

PATHWAYS IN HUMAN CANCER

Revised Edition

The Pathways in Human Cancer poster summarizes some of the key signaling pathways implicated in tumorigenesis and tumor progression in humans. Within each pathway, gene products known to be mutated in human tumors—oncogenes and tumor suppressor genes—are coded with information on types of genetic alterations and conferred capabilities to the tumor. Proteins are shown using structural representatives. New to this revised poster edition are signaling pathways for Hippo Signaling, Autophagy, Warburg Effect, and Epigenetic Regulation.

This poster was created by scientists at Cell Signaling Technology in collaboration with Robert A. Weinberg and others at the forefront of cancer research. Expanded versions of each pathway, including additional downstream signaling nodes, can be found at www.cellsignal.com/CSTcancer.

Ras Common protein name	
	Structural representative from PDB
	oncogene
	tumor suppressor
	Type of genetic alteration
	Type of conferred capability

	Direct stimulatory modification
	Direct inhibitory modification
	Multistep stimulatory modification
	Tentative stimulatory modification
	Transcriptional contribution

TYPES OF GENETIC ALTERATIONS:	
mut	Point mutation
amp	Amplification
trans	Translocation
del	Deletion
vir	Viral infection
exp	Increased expression (unknown mechanism)

TYPES OF CONFERRED CAPABILITIES:	
↑	Evading apoptosis
⌞	Self-sufficiency in growth signals
⊖	Insensitivity to anti-growth signals
⌘	Tissue invasion & metastasis
∞	Limitless replicative potential
⌞	Sustained angiogenesis

