

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Changes of histone modification landscape in cell differentiation** WEIQUN PENG, CHONGZHI ZANG, Department of Physics, The George Washington University, KAIRONG CUI, TAE-YOUNG ROH, DUSTIN SCHONES, KEJI ZHAO, NHLBI, NIH — During eukaryotic cell differentiation chromatin structure undergoes important changes, as manifested by extensive alterations in histone modifications. It is hypothesized that the profile of these epigenetic markers serves as a signature of the cell identity. To test this, we analyzed high-resolution genomic maps of histone methylations during differentiation of pluripotent hematopoietic stem cells into erythrocyte precursor cells. Our results indicate significant changes in both the dominant patterns of histone modifications and the genes inside the patterns after differentiation. Our results suggest that certain modifications prepare the chromatin for future activation in stem cells and their erasure results in a permanent inactivation of associated genes in differentiation-committed cells.

Wei-qun Peng  
Department of Physics, The George Washington University

Date submitted: 27 Nov 2007

Electronic form version 1.4