

Additional resources table

Antibodies

Reagent	Source	Identifier
Rabbit monoclonal anti HA-tag (clone C29F4) - IF paraffin section 1:300 - IF wholemount tubule 1:1,000 - Western 1:10,000 - Cut&Run 1:1,000	Cell Signaling Technology	RRID:AB_1549585; Cat# 3724
Mouse monoclonal anti HA-tag (clone 16B12) - IF dissociated cells on coverslips 1:200 - Western 1:1,000 - Cut&Run 1:50	Biolegend	RRID:AB_2820200 Cat#: 901516
Rabbit polyclonal anti HA-tag - Cut&Run 1:200	Abcam	RRID:AB_307019 Cat #: ab9110
Mouse monoclonal anti SALL4 (clone EE-30) - IF paraffin section 1:200 - IF wholemount tubule 1:600	Santa Cruz Biotechnology	RRID:AB_1129262; Cat# sc-101147
Sheep polyclonal anti FOXC2 - IF wholemount tubule 1:1,200	R&D Systems	RRID:AB_10973139 Cat# AF6989
Rabbit monoclonal anti CCND2 (clone D52F9) - IF wholemount tubule 1:400	Cell Signaling Technology	RRID:AB_2070685 Cat# 3741
Rabbit monoclonal anti Cleaved Caspase 3 (Asp175) (clone D3E9) - IF wholemount tubule 1:400	Cell Signaling Technology	RRID:AB_10897512 Cat# 9579
Rabbit polyclonal anti CBX2 (rabbit 855, affinity purified) - IF dissociated cells on coverslips 1:100 - Cut&Run: day91 serum 1:1,000	This paper	N/A
Rabbit polyclonal anti CBX2 (rabbit 856, affinity purified) - IF dissociated cells on coverslips 1:100 - Cut&Run: day91 serum 1:1,000	This paper	N/A
Rabbit polyclonal anti CBX4 - Western: 1:2,000	Abcam	RRID: N/A Cat# ab139815
Rabbit polyclonal anti CBX8 - Western: 1:10,000	Bethyl Laboratories	RRID:AB_2071525 Cat# A300-882A
Rabbit polyclonal anti RING1B - Western: 1:50,000	Bethyl Laboratories	RRID:AB_10632773 Cat# A302-869A
Rabbit monoclonal anti RING1B (clone D22F2) - IF dissociated cells on coverslips 1:1,000 - Cut&Run: 1:500	Cell Signaling Technology	RRID: N/A Cat# 5694
Mouse monoclonal PHC2 - IF dissociated cells on coverslips 1:100	Active Motif	RRID:AB_2615060 Cat# 39661
Rabbit PHC2 - Cut&Run: 1:200	Cell Signaling Technology	RRID: N/A Cat# H8523
Rabbit polyclonal anti BMI1 - Cut&Run: 1:200	Bethyl Laboratories	RRID:AB_1210891 Cat# A301-694A
Rabbit monoclonal anti H3K27me3 (clone C36B11) - Cut&Run: 1:500	Cell Signaling Technology	RRID:AB_2616029 Cat# 9733
Rabbit polyclonal anti H3K4me3 - Cut&Run: 1:1,000	Millipore	RRID:AB_1977252 Cat# 07-473
Rabbit monoclonal anti H2AK119Ub1 (clone D27C4) - Cut&Run: 1:2,000	Cell Signaling Technology	RRID: AB_10891618 Cat# 8240

Rat monoclonal anti c-KIT (CD117) , conjugated with PE (clone 3C11) - Flow Cytometry: 1:500	Miltenyi Biotec	RRID:AB_2801976 Cat#: 130-122-937
Rat monoclonal anti THY1.2 (CD90.2) , conjugated with APC (clone 30-H12) - Flow Cytometry: 1:50	Miltenyi Biotec	RRID:AB_2876917 Cat# 130-123-783
Human monoclonal anti ITGa6 (CD49f) , conjugated with PE (clone REA518) - Flow Cytometry: 1:50	Miltenyi Biotec	RRID: AB_2751859 Cat# 130-119-807
Donkey polyclonal anti Mouse , conjugated with Alexa Fluor 488 - IF (all types): 1:1,000	Thermo Fisher Scientific	RRID:AB_141607 Cat# A21202
Donkey polyclonal anti Mouse , conjugated with Alexa Fluor 568 - IF (all types): 1:1,000	Thermo Fisher Scientific	RRID:AB_2534013 Cat# A10037
Donkey polyclonal anti Rabbit , conjugated with Alexa Fluor 488 - IF (all types): 1:1,000	Thermo Fisher Scientific	RRID:AB_253579 Cat# A21206
Donkey polyclonal anti Rabbit , conjugated with Alexa Fluor 568 - IF (all types): 1:1,000	Thermo Fisher Scientific	RRID:AB_2534017 Cat# A10042
Donkey polyclonal anti Sheep , conjugated with Alexa Fluor 488 - IF (all types): 1:500	Jackson ImmunoResearch	RRID:AB_2340745 Cat# 713-545-147
Donkey polyclonal anti Sheep , conjugated with Alexa Fluor 647 - IF (all types): 1:500	Jackson ImmunoResearch	RRID:AB_2340751 Cat# 713-605-147
Donkey polyclonal anti Mouse , conjugated with HRP - Western: 1:10,000	Jackson ImmunoResearch	RRID:AB_2340770 Cat# 715-035-150
Donkey polyclonal anti Rabbit , conjugated with HRP - Western: 1:10,000	Jackson ImmunoResearch	RRID:AB_10015282 Cat# 711-035-152

Chemicals

Reagent	Source	Identifier
Tamoxifen	Sigma-Aldrich	Cat# T5648

Critical commercial assays

Reagent	Source	Identifier
Chromium Single Cell 3' Library & Gel Bead Kit v2	10X Genomics	Cat# 120267
Chromium Single Cell A Chip Kit	10X Genomics	Cat# 1000009
Chromium Next GEM Single Cell 5' Kit v2	10X Genomics	Cat# 1000265
Chromium Next GEM Chip K Single Cell Kit	10X Genomics	Cat# 1000287
SMART-Seq mRNA LP	Takara	Cat# 634768
SMARTer Stranded Total RNA-Seq Kit v2 - Pico Input Mammalian	Takara	Cat# 634411
NEBNext Ultra II DNA Library Prep Kit for Illumina	New England Biolabs	Cat# E7645

Deposited data

Reagent	Source	Identifier
Raw and processed high throughput sequencing data (Cut&Run, RNA-seq, scRNA-seq)	This paper	NCBI GEO accession: GSE210369

Mouse strains

Reagent	Source	Identifier
Mouse: <i>C57BL/6J</i>	The Jackson Laboratory	RRID:IMSR_JAX:000664; Cat# 000664
Mouse: <i>Cbx2^{2xHA}</i>	This paper	N/A
Mouse: <i>Cbx2^Δ</i>	This paper	N/A
Mouse: <i>Cbx2^{23KRA}</i>	Lau <i>et al.</i> , 2017 Maintained in lab colony Available through MMRRC	RRID:MMRRC_050534- UNC Cat# 050534-UNC
Mouse: <i>Cbx2^{Flox}</i> (<i>Cbx2tm1a(KOMP)Wtsi</i>)	UC Davis Mouse Biology Program Knock Out Mouse Project (KOMP)	RRID:MMRRC_046927- UCD
Mouse: CAGG's Flpo (<i>C57BL/6N-Tg(CAG-Flpo)1Afst/Mmucd</i>)	UC Davis Mutant Mouse Resource Research Center (MMRRC)	RRID:MMRRC_036512- UCD
Mouse: <i>R26-CreERT2</i> (<i>B6.129-Gt(ROSA)26Sortm1(cre/ERT2)Tyj/J</i>)	The Jackson Laboratory	RRID:IMSR_JAX:008463 Cat# 008463

Software and algorithms

Reagent	Source	Identifier
Fiji (ver. 1.53c)	Schindelin <i>et al.</i> , 2012	https://imagej.net/software/fiji/
Matlab (ver. R2016a – R2021a)	Mathworks	https://www.mathworks.com/products/matlab.html
R (ver. 3.6.3, 4.1.0)	The R project	https://www.r-project.org/
Trim Galore (ver. 0.4.3)	Martin <i>et al.</i> , 2012	https://www.bioinformatics.babraham.ac.uk/projects/trim_galore/
Bowtie2 (ver. 2.3.1)	Langmead and Salzberg, 2012	http://bowtie-bio.sourceforge.net/bowtie2/index.shtml
Samtools (ver. 1.4.1)	Li <i>et al.</i> , 2009	http://www.htslib.org/
Picard (ver. 2.17.1)	Broad Institute	http://broadinstitute.github.io/picard
Deeptools (ver. 2.2.4)	Ramirez <i>et al.</i> , 2016	https://deeptools.readthedocs.io/en/develop/
MACS2 (ver. 2.1)	Zhang <i>et al.</i> , 2008	https://github.com/macs3-project/MACS
Cell ranger (ver. 2.0.0, 3.0.2, 6.0)	10X Genomics	https://support.10xgenomics.com/single-cell-gene-expression/software/pipelines/latest/installation
Seurat (ver. 3.1.4, 4.0.4)	Stuart <i>et al.</i> , 2019; Hao <i>et al.</i> , 2021	https://satijalab.org/seurat/
Star (ver. 2.5.3)	Dobin <i>et al.</i> , 2013	https://github.com/alexdobin/STAR
Subread (featureCounts) (ver. 1.5.0)	Liao <i>et al.</i> , 2014	https://subread.sourceforge.net/
edgeR (ver. 3.34.0)	Robinson <i>et al.</i> , 2010	https://bioconductor.org/packages/release/bioc/html/edgeR.html
All other scripts	This paper	https://github.com/jongminkmg/Cbx2