REAGENT or RESOURCE	SOURCE	IDENTIFIER
ccRCC & NKT	UC, Cincinnati	Tumor Bank
	NCI Urology/Oncology Branch	Drs. L. Schmidt and WM Linehan
	UNC, Chapel Hill	Tumor Bank
	VAMC, Cincinnati	Department of Pathology, Dr. Hua
Chemicals, Peptides, and Recombinant Proteins		
Ammonium Acetate (Crystalline/Certified ACS)	Fisher Scientific	#A637-500
Acetonitrile	Honeywell Burdick & Jackson, Morris Plain, NJ	LC015-2.5; CAS# 75-05-8
Methanol HPLC Grade	Thermo Fisher Sci	#NC9428099;
6-Phosphogluconic acid trisodium salt	Sigma Aldrich	# 53411-70-4
N-Acetyl-L-aspartic acid	Sigma Aldrich	# 997-55-7
S-(5′-Adenosyl)-L-methionine chloride dihydrochloride	Sigma Aldrich	# 86867-01-8
L-Aspartic Acid	Sigma Aldrich	# 56-84-8
Creatine	Sigma Aldrich	# 57-00-1
Hypoxanthine Sodium Salt	Sigma Aldrich	# 68-94-0
sn-Glycerol 3 Phosphate Lithium Salt	Sigma Aldrich	# 17989-41-2
Coenzyme A Salt Hydrate	Sigma Aldrich	# 55672-92-9
Oxaloacetic Acid	Sigma Aldrich	#328-42-7
Ammonium Bicarbonate	Sigma Aldrich	#1066-33-7
B-Nicotinamide adenine dinucleotide- reduced sodium salt hydrate	Sigma Aldrich	#606-68-8
B-Nicotinamide adenine dinucleotide	Sigma Aldrich	# 53-84-9
Acetyl coenzyme A lithium salt	Sigma Aldrich	# 32140-51-5
cis-Aconitic acid	Sigma Aldrich	# 585-84-2
Sodium succinate dibasic hexahydrate	Sigma Aldrich	# 6106-21-4
a-D-Glucose 1-phosphate disodium salt hydrate	Sigma Aldrich	# 56401-20-8
D-Glucose 6-phosphate sodium salt	Sigma Aldrich	# 54010-71-8
L-Glutathione oxidized	Sigma Aldrich	# 27025-41-8
L-Glutathione reduced	Sigma Aldrich	# 70-18-8
a-Ketoglutaric acid disodium salt hydrate	Sigma Aldrich	# 305-72-6
6-phosphogluconic acid trisodium salt	Sigma Aldrich	# 53411-70-4
N-Acetyl-DL-Aspartate	Sigma Aldrich	# 997-55-7
D-Glucose (1,2-^{13}C2, 99%)	Cambridge Isotope Labs	# 138079-87-5
SILAC Advanced DMEM/F-12 Flex Media	Thermo Fisher Sci	A2494301
Sodium arsenate dibasic heptahydrate	Sigma Aldrich	#10048-95-0
U-13C6 glucose	Cambridge Isotope Lab Inc	CLM-1396
D- Sedoheptulose 7-phosphate lithium salt	Sigma Aldrich	78832

D-Ribulose 5-phosphate disodium salt	Sigma Aldrich	83899
Phospho(enol)pyruvic acid monosodium salt hydrate	Sigma Aldrich	P0564
D-(−)-3-Phosphoglyceric acid disodium salt	Sigma Aldrich	P8877
L-Serine	Sigma Aldrich	S4500
Glycine	Sigma Aldrich	410225
N-Acetyl-L-aspartic acid	Sigma Aldrich	920
L-Glutamic Acid	Sigma Aldrich	G1251
Tris Base, Molecular Biology Grade	Promega	#0000249567
Ammonium Acetate, HPLC Grade	Thermo Fisher Sci	#161197A
Phenylmenthanesulfonyl fluoride	Fluka BioChemika	#132311921807105
Pierce Protease Inhibitor Mini Tablets, EDTA-Free	Thermo Fisher Sci	88666
Sodium Dodecyl Sulfate	MP Biomedicals	102918
Tris(hydroxymethyl) aminomethane, 99+%	Acros Organicas	140500010
RNAlater ICE	Ambion	AM7030
Metallothionein rabbit liver	Sigma Aldrich	
$(NH_4)_2HPO_4$	Thermo Fisher Sci	#A686-500
HNO_3	Thermo Fisher Sci	A509-P212
$NaAsO_2$	Sigma Aldrich	S-7400
KH_2AsO_4	Sigma Aldrich	A6631
$(CH_3)_2AsO_2Na{\cdot}3H_2O$	Sigma Aldrich	C0250
$CH_3AsO(ONa)_2{\cdot}6H_2O$	Supelco	N11817
Pierce Protease Inhibitor Mini Tablets, EDTA-Free	Thermo Fisher Sci	#A32965
Sodium Dodecyl Sulfate	MP Biomedicals, LLC	#102918
Tris(hydroxymethyl) aminomethane, 99+%	Acros Organics	Lot#A0238109
Sodium Chloride Certified ACS Crystalline	Thermo Fisher Sci	#S271-500
Nitric Acid TraceMetal Grade	Thermo Fisher Sci	#A509-P212
Arsenobetaine	Sigma Aldrich	#11093
Sodium (meta)arsenite	Sigma Aldrich	#S-7400
Sodium cacodylate trihydrate	Sigma Aldrich	#C0250
Disodium methyl arsonate hexahydrate	Supelco	#N11817
Potassium arsenate monobasic	Sigma Aldrich	#A6631
ICP-MS Initial Calibration Verification Standard 1	SPEX Certiprep, USA	#CI-ICV-1
Ammonium Phosphate Dibasic (Crystalline/Certified ACS)	Fisher Chemical	#A686-500
Ammonium Hydroxide (Certified ACS Plus)	Fisher Chemical	#A669S-500
ICP-MS Internal Standard 3	High Purity Standards	#ICP-MS-IS-3

Critical Commercial Assays		
Total RNA isolation kit		AM1560
IROA TruQuant IQQ Workflow kit.	IROA Technologies	WORKFLOW
mirVANA miRNA Isolation Kit	Thermo Fisher Sci	AM1560
Experimental Models: Cell Lines		
786-O	ATCC	CRL-1932
HK2	ATCC	CRL-2190
U87 MG	ATCC	HTB-14
DG-75	ATCC	CRL-2625
Oligonucleotides		
Primer Set: VHL Exon 1-1 FWD: GGTCTGGATCGCGGAGGG REV: GCCCGGCCTCCATCTCCT	(1)	N/A
Primer Set: VHL Exon 1-2 FWD: AGTCGGGCGCCGAGGAGT REV: CCGTCGAAGTTGAGCCATAC	(1)	N/A
Primer Set: VHL Exon 1-3 FWD: CCCAGGTCATCTGCAAT REV: CTGCTGGGTCGGGCCTAA	(1)	N/A
Primer Set: VHL Exon 2 FWD: AAGTGCTGGGATTACAGGTGTGG REV: TTTCAAGTGGTCTATCCTGTACTTACC	(1)	N/A
Primer Set: VHL Exon 2 FWD: GTGGCTCTTTAACAACCTTTG REV: CCTGTACTTACCACACAACCTAATC	(1)	N/A
Primer Set: VHL Exon 3-1 FWD: CACTGAGGATTTGGTTTTTGC REV: TCCAGGTCTTTCTGCACATTT	(1)	N/A
Primer Set: VHL Exon 3-2 FWD: GACATCGTCAGGTCGCTCTA REV: TCAAAAGCTGAGATGAAACAGTC	(1)	N/A
Software and Algorithms		
Compound Discover 2.0	Thermo Fisher Scientific	https://mycompounddiscoverer.com/
MassHunter software	Agilent	
Unscrambler X	CAMO Software, CA	
Maven	(2, 3)	
IROA Clusterfinder		http://iroatech.com/page/IROA%20ClusterFinder%20Software
TopHat2	Kim et al., 2013	

fastQC	Andrews et al., 2014	
RNA-SeQC	DeLuca et al., 2012	
gimmR package		https://github.com/uc-bd2k/gimmR
R package Complexheatmap		https://github.com/jokergoo/ComplexHeatmap
R package "Survival"	CRAN	
***edgeR* Bioconductor package**	Robinson et al., 2010	
Origin X software package	Origin Lab, CA	
Agilent Mass Hunter ICP-MS software	Agilent	
MZCloud database	Mzcloud.org	
Mass Bank	Massbank.edu	
Origin 2018b 64bit	OriginLab Corporation	
Sigma Plot 12.0	Systat Software, Inc.	
Pinet	https://doi.org/10.1101/607432, https://doi.org/10.1093/nar/gkaa436	http://pinet-server.org
Ilincs	Pilarczyk et al., bioRxiv 826271 https://doi.org/10.1101/826271	http://www.ilincs.org/ilincs/
Agilent ChemStation	Agilent	
MetaboAnalyst		https://www.metaboanalyst.ca/
Enrichr		https://amp.pharm.mssm.edu/Enrichr/
Other		
Luna 3μm NH2 1 mm i.d. x 100 mm column	Phenomenex	00D-4377-A0
RNAlater ICE	Thermo Fisher Sci	AM7030
NEBNext Poly(A) mRNA Magnetic Isolation Module	New England Biolabs	E7490
Bioanalyzer	Agilent	G2939BA
SMARTer Apollo NGS Library Prep System	Takara Bio	640078
NEBNext Ultra II Directional RNA Library Prep Kit	New England Biolabs	E7760
FastPrep- 24 5G Homogenizer	MP Biomedicals	116005500
SecurityGuard ULTRA Holder for UHPLC Columns 2.1-4.6mm ID	Phenomenex	AJ0-9000

SecurityGuard ULTRA Cartridges UHPLC C18 for 2.1mm ID Columns	Phenomenex	AJ0-8782
Synergi 2.5um Hydro-RP100 Å LC Column	Phenomenex	00D-4387-B0
Triple quad Agilent 8800x ICP-MS-MS	Agilent	
Orbitrap Fusion Lumos Tribrid	Thermo Fisher Sci	
Vanquish™ Flex Quaternary UHPLC system	Thermo Fisher Sci	
Agilent 1200 HPLC system	Agilent	
Anion exchange separation column (PRP-X100, 250 × 4.1 mm, 10 µm	Hamilton, Switzerland	
Guard column (PRP-X100 20 × 2 mm, 10 µm	Hamilton Switzerland	
TSK Gel 3000SW 7.8 x 30 mm, 10 µm particle size		
Polypropylene screw neck vial	Waters Corporation	186002640
HiSeq 1000 Sequencer	Illumina	n/a

1. Yi Y, Mikhaylova O, Mamedova A, Bastola P, Biesiada J, Alshaikh E, et al. von Hippel-Lindau-dependent patterns of RNA polymerase II hydroxylation in human renal clear cell carcinomas. *Clinical cancer research : an official journal of the American Association for Cancer Research.* 2010;16(21):5142-52.
2. Melamud E, Vastag L, and Rabinowitz JD. Metabolomic analysis and visualization engine for LC-MS data. *Analytical chemistry.* 2010;82(23):9818-26.
3. Clasquin MF, Melamud E, and Rabinowitz JD. LC-MS data processing with MAVEN: a metabolomic analysis and visualization engine. *Curr Protoc Bioinformatics.* 2012;Chapter 14:Unit14.1.
4. Shamsaei B, Chojnacki S, Pilarczyk M, Najafabadi M, Niu W, Chen C, et al. piNET: a versatile web platform for downstream analysis and visualization of proteomics data. *Nucleic acids research.* 2020;48(W1):W85-w93.