

Materials List for:

Genome-wide Snapshot of Chromatin Regulators and States in *Xenopus* Embryos by ChIP-Seq

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Materials

Name	Company	Catalog Number	Comments
1/16 inch tapered microtip	Qsonica	4417	This microtip is compatible with Sonicator 3000 from Misonix and Q500/700 from Qsonica.
8 ml glass sample vial with cap	Wheaton	224884	8 ml clear glass sample vials for aqueous samples with 15-425 size phenolic rubber-lined screw caps.
Adaptor	e.g., IDT or Sigma	NA	TruSeq universal adaptor, AATGATACGGCGACCAACCGAG ATCTACACTCTTTCCCTACAC GACGCTCTTCCGATC*T. TruSeq indexed adaptor, P-GATCGGAAGAGCACACGTC TGAAGTCCAGTCAC #NNNNNN# ATCTCGTATGCCGTCT TCTGCTT*G. *, phosphorothioate bondphosphate group at 5' end. NNNNNN, index (see TruSeq ChIP Sample Preparation Guide for DNA sequence). Order adaptors HPLC purified. Adaptors can be prepared by combining equimolar amounts (each 100 µM) of the universal and the indexed adaptor and cooling them down slowly from 95 °C to room temperature. Use 1.5 pmol per ng of input DNA. Store at -20 °C.
b2g4pipe (software)	Blast2GO	non-commercial	http://www.blast2go.com/data/blast2go/b2g4pipe_v2.5.zip
BLAST+ (software)	Camacho et al.	non-commercial	http://blast.ncbi.nlm.nih.gov/Blast.cgi?PAGE_TYPE=BlastDocs&DOC_TYPE=Download
Bowtie (software)	Langmead et al.	non-commercial	http://bowtie-bio.sourceforge.net/index.shtml
cisFinder (software)	Sharov et al.	non-commercial	http://lgsun.grc.nia.nih.gov/CisFinder/
Chip for capillary electrophoresis	Agilent Technologies	5067-1504	Load this chip with 1 µl DNA for library quality control. Store at 4 °C.
Chip-based capillary electrophoresis system	Agilent Technologies	G2940CA	The Agilent 2100 BioAnalyzer is used to check the quality of ChIP-Seq libraries. Keep reagents at 4 °C.
ChIP-Seq library preparation kit (KAPA Hyper Prep Kit)	Kapa Biosystems	KK8504	Kit contains KAPA end repair and A-tailing enzyme mix, end Repair and A-tailing buffer, DNA ligase,

			ligation buffer, KAPA HiFi HotStart ReadyMix (2X), and KAPA library amplification primer mix (10X) (see also PCR primers). Adaptors are not included. Store at -20 °C.
ChIP-Seq library preparation kit (alternative, ThruPLEX-FD Prep Kit)	Rubicon Genomics	R40048	Kit uses their own stem-loop adaptors and primers. This kit eliminates intermediate purification steps and is as sensitive as the KAPA Hyper Prep Kit. Store at -20 °C.
Cluster3 (software)	de Hoon et al.	non-commercial	http://bonsai.hgc.jp/~mdehoon/software/cluster
FastQC (software)	Simon Andrews	non-commercial	http://www.bioinformatics.babraham.ac.uk/projects/fastqc
Fluorometer	life technologies	Q32866	Qubit 2.0 Fluorometer
Fluorometer reagents	life technologies	Q32851	The kit provides concentrated assay reagent, dilution buffer, and pre-diluted DNA standards for the Qubit fluorometer. Store DNA standards at 4 °C, buffer and dye at room temperature.
Formaldehyde	Sigma	F8775-4X25ML	Formaldehyde solution, for molecular biology, 36.5-38% in H ₂ O, stabilised with 10-15% methanol. Store at room temperature. CAUTION: Formaldehyde is corrosive and highly toxic.
Gel (E-Gel EX agarose , 2%)	life technologies	G4010	Pre-cast gel with 11 wells, openable format. Leave one lane between ladder and library empty to avoid cross-contamination. Store gels at room temperature.
Gel electrophoresis system	life technologies	G6465	E-Gel iBase and E-Gel Safe Imager combo kit for size-selecting ChIP-Seq libraries.
Gel extraction kit	Qiagen	28706	Store all reagents at room temperature. Use 500 µl of QG buffer per 100 mg of 2% agarose gel slice to extract DNA. Use MinElute columns (from MinElute PCR purification kit) to elute DNA twice.
HOMER (software)	Chris Benner	non-commercial	http://homer.salk.edu/homer/index.html
Hybridization oven	Techne	FHB1D	Hybridizer HB-1D
IGV (software)	Robinson et al.	non-commercial	http://www.broadinstitute.org/igv/home
Illumina CASAVA-1.8 quality filter (software)	Assaf Gordon	non-commercial	http://cancan.cshl.edu/labmembers/gordon/fastq_illumina_filter
Java TreeView (software)	Alok Saldanha	non-commercial	http://jtreeview.sourceforge.net
Laboratory jack	Edu-Lab	CH0642	This jack is used to elevate sample in sound enclosure for sonication.
Ladder, 100 bp	New England BioLabs	N3231	Keep 1x solution at room temperature. Store stock at -20 °C.
Ladder, 1 kb	New England BioLabs	N3232	Keep 1x solution at room temperature. Store stock at -20 °C.

Low-retention 1.5-ml microcentrifuge tubes	life technologies	AM12450	nonstick, RNase-free microfuge tubes, 1.5 ml
MACS2 (software)	Tao Liu	non-commercial	https://github.com/taoliu/MACS
Magnetic beads	life technologies	11201D	These Dynabeads are superparamagnetic beads with affinity purified polyclonal sheep anti-mouse IgG covalently bound to the bead surface. Store at 4 °C.
Magnetic beads	life technologies	11203D	These Dynabeads are superparamagnetic beads with affinity purified polyclonal sheep anti-rabbit IgG covalently bound to the bead surface. Store at 4 °C.
Magnetic beads	life technologies	10001D	These Dynabeads are superparamagnetic beads with recombinant protein A covalently bound to the bead surface. Store at 4 °C.
Magnetic beads	life technologies	10003D	These Dynabeads are superparamagnetic beads with recombinant protein G covalently bound to the bead surface. Store at 4 °C.
Magnetic rack	life technologies	12321D	DynaMag-2 magnet
MEME	Bailey et al.	non-commercial	http://meme.nbcr.net/meme/
Na3VO4	New England BioLabs	P0758	Sodium orthovanadate (100 mM) is a commonly used general inhibitor for protein phosphotyrosyl phosphatases. Store at -20 °C.
NaF	New England BioLabs	P0759	Sodium fluoride (500 mM) is commonly used as general inhibitor of phosphoserine and phosphothreonine phosphatases. Store at -20 °C.
NGS machine	Illumina	SY-301-1301	Genome Analyzer IIx
NGS machine (high performance)	Illumina	SY-401-2501	HiSeq
Normal serum (antibody control)	Santa Cruz Biotechnology	sc-2028	Use as control for goat polyclonal IgG antibodies in ChIP-qPCR experiments. Store at 4 °C.
Normal serum (antibody control)	Santa Cruz Biotechnology	sc-2025	Use as control for mouse polyclonal IgG antibodies in ChIP-qPCR experiments. Store at 4 °C.
Normal serum (antibody control)	Santa Cruz Biotechnology	sc-2027	Use as control for rabbit polyclonal IgG antibodies in ChIP-qPCR experiments. Store at 4 °C.
Nucleic acid staining solution	iNtRON	21141	Use RedSafe nucleic acid staining solution at 1:50,000. Store at room temperature.
Orange G	Sigma	O3756-25G	1-Phenylazo-2-naphthol-6,8-disulfonic acid disodium salt. Store at 4 °C.
PCR primers	e.g., IDT or Sigma		Primers to enrich adaptor-ligated DNA fragments by PCR: AATGATACGCGACCAACCGA*G and CAAGCAGAAGACGGCATACGA*G, phosphorothioate bond. Primers designed by Ethan Ford. Combine primers at 5 µM each. Use 5 µl in

			a 50 µl PCR reaction. Store at -20 °C.
MinElute PCR purification kit	Qiagen	28006	for purification of ChIP-qPCR and shearing test samples. Store MinElute spin columns at 4 °C, all other buffers and collection tubes at room temperature.
Phenol:chloroform:isoamyl alcohol (25:24:1, pH 7.9)	life technologies	AM9730	Phenol:Chloroform:IAA (25:24:1) is premixed and supplied at pH 6.6. Use provided Tris alkaline buffer to raise pH to 7.9. Store at 4 °C. CAUTION: phenol:chloroform:isoamyl alcohol is corrosive, highly toxic and combustible.
Primer3 (software)	Steve Rozen & Helen Skaletsky	non-commercial	http://biotools.umassmed.edu/bioapps/primer3_www.cgi
Protease inhibitor tablets	Roche	11836170001	cOmplete, Mini, EDTA-free. Use 1 tablet per 10 ml. Store at 4 °C.
Protease inhibitor tablets	Roche	11873580001	cOmplete, EDTA-free. Use 1 tablet per 50 ml. Store at 4 °C.
Proteinase K	life technologies	AM2548	proteinase K solution (20 µg/µl). Store at -20 °C.
RNase A	life technologies	12091-039	RNase A (20 µg/µl). Store at room temperature.
Rotator	Stuart	SB3	Rotator SB3
SAMtools (software)	Li et al.	non-commercial	http://samtools.sourceforge.net
Solid phase reversible immobilisation beads	Beckman Coulter	A63882	The Agencourt AMPure XP beads are used to minimise adaptor dimer contamination in ChIP-Seq libraries. Store at 4 °C.
Sonicator 3000	Misonix/Qsonica		Newer models are now available. Q125, Q500 or Q700 are all suitable for shearing crosslinked chromatin.
Sound enclosure	Misonix/Qsonica		optional: follow the manufacturer's recommendation to obtain the correct sound enclosure.
Thermomixer	eppendorf	22670000	Thermomixer for 24 x 1.5 mL tubes. Precise temperature control from 4 °C above room temperature to 99 °C.