Class	Protein	Inhibitor	Mechanism of action	Developmental phase	Frequently associated diseases	Synthetic lethality/sickness (SSL)
Signalling Kinases	ATM	*KU-55933* *KU-60019* *KU-59403* *CP466722*	Direct inhibition	poor pharmacokinetics and bio-availibility poor bio-availibility in vivo active, Preclinical Preclinical	Ataxia-Telangiectasia Several Cancers; Bladder, Breast, Chronic lymphocytic leukaemi, Lymphoma, Pancreatic, Prostrate	Polβ, FA genes, DNA-PK, DAB2IP, ATR, PARP
		synthetic peptides	Disruption of ATM and NBS1 interaction	Preclinical		
	ATR	*NU6027* *ETP-46464* *AZD6738* *VE-821* *VE-822(VX-970)*	Direct inhibition	Preclinical poor pharmacological properties Phase I Preclinical Phase I	Seckel syndrome, Several Cancers; Cutaneous squamous cell, Lung squamous cell, Head and Neck squamous cell, Uterine, Oesophagus	ATM-p53, XRCC1, overexpression of Cyclin E, ERCC1-XPF, PARP,TLS polymerase ζ
	DNA-PK	*NU7026* *NU7441* *IC86621* *IC87102* *IC87361* *MSC2490484A*	Direct inhibition	Preclinical Preclinical Preclinical Preclinical Preclinical Phase I	Several Cancers; colorectal, gastric, Non-small cell lung cancer, Ovarian, Glioblastoma, Prostrate	ATM, PARP1, BRCA1, XRCC1
		ScFv18-2	Antibody based inhibition	Preclinical		
	CHK2	*VRX0466617* *PV1019* *NSC 109555* *CCT241533*	Direct inhibition	Preclinical Preclinical Preclinical Preclinical	Several Cancers; Uterine, Bladder, Colon, Lung, Melanomas, Ovarian, Breast, Non-small celll lung cancer	p53
	CHK1/CHK2	*XL844* *AZD7762*	Direct inhibition	discontinued Phase I		
	CHK1	*PF-477736* *SCH900776* *GDC0425* *GDC0575* *CCT-244747* *LY2603618* *SAR-020106*	Direct inhibition	discontinued Phase II Phase I Phase I Preclinical Phase I/II Preclinical	Several Cancers; Breast, Cervical, Lung, Liver, Breast, Colorectal, Ovarian, Melanoma	FA pathway, Rad17, WEE1, p53
Nucleases	MRE11	*Mirin* *PFM39* *PFM03* *PFM01* *Telomelysin*	Exo- and Endo-nuclease inhibition Exo-nuclease inhibition Endo-nuclease inhibition Degradation of MRN complex	Preclinical Preclinical Preclinical Preclinical Phase I	Ataxia-Telangiectasia-like disease (ATLD), Several Cancers; Breast, Stomach, Uterine, Prostate, Ovarian	PARP 1, FEN1, DNA-PKcs
	FEN1	*RF00974* *NSC645851*	Flap endonuclease activity inhibition	Preclinical Preclinical	Several Cancers; Breast, Lung, Uterine, Colorectal, Bladder, Pancreatic	RAD54B, CDC4, MRE11, BRCA2, RNF20, SMC1, SMC3,
Helicases	BLM	*ML216*	Direct inhibition	Preclinical	Bloom syndrome	FBH1, RecQ5, RecQ1, MUS81, GEN
		5-(pyridin-4-yl)-1,3,4-thiadiazol-2-amine derivatives	Direct inhibition	Preclinical		
	WRN	*NSC 19630*	Direct inhibition	Preclinical	Werner syndrome	c-myc overexpression, PARP1
Core recombination proteins	RAD51	*Amuvatinib* *Erlotinib* *Gefitinib*	Protein downregulation	Preclinical Preclinical Preclinical	Overexpressed in cancer	PARP1
		B02 *RI-1 and RI-2* *IBR2*	Direct inhibition	Preclinical Preclinical Preclinical		
		DNA aptamers *chimeric peptides* *small molecule compounds*	BRC-motif mimicking	Preclinical Preclinical Preclinical		
		Caffeine *Halenaquinone*	Direct inhibition	Preclinical Preclinical		
	BRCA1	*PI3K inhibitors*	Protein downregulation	Preclinical	Several Cancers; Breast cancer, Ovarian, Pancreatic, Prostrate	RAD52, PARP1
		CDK1 inhibitors		Preclinical		
		synthetic peptides	Interaction inhibition	Preclinical		
		NCGC00038539	Direct inhibition	Preclinical		
	BRCA2	*hyperthermia*	Protein destabilization	Preclinical	Several Cancers; Breast, Ovarian, Pancreatic, Prostate, Colorectal	RAD52, PARP1, FEN1
		HSP90 inhibitors	Protein destabilization	Preclinical		
	RAD51 paralogs	*RAD51C promoter-diptheria toxin A*	Transcriptional targeting	Preclinical	Breast and Ovarian	PARP1
		synthetic peptides	Interaction inhibition	Preclinical		
	RAD52	*synthetic peptides*	Direct inhibition	Preclinical		BRCA2, BRCA1, PALB2