

**Table 4: Yeast genes identified under iron overload conditions, ranked by fitness score and showing the homologous genes in humans, if any, obtained by SGD Best Hits BLASTP.**

Systematic Name	Standard Gene Name	Alias	Fitness Score <sup>a</sup>	Human Best Hit <sup>b</sup> Ensembl Peptide ID	Ln (E-value) <sup>c</sup>	Ensembl Gene ID	HGNC Gene Name <sup>d</sup>
YPL057C	<i>SUR1</i>	<i>LPE15 CSG1 BCL21</i>	-3.69				
YBR036C	<i>CSG2</i>	<i>CLS2</i>	-2.79				
YLR374C			-2.53				
YPL226W	<i>NEW1</i>		-2.47	<a href="#">ENSP00000292808</a>	1.00E-44	<a href="#">ENSG00000161204</a>	<a href="#">ABCF3</a>
YKL053C-A	<i>MDM35</i>		-2.44	<a href="#">ENSP00000304997</a>	4.00E-05	<a href="#">ENSG00000170855</a>	<a href="#">TRIAP1</a>
YLR220W	<i>CCC1</i>		-2.24				
YPL241C	<i>CIN2</i>		-2.21				
YOL001W	<i>PHO80</i>	<i>VAC5 TUP7 AGS3</i>	-2.20				
YOL041C	<i>NOP12</i>		-2.16	<a href="#">ENSP00000345961</a>	1.00E-20	<a href="#">ENSG00000188739</a>	<a href="#">RBM34</a>
				<a href="#">ENSP00000355565</a>	1.00E-20	<a href="#">ENSG00000188739</a>	<a href="#">RBM34</a>
				<a href="#">ENSP00000354765</a>	1.00E-20	<a href="#">ENSG00000188739</a>	<a href="#">RBM34</a>
YML047C	<i>PRM6</i>		-2.05				
YLR131C	<i>ACE2</i>		-1.96	<a href="#">ENSP00000250916</a>	1.00E-11	<a href="#">ENSG00000129911</a>	<a href="#">KLF16</a>
YCR031C	<i>RPS14A</i>	<i>RPL59 CRY1</i>	-1.94	<a href="#">ENSP00000311028</a>	2.00E-32	<a href="#">ENSG00000164587</a>	<a href="#">RPS14</a>
YMR284W	<i>YKU70</i>	<i>NES24 HDF1</i>	-1.91	<a href="#">ENSP00000353192</a>	6.00E-04	<a href="#">ENSG00000196419</a>	<a href="#">XRCC6</a>
YER019W	<i>ISC1</i>		-1.91	<a href="#">ENSP00000258052</a>	2.00E-26	<a href="#">ENSG00000135587</a>	<a href="#">SMPD2</a>
YOR136W	<i>IDH2</i>		-1.86	<a href="#">ENSP00000299518</a>	3.00E-86	<a href="#">ENSG00000166411</a>	<a href="#">IDH3A</a>
YPL205C			-1.85				
YOL006C	<i>TOP1</i>	<i>MAK17 MAK1</i>	-1.81	<a href="#">ENSP00000328835</a>	1.00E-261	<a href="#">ENSG00000184428</a>	<a href="#">TOP1MT</a>
YMR202W	<i>ERG2</i>	<i>END11</i>	-1.73	<a href="#">ENSP00000353935</a>	1.00E-17	<a href="#">ENSG00000147955</a>	<a href="#">OPRS1</a>
YOR085W	<i>OST3</i>		-1.73	<a href="#">ENSP00000354649</a>	1.00E-09	<a href="#">ENSG00000102158</a>	
				<a href="#">ENSP00000304504</a>	1.00E-09	<a href="#">ENSG00000102158</a>	
YDR004W	<i>RAD57</i>		-1.69	<a href="#">ENSP00000340560</a>		<a href="#">ENSG00000182185</a>	<a href="#">RAD51L1</a>
YER090W	<i>TRP2</i>		-1.60				
YGL212W	<i>VAM7</i>	<i>VPS43</i>	-1.59				
YPL195W	<i>APL5</i>	<i>YKS4</i>	-1.58	<a href="#">ENSP00000341579</a>	2.00E-91	<a href="#">ENSG00000065000</a>	<a href="#">AP3D1</a>
YPR032W	<i>SRO7</i>	<i>SOP1 SNI1</i>	-1.56	<a href="#">ENSP00000273666</a>	2.00E-10	<a href="#">ENSG00000145087</a>	<a href="#">STXBP5L</a>
YIL069C	<i>RPS24B</i>	<i>RPS24EB</i>	-1.55	<a href="#">ENSP00000350214</a>	4.00E-18	<a href="#">ENSG00000138326</a>	<a href="#">RPS24</a>
				<a href="#">ENSP00000361430</a>	4.00E-18	<a href="#">ENSG00000138326</a>	<a href="#">RPS24</a>
				<a href="#">ENSP00000361435</a>	4.00E-18	<a href="#">ENSG00000138326</a>	<a href="#">RPS24</a>
				<a href="#">ENSP00000336696</a>	4.00E-18	<a href="#">ENSG00000138326</a>	<a href="#">RPS24</a>
				<a href="#">ENSP00000354074</a>	4.00E-18	<a href="#">ENSG00000138326</a>	<a href="#">RPS24</a>

YNL170W			-1.55				
YIR009W	MSL1	YIB9/YIB9w	-1.48	<a href="#">ENSP00000243563</a>	2.00E-08	<a href="#">ENSG00000077312</a>	<a href="#">SNRPA</a>
YNR004W			-1.47				
YDL118W			-1.47				
YCR028C	FEN2		-1.42				
YPR087W	VPS69		-1.41				
YOL064C	MET22	HAL2	-1.39				
YJL024C	APS3	YKS7	-1.38	<a href="#">ENSP00000325369</a>	2.00E-28	<a href="#">ENSG00000177879</a>	<a href="#">AP3S1</a>
YHR200W	RPN10	SUN1 MCB1	-1.33	<a href="#">ENSP00000357878</a>	3.00E-48	<a href="#">ENSG00000159352</a>	<a href="#">PSMD4</a>
				<a href="#">ENSP00000357876</a>		<a href="#">ENSG00000159352</a>	
YPL213W	LEA1		-1.30	<a href="#">ENSP00000254193</a>	2.00E-04	<a href="#">ENSG00000131876</a>	<a href="#">SNRPA1</a>
YPL178W	CBC2	CBP20 SAE1 MUD13	-1.30	<a href="#">ENSP00000326806</a>	9.00E-34	<a href="#">ENSG00000114503</a>	<a href="#">NCBP2</a>
YGL127C	SOH1	MED31	-1.29	<a href="#">ENSP00000225728</a>	6.00E-09	<a href="#">ENSG00000108590</a>	<a href="#">MED31</a>
				<a href="#">ENSP00000370484</a>	6.00E-09	<a href="#">ENSG00000108590</a>	<a href="#">MED31</a>
YMR289W			-1.26				
YDR083W	RRP8		-1.26	<a href="#">ENSP00000254605</a>	1.00E-34	<a href="#">ENSG00000132275</a>	<a href="#">KIAA0409</a>
YPL214C	THI6		-1.26				
YMR262W			-1.22				
YOR014W	RTS1	SCS1	-1.21	<a href="#">ENSP00000329009</a>	1.00E-140	<a href="#">ENSG00000078304</a>	<a href="#">PPP2R5C</a>
YER028C	MIG3		-1.21	<a href="#">ENSP00000309570</a>	1.00E-09	<a href="#">ENSG00000118263</a>	<a href="#">KLF7</a>
YGL025C	PGD1	MED3 HRS1	-1.18				
YOL012C	HTZ1	H2A.F/Z H2AZ HTA3	-1.13	<a href="#">ENSP00000340708</a>	2.00E-28	<a href="#">ENSG00000105968</a>	<a href="#">H2AFV</a>
YPR164W	MMS1	SLM6 RTT108	-1.06				
YOR061W	CKA2	YOR29-12	-1.04	<a href="#">ENSP00000217244</a>	2.00E-93	<a href="#">ENSG00000101266</a>	<a href="#">CSNK2A1</a>
				<a href="#">ENSP00000371400</a>	2.00E-93	<a href="#">ENSG00000101266</a>	<a href="#">CSNK2A1</a>
				<a href="#">ENSP00000341595</a>	2.00E-93	<a href="#">ENSG00000101266</a>	<a href="#">CSNK2A1</a>
				<a href="#">ENSP00000339247</a>	2.00E-93	<a href="#">ENSG00000101266</a>	<a href="#">CSNK2A1</a>
YDR363W	ESC2		-0.96				
YMR251W-A	HOR7		-0.91				
YOL128C	YGK3		-0.91	<a href="#">ENSP00000264235</a>	9.00E-54	<a href="#">ENSG00000082701</a>	<a href="#">GSK3B</a>
YER114C	BOI2	BEB1	-0.88	<a href="#">ENSP00000347883</a>	5.00E-03	<a href="#">ENSG00000166689</a>	<a href="#">PLEKHA7</a>
YDR176W	NGG1	SWI7 ADA3	-0.85				
YMR310C			-0.84	<a href="#">ENSP00000354812</a>	3.00E-06	<a href="#">ENSG00000198917</a>	<a href="#">C9orf114</a>
				<a href="#">ENSP00000354931</a>	3.00E-06	<a href="#">ENSG00000198917</a>	<a href="#">C9orf114</a>
YLR337C	VRP1	YLR337W MDP2 END5	-0.82				
YMR276W	DSK2		-0.81	<a href="#">ENSP00000345195</a>	3.00E-09	<a href="#">ENSG00000188021</a>	<a href="#">UBQLN2</a>
				<a href="#">ENSP00000364060</a>	3.00E-09	<a href="#">ENSG00000188021</a>	<a href="#">UBQLN2</a>
YMR190C	SGS1		-0.79	<a href="#">ENSP00000318727</a>	1.00E-109	<a href="#">ENSG00000004700</a>	<a href="#">RECQL</a>

YOR036W	PEP12	VPT13 VPS6 VPL6	-0.78	<a href="#">ENSP00000236419</a>	1.00E-04	<a href="#">ENSG00000117758</a>	<a href="#">STX12</a>
				<a href="#">ENSP00000363054</a>	1.00E-04	<a href="#">ENSG00000117758</a>	<a href="#">STX12</a>
YPL140C	MKK2	SSP33 LPI6	-0.71	<a href="#">ENSP00000178640</a>	1.00E-50	<a href="#">ENSG00000137764</a>	<a href="#">MAP2K5</a>
YPL263C	KEL3		-0.53	<a href="#">ENSP00000270583</a>	8.00E-37	<a href="#">ENSG00000104731</a>	<a href="#">KLHDC4</a>
YMR244W			-0.53				
YER017C	AFG3	YTA10	0.15	<a href="#">ENSP00000269143</a>	1.00E-261	<a href="#">ENSG00000141385</a>	<a href="#">AFG3L2</a>
YGL064C	MRH4		0.46	<a href="#">ENSP00000362687</a>	4.00E-18	<a href="#">ENSG00000107625</a>	<a href="#">DDX50</a>
				<a href="#">ENSP00000277804</a>	4.00E-18	<a href="#">ENSG00000107625</a>	<a href="#">DDX50</a>
YDR528W	HLR1		0.53				
YLR315W	NKP2		0.87				
YLR233C	EST1		0.94				
YLR206W	ENT2		0.99	<a href="#">ENSP00000370895</a>	8.00E-25	<a href="#">ENSG00000176177</a>	<a href="#">ENTHD1</a>
YGL136C	MRM2		1.05	<a href="#">ENSP00000327660</a>	3.00E-24	<a href="#">ENSG00000122687</a>	<a href="#">FTSJ2</a>
YGR034W	RPL26B		1.15	<a href="#">ENSP00000370506</a>	2.00E-24	<a href="#">ENSG00000197947</a>	
YPR066W	UBA3		1.29	<a href="#">ENSP00000354340</a>	3.00E-66	<a href="#">ENSG00000144744</a>	<a href="#">UBE1C</a>
YHR051W	COX6		1.65	<a href="#">ENSP00000317780</a>	8.00E-12	<a href="#">ENSG00000178741</a>	<a href="#">COX5A</a>
YJL056C	ZAP1	ZRG10	2.02	<a href="#">ENSP00000295208</a>	7.00E-29	<a href="#">ENSG00000144026</a>	<a href="#">ZNF514</a>
YHR167W	THP2		2.21				
YGL071W	RCS1	AFT1	3.09				
YHR073W	OSH3		3.34	<a href="#">ENSP00000315331</a>	2.00E-57	<a href="#">ENSG00000070882</a>	<a href="#">OSBPL3</a>

<sup>a</sup> The fitness score is a measure of the relative growth of a particular deletion mutant in the treatment and control media.

<sup>b</sup> Information for homologous genes in humans was obtained from SGD's model organism BLASTP best hits, which contains the results of NCBI BLASTP analysis using the protein sequence of each *S. cerevisiae* ORF as the query sequence against the predicted protein sequences in humans. Blank fields indicate absence of a significant hit in the human database.

<sup>c</sup> The expect threshold (E-value) represents the number of hits expected to be found by chance.

<sup>d</sup> Gene name as indicated by the HUGO Gene Nomenclature Committee (HGNC).