

Supplementary Table 3 Key resources table

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Antibodies		
Rabbit monoclonal anti-CD47 (EPR24922-21)	Abcam	ab300124
Mouse monoclonal CD47 antibody (B6H12)	Santa Cruz Biotechnology	sc-12730 RRID:AB_396315
Rabbit Polyclonal CD47 antibody, C-terminal	GeneTex	GTX80538 RRID:AB_11177316
CoraLite® Plus 488-conjugated GOLGA2/GM130 Polyclonal antibody	Proteintech	CL488-11308 RRID:AB_2919763
Mouse monoclonal anti-Calnexin (6F12BE10]	Abcam	ab112995 RRID:AB_10860712
Mouse monoclonal anti-COX IV (4D11-B3-E8)	Cell Signaling Technology	11967 RRID:AB_2797784
Rabbit polyclonal anti- α -Smooth Muscle Actin	Abcam	ab5694 RRID:AB_2223021
Rabbit monoclonal anti- α -Smooth Muscle Actin	Selleck	F0017
Rabbit monoclonal anti-CD68 (D4B9C)	Cell Signaling Technology	CST76437 RRID:AB_2799882
Mouse monoclonal anti-CD68 (9H5)	Zen Bio	250019
Rabbit Polyclonal anti-CD68	Proteintech	25747-1-AP RRID:AB_2919875
Rabbit monoclonal anti-CD163(D6U1J)	Cell Signaling Technology	93498 RRID:AB_2800204
Rabbit monoclonal anti-HLA-DR (EPR3692)	Abcam	ab92511 RRID:AB_10563656
Mouse monoclonal anti-PanCK	Merck-SIGMA	C2562
Rabbit polyclonal anti-pan-keratin	Proteintech	26411-1-AP RRID:AB_2880505
APC/Cyanine7 anti-human CD14 Antibody	BioLegend	325619 RRID:AB_830692
PE anti-mouse F4/80 Recombinant Antibody	BioLegend	157303 RRID:AB_2832546
Mouse anti-CD47-PerCy5.5	BD Biosciences	561261 RRID:AB_10611734
Mouse Monoclonal anti-GFP-Tag	Abclonal	AE012 RRID:AB_2770402
Mouse Polyclonal anti-PAX8	Proteintech	10336-1-AP RRID:AB_2236705
Mouse Monoclonal anti-PAX8	Proteintech	60145-4-Ig RRID:AB_10643528
Rabbit monoclonal anti-HLA-DR	Zen Bio	R381263
Rabbit Polyclonal anti-RAB32	CUSABIO	CSB-PA618795LA01HU
Mouse Monoclonal anti-RACK1	Proteintech	66940-1-Ig RRID:AB_2882264
Rabbit monoclonal anti-Upf1 (D15G6)	Cell Signaling Technology	12040S RRID:AB_2797806
Rabbit Polyclonal anti-ATP1A1	Proteintech	14418-1-AP RRID:AB_2227873
Normal Rabbit IgG	Sigma	12-370
Rabbit monoclonal anti-hnRNP A1	Abways	CY6867
Rabbit monoclonal anti- hnRNP H	Abways	AY9553

Rabbit polyclonal anti-BUD31	Proteintech	11798-1-AP; RRID: AB_2274894
Rabbit polyclonal anti-Caspase1	Cohesion	CPA5426 RRID:AB_3083519
Rabbit polyclonal anti-GSDMD	Proteintech	20770-1-AP RRID:AB_10696319
Rabbit monoclonal anti-Cleaved GSDMD (N Terminal)	Abclonal	A22523
Mouse monoclonal anti-HuR	Thermo Scientific	1862775
Mouse monoclonal anti-alpha-Tubulin	Proteintech	66031-1-Ig; RRID: AB_11042766
Rabbit polyclonal anti-GAPDH	Zen Bio	380626 RRID:AB_3086699
Peroxidase AffiniPure® Goat Anti-Mouse IgG (H+L)	Jackson ImmunoResearch	115-035-003 RRID: AB_10015289
Peroxidase AffiniPure® Goat Anti-Rabbit IgG (H+L)	Jackson ImmunoResearch	111-035-144 RRID: AB_2307391
Goat anti-Rabbit IgG (H+L) Cross-Adsorbed Secondary Antibody, Alexa Fluor™ 488	Invitrogen	A-11008 RRID: AB_143165
Goat anti-Rabbit IgG (H+L) Cross-Adsorbed Secondary Antibody, Alexa Fluor™ 594	Invitrogen	A-11012 RRID: AB_2534079
Goat anti-Mouse IgG (H+L) Cross-Adsorbed Secondary Antibody, Alexa Fluor™ 488	Invitrogen	A-11001 RRID: AB_2534069
Goat anti-Mouse IgG (H+L) Cross-Adsorbed Secondary Antibody, Alexa Fluor™ 594	Invitrogen	A-11005 RRID: AB_2534073
VeriBlot for IP Detection Reagent (HRP)	Abcam	ab131366
Bacterial and virus strains		
Escherichia coli BL21(DE3) competent cells	Vazyme	C504-02
Escherichia coli DH5α competent cells	Vazyme	C502-02
Biological samples		
HGSOC specimens and fallopian tube tissues	Department of Obstetrics and Gynecology, Qilu Hospital	N/A
Cancer-associated fibroblast derived from ovarian cancer	Department of Obstetrics and Gynecology, Qilu Hospital	N/A
Patient-derived xenograft of ovarian cancer	Department of Obstetrics and Gynecology, Qilu Hospital	N/A
Chemicals, peptides, and recombinant proteins		
Penicillin-Streptomycin Solution, 100X	Biosharp	BL505A
Sodium pyruvate	Sigma	P4562
Insulin	Macgene	CC101
Dimethyl sulfoxide (DMSO)	Aladdin	D103277
D-Luciferin potassium salt	Sigma	50227
Recombinant Human SIRP-alpha/CD172a Protein	Abclonal	RP00171
2-Mercaptoethanol (50 mM)	Thermo Fisher Scientific	31350010
Phorbol 12-myristate 13-acetate (PMA)	Selleck	S7791
Delivector™ Avertin	Dowobio	DW3106

Dulbecco's Modification of Eagle's Medium (DMEM)	Macgene	CM10013
RPMI 1640	Macgene	CM10040
MEM Nonessential Amino Acids Solution	Macgene	CC25025
Trypsin-EDTA, 1X, 0.25% with phenol red	Macgene	CC017
Trypsin, 1X, 0.25%, EDTA and phenol red-free	Macgene	CC034
jetPRIME® Versatile DNA/siRNA transfection reagent	PolyPlus	101000046
CALNP RNA in vivo	D-Nano Therapeutics	DN004
Western and IP Cell Lysis Buffer	Beyotime	P0013
1×Protease Inhibitor Cocktail	Targetmol	C0001
Primary Antibody Dilution Buffer	Beyotime	P0023A
Enhanced Chemiluminescent detection (ECL) mixture	Vazyme	E411
Murine Macrophage Colony-stimulating Factor	Abclonal	RP01216S
EDTA Antigen Repair Solution (pH9.0)	ZSGB-BIO	ZLI-9069
Triton X-100	Sangon Biotech	A110694
Proteinase K	Beyotime	ST533
Recombinant His-tagged HNRNPA1	Cusabio	CSB-EP010600HU
HRP-labeled Streptavidin	Beyotime	A0303
TRizol reagent	Invitrogen	15596026
AMPure XP beads	Beckman Coulter	A63881
Protein A/G magnetic beads	Thermo Fisher Scientific	AM9624
SUPERase•In RNase Inhibitor	Invitrogen	AM2694
RQ1 RNase-Free DNase	Promega	M6101
Micrococcal Nuclease	Thermo Fisher Scientific	EN0181
T4 RNA Ligase 2, truncated	NEB	M0242S
Superscript II Reverse Transcriptase	Thermo Fisher Scientific	18064014
Exonuclease I	NEB	M0293S
RNase H	NEB	M0297S
Terminal Transferase	NEB	M0315S
4',6-diamidino-2-phenylindole	Abcam	ab104139
Critical commercial assays		
FastPure Cell/Tissue Total RNA Isolation Kit	Vazyme	RC101-01
HiScript II Q RT SuperMix for qPCR	Vazyme	R222-01
ChamQ SYBR Color qPCR Master Mix (Low ROX Premixed)	Vazyme	Q431-03
T7 High Yield RNA Transcription Kit	Vazyme	TR101
TUNEL Cell Apoptosis Detection Kit	KEYGEN	KGA703
Pierce™ RNA 3' End Desthiobiotinylation Kit	Thermo Fisher Scientific	20163
Magnetic RNA Protein Pull-Down Kit	Thermo Fisher Scientific	20164
Chemiluminescent RNA EMSA Kit	Beyotime	GS606
Fluorescence in Situ Hybridization Kit for RNA	Beyotime	R0306M
PANO 6-plex IHC kit	Panovue	10081100100
Cell Plasma Membrane Staining Kit with DiO	Beyotime	C1993S
Cell Plasma Membrane Staining Kit with Dil	Beyotime	C1991S

TSA Plus Fluorescence Staining Kit	Servicebio	G1256
Minute™ Plasma Membrane/Protein Isolation and Cell Fractionation Kit	Invent Biotechnologies	SM-005
Live and Dead Cell Double Staining Kit	Abbkine	KTA1001
HycopGel 3D Cell Ball Hydrogel Kit	Guangdong Cooperate Biotechnology Co., Ltd	CR01A0105
Human IL-18 ELISA Kit	Abclonal	RK00176
Human IL-1 β High Sensitivity ELISA Kit	LiankeBio	EK101BHS
Mouse IFN-gamma ELISA Kit	Abclonal	RK00019
Mouse TNF-alpha ELISA Kit	Abclonal	RK00027
ClonExpress II One Step Cloning Kit	Vazyme	C112
Phanta Max Super-Fidelity DNA Polymerase	Vazyme	P505
FastPure Gel DNA Extraction Mini Kit	Vazyme	DC301
Mut Express II Fast Mutagenesis Kit V2	Vazyme	C214
BCA Protein Concentration Determination Kit	Beyotime	P0012
NEBNext Ultra RNA Library Prep Kit for Illumina	NEB	E7530L
Clontech SMARTer PCR cDNA Synthesis Kit	Takara	634928
Diaminobenzidine (DAB) Color Reagent Kit	ZSGB-BIO	ZLI-9018
FastPure EndoFree Plasmid Mini Kit	Vazyme	DC203
Deposited data		
Long reads sequencing (PacBio) of FTs and SOC	This paper	GSA-Human: HRA011638
10x Visium spatial transcriptome sequencing of high-grade serous ovarian cancer	This paper	GSA-Human: HRA011770
Long reads sequencing (ONT) of spatial transcriptome sequencing of high-grade serous ovarian cancer	This paper	GSA-Human: HRA011770
scMicroAS-seq of spatial transcriptome sequencing of high-grade serous ovarian cancer	This paper	GEO: GSE299022
MicroAS-seq of FTs and SOC	This paper	GEO: GSE299011
MicroAS-seq of ASOs screening in OVCAR3 cells	This paper	GEO: GSE299012
MicroAS-seq of HNRNPA1 knockdown in ovarian cancer cells	This paper	GEO: GSE299013
scRNA-seq of ASO-treated OVCAR3 co-cultured with macrophage (10K Genomics)	This paper	GEO: GSE299010
scMicroAS-seq of ASO-treated OVCAR3 co-cultured with macrophage	This paper	GEO: GSE299014
LACE-seq2 sequencing of HNRNPA1 in HEY cells	This paper	GEO: GSE299015
Total RNA sequencing of ASO-treated OVCAR3 ovarian cancer cells	This paper	GEO: GSE299016
eCLIP-seq data of HNRNPA1 in K562	Lee Y, et al.	GEO: GSE115442
CLIP-seq data of HNRNPA1 in 293T	Huelga SC, et al.	GEO: GSE34993
CLIP-seq data of HNRNPH in 293T	Katz Y, et al.	GEO: GSE23694
Perturb-seq in Jurkat cells	Replogle JM et al.	GEO: GSE264667
Publicly available scRNA-seq and spatial transcriptome data are provided in the Supplementary Table 3-4.		
Experimental models: Cell lines		
Human: THP-1 cell line	ATCC	TIB-202

Human: OV90 ovarian cancer cell line	ATCC	CRL-11732
Human: NIH-OVCA3 ovarian cancer cell line	ATCC	HTB-161
Human: CAOV3 ovarian cancer cell line	ATCC	HTB-75
Human: HEK293 cell line	ATCC	CRL-1573
Human: HEK293T cell line	ATCC	CRL-3216
Mouse: ID8 ovarian surface epithelial cell line	Sigma-Aldrich	SCC145
Human: HOC7 ovarian cancer cell line	Ding Ma's lab	N/A
Human: OVCA8 ovarian cancer cell line	Ding Ma's lab	N/A
Human: A2780 ovarian cancer cell line	Jian-Jun Wei' lab	N/A
Human: HEY ovarian cancer cell line	Jian-Jun Wei' lab	N/A
Human: FTE187 immortalized fallopian tube epithelial cell line	Jian-Jun Wei' lab	N/A
Experimental models: Organisms/strains		
Mouse: CAnN.Cg-Foxn1nu/CrlVr	Vital river	BALB/c-nude mice
Mouse: NOD-Prkdcscidll2rgem1/Smoc	Shanghai Model Organisms Center	M-NSG
Oligonucleotides		
See Supplementary Table 4	This paper	N/A
Recombinant DNA		
GFP-CD47-L(GFP_CD47_SU)	Addgene	#65473
GFP-CD47-S	This paper	N/A
pLenti-C-Myc-DDK-IRES-Puro-CD47-L	This paper	N/A
pLenti-C-Myc-DDK-IRES-Puro-CD47-S	This paper	N/A
pLVX-IRES-puro-ZsGreen-reporter	This paper	N/A
pLVX-IRES-neo-mCherry-reporter	This paper	N/A
psPAX2	Addgene	#12260
pMD2.G	Addgene	#12259
HNRNPA1-pENTER	WZ Biosciences	CH877838
DsRed2-ER-5	Addgene	#55836
Software and algorithms		
seaborn v1.11.4	Waskom, et al.	https://seaborn.pydata.org/
matplotlib v3.6.3	Hunter, et al.	https://matplotlib.org/
SciPy v1.11.4	Virtanen P, et al. (PMID:32015543)	https://scipy.org/
Python v3.10.12	N/A	https://www.python.org/
pyMDE v0.1.18	Akshay Agrawal, et al.	https://pymde.org/
scanpy v1.10.1	F Alexander Wolf, et al. (PMID:29409532)	https://pypi.org/project/scanpy/
NumPy v1.25.2	N/A	https://numpy.org/
pandas v2.2.2	N/A	https://pandas.pydata.org/
R/Bioconductor v4.4.1	N/A	http://www.r-project.org/
survival v3.2-11	N/A	https://cran.r-project.org/web/packages/survival/index.html
survminer v0.4.9	N/A	https://github.com/kassambara/survminer/

ggplot2 v3.5.1	N/A	https://ggplot2.tidyverse.org
pheatmap v1.0.12	Kolde R	https://github.com/raivokolde/pheatmap
SingleR v2.6.0	Aran D, et al. (PMID:30643263)	https://github.com/dviraran/SingleR
CellChat v1.5.0	Suoqin Jin, et al. (PMID:33597522)	https://github.com/sqjin/CellChat
monocle v2.32.0	Xiaojie Qiu, et al. PMID:28825705)	https://cole-trapnell-lab.github.io/monocle-release/
irGSEA v3.3.2	Chuiqin Fan, et.al. (PMID:38801700)	https://github.com/chuiqin/irGSEA
clusterProfiler v4.12.4	S Xu, et al. (PMID:39019974)	https://github.com/YuLab-SMU/clusterProfiler
Seurat v5.1.0	Hao, et al. (PMID:37231261)	https://satijalab.org/seurat/
DeSeq2 v1.46.0	Love MI, et al. (PMID:25516281)	https://github.com/theLoveLab/DESeq2
ChIPseeker v1.40.0	Q Wang, et al. (PMID:36286622)	https://bedtools.readthedocs.io/en/latest/index.html
FastQC v0.11.9	N/A	https://www.bioinformatics.babraham.ac.uk/projects/fastqc/
TrimGalore v0.6.1	N/A	https://www.bioinformatics.babraham.ac.uk/projects/trim_galore/
bowtie v1.2.3	Langmead et al., 2009 (PMID: 19261174)	http://bowtie-bio.sourceforge.net/index.shtml
STAR v2.2.0	Dobin et al., 2013 (PMID: 23104886)	https://github.com/alexdobin/STAR
HISAT2 v2.2.0	Zhang et al., 2021 (PMID: 34103331)	http://daehwankimlab.github.io/hisat2/
Salmon v0.6.0	Patro et al., 2017 (PMID: 28263959)	https://combine-lab.github.io/salmon/
samtools v1.9.0	Li et al., 2009 (PMID: 19505943)	http://samtools.sourceforge.net/
fastq-multx v1.4.2	Erik Aronesty, 2013	https://github.com/brwnj/fastq-multx
subread v2.0.2	Liao Y et al., 2014	http://subread.sourceforge.net/featureCounts.html
rMATS v4.1.0	Shen et al., 2014 (PMID: 25480548)	http://rnaseq-mats.sourceforge.net/
Spliceseq v2.1	Ryan MC et al., 2012 (PMID: 22820202)	https://bioinformatics.mdanderson.org/public-software/spliceseq/
TCGASpliceseq v2.1	Ryan M et al., 2016 (PMID: 26602693)	https://bioinformatics.mdanderson.org/TCGASpliceSeq/
IsoformSwitchAnalyzeR v2.2.0	Vitting-Seerup et al., 2019 (PMID: 30989184)	https://github.com/kvittingseerup/IsoformSwitchAnalyzeR

Pfam v34.0	Mistry et al., 2021 (PMID: 33125078)	https://pfam.xfam.org/
Signalp v5.0b	Almagro Armenteros et al., 2019 (PMID: 30778233)	http://www.cbs.dtu.dk/services/SignalP/
HOMER v4.11	Heinz et al., 2010 (PMID: 20513432)	http://homer.ucsd.edu/homer/
deepTools v3.1.3	Fidel Ramírez, et al., 2016 (PMID: 27079975)	https://github.com/jernejule/clip-data-science .
CellRanger v7.1.0	10X Genomics	https://preview-newmar.herokuapp.com/single-cell-gene-expression/software/pipelines/latest/release-notes
SpaceRanger v2.0.1	10X Genomics	https://www.10xgenomics.com/support/software/space-ranger/2.1
Nextflow v24.10.0.5928	Philip Ewels, et al., 2020 (PMID:32055031)	https://nf-co.re/
CellCosmo v1.1.1	10K Genomics	https://github.com/10KGenomics/CellCOSMO
SpliZ v1.0dev	Julia Eve Olivieri, et al., 2022 (PMID:35241832)	https://github.com/salzman-lab/SpliZ
parallel-fastq-dump v0.6.7	N/A	https://github.com/rvalieris/parallel-fastq-dump/tree/master
IsoSeq v3.8.0	Pacific Biosciences	https://github.com/PacificBiosciences/IsoSeq
pbbmm2 v1.9.0	Pacific Biosciences	https://github.com/PacificBiosciences/pbbmm2
pbbtk v3.5.0	Pacific Biosciences	https://github.com/PacificBiosciences/pbbtk
SUPPA v2.3.0	Juan L Trincado, et al., 2018 (PMID:29571299)	https://github.com/comprna/SUPPA
bedtools v2.31.0	Aaron R Quinlan, et al., 2010 (PMID:20110278)	https://bedtools.readthedocs.io/en/latest/index.html
Piranha v1.2.1	Philip J Uren, et al., 2012 (PMID:23024010)	https://github.com/smithlabcode/piranha
HOMER v4.11	Heinz et al., 2010 (PMID: 20513432)	http://homer.ucsd.edu/homer/
Preseq v3.2.0	N/A	https://github.com/smithlabcode/preseq
DIA-NN v1.9.0	Vadim Demichev, et al., 2020 (PMID:31768060)	https://github.com/vdemichev/DiaNN
QuantStudio™ Design and Analysis Desktop Software v1.5.2	Thermo Scientific	N/A

ImageJ software v1.53c	Schneider et al., 2012 (PMID: 22930834)	https://imagej.nih.gov/ij/
GraphPad Prism 8	N/A	https://www.graphpad.com/scientific-software/prism/
SnapGene v4.1.8	N/A	https://www.snapgene.com
CytExpert v2.4	N/A	https://www.beckman.com/flow-cytometry/research-flow-cytometers/cytoflex/software
FlowJo v10.8	N/A	https://flowjo.com/
QuPath v0.5.1	Bankhead, P. et al	https://qupath.github.io/
Imaris viewer v9.0.1	N/A	https://imaris.oxinst.com/support/imaris-release-notes/9-0-0
CaseViewer v2.4	N/A	https://www.3dhistech.com/news/caseviewer-becomes-slideviewer/
TissueFAXS Viewer v7.1.6245.14	N/A	https://tissuegnostics.com/products/scanning-and-viewing-software/tissuefaxs-viewer
Adobe Premiere Pro v22.0.0	N/A	https://www.adobe.com/products/premiere.html
Incucyte GUI v2022B Rev1	N/A	https://downloads.essenbioscience.com/get/incucyte-2022b-rev1-gui
Integrative Genomics Viewer (IGV) v2.16.0	Robinson et al., 2017 (PMID: 29092934)	https://igv.org/
Coding Potential Assessment Tool (CPAT) v1.2.1	Wang et al., 2013 (PMID: 23335781)	http://lilab.research.bcm.edu/
UCSC Xena	Goldman et al., 2020 (PMID: 32444850)	https://xenabrowser.net
Gene Ontology	The Gene Ontology, 2019 (PMID: 30395331)	http://geneontology.org/
Gene Set Enrichment Analysis	Subramanian et al., 2005 (PMID: 16199517)	https://www.gsea-msigdb.org/gsea
Kaplan-Meier plotter	N/A	http://kmplot.com/analysis/
BioRender	N/A	https://BioRender.com/
Other		
Code used to analyze LACE-seq2 data	This study	https://github.com/PrinceWang2018/LACE-seq2
Code used to analyze MicroAS-seq data	This study	https://github.com/PrinceWang2018/MicroAS-seq

Code used to analyze cell-cell interaction network in spatial transcriptome data	This study	https://github.com/PrinceWang2018/ST_Distance
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