Centre de Regulació Genòmica

October 31, 2019

Dear Editor,

We are pleased to submit our manuscript titled " Identification of enhancer-promoter contacts in embryoid bodies through chromosome conformation capture (4C) " for consideration as method article in the Journal of Visualized Experiments (JoVE).

In this method article, we present a detailed protocol that adapts 4C method to define enhancers and to quantify their contacts with cognate promoters in the embryoid body (EB) differentiation model. As EBs contain cells from all three major germ layers, the differentiation of embryonic stem cells in this system has been used as a model to study early lineage specification process. Based on "one-vs-all" strategy, this method uses frequently cutting restriction enzymes, sonication and a nested-ligation-mediated PCR protocol, compatible with commercial DNA library preparation kits. High-throughput sequencing of 4C libraries and subsequent bioinformatics analysis allow to detect and quantify all sequences that have contacts with a chosen promoter, providing information about the dynamics of enhancer-promoter contacts during differentiation.

Overall, we believe that this protocol will be of great interest for researchers working on transcriptional regulation, epigenetics, developmental biology and cancer biology.

Dr. Tian Tian, Dr. Thomas Graf and Dr. Grégoire Stik

Gene Regulation, Stem Cells and Cancer Program
Center for Genomic Regulation, CRG
Carrer Dr. Aiguader 88
E 08003 Barcelona
Spain