

KEY RESOURCES TABLE

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Antibodies		
TUBB3 (ICC)	Biologend	801202
Ki67 (ICC)	Abcam	ab15580
Secondary antibody: Goat anti-rabbit IgG (H+L) Highly Cross-Absorbed Alexa Fluor™ 546 (ICC)	ThermoFisher Scientific	A11035
Secondary antibody: Goat anti-mouse IgG (H+L) Highly Cross-Absorbed Alexa Fluor™ 488 (ICC)	ThermoFisher Scientific	A11029
RB (WB)	Cell Signalling Technology	9309S
Phospho-RB (WB)	Cell Signalling Technology	9308S
TBP (WB)	Proteintech	22006-1-AP
Secondary antibody: donkey anti-rabbit IRdye800CW (WB)	LI-COR	926-32213
Secondary antibody: goat anti-mouse IRdye680RD (WB)	LI-COR	926-68070
H3K27ac (ChIP-seq)	Abcam	ab4729
Chemicals, peptides, and recombinant proteins		
DMEM/F12	Sigma	D8437
FBS	Pan BioTech	P40-37500
Pen/Strep	Sigma	P0781
BSA	Fisher BioReagents™	BP9706-100
Beta-mercaptoethanol	BDH	441433A
Trypsin EDTA 0.25%	ThermoFisher Scientific	25200072
DAPI	Abcam	ab228549
DMSO	Santa Cruz Biotechnology	sc-358801
PowerUp™ SYBR™ Green Master Mix	ThermoFisher Scientific	A25742
Crystal Violet solution	Sigma	V5265
All-trans retinoic acid	Sigma	R2625
Corn oil	Sigma	C8267
Palbociclib (in vitro)	SelleckChem	PD-0332991 HCl, S1116
Palbociclib (in vivo)	MedChemExpress	HY-50767
RIPA buffer	Sigma-Aldrich	R0278
NuPAGE 4-12% BisTris gel	Invitrogen	NP0321BOX
NuPAGE MOPS running buffer	Life Technologies	NP0001
4% Paraformaldehyde in PBS	ThermoFisher Scientific	15670799
Uranyl Acetate	Agar Scientific	R1260A

Epoxy embedding medium Epon812 substitute	Sigma-Aldrich	45345
Glutaraldehyde	Merck	1.04239.0250
Sodium cacodylate	Agar Scientific	R1102
Osmium tetroxide	Agar Scientific	AGR1019
Potassium hexacyanoferrate (II) trihydrate	Sigma Aldrich	<u>P3289</u>
ProLong Gold antifade reagent	ThermoFisher Scientific	P10144
Anti-Adherence Rinsing Solution	STEMCELL Technologies	07010
Critical commercial assays		
RNeasy Mini Kit	QIAGEN	74104
RNase-Free DNase Set	QIAGEN	79254
QuantiTect Reverse Transcription Kit	QIAGEN	205311
Click-iT™ EdU Cell Proliferation Kit for Imaging, Alexa Fluor™ 647 dye	ThermoFisher Scientific	C10340
CellTiter-Glo® Luminescent Cell Viability Assay	ProMega	G7570
BCA protein assay kit	ThermoFisher Scientific	23227
Rapid DNA-seq kit	NEXTFLEX	NOVA-5188-02
Mammalian Genomic DNA Miniprep Kit	GenElute	G1N350
Poly(A) mRNA magnetic isolation module	New England Biolabs	E7490
Ultra II directional RNA kit	New England Biolabs	E7760L
Deposited data		
Raw and processed RNA-seq palbociclib	This manuscript	GSE216273
Raw and processed ChIP-seq palbociclib	This manuscript	GSE216291
Raw and processed RNA-seq palbociclib and retinoic acid	This manuscript	GSE216274
Raw and processed ChIP-seq palbociclib and retinoic acid	This manuscript	GSE236052
Data analysis code	This manuscript	https://zenodo.org/record/8221346 ⁶⁶
Neuroblastoma survival data	R2 Genomics Platform	Tumor Neuroblastoma public - Versteeg - 88 - MAS5.0 - u133p2

Experimental models: cell lines		
SK-N-BE(2)C	Laboratory of Prof. Deborah Tweedle, Newcastle University	N/A
IMR-32	Laboratory of Prof. Deborah Tweedle, Newcastle University	N/A
SH-SY5Y	Laboratory of Prof. John Hardy, UCL	N/A
SH-EP	Laboratory of Prof. Deborah Tweedle, Newcastle University	N/A
GIMEN	CLS Cell Lines Service GmbH, Eppelheim, Germany	AccessionID: CVCL_1232 CLS catalog number 300179
Experimental models: organisms/strains		
Th- <i>MYCN</i> mice	William Weiss, UCSF original source. Backcrossed to 129SvJ and bred in house.	Strain: 129SvJ.Cg-Tg(Th-MYCN)41Waw/ICR
NOD <i>scid</i> gamma (NSG) mice	JAX original source, bred at Charles River.	Strain: NOD.Cg-Prkdcscid Il2rgtm1Wjl/SzJ Cat #: 05557
Oligonucleotides		
qRT-PCR primers (see Table S1)	Sigma	See Table S1
Software and algorithms		
FIJI/Image J	Open Source	https://imagej.net/software/fiji/
GraphPad Prism version 9.4.1	GraphPad	https://www.graphpad.com/scientific-software/prism/
Image Studio Lite	LI-COR	https://www.licor.com/bio/image-studio-lite/
Incucyte® Base Software	Essen Bioscience	https://www.sartorius.com/en/products/live-cell-imaging-analysis/live-cell-analysis-instruments
Incucyte® Neurotrack Analysis Software Module	Sartorius - Cat. No. 9600-0010	https://www.essenbioscience.com/en/products/peripherals/cell-player-neurotrack-software-module/
Leica LAS X software	Leica	https://www.leica-microsystems.com/products/microscope-software/p/leica-las-x-ls/
NIS-Elements software	Nikon	https://www.microscope.healthcare.nikon.com/en_EU/products/software/nis-elements
cellSens Imaging software	Olympus	https://www.olympus-lifescience.com/en/software/cellsens/

StepOne™ Software	ThermoFisher Scientific	https://www.thermofisher.com/uk/en/home/technical-resources/software-downloads/StepOne-and-StepOnePlus-Real-Time-PCR-System.html
Odyssey infrared imaging system software v3.0.16	LI-COR	https://www.licor.com/bio/support/answer-portal/software/odyssey-application.html
BioRender	BioRender	https://www.biorender.com
MRI software	Horos	https://horosproject.org/
apeglm v1.14.0	Zhu et al, 2019 ⁶⁷	https://bioconductor.org/packages/release/bioc/html/apeglm.html
bedtools v2.30.0	Quinlan et al, 2010 ⁶⁸	https://bedtools.readthedocs.io/en/latest/
bowtie2 v2.4.1	Langmead and Salzberg, 2012 ⁶⁹	https://bio.sourceforge.net/bowtie2/index.shtml
ChIPseeker v1.30.3	Yu et al, 2015 ⁷⁰	https://bioconductor.org/packages/release/bioc/html/ChIPseeker.html
clusterProfiler v4.0.5	Wu et al, 2021 ⁷¹	https://bioconductor.org/packages/release/bioc/html/clusterProfiler.html
ComplexHeatmap v2.8.0	Gu, 2022 ⁷²	http://www.bioconductor.org/packages/devel/bioc/html/ComplexHeatmap.html
deepTools v3.5.1	Ramirez et al, 2016 ⁷³	https://deeptools.readthedocs.io/en/develop/
DESeq2 v1.32.0	Love et al, 2014 ⁴⁶	https://bioconductor.org/packages/release/bioc/html/DESeq2.html
DiffBind v3.4	Bioconductor	https://bioconductor.org/packages/release/bioc/html/DiffBind.html
dplyr v1.0.10	CRAN	https://cran.r-project.org/web/packages/dplyr/index.html
factoextra v1.0.7	CRAN	https://cran.r-project.org/web/packages/factoextra/index.html
featureCounts v2.0.1	Liao et al, 2014 ⁷⁴	https://subread.sourceforge.net/featureCounts.html

ggplot2 v3.3.6	CRAN	https://cran.r-project.org/web/packages/ggplot2/index.html
IGV v2.11.0	Thorvaldsdottir et al, 2013 ⁷⁵	https://software.broadinstitute.org/software/igv/
MACS2 v2.2.7.1	Zhang et al, 2008 ⁷⁶	https://github.com/mac3-project/MACS/releases/tag/v2.2.7.1
multiQC v1.7	Ewels et al, 2016 ⁷⁷	https://multiqc.info/
org.Hs.eg.db v3.13.0	Bioconductor	https://bioconductor.org/packages/release/data/annotation/html/org.Hs.eg.db.html
R v4.1.2	CRAN	https://www.r-project.org/
Python v2.7.18	Python	https://www.python.org/download/releases/2.0/
Python v3.9.7	Python	https://www.python.org/download/releases/3.0/
R2Genomics	R2	https://r2.amc.nl
ROSE	Whyte et al, 2013 ⁷⁸	https://github.com/biomystery/ROSE_young_lab
samtools v1.7	Li et al, 2009 ⁷⁹	http://www.htslib.org/
snakemake v5.2.1	Molder et al, 2021	https://snakemake.readthedocs.io/en/stable/
STAR v2.6.1a	Dobin et al, 2013 ⁸⁰	https://github.com/alexdobin/STAR
TrimGalore v0.6.4	Babraham Bioinformatics	https://www.bioinformatics.babraham.ac.uk/projects/trim_galore/
TxDb.Hsapiens.UCSC.hg19.knownGene v3.2.2	Bioconductor	https://bioconductor.org/packages/release/data/annotation/html/TxDb.Hsapiens.UCSC.hg19.knownGene.html
WiggleTools v1.2	Zerbino et al, 2014 ⁸¹	https://github.com/Ensembl/WiggleTools