

Candidate Molecular Target List (March 28, 2018)

Gene Abnormality Based Targets

Primary Target Class	Target	Gene Abnormality
Gene Abnormality	ABL1/2	ABL1/2 gene fusions (BCR-ABL1, etc.)
	ACVR1	ACVR1
	ALK	ALK and ALK gene fusions
	BRAF	BRAF
	CDK12	EWSR1-FLI1
	CSF1R	CSF1R gene fusions
	CTNNB1 (β -catenin)	CTNNB1
	DDX3X	DDX3X
	DOT1L	MLL gene fusions
	ERK	BRAF, MAP2K1
	EWSR1-FLI1	EWSR1-FLI1
	EZH2	SMARCB1, SMARCA4
	FGFR	FGFR and FGFR gene fusions
	FLT3	FLK2, STK1, CD135
	Gamma secretase	NOTCH1 and FBXW7
	Histone 3 G34R/V	Histone 3 G34R/V
	Histone 3 K27M	Histone 3 K27M
	IDH1 and IDH2	IDH1 and IDH2
	JAK1, 2, and 3	JAK1, 2, and 3
	MDM2	MDM2, TP53
	MEK	BRAF and BRAF gene fusions, MAP2K1, NF1
	Menin	MLL gene fusions
	MET	MET
	MLL	MLL gene fusions
	mTOR	TSC1, TSC2
	MYC	MYC translocations and amplification
	MYCN	MYCN amplification
	Neoantigens	MSH2, MLH1, MSH6, PMS2 POLE, and POLD1
	NFkappaB	RELA fusion
	NOTCH1	NOTCH1, FBXW7
	NT5C2	NT5C2
	NTRK	NTRK gene fusions
	PARP	BRCA1/2, PALB2, ATM, BRIP1, CHEK2, RAD51, etc.
	PAX-FOXO1	PAX-FOXO1
	PDGFRA/B	PDGFRA/B gene fusions
	PI3K α	PIK3CA
	PPM1D (WIP1)	PPM1D (WIP1)
	RAS	RAS
	RET	RET
	SHP2	SHP2
Smoothened	PATCH1, SMO	
SYT-SSX	SYT-SSX	
TP53	TP53	

Cell Lineage-Based Targets

Primary Target Class	Target Symbol
Cell Lineage	AKR1C3
	BTK
	CD7
	CD19
	CD20
	CD22
	CD30
	CD33
	CD37
	CD38
	CD56
	CD70
	CD79b
	CD123/IL3RA
	CD276 (B7-H3)
	CD123/IL3RA
	CSF1R
	DLL3
	EPHA2
	FAK
	GD2
	GPC2
	GPC3
	GPNMB
	HER2
	IL6
	IL13RA2
	LRRC15
	MAGE-A3
	MSLN (mesothelin)
	NR5A1 (Steroidogenic factor-1)
	NY-ESO-1
	Olig2
	PIK3CD (PI3 kinase delta)
	PRAME
	SYK
	WT1

Tumor Microenvironment & Immunotherapy

Primary Target Class	Target Symbol
Tumor Microenvironment & Immunotherapy	CD40
	CD47
	CD52
	CXCR4
	CTLA4
	GM-CSF
	IDO1
	IFN-gamma
	IL-2
	LAG3
	OX40
	PD-1/PD-L1
	RIG-I
	TIM3/TIM4
	STING
	VEGF and VEGFR

Other Targets

Primary Target Class	Target Symbol/Name
Others	AURKA (Aurora kinase A)
	AURKB (Aurora kinase B)
	AXL
	ATM
	ATR
	BCL2 family members (Bcl-2, Bcl-XL, Mcl-1, A1/BFL, BAK, BAX)
	BET bromodomain family
	CDK4/6
	CHK1
	CDK7
	CDK9
	CK2 (casein kinase 2)
	DNA (alkylators)
	DNA-PK
	DNMT (DNA methyl transferase)
	FAK
	FOLR1 (folate receptor 1)
	GSK-3
	HDAC
	HIF1A
	Hippo pathway (YAP, TAZ, TEADs)
	Hsp90
	IAPs (inhibitor-of-apoptosis)
	LSD1
MCT1 (monocarboxyate transporter 1)	

Primary Target Class	Target Symbol/Name
Others	MDM2
	MGMT
	mTOR
	NAMPT
	NEDD8 activating enzyme (NAE)
	PARP
	PDK-1 (3-phosphoinositide-dependent protein kinase 1)
	PIM1
	PKA
	PKC
	PLK1
	POL1
	PRMT5
	Proteasome
	Survivin
	TGF-beta
	Thymidylate synthase
	Topoisomerase I/II
	TRAIL
	Tubulin
WEE1	
XPO1 (Exportin)	