

# Human Dual Specificity Phosphatase Catalytic Domain Alignment

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VHR	28	QPCNEVTPRIYVGNASVAQDIPKLQKLGITHVLNAAEGRSFMHVNTNANFYKDSGITYLGIKAND
LMWDP21	20	YSFSQITRSLFSLNGVAANDKLLSSNRITAIVNAS-----VEVVNVFFEG--IQYIKVPVTD
MKP3	205	SFPVEILPFLYLGC AKDSTNLDVLEEFGIKYILNVT-----PNLPNLFENAGEFKYKQIPISD
MKP1	172	GGPVEILPFLYLGSA YHASRKDMLDALGITALINVS-----ANCPNHFEGH--YQYKSIPVED
MKP2	194	GGPVEILPFLYLGSA YHAARRDMLDALGITALLNVS-----SDCPNHFEGH--YQYKCIPVED
PAC1	171	GGPVEILPYLFLGSCSHSSDLQGLQACGITAVLNVS-----ASCPNHFEGH--FRYKSIPVED

VHR	93	TQEFNL SAYFERAADFIDQALAQKNGRVLVHCREGYSRSPTLVIAAYLMMR-QKMDVKSA
LMWDP21	76	ARDSRLYDFFDPIADLIHTIDM-RQGRLLHCMAGVSRASLCLAYLMKY-HSMSLLDA
MKP3	263	HWSQNL SQFFPEAISFIDEARG-KNCGVLVHCLAGISRSVTVTVAYLMQK-LNLSM NDA
MKP1	228	NHKADISSWFNEAIDFIDSIKN-AGGRV FVHCQAGISRSATICLAYLMRT-NRVKLDEA
MKP2	250	NHKADISSWFMEAI EYIDAVKD-CRGRVLVHCQAGISRSATICLAYLMMK-KRVRLEEA
PAC1	227	NQMVEISA W FQEAI GFIDWVKN-SGGRVLVHCQAGISRSATICLAYLMS-RRVRLDEA

VHR	151	LSIVR-QNRE-IGPNDGFLAQLCQLN	174
LMWDP21	93	HTWTK-SRRPIIRPNNGFWEQLINYE	157
MKP3	320	YDIVK-MKKSNI SPNFSFMGQLLDFE	344
MKP1	285	FEFVK-QRRSII SPNFSFMGQLLQFE	309
MKP2	308	FEFVK-QRRSII SPNFSFMGQLLQFE	331
PAC1	284	FDVVK-QRRGVI SPNFSFMGQLLQFE	308

Human VH1-Related  
 Dual-Specificity  
 Phosphatase VHR  
 (residues 2-185, white)  
 DDEXXGpYVATR  
 Substrate Peptide IETD  
 (dark grey)  
**PDB: 1J4X**

