with reverse transcriptase chain reaction method (RT-PCR) in peripheral blood of patients with non-small cell lung cancer (NSCLC), the micrometastasis of non-small cell lung cancer was diagnosed.

Result: Total 20 patients was involved in the study, the peripheral blood was sampled before and after two cycles chemotherapy. There were 7 patients with NSCLC showed LUNX gene expression in blood before chemotherapy by RT-PCR. After two cycles of chemotherapy, there were 2 patients who was positive in blood detection. The positive detection rate of in peripheral blood in the group of before chemotherapy by RT-PCR. After two cycles of chemotherapy, there were 2 patients who was positive in blood detection.