

## Biomarkers for Lung Cancer



### DESCRIPTION

This technology covers DNA methylation analysis of novel biomarkers to detect lung cancer prior to the presentation of symptoms. This is important because lung cancer is the leading cause of cancer death in both men and women. It is becoming even more prevalent in women in the last few decades because more women are smoking cigarettes. 5-methylcytosine, present at 70-80% of all CpG di-nucleotides, is a normal modified base found in mammalian DNA. It has been known for more than a decade that the level of 5-methylcytosine bases is significantly increased at certain DNA sequences in tumor tissues (such as lung cancer) relative to normal tissues. This early diagnosis is the key to the successful treatment of lung cancer because once lung cancer begins to present clinical symptoms it has often already metastasized.

### KEY ASPECTS

- This technology does not rely on a single biomarker but instead on a large number of biomarkers and their combined methylation pattern
- Some of the biomarkers included in the patent below are: BARHL2, EVX2, IRX2, MEIS1, NR2E1, OC2, PAX6, ZNF577, CHAD, DLX4, GRIK2, KNCG3, NR2E1, OSR1, OTX1, PROX1, RUNX1 and VAX1
- See published data at: Rauch, T.A., Zhong, X., Wu, X., Wang, M., Kernstine, K.H., Wang, Z., Riggs, A.D., and Pfeifer, G.P. (2008) High-resolution mapping of DNA hypermethylation and hypomethylation in lung cancer, *Proc. Natl. Acad. Sci. USA* 105, 252-257.

### INTELLECTUAL PROPERTY

Title	US Patent Application	Filed
DNA Methylation Biomarkers for Lung Cancer	12/231,337	8/29/2008

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