

Table S1. Accession numbers of data used in this study

Data Type	Factor	Antibody	Cell Type	Factor Accession Number	Background Accession Number
ChIP-seq	STAG1	Bethyl A300-0157A	WT mESC	GSM4280480 GSM4280481	GSE144116
	STAG2	Bethyl A300-0159A	WT mESC	GSM4280482 GSM4280483	GSE144116
	RAD21	Bethyl A300-080A	WT mESC	GSM4074281 GSM4074282	GSE137285
	CTCF	Active Motif 61311	WT mESC	GSM4074279 GSM4074280	GSE137285
	OCT4	Santa Cruz sc-8628X	WT mESC	GSM1082340	GSE44286
	SOX2	R&D Systems MAB2018	WT mESC	GSM1082341	GSE44286
	NANOG	Bethyl A300-397A	WT mESC	GSM1082342	GSE44286
	RAD21	Abcam ab992	WT mESC	GSM4280484 GSM4280485	GSE144116
	STAG1	Bethyl A300-0157A	<i>Stag2</i> ^{-/-} mESC	GSM4280486 GSM4280487	GSE144116
	RAD21	Abcam ab992	<i>Stag2</i> ^{-/-} mESC	GSM4280488 GSM4280489	GSE144116
	STAG2	Bethyl A300-0159A	<i>Stag1</i> ^{-/-} mESC	GSM4280490 GSM4280491	GSE144116
	RAD21	Abcam ab992	<i>Stag1</i> ^{-/-} mESC	GSM4280492 GSM4280493	GSE144116
	RAD21	Bethyl A300-080A	WT siGLO mESC	GSM4280494 GSM4280495	GSE144116
			WT siStag1 mESC	GSM4280496 GSM4280497	GSE144116
			<i>Stag2</i> ^{-/-} siGLO mESC	GSM4280498 GSM4280499	GSE144116
			<i>Stag2</i> ^{-/-} siStag1 mESC	GSM4280500 GSM4280501	GSE144116
RNA-seq	-	-	WT siGLO mESC	GSM4280519 GSM4280520 GSM4280521	GSE144116
	-	-	<i>Stag1</i> ^{-/-} siGLO mESC	GSM4280522 GSM4280523 GSM4280524	GSE144116
	-	-	WT siStag1 mESC	GSM4280525 GSM4280526 GSM4280527	GSE144116
	-	-	<i>Stag2</i> ^{-/-} siGLO mESC	GSM4280528 GSM4280529 GSM4280530	GSE144116
	-	-	<i>Stag2</i> ^{-/-} siStag1 mESC	GSM4280531 GSM4280532 GSM4280533	GSE144116