

Incomplete erasure of histone marks during epigenetic reprogramming in medaka early development

Authors/Affiliations

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Supplemental Tables

Supplemental Table S1 Antibodies

Name	Company	Catalog number
Rabbit polyclonal anti-H3K27ac antibody	Abcam	Cat # ab4729, RRID:AB_2118291
Rabbit polyclonal anti-H3K27me3 antibody	Millipore	Cat # 07-449, RRID:AB_310624
Rabbit polyclonal anti-H3K27me3 antibody	Diagenode	Cat # C15410069, RRID: AB_2814977
Rabbit polyclonal anti-H3K9me3 antibody	Abcam	Cat # ab8898, RRID: AB_306848
Rabbit polyclonal anti-H3K9me3 antibody	Diagenode	Cat # C15410193, RRID: AB_2616044
Rabbit polyclonal anti-H3K4me1 antibody	Active motif	Cat # 39297, RRID: AB_2615075
Rabbit polyclonal anti-H3K4me1 antibody	Millipore	Cat # 07-436, RRID: AB_310614
Rabbit polyclonal anti-H3K4me2 antibody	Millipore	Cat # 07-030, RRID: AB_310342
Rabbit polyclonal anti-H3K4me3 antibody	Millipore	Cat # 07-473, RRID: AB_1977252
Mouse monoclonal anti-FLAG antibody	Sigma	Cat # F3165, RRID: AB_259529
Rabbit IgG polyclonal	Abcam	Cat # ab171870, RRID: AB_2687657
Donkey anti-Rabbit IgG (H+L) antibody, Alexa Fluor 488	Thermo Fisher Scientific	Cat # A21206, RRID: AB_2535792
Donkey anti-Rabbit IgG (H+L) antibody, Alexa Fluor 555	Thermo Fisher Scientific	Cat # A31570, RRID: AB_2536180
Donkey anti-Rabbit IgG (H+L) antibody, Alexa Fluor 568	Thermo Fisher Scientific	Cat # A10037, RRID: AB_2534013

Supplemental Table S2 Reagents and kits

Name	Company	Catalog number
A-485	Tocris Bioscience	Cat # 6387
DMSO	Sigma	Cat # D2650
Dynabeads Protein A	Invitrogen	Cat # 10002D
DAPI	Thermo Fisher Scientific	Cat # D1306
Protease inhibitor cocktail	Roche	Cat # 11873580001
KAPA HyperPrep kit	KAPA	Cat # KK8502
KAPA HiFi HotStart ReadyMix	KAPA	Cat # KK2601
KAPA RNA HyperPrep kit	KAPA	Cat # KK8540
SeqCap adapter kit A	Roche	Cat # 07141530001
SeqCap adapter kit B	Roche	Cat # 07141548001
RNeasy Mini Kit	QIAGEN	Cat # 74104
MinElute PCR purification Kit	QIAGEN	Cat # 28004
Nextera DNA Library Prep Kit (TD and TDE1 for ATAC-seq)	Illumina	Cat # FC-121-1030
Nextera Index Kit	Illumina	Cat # FC-121-1011
RiboMinus Eukaryote System v2	Thermo Fisher Scientific	Cat # A15026
Qubit dsDNA HS Assay Kit	Thermo Fisher Scientific	Cat # Q32851
mMESSAGE mMACHINE SP6 Transcription Kit	Thermo Fisher Scientific	Cat # AM1340
High sensitivity DNA Kit	Agilent	Cat # 5067-4626
Microtube AFA Fiber Snap-Cap 6x16mm	Covaris	Cat # 520045
AMPure XP	Beckman Coulter	Cat # A63881
VECTASHIELD Mounting Medium with DAPI	Vector Laboratories	Cat # H-1200
PNA TelC-Cy3	PANAGENE	Cat # F1002
ISOGEN	NIPPON GENE	Cat # 317-02503

Supplemental Table S3 Deposited data

Spike-in ChIP-seq using wildtype embryos	This paper	PRJDB13204
Spike-in ChIP-seq, ATAC-seq and RNA-seq using A485-treated embryos	This paper	PRJDB13204
RNA-seq data	Nakamura et al., 2021	PRJDB7492
RNA-seq data	Ichikawa et al., 2017	PRJDB5325
ATAC-seq data	Nakamura et al., 2021	PRJDB7492
Whole genome bisulfite-seq data	Qu et al., 2012	PRJNA167417
ChIP-seq data	Nakamura et al., 2014	PRJNA203530
Zebrafish ChIP-seq data	Laue et al., 2019	GSE113086

Supplemental Table S4 Mapping information, spike-in percentage

Name	Input	Raw reads	Mapped reads	Duplicate-removed reads	Reads aligned to HdrR	Reads aligned to Zv9
16cell_rep1_BRFinp1	same	13493785	7302150	6866033	1457927	5408106
16cell_rep2_BRFinp1	same	15735869	9142878	8440056	2170457	6269599
16cell_rep1_in1	same	20146666	10125664	8436303	3881146	4555157
16cell_rep2_in1	same	36205840	21813451	19282556	7116011	12166545
16cell_rep1_in2	same	18128587	9048835	8058171	3442396	4615775
16cell_rep2_in2	same	27493114	15692932	14382009	6084347	8297662
16cell_rep1_K27ac	input1	20642000	12243959	4706650	1734719	2971931
16cell_rep2_K27ac	input1	37571505	22919471	14282366	5566857	8715509
16cell_rep1_K27me3	input1	36933166	16384468	9184837	418559	8766278
16cell_rep2_K27me3	input1	29213188	12509353	4268822	217104	4051718
16cell_rep1_K9me3	input2	42810592	19527529	17452789	387468	17065321
16cell_rep2_K9me3	input2	44915757	20384184	18710848	453822	18257026
16cell_rep1_K4me1	BRFinp1	18179438	7397185	3371581	160752	3210829
16cell_rep2_K4me1	BRFinp1	18000064	7815777	3389884	173747	3216137
16cell_rep1_K4me2	BRFinp1	10933333	2567288	697600	55753	641847
16cell_rep2_K4me2	BRFinp1	14339054	5670531	3577535	137856	3439679
16cell_rep1_K4me3	BRFinp1	8617385	3028925	2146528	49293	2097235
16cell_rep2_K4me3	BRFinp1	13294294	5287204	4134986	44020	4090966
64cell_rep1_BRFinp1	same	6076420	2723386	2441635	938320	1503315
64cell_rep2_BRFinp1	same	15032785	9103031	8280043	2099333	6180710
64cell_rep1_BRFinp2	same	17297708	9744491	9185001	1067892	8117109
64cell_rep1_in1	same	16689457	9525286	8583994	1810432	6773562
64cell_rep2_in1	same	17707152	10001155	9278782	2405556	6873226
64cell_rep1_in2	same	26213021	15003620	13920943	6242198	7678745
64cell_rep2_in2	same	23017258	13204355	12060984	4502860	7558124
64cell_rep1_K27ac	input1	24225569	16469494	12667875	1959235	10708640
64cell_rep2_K27ac	input1	23073003	15802982	11111780	2487079	8624701
64cell_rep1_K27me3	input1	30448636	16416080	11739811	117349	11622462
64cell_rep2_K27me3	input1	31340378	18056680	13015438	189735	12825703
64cell_rep1_K9me3	input2	45206869	18181191	16494577	284949	16209628

64cell_rep2_K9me3	input2	34603146	14676224	13259560	224026	13035534
64cell_rep1_K4me1	BRFinput1	17009904	8042154	5389668	164456	5225212
64cell_rep2_K4me1	BRFinput1	24629618	16136374	12363484	207938	12155546
64cell_rep1_K4me2	BRFinput1	13140423	6686146	3495439	97392	3398047
64cell_rep2_K4me2	BRFinput1	16855326	10101055	8130932	141674	7989258
64cell_rep1_K4me3	BRFinput2	7955916	3139885	2058242	11978	2046264
64cell_rep2_K4me3	BRFinput1	19947535	11511453	9424780	37457	9387323
st9_rep1_BRFinput1	same	9324610	4056290	3478552	1147066	2331486
st9_rep2_BRFinput1	same	9907401	5805920	5432122	1592894	3839228
st9_rep1_input1	same	8953865	5017145	4634153	2258966	2375187
st9_rep2_input1	same	12120787	6336117	5925109	2968712	2956397
st9_rep1_input2	same	18303826	11936394	10287966	5539716	4748250
st9_rep2_input2	same	5727144	2787727	2457455	1507082	950373
st9_rep1_K27ac	input2	20152031	12872103	11200594	7858875	3341719
st9_rep2_K27ac	input2	27442305	19807263	15578392	9659040	5919352
st9_rep1_K27me3	input2	9781666	2939527	2013822	97066	1916756
st9_rep2_K27me3	input2	14017386	5096578	3878610	142176	3736434
st9_rep1_K9me3	input1	19835026	6655537	5929738	336375	5593363
st9_rep2_K9me3	input1	22665931	9603825	8216236	326083	7890153
st9_rep1_K4me1	BRFinput1	17076639	9012665	6461828	340854	6120974
st9_rep2_K4me1	BRFinput1	19441425	12573048	7525995	393357	7132638
st9_rep1_K4me2	BRFinput1	27004466	18817323	14725088	550819	14174269
st9_rep2_K4me2	BRFinput1	24908601	16788377	12453443	538507	11914936
st9_rep1_K4me3	BRFinput1	24098213	13106758	11120822	237530	10883292
st9_rep2_K4me3	BRFinput1	30957359	7962717	3734223	200278	3533945
st11_rep1_BRFinput1	same	8673329	4025701	3410771	1361433	2049338
st11_rep2_BRFinput1	same	16106926	10157172	9551559	4350985	5200574
st11_rep1_input1	same	9284031	5262492	4717206	3278284	1438922
st11_rep2_input1	same	27005309	18270216	17057874	10238506	6819368
st11_rep1_K27ac	input1	13460655	8916482	6411457	4289730	2121727
st11_rep2_K27ac	input1	24701927	18347342	14503110	7845149	6657961
st11_rep1_K27me3	input1	12160534	4721530	3982967	784200	3198767
st11_rep2_K27me3	input1	18685771	9248063	7779514	713756	7065758

st11_rep1_K9me3	input1	31128244	6801111	4574838	1128451	3446387
st11_rep2_K9me3	input1	25605636	9410219	7563680	1392496	6171184
st11_rep1_K4me1	BRFinput1	10355324	3706877	3115951	1182256	1933695
st11_rep2_K4me1	BRFinput1	21625425	13899248	11877708	2817224	9060484
st11_rep1_K4me2	BRFinput1	7254662	3127530	1471918	467848	1004070
st11_rep2_K4me2	BRFinput1	14382168	8633578	2841160	1122071	1719089
st11_rep1_K4me3	BRFinput1	22273004	8812844	7508094	1348790	6159304
st11_rep2_K4me3	BRFinput1	24986368	12023347	9816699	1829193	7987506
A485_st11_rep1_BRFinput	same	13072908	7474536	6372827	3654341	2718486
A485_st11_rep1_K27ac	input	18994087	11337345	8607252	4822967	3784285
A485_st11_rep1_K27me3	input	22836511	5499397	4097759	982681	3115078
A485_st11_rep1_K4me2	BRFinput	27522333	18989123	7594381	3127371	4467010
A485_st11_rep1_input	same	7807417	4188781	3449696	2521601	928095
A485_st11_rep2_BRFinput	same	16049055	9573829	7873714	5759044	2114670
A485_st11_rep2_K27ac	input	9280006	5373949	4093598	2887932	1205666
A485_st11_rep2_K27me3	input	9636972	2764668	1828294	603216	1225078
A485_st11_rep2_K4me2	BRFinput	36473365	26141221	13550631	7689832	5860799
A485_st11_rep2_input	same	29321041	19580216	18226597	15261207	2965390
A485_st11_rep3_BRFinput	same	11086629	6978929	6579805	4474567	2105238
A485_st11_rep3_K27ac	input	20245193	13992079	12521231	7892836	4628395
A485_st11_rep3_K27me3	input	7899311	1950339	1406549	633146	773403
A485_st11_rep3_K4me2	BRFinput	8727648	5549703	3469144	2685630	783514
A485_st11_rep3_input	same	3207263	1447799	1387610	1095986	291624
DMSO_st11_rep1_BRFinput	same	15894351	9574266	8909932	5718271	3191661
DMSO_st11_rep1_K27ac	input	13409907	9178208	7596774	6254655	1342119
DMSO_st11_rep1_K27me3	input	14266393	3679701	2350188	606077	1744111
DMSO_st11_rep1_K4me2	BRFinput	28468383	20374382	12104531	6416855	5687676
DMSO_st11_rep1_input	same	13690888	7237595	6671121	5168146	1502975
DMSO_st11_rep2_BRFinput	same	6343988	2765010	2616056	1385729	1230327
DMSO_st11_rep2_K27ac	input	26955969	16183934	14657519	11644387	3013132
DMSO_st11_rep2_K27me3	input	37474654	14119495	12673621	1725573	10948048
DMSO_st11_rep2_K4me2	BRFinput	27082539	18915779	11169241	5636799	5532442
DMSO_st11_rep2_input	same	4587146	1894237	1767621	1129713	637908

DMSO_st11_rep3_BRFinput	same	14886018	8939807	8588850	5698435	2890415
DMSO_st11_rep3_K27ac	input	8846806	5780523	4637212	4177565	459647
DMSO_st11_rep3_K27me3	input	13194309	3011758	2329597	906419	1423178
DMSO_st11_rep3_K4me2	BRFinput	5395367	3329944	2354277	1903677	450600
DMSO_st11_rep3_input	same	11912329	7832114	7370443	5823509	1546934
st12_rep1_input1	same	6749814	3298973	3024184	2163045	861139
st12_rep2_input1	same	4621326	2217602	2099430	1323410	776020
st12_rep1_K27ac	input1	38255006	28288165	24220012	16802853	7417159
st12_rep2_K27ac	input1	6592505	4085546	3280654	2203912	1076742
st12_rep1_K27me3	input1	14271038	5985241	4098962	1640676	2458286
st12_rep2_K27me3	input1	22172365	10465084	8478558	2786398	5692160

Supplemental Table S5 Read number of Zebrafish H3K9me3 ChIP-seq reads

Sample name (Laue et al.)	Reads number aligned to zebrafish genome (Zv9)	Reads number aligned to medaka genome (HdrR)	Ratio (HdrR / Zv9)
Zebra K9me3 6hpf rep1	17294489	32618	0.001886034331515
Zebra K9me3 6hpf rep2	10707406	20510	0.001915496619816