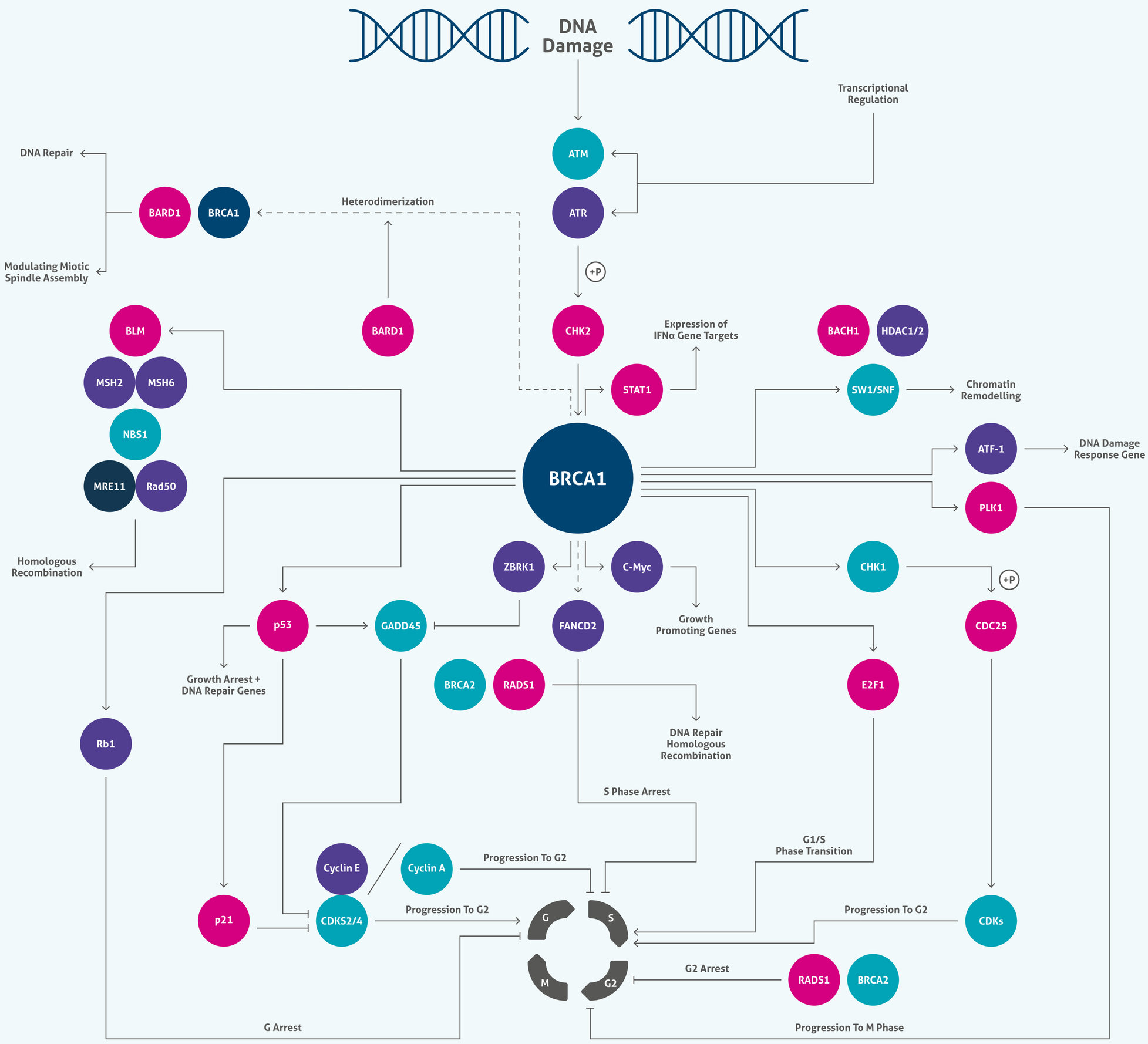


BRCA PATHWAY

The BRCA pathway is essential for maintaining genome integrity in multicellular organisms. It responds to DNA damage through activation of different DNA repair pathways and regulation of cell cycle checkpoint processes.

The BRCA1 (breast cancer type 1 susceptibility protein) is a central molecule in the DNA damage response. The relocation of BRCA1 to damaged DNA sites coincides with its phosphorylation via ATM, ATR, and chk2 kinases. These kinases phosphorylate several serine sites throughout the length of the protein. Phosphorylated BRCA1 plays a role in non-homologous end joining and homology-directed repair. BRCA1 interacts with Mre11, Rad50, and the Nbs1 complex for non-homologous end joining. It works with RAD51, BRCA2 for homologous repair. BRCA1 can also form complexes with both BACH1 and SWI/SNF to mediate homologous recombination repair and chromatin remodeling.

BRCA1 has also been linked with a number of other DNA repair processes, including mismatch repair (through interactions with the mismatch repair proteins MSH2, MSH6, and MLH1) and inter-strand crosslink repair (through the Fanconi anemia pathway, via the FA complex and FANCD2 (Fanconi Anemia subtype D2) protein). BRCA1 additionally plays a role in gene expression and cell cycle control. BRCA1 can trigger a G1 arrest that is mediated by transcriptional activation of p21. In addition to its association with p21, BRCA1 can bind to several different transcription factors, including p53, Myc, STAT1, and CtIP (CBP-Interacting Protein) promoting the expression of their respective genes.

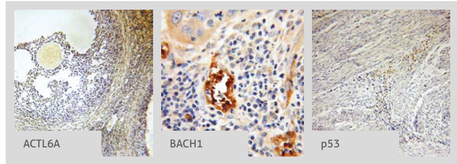
Legend

———	Association
———→	Directly Activates
- - - - - -→	Indirectly Activates
———⊣	Inhibits
(+P)	Phosphorylates

For more information or other pathways visit **ptglab.com**

RELATED PRODUCTS

Antibody Name		Catalog Number	Type	Applications
ATR	3	19787-1-AP	Rabbit Poly	ELISA, WB
BACH1	2	14018-1-AP	Rabbit Poly	ELISA, IF, IHC, WB
BRCA1	3	20649-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
BRCA2	1	19791-1-AP	Rabbit Poly	ELISA, IHC, WB
CHK1	9	10362-1-AP	Rabbit Poly	ELISA, FC, IF, WB
FANCD2		19543-1-AP	Rabbit Poly	ELISA, IHC, WB
GADD45A	1	13747-1-AP	Rabbit Poly	ELISA, IP, WB
GADD45G	1	10277-1-AP	Rabbit Poly	ELISA, WB
HADC1	11	10197-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
HADC2	6	12922-3-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
MHS6		18120-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
Mre11		10744-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
MSH2		60161-1-Ig	Mouse Mono	ELISA, IHC, WB
NBS2	49	15182-1-AP	Rabbit Poly	ELISA, IHC, WB
p21	70	10355-1-AP	Rabbit Poly	ELISA, FC, IF, IHC, IP, WB
p53		10442-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
PLK1	3	10305-1-AP	Rabbit Poly	ELISA, IHC, WB
POU2F1	2	10387-1-AP	Rabbit Poly	ChIP, ELISA, IF, IHC, IP, WB
RAD51	15	14961-1-AP	Rabbit Poly	ELISA, IP, IHC, WB
Rb1	5	10048-2-Ig	Mouse Mono	ELISA, IHC, IP, WB
Rb1		17218-1-AP	Rabbit Poly	ELISA, WB
RBBP8		12624-1-AP	Rabbit Poly	ELISA, WB



SW1/SNF Complex Genes

Antibody Name		Catalog Number	Type	Applications
ACTL6A	3	10341-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
ARIDIA		18825-1-AP	Rabbit Poly	ELISA, IF, WB
SMARCA4		20650-1-AP	Rabbit Poly	ELISA, WB
SMARCB1		20654-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
SMARCC1		17722-1-AP	Rabbit Poly	ELISA, IHC, IP, WB
SMARCC2		12018-1-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
SMARCD1	1	10998-2-AP	Rabbit Poly	ELISA, IF, IHC, IP, WB
SMARCD2		11156-1-AP	Rabbit Poly	ELISA, IHC, WB
SMARCD3	1	12838-1-AP	Rabbit Poly	ELISA, IF, WB
SMARCE1		10814-1-AP	Rabbit Poly	ELISA, IHC, IP, WB

00 This number shows the amount of times our antibody has been cited in a publication.

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