

## Site Specific Detection of DNA Methylation Utilizing mCpG-SEER

**Background:** Small, unmethylated stretches of DNA called CpG islands, made up of cytosine and guanine repeats, are located next to house-keeping genes essential for cellular function. These, when positioned next to the promoter region of tumor suppression genes, can become abnormally methylated resulting in the formation of cancerous cells. Identification of these methylated CpG islands will aid in the diagnosis of human carcinomas.

### Applications:

- *Identifies specific DNA sequences containing subtle chemical modifications*
- *Can be used for medical diagnostic purposes in various forms of cancer and other ailments*

### Advantages:

- *Distinguishes methylated CpG islands located near the promoter of tumor suppression genes rather than identifying all methylated sequences enabling early detection of human carcinomas*
- *Determines optimal distance between the two target sequences of interest which provides increased affinity and accuracy in identification*
- *General method that can be easily modified to any sequence of interest*

**The Technology:** Researchers at the University of Arizona have successfully modified the SEER method to detect the uncharacteristic methylation of CpG islands. One hurdle attributed to this type of identification is specificity to the target of interest.

Using a variety of controls, researchers were able to confirm that the system effectively identifies the sequence of interest only when located next to the promoter. This exemplifies the specificity of the method that is essential for its use in medical diagnosis.

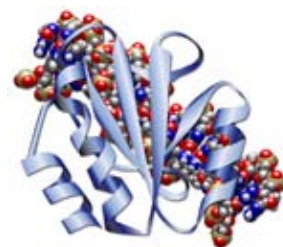
**Recent Publication:** Ooi, A.T., et al, "Sequence-Enabled Reassembly of b-Lactamase (SEER-LAC): A Sensitive Method for the Detection of Double-Stranded DNA". Biochemistry (in press)

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**Status:** PPA Filed; Ready for Licensing

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