

	KH2										KH3									
Fugu3	ESDVAAMNLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
GPuf3	ESDVAAMNLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Stic3	ESDVAAMNLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Zebr3	ENDVAAMNLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mac3	ENDIASMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chim3	ENDIASMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Rat3	ENDIASMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Huma3	ENDIASMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mous3	ENDIASMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Cow3	ENDIASMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chic3	ENDIAAMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Plat3	ENDIAAMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Trop1	ENDIAAMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LaevD	ENDIAAMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LaevA	ENDIAAMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Opos3	ESDLAAMNLQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Plat1	ENDVAAMSIVIGSFIHSFPLFLPAPPRSSASVHQATSP	SLYPHLGQGSRPGRDFRDYDYDYGSCYAGVERKGISQLLLLLIKCLRGKKALKMGRVVVFR	TCDSVPC	LQAGDS	TP	YFGLLNWCP	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Worm	ESDSQLRAQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C_int	ENDNMIAQQQP	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C_sav	ESDMNIAQQQP	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
FMos	ENDLQALAPQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
MMos	ENDLQALAPQT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
FFly	ENDLQALAPQT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fugu2	ENDIAAINQQT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
GPuf2	ENDVAAINQQT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Stic2	ENDIAAVNQQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Zehr2	ENDVAAINQQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chim2	ENDMLAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Huma2	ENDMLAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mac2	ENDMLAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Cow2	ENDMLAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mous2	ENDMLAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Rat2	ENDMLAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Opos2	ENDMLTVNQQG	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Plat2	ENDVAAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chic2	ENDIVAVNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Zehr1	DNDIAAMNQQT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
GPuf1	ENDIAAMNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Stic1	ENDIAAMNQQT	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Fugu1	ENDIAAMNQQA	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chim1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Huma1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mous1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Mac1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Cow1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Rat1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Opos1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Chic1	ENDVAAMSLQS	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Supplementary Figure

ClustalW alignment of the linker separating the KH2 and KH3 domains of Vg1RBP homologues.

All full-length ORFs listed below were initially pair-wise compared to the human orthologues to assign 1-3 indices according to their highest homology to IMP1-3. ClustalW (<http://align.genome.jp/>) was used to generate an overall homology tree; the main sequence groups homologous to human IMP1-3 are indicated by a corresponding number of lines on the left; branches with ambiguous homology are listed in between the relevant clusters. Subsequently, ClustalW alignment was generated only for the linker separating KH2 and KH3 domains (indicated above).

Font colours indicate convenient lay taxonomy: mammals in black; marsupials in red; fish in blue; frogs in green; avians in purple; insects in grey; other invertebrates in orange. Of the available mammalian sequences we have included only those for which there were 3 isoforms with unambiguous sequence. For each gene, the longest available splice isoform was selected. Lowercase indicates an alternatively spliced exon reported in IMP2 homologues of most of the listed species. Hyphens indicate gaps inserted for alignment purposes. SP/TP sites are highlighted in yellow; 402S Erk2 site of Vg1RBP (allelic variant D) is highlighted in red; 396Y c- Src site of ZBP1 is highlighted in green.

Abbreviated	Common name	Scientific name	Lay taxonomy	Sequence ID
C_int	Transparent Sea Squirt	<i>Ciona intestinalis</i>	Invertebrates	ENSCINP00000008726
C_sav	Pacific Sea Squirt	<i>Ciona savignyi</i>	Invertebrates	ENSCSAVP00000018813
Chic1	Red Jungle Fowl	<i>Gallus gallus</i>	Avians	ENSGALP00000001973
Chic2	Red Jungle Fowl	<i>Gallus gallus</i>	Avians	ENSGALP00000022589
Chic3	Red Jungle Fowl	<i>Gallus gallus</i>	Avians	ENSGALP00000017819
Chim1	Chimpanzee	<i>Pan troglodytes</i>	Mammalians	ENSPTRP00000015920
Chim2	Chimpanzee	<i>Pan troglodytes</i>	Mammalians	ENSPTRP00000050908
Chim3	Chimpanzee	<i>Pan troglodytes</i>	Mammalians	ENSPTRP00000048112
Cow1	Domestic Cow	<i>Bos taurus</i>	Mammalians	ENSBTAP00000015586
Cow2	Domestic Cow	<i>Bos taurus</i>	Mammalians	ENSBTAP00000035897
Cow3	Domestic Cow	<i>Bos taurus</i>	Mammalians	ENSBTAP00000025854
Ffly	Fruit Fly	<i>Drosophila melanogaster</i>	Insects	CG1691-PD
FMos	Yellow Fever Mosquito	<i>Aedes aegypti</i>	Insects	AAEL006876-PA
Fugu1	Tiger Pufferfish	<i>Takifugu rubripes</i>	Fish	SINFRUP00000129029
Fugu2	Tiger Pufferfish	<i>Takifugu rubripes</i>	Fish	SINFRUP00000165902
Fugu3	Tiger Pufferfish	<i>Takifugu rubripes</i>	Fish	SINFRUP00000153458
GPuf1	Green Pufferfish	<i>Tetraodon nigroviridis</i>	Fish	GSTENP00026122001
GPuf2	Green Pufferfish	<i>Tetraodon nigroviridis</i>	Fish	GSTENP00030535001
GPuf3	Green Pufferfish	<i>Tetraodon nigroviridis</i>	Fish	GSTENP00032950001
Huma1	Human	<i>Homo sapiens</i>	Mammalians	ENSP00000290341
Huma2	Human	<i>Homo sapiens</i>	Mammalians	ENSP00000371634
Huma3	Human	<i>Homo sapiens</i>	Mammalians	ENSP00000258729
LaevA	African Clawed Frog (allelic variant A)	<i>Xenopus laevis</i>	Frogs	GeneBank AF064633
LaevD	African Clawed Frog (allelic variant D)	<i>Xenopus laevis</i>	Frogs	GeneBank AF064634
Maca1	Macaque	<i>Macaca mulatta</i>	Mammalians	ENSMMUP00000015143
Maca2	Macaque	<i>Macaca mulatta</i>	Mammalians	ENSMMUP00000030830
Maca3	Macaque	<i>Macaca mulatta</i>	Mammalians	ENSMMUP00000035154
MMos	Malaria Mosquito	<i>Anopheles gambiae</i>	Insects	AGAP012103-PA
Mous1	Mouse	<i>Mus musculus</i>	Mammalians	ENSMUSP00000013559
Mous2	Mouse	<i>Mus musculus</i>	Mammalians	ENSMUSP00000097629
Mous3	Mouse	<i>Mus musculus</i>	Mammalians	ENSMUSP00000031838
Opos1	Opossum	<i>Monodelphis domestica</i>	Marsupials	ENSMODP00000015362
Opos2	Opossum	<i>Monodelphis domestica</i>	Marsupials	ENSMODP00000003434
Opos3	Opossum	<i>Monodelphis domestica</i>	Marsupials	ENSMODP00000001219
Plat1	Platypus	<i>Ornithorhynchus anatinus</i>	Avians	ENSOANP00000023395
Plat2	Platypus	<i>Ornithorhynchus anatinus</i>	Avians	ENSOANP00000007367
Plat3	Platypus	<i>Ornithorhynchus anatinus</i>	Avians	ENSOANP00000022392
Rat1	Rat	<i>Rattus norvegicus</i>	Mammalians	ENSRNOP00000008139
Rat2	Rat	<i>Rattus norvegicus</i>	Mammalians	ENSRNOP00000048569
Rat3	Rat	<i>Rattus norvegicus</i>	Mammalians	ENSRNOP00000012100
Stic1	Three-spined Stickleback	<i>Gasterosteus aculeatus</i>	Fish	ENSGACP00000007037
Stic2	Three-spined Stickleback	<i>Gasterosteus aculeatus</i>	Fish	ENSGACP00000007985
Stic3	Three-spined Stickleback	<i>Gasterosteus aculeatus</i>	Fish	ENSGACP00000009196
Tropi	Tropical Frog	<i>Xenopus tropicalis</i>	Frogs	ENSXETP00000016106
Worm	Worm	<i>Caenorhabditis elegans</i>	Invertebrates	GeneBank M88.5a
Zebr1	Zebrafish	<i>Danio rerio</i>	Fish	ENSDARP00000082159
Zebr2	Zebrafish	<i>Danio rerio</i>	Fish	ENSDARP00000093196
Zebr3	Zebrafish	<i>Danio rerio</i>	Fish	ENSDARP00000010878