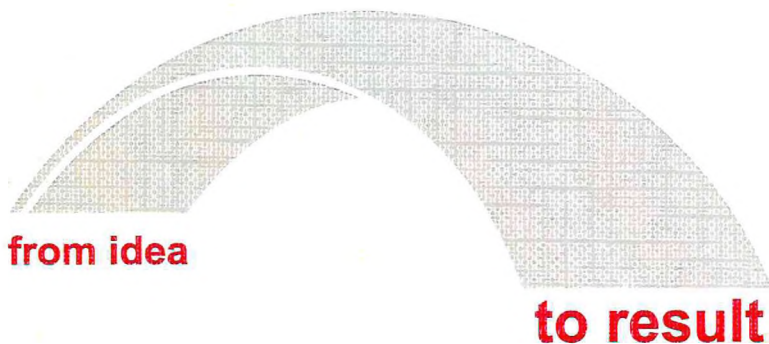


**International Conference
“Physics of Cancer:
Interdisciplinary Problems and Clinical Applications”**

Book of Abstracts

Tomsk, Russia, May 23-26, 2017



Institute of Strength Physics and Materials Science
of Siberian Branch Russian Academy of Sciences

INTERNATIONAL CONFERENCE

**Physics of cancer:
interdisciplinary problems and clinical applica-
tions**

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of cancer cells are much larger than the fluctuations of healthy cells, that corresponds to the data processing of cell dynamics by atomic force microscopy.



**DYNAMIC CHANGES IN RETROTRANSPOSONS
METHYLATION STATUS IN RESPONSE OF
ANTITUMOR THERAPY OF LUNG CANCER**

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Malignant cell transformation is accompanied by two processes of DNA methylation changes: promoter hypermethylation of single-copy genes and hypomethylation of retrotransposons. The composition of circulating DNA (cirDNA) from plasma and cell-surface-bound circulating DNA (csb-cirDNA) was shown earlier to be altered in the blood of cancer patients due to accumulation of tumor-specific aberrantly methylated DNA fragments, which are currently considered valuable cancer markers. The present study compared LINE-1 retrotransposon methylation patterns in plasma cirDNA and csb-cirDNA from healthy donors and lung cancer (LC) patients, and also from LC patients during the post-treatment follow-up period. It was shown that methylation level determination in csb-cirDNA from blood samples of LC patients appeared to be more informative than analysis of plasma cirDNA. Our data provide evidence that quantitative analysis of LINE-1 retrotransposon methylation status in cirDNA is a useful tool for lung cancer diagnostics, evaluation of cancer treatment efficiency and post-treatment monitoring.