

Chromatin Enrichment for proteomics (ChEP)



Georg Kustatscher¹, Karen L. H. Wills¹, Cristina Furlan¹ and Juri Rappsilber^{1,2}

¹ Wellcome Trust Centre for Cell Biology, University of Edinburgh, Edinburgh, UK

² Department of Biotechnology, Institute of Bioanalytics, Technische Universität Berlin, Berlin, Germany

Email feedback to: georg.kustatscher@ed.ac.uk

Introduction

During interphase, chromatin hosts fundamental cellular processes, such as gene expression, DNA replication and DNA damage repair. To analyze chromatin on a proteomic scale, we have developed chromatin enrichment for proteomics (ChEP), which is a simple biochemical procedure that enriches interphase chromatin in all its complexity. It enables researchers to take a ‘snapshot’ of chromatin and to isolate and identify even transiently bound factors. In ChEP, cells are fixed with formaldehyde; subsequently, DNA together with all cross-linked proteins is isolated by centrifugation under denaturing conditions. This approach enables the analysis of global chromatin composition and its changes, which is in contrast with existing chromatin enrichment procedures, which either focus on specific chromatin loci (e.g., affinity purification) or are limited in specificity, such as the analysis of the chromatin pellet (i.e., analysis of all insoluble nuclear material). ChEP takes half a day to complete and requires no specialized laboratory skills or equipment. ChEP enables the characterization of chromatin response to drug treatment or physiological processes. Beyond proteomics, ChEP may preclear chromatin for chromatin immunoprecipitation (ChIP) analyses.

Visit <http://www.epigenesys.eu> for other epigenetics and systems biology protocols

Protocol

Please use the link below to access the protocol.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4300392/pdf/emss-61618.pdf>

Published in Nature Protocols. 2014 Sep;9(9):2090-9. doi: 10.1038/nprot.2014.142.

PMID: 25101823 (Nature Publishing Group, a division of Macmillan Publishers Limited)

<http://www.nature.com/nprot/journal/v9/n9/full/nprot.2014.142.html>