

## Supplementary Figure 1 FRQ motifs

### FF-1 487

GWVYLNLL[ci]N[ml]AQLH[im][il]NVTPDF[iv]RSA[vl]S[ed][kl]STK[fl]Q[li]S[ps]DGRKI  
RWRGGT

FF-2 199 GL[ps][ak]RK[kr]RELE[ea]TLR[ds]FA[at][sg]L[dg][ds]S[sp][ed]

### FF-3 157

[yf]RS[vi]IDDLT[iv]E[ni][kq][kr]LK[ed][ek]LKRYKQSGP[ad][mh][lm][er]K[de]KLFE[iv][k  
r][iv]H

### FF-4 429

[pr]G[pgs][pi][sap]P[edq]QRPTR[p1][lr]DLDPDR[vadt]Q[ivn][pg]S[ed]N[mv][de]YIRHLG[li  
][sv][pas]P[eq][lf]

FF-5 646 [rk][ks]RRDDG[ap][il][iv][yf]Y[snt]GAPFCTDLSGD[pr]G[dg]MS

FF-6 315 MT[de]K[eq][kr]KK[lm]VVRRLAQ[li]FTGKI[gs]G[lr]

### FF-7 752

xDxPWSDx[gg][qp]PP[es]LxP[lf]E[ap][sc]G[li]GGVLP[ade]DHF[lm][iv]VVTTRTK

### FF-8 837

[ps][ilv][kqe][it]EY[litv]S[ge][er][lif][rk]RL[an]P[sva]PLPPP[asv][ism][fy][fy][ps][pm]FS[tgs  
][dt][se][st][tsw][dse]D[gey]

FF-9 594 [fym][hmf]Y[ktr]P[lmi]F[val][hrg][rqa][qn]

### FF-10 69

[rl][rk][na][sk][stl][dgt][ed][sr][nh][ed]TG[qa]S[dn][pa][nk][ke]WF[nd][qr]SN[rq]NP[tv]A[a  
n][fv][nd]

FF-11 256 K[hk]ASS[st]S[gs]SNSRP[vt]DSAYASMS[ta][sg][ag]SS[sh][gs]

**Supplementary Figure 2 LARP motif(s)**

**LA- 1**

921 F[tk]Q[qh[kv]Y[hd]KY[hr]RRCL[kn]ERK[rk]LGVGQS[qe]EMNTL[fy]RFWS  
[fy]FLR[de][hnt]FNRKM[yf][de]E

**LA- 2**

983 [yf]RYGLECLFRF[yf]SYGLE[kr][kr]FRP[ed][iv][fy][kd]DF[qe][dek][ed]T[lv]LD[yf]  
ESGQLYGLEKFWAF

**LA- 3**

417[iv][kr][kr]Q[vi]EYYFS[vd][ed]NL[ce][kr]DF[fy]LR[rs]KMD[ep][eqs]G[wy]

**LA-4**

451 IASF[nh]RV[rq]A[lm][ts][qt]D[vi][ae][lf]I[klv][eq]A[li]

**LA-5**

659 [hfg]T[sp]RSK[i][st]S[ed]LAK[iv]INDGLY[yf]YE[qe]D[lm][wk]

**Supplementary Figure 3. HSF alignments**

		<b>Section A</b>		<b>Section B</b>
Acanthamoeba	11	SWGDLTSQD (12)		DI LPL YFK (78)
		SW + +		D+LP YFK
Arabidopsis	59	SWS PTNN (12)		DLLPKYFK (90)
		WS T		++LPKYFK
Danio	29	CWS ATGT (12)		EVLPKYFK (96)

		<b>Section C</b>
Acanthamoeba		VEQ LTRENKK LA EELT KVQQ
		VEQ L R+ L +EL K++Q
Arabidopsis		VEQ LKRDK NVLMQELV KLRQ
		++ +K+ +VL +E+V LRQ
Danio		MQDMKQQNDVLWREVVVS LRQ