

Alignment of SOD1 Sequences

FALS Mutations		T		G A			R	D	R	R	I	S	R	C						
		S	F	Q	R	M	S	SC	KL	RV	S	R	CRFQK	R	I	S	R	S	Y	R
		V	GEV	V	R	M	S	SC	KL	RV	S	R	CRFQK	R	I	S	R	S	Y	R
Homo	1	at	KAVCVLKG	D	GPVqGiInF				eqkesngpVk	vwGsIk GLTE	GlHGfHVHeF	GDNTaGCTSA				Gp HFNP lSrK	HGGPkDeERH			
Mus	1	am	kavcvlkg	d	gpvqgtihf				eqkasgepvv	lsgqItglte	Gqhgfhvhqy	gdntqgctsa				gphfnphSkK	hggpadeerh			
Rattus	1	am	kavcvlkg	d	gpvqgvihf				eqkasgepvv	vsgqitglte	gehgfhhvhqy	gdntqgctta				gphfnphskk	hggpadeerh			
Canis	1	em	kavcvlkg	q	gpvegthf				vqkgsq pvv	vsgtitglte	gehgfhhvhqf	edxtqgctsa				gphfnplsck	hggpkdquerh			
Rabbit	1	at	kavcvlkg	d	gpveatihf				eqkgtg pvv	vkgritglte	glhefhvhqf	gdnrqgctsa				gphfnplsck	hggpkdeerh			
Bos	1	at	kavcvlkg	d	gpvqgtihf				eakgdt vv	vtgsitglte	gdhgfhvhqf	gdntqgctsa				gphfnplsck	hggpkdeerh			
Equus	1	al	kavcvlkg	d	gpvhgvihf				eqqegggpvv	lkgfielgtk	gdhgfhvhfef	gdntqgctta				gahfnplsck	hggpkdeerh			
Ovis	1	at	kavcvlkg	d	gpvqgtirf				eakgdk vv	vtgsitglte	gdhgfhvhqf	gdntqgctsa				gphfnplsck	hggpkdeerh			
Sus	1	at	kavcvlkg	d	gpvqgtiyf				elkgekt vl	vtgtikglae	gdhgfhvhqf	gdntqgctsa				gphfnpesck	hggpkdquerh			
Cervus	1	at	kavcvlkg	d	gpvqgtirf				eakgh t vv	vtgsitglte	gdhgfhvhqf	gdntqgctsa				gphfnplsck	hggpkdeerh			
Gallus	1	atlkavcvmkg		d	apvegvihf				qqqgsg pvk	vtgkitglsd	gdhgfhvhfef	gdntngctsa				gahfnpegkq	hggpkdadrh			
Danio	1	vn	kavcvlkg	t	gevtgtvyf				nqegekpkpvk	vtgeitgltp	gkhgfhhvhaf	gdntngcisa				gphfnphdkt	hggptdsvrh			
Trout	1	am	kavcvlkg	t	gevtgtvff				eqegadgpvk	ligeisglap	gehgfhhvhay	gdntngcmsa				gphfnphnqt	hggptdavrh			
A.v.	1	stn	aiavlrnt		vsgvirf				kqdkegspti	ingeikgltp	glhgfhvhqy	gdtngcisa				gphfnphnkt	hggptdeirh			
Dros.	1	vv	kavcving	d	akgtvff				eqessgtpvk	sgevcglak	glhgfhvhfef	gdntngcmss				gphfnpygke	hgapvdenrh			
S.cerv	1	v	qavavlkg	d	agvsgvkvf				eqasesepttv	syeiagnspn	aergfhhief	gdatngcvsa				gphfnpfkkt	hgaptdevrh			
S.pombe	1	v	ravavlrn	d	skvsgvvtf				eqvdqnsqsvv	ivdlvgndan	akrgfhhqf	gdntngctsa				gphfnpegkt	hgdrtavvrh			
Candida	1	v	kavavvrg	d	skvqgtvhf				eqesesaptt	isweiegn dpn	alrgfhhqf	gdntngctsa				gphfnpfgkq	hgapedderh			
D.v.	1	v	qavavlrs	d	skvsrclt				snnrqsiltqllhgrfl gn dan		alrgfhhvhtf	gdntnglyfcwt	slhfnpftke				hgapeddnrh			
C.n.	1	v	kavavlkg	d	shvygtitf				tqdsegapvc vsgeik nldad		akrgfhhfef	gdntngctsa				gphynpfhkn	hggptaaerh			
C.p.	1	v	kavavlrn	d	akvqgtvfv				eqesesaptt itw ditgn dan		akrgfhhhtf	gdntngctsa				gphfnphgkt	hgaptdearh			
N.c.	1	v	kavavvrg	d	snvkgtvif				eqesesaptt ity disgn dpn		akrgfhhhtf	gdntngctsa				gphfnphggt	hgdrtavvrh			
Plant	1	v	kavvvlss	seg	vsgtvqf				tqegsgpttv	tgnvsglrp	glhgfhvhal	gdtngcmst				gphfnpagke	hgapedetrh			

S, R, V

FALS		d-d	D,	H		i→stop122 *	H							
Mutations	F DM TV	C,	G G	dd	MF	G d→stop131	i→stop150	E SG G S						
	VRSA VA	A TNM	K N	FLV V	TTAG L	VHSi→stop133	dN	KG * FTRRIT T						
Homo 81	V GD LGNVTAd	kd GvAdV Sie	Dsv ISLSG dh	c IIGRTlV VH	EKa DDLgkGG	NEESTKTGNA	GsRLACGVIG	Iaq						
Mus 81	vgdlgnvtag	kdgvanvsie	drvislsgeh	siigrtmvvh	ekqddlgkgg	neestktgna	gsrlacgvig	iaq						
Rat 81	vgdlgnvaag	kdgvanvsie	drvislsgeh	siigrtmvvh	ekqddlgkgg	neestktgna	gsrlacgvig	iaq						
Canis81	vgdlgnvtag	kdgvaivsie	dslialsgdy	siigrtmvvh	ekrddlgkgd	neestqtgna	gsrlacgvig	iaq						
Rab 81	vgdlgnvtag	sngvadvie	dsvislsgdm	svigrtlvvh	ekeddlgkgg	ndestktgna	gsrlacgvig	isp						
Bos 81	vgdlgnvtad	kngvaivdiv	dplislsgey	siigrtmvvh	ekpddlgrgg	neestktgna	gsrlacgvig	iak						
Equus81	vgdlgnvtad	engkadvdmk	dsvislsgkh	siigrtmvvh	ekqddlgkgg	neestktgna	gsrlacgvig	iap						
Ovis 81	vgdlgnvkad	kngvaivdiv	dplislsgey	siigrtmvvh	ekpddlgrgg	neestktgna	ggrlacgvig	iap						
Sus 81	vgdlgnvtag	kdgvatvyie	dsvialsgdh	siigrtmvvh	ekpddlgrgg	neestktgna	gsrlacgvig	itq						
Cerv 81	vgdlgnvtad	kngvakvdiv	dslislsgdh	siigrtmvvh	ekpddlgrgg	neestktgna	rnrlacgvig	iaq						
Gal 81	vgdlgnvta	kggvaeveie	dsvislsgph	ciigrtmvvh	aksddlgrgg	d n esklktgna	gprlacgvig	iaqc						
Danio81	vgdlgnvtad	asgvakieie	damltlsgqh	siigrtmvvh	ekeddlgkgg	neeslktgna	ggrlacgvig	itq						
Trout81	vgdlgnvtag	adnvakinie	dkmltltgpd	siigrtmvvh	ekaddlgkgg	neeslktgna	ggrqacgvig	iaq						
A.v. 81	vgdlgnivag	adgtahidip	nkqvqllgpn	siigrsivvh	adeddlgkvgdkkn	eslkt gnagarvacgivaigads								
Dros 81	lgdlgnieat	gdcptkvnitdsk	itlfgad	siigrtvvh	adaddlgqgg	h elskstgnagarigcgvig	iakv							
S.c 81	vgdmgnvktad	engvakgsf	kdslikligpt	svvgrsvvh	agqddlgkgd	t eslktgna	gprpacgvig	ltq						
S.p. 81	vgdlgnlesd	aqgniktft	sdsvislfgan	siigrtvvh	ageddlgkgt	s eeslktgna	garnacgvig	iaq						
C.a. 81	vgdlgnistd	gngvakgt	kqdllickligkd	silgrtinvvh	agtddygkgg	f eds kttghagarpacgvig	ltq							
D.v. 81	vgdlgnvttd	tsgvakgs	kqdlfvkligqn	silgrtvvh	agtddlgkgg	naeslktgna	garlacgvig	ltnkpn						
C.n. 81	vgdlgnvqtn	gcgvamvdi	sdksvislfgph	siigrsmvvh	agtddlgkgg	neeslktgna	garlacgvig	iaa						
C.p. 81	vgdlgnletd	gggnakgsv	kdehvkligph	svigrtvvh	agtddlgkgd	neeslktgna	gprpacgvig	iss						
N.c. 71	vgdlgnietd	aqgnakgtv	tdnlvkligpe	svigrtvvh	agtddlgkgg	neeslktgna	gprpacgvig	isq						
Plant71	agdlgnitvg	ddgtatftii	dsqipltgp	snivgrsvvh	adpddlgrgg	h elskatgnaggrvacgvig	lqq							

Largest C-terminal Deletion

Sequences of SOD1 utilized in Figure 1. (Entrez - Protein Locus Number)

Homo sapien Human SOD1 (P00441)

1 matkavcvlk gdgpvqgiin feqkesngpv kvwgsikglt eglhgfhvhe fgdntagcts agphfnplsr khggpkdeer hvgdlnvta
91 dkdgvadvisi edsvislsgd hciigrtlvv hekaddlgkg gneestktgn agsrlacgvi giaq

Mus musculus Mouse (P08228)

1 mamkavcvlk gdgpvqgtih feqkasgepv vlsqgitgt egqhgfhvhq ygdntqgcts agphfnphsk khggpadeer hvgdlnvta
91gkdgvanvisi edrvislsge hsiigrtmvv hekqddlgkg gneestktgn agsrlacgvi giaq

Rattus norvegicus Rat (P07632)

1 amkavcvlk gdgpvqgvih feqkasgepv vvsqgitgt egehghfhvhq ygdntqgctt agphfnphsk khggpadeer hvgdlnvaa
91 gkdgvanvisi edrvislsge hsiigrtmvv hekqddlgkg gneestktgn agsrlacgvi giaq

Canis familiaris Dog (AAL61608)

1 memkavcvlk gqpvvegth fvqksgpvv vsqgitgte gehghfhvhqf edxtqgctsa gphfnplskk hggpkdquerh vgdlnvtag
91 kdgvaisie dslialsgdy siigrtmvvh ekrdldlgkgd neestqtgna gsrlacgvi iaq

Rb Rabbit Oryctolagus cuniculus (P09212)

1 matkavcvlk gdgpveatih feqkgtgpv vkgritgte glhefhvhqf gdnrqgctsa gphfnplskk hggpkdeerh vgdlnvtag
91 sngvadvie dsvislsgdm svigrtlvvh ekedldlgkg ndestktgna gsrlacgvi isp

Bos taurus Cow (P00442)

1 matkavcvlk gdgpvqgtih feakgdtvvv tgsitgteg dhghfhvhqfg dntqgctsag phfnplskkh ggpkdeerhv gdlgnvtadk
91 ngvaivdivd plislsgays iigrtmvvhe kpddlgrggn eestktgnag srlacgvi gi ak

Equus caballus Horse (P00443)

1 malkavcvlk gdgpvhgvih feqqqeggpv vlkgfielt kgdhghfhvhe fgdntqgctt agahfnplsk khggpkdeer hvgdlnvta
91 dengkadvdm kdsvislsgk hsiigrtmvv hekqddlgkg gneestktgn agsrlacgvi giap

Ovis aries Sheep (P09670)

1 atkavcvlkg dgpvqgtirf eakgdkvvvt gsitgtegd hgfhvhqfgd ntqgctsagp hfnplskkhg gpkdeerhvg dlgnvkadkn
91 gvaivdivdp lislsgaysi iigrtmvvhk pddlgrggn eestktgnagg rlacgvi gi p

Sus scrofa Pig (P04178)

1 atkavcvlkg dgpvqgtiyf elkgektlvv tgitklaeg dhghfhvhqfg dntqgctsag phfnpeskkh ggpkdquerh gdlgnvtagk
91 dgvatvyied svialsgdhs iigrtmvvhe kpddlgrggn eestktgnag srlacgvi tq

Cervus elaphus Deer (O46412)

1 matkavcvlk gdgpvqgtir feakghtvvv tgsitglteg dhghfvhqfg dntqgtsag phfnplskkh ggpkdeerhv gdlnvntadk
91 ngvakvdivd slislsgehs iigrtmvvh kpdldgrggn eestktgnar nrlacgvigi aq

Gallus gallus Chicken (P80566)

1 matlkavcvm kgdapvegvi hfqqqgsgpv kvtkgitgls dgdhghfvhe fgdntngcts agahfnpegk qhggpkdadr hvgdlnvnta
91 kggvaeveie dsvisltgph ciigrtmvvh aksddlgrgg dneskltgna gprlacgvig iakc

Danio rerio Zebra Fish (O73872)

1 mvnkavcvlk gtgevtgtvy fnqegekpv kvteitglt pgkhghfvha fgdntngcis agphfnphdk thggptdsr hvgdlnvnta
91 dasgvakiei edamltsqg hsiigrtmvi hekeddlgkg gneeslktgn aggrlacgvi gitq

Trout - Oncorhynchus mykiss (AAL79162)

1 mamkavcvlk gtgevtgtvf feqegadgpv kligeisgla pgehghfvha ygdntngcms agphfnphnq thggptdavr hvgdlnvnta
91 gadnvakini qdkmltltgp dsiigrtmvi hekaddlgkg gneeslktgn aggrqacgvi giaq

A.v. Acanthocheilonema viteae Nematode (CAB46812)

1 mstnaiavlr gntvsgvirf qkdkegspti ingeikgltp glhghfihqy gdtngcisa gphfnphnkt hggptdeirh vgdlnivag
91 adgtahidip nkqvllgpn siigrsvvh adeddlgkgv gdkkneslkt gnagarvacg ivaigads

Dros. Drosophila melanogaster (NP_476735)

1 mvvkavcvin gdakgtvffe qessgtpkv sgevcglakg lhghfvhefg dntngcmssg phfnpygkeh gapvdenrhl gdlgnieatg
91 dcptkvnitd skitlfgads iigrtvvh adaddlgqggh elskstgnag arigcgvigi akv

S.c. Saccharomyces cerevisiae Yeast NP 012638 (P00445)

1 mvqavavlk dagvsgvkvf eqasesept vsyeiagnsp naergfhihe fgdatngcvs agphfnpchk thgaptdevr hvgdmgnvkt
91 dengvakgsf kdslikligp tsvvgrsvvi hagqddlgkg dteeslktgn agprpacgvi gltn

S.p. Schizosaccharomyces pombe Yeast (P28758)

1 mvravavlr dskvsgvvtf eqvdqnsqvs vivdlvnda nakrgfhihq fgdntngcts agphfnpegk thgdrtaavr hvgdlnles
91 daqgnikttf dsvislfga nsiigrtivi hageddlgkg tseeslktgn agarnacgvi giav

C.a. Candida albicans (O59924)

1 mvkavavrg dskvqgtvhf eqesesaptt isweiegnp nalrgfhihq fgdntngcts agphfnpchk qhgapedder hvgdlnist
91 dgngvakgtk qdllikligk dsilgrtivv hagtddygkg gfedskttgh agarpacgvi gltq eskltgna gprlacgvig iakc

D.v. Debaryomyces vanrijiae va. Yarrowii Marine Yeast (AAK82336)

1 mvqavavlrs dskvsrclt snnrqsltl llhgrflgnd analrgfhhv fgdntngly fcwtslhfnp ftkehgaped dnrvhgdln
91 vttdtsvak gskqdlfvkl igqnsilgrt vvihagtdl gkggnaeskk tgnagarlac gvigltknkn s

C.n. *Cryptococcus neoformans* var. *neoformans* (AAK31917)

1 mvkavavikg dshvygtitf tqdsegapvc vsgeiknda dakrgfhvhe fgdntngcts agphynpfnk nhggptaaer hvgdlgnvqt
91 ngcgvamvdi sdkvislfgp hsiigrsmvv hagtddlgkg gneeslktgn agarlacgvi giaa

C.p. *Claviceps purpurea* ergot fungus (CAC50073)

1 mvkavavirg dakvggtvfvf eqesesaptt itwditgnda nakrgfhiht fgdntngcts agphfnphgk thgaptdear hvgdlgnlet
91 dgqgnakgsv kdehvkligp hsvigrtvvi hagtddlgkg dneeslktgn agprpacgvi giss

Ne *Neurospora crassa* (AAA63780)

1 mvkavavvrg dsnvkgtvif eqesesaptt itydisgndp nakrgfhiht fgdntngctsa gphfnphgt thgdrtaevr hvgdlgniet
91 daqgnakgtv tdnlvklign esvigrtvvvh agtddlgkg gneeslktgn agprpacgvi gisq

PI Plant *Mesembryanthemum crystallinum* (P93258)

1 mvkavvvlss segvsgtvqf tqegsgpttv tgnvsglrpg lhghfvhalg dttngcmstg phfnpagkeh gapedetrha gdlgnitvgd
91 dgtatftiid sqiptgpns ivgravvha dpddlgrggh elskatgnag grvacgvigl qg