

# An Integrated Workflow to Study the Promoter-Centric Spatio-Temporal Genome Architecture in Scarce Cell Populations

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## Materials

Name	Company	Catalog Number	Comments
0.4 mM Biotin-14-dATP	Invitrogen	19524-016	
0.5 M EDTA pH 8.0	Invitrogen	AM9260G	
1 M Tris pH 8.0	Invitrogen	AM9855G	
10x NEBuffer 2	New England Biolabs	B7002S	Referenced as restriction buffer 2 in the manuscript
10x PBS	Fisher Scientific	BP3994	
10x T4 DNA ligase reaction buffer	New England Biolabs	B0202S	
16% formaldehyde solution (w/v), methanol-free	Thermo Scientific	28908	
20 mg/mL Bovine Serum Albumin	New England Biolabs	B9000S	
5 M NaCl	Invitrogen	AM9760G	
5PRIME Phase Lock Gel Light tubes	Qiuantabio	2302820	<b>For phenol-chloroform purification in section 4</b> (DNA purification). Phase Lock Gel tubes are a commercial type of tubes specially designed to maximize DNA recovery after phenol-chloroform purifications while avoiding carryover of contaminants in the organic phase by containing a resin of intermediate density which settles between the organic and aqueous phase and isolates them. PLG tubes should be spun at 12,000 x g for 30 s before use to ensure that the resin is well-placed at the bottom of the tube
Adapters and PCR primers for library amplification	Integrated DNA Technologies	-	Bought as individual primers with PAGE purification for NGS
Cell scrappers	Nunc	179693	Or any other brand

Centrifuge (fixed-angle rotor for 1.5 mL tubes)	Any brand		
CHiCAGO R package	1.14.0		
CleanNGS beads	CleanNA	CNGS-0050	
dATP, dCTP, dGTP, dTTP	Promega	U120A, U121A, U122A, U123A	Or any other brand
DNA LoBind tube, 1.5 mL	Eppendorf	30108051	
DNA LoBind tube, 2 mL	Eppendorf	30108078	
DNA polymerase I large (Klenow) fragment 5000 units/mL	New England Biolabs	M0210L	
Dynabeads MyOne Streptavidin C1 beads	Invitrogen	65002	<b>For biotin pull-down of the pre-captured library in section 8</b> (biotin pull-down)
Dynabeads MyOne Streptavidin T1 beads	Invitrogen	65602	<b>For biotin pull-down of the post-captured library in section 11</b> (biotin pull-down and PCR amplification)
DynaMag-2	Invitrogen	12321D	Or any other magnet suitable for 1.5 ml tubeL
Ethanol absolute	VWR	20821.321	
FBS, qualified	Gibco	10270-106	Or any other brand
Glycine	Fisher BioReagents	BP381-1	
GlycoBlue Coprecipitant	Invitrogen	AM9515	<b>Used for DNA coprecipitation in section 4</b> (DNA purification)
HiCUP	0.8.2		
HindIII, 100 U/μL	New England Biolabs	R0104T	
IGEPAL CA-630	Sigma-Aldrich	I8896-50ML	
Klenow EXO- 5000 units/mL	New England Biolabs	M0212L	
Low-retention filter tips (10 μL, 20 μL, 200 μL and 1000 μL)	ZeroTip	PMT233010, PMT252020, PMT231200, PMT252000	
M220 Focused-ultrasonicator	Covaris	500295	
Micro TUBE AFA Fiber Pre-slit snap cap 6 x 16 mm vials	Covaris	520045	<b>For sonication in section 6</b> (sonication)
NheI-HF, 100 U/μL	New England Biolabs	R3131M	
Nuclease-free molecular biology grade water	Sigma-Aldrich	W4502	
PCR primers for quality controls	Integrated DNA Technologies	-	
PCR strips and caps	Agilent Technologies	410022, 401425	
Phenol: Chloroform: Isoamyl Alcohol 25:24:1, Saturated with 10 mM Tris, pH 8.0, 1 mM EDTA	Sigma-Aldrich	P3803	
Phusion High-Fidelity PCR Master Mix with HF Buffer	New England Biolabs	M0531L	<b>For amplification of the library in sections 9</b> (dATP-tailing, adapter ligation and PCR amplification) <b>and 11</b> (biotin pull-down and PCR amplification)
Protease inhibitor cocktail (EDTA-free)	Roche	11873580001	
Proteinase K, recombinant, PCR grade	Roche	3115836001	
Qubit 1x dsDNA High Sensitivity kit	Invitrogen	Q33230	<b>For DNA quantification after precipitation in section 4</b> (DNA purification)
Qubit assay tubes	Invitrogen	Q32856	
rCutsmart buffer	New England Biolabs	B6004S	
RPMI Medium 1640 1x + GlutaMAX	Gibco	61870-010	Or any other brand

SDS - Solution 10% for molecular biology	PanReac AppliChem	A0676	
Sodium acetate pH 5.2	Sigma-Aldrich	S7899-100ML	
SureSelect custom 3-5.9 Mb library	Agilent Technologies	5190-4831	Custom designed mouse or human capture system, used for the capture
SureSelect Target Enrichment Box 1	Agilent Technologies	5190-8645	<b>Used for the capture</b>
SureSelect Target Enrichment Kit ILM PE Full Adapter	Agilent Technologies	931107	<b>Used for the capture</b>
T4 DNA ligase 1 U/ $\mu$ L	Invitrogen	15224025	<b>For ligation in section 3</b> (ligation and decrosslink)
T4 DNA ligase 2000000/mL	New England Biolabs	M0202T	<b>For ligation in section 9</b> (dATP-tailing, adapter ligation and PCR amplification)
T4 DNA polymerase 3000 units/mL	New England Biolabs	M0203L	
T4 PNK 10000 units/mL	New England Biolabs	M0201L	
Tapestation 4200 instrument	Agilent Technologies		<b>For automated electrophoresis in section 9</b> (dATP-tailing, adapter ligation, and PCR amplification) <b>and section 11</b> (Biotin pull-down and PCR amplification). Any other automated electrophoresis system is valid
Tapestation reagents	Agilent Technologies	5067-5582, 5067-5583, 5067-5584, 5067-5585,	<b>For automated electrophoresis in section 9</b> (dATP-tailing, adapter ligation, and PCR amplification) <b>and section 11</b> (Biotin pull-down and PCR amplification). Any other automated electrophoresis system is valid
Triton X-100 for molecular biology	PanReac AppliChem	A4975	
Tween 20	Sigma-Aldrich	P9416-50ML	