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(54) **Title:** EPIGENETIC MODIFICATION OF MAMMALIAN GENOMES USING TARGETED ENDONUCLEASES

(57) **Abstract:** The present disclosure provides genetically engineered cell lines comprising chromosomally integrated synthetic sequences having predetermined epigenetic modifications, wherein a predetermined epigenetic modification is correlated with a known diagnosis, prognosis or level of sensitivity to a disease treatment. Also provided are kits comprising said epigenetically modified synthetic nucleic acids or cells comprising said epigenetically modified synthetic nucleic acids that can be used as reference standards for predicting responsiveness to therapeutic treatments, diagnosing diseases, or predicting disease prognosis.