

## **Supplementary Information**

### **Cdc28–Cln3 phosphorylation of Sla1 regulates actin patch dynamics in different modes of fungal growth**

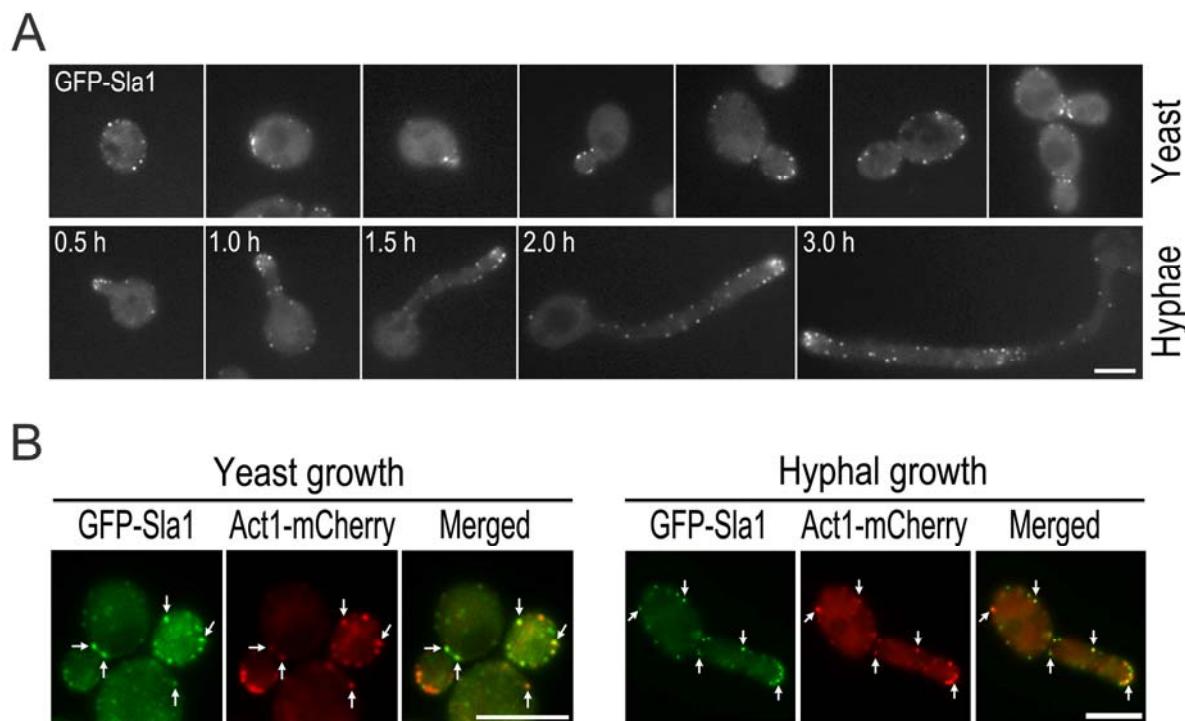
Guisheng Zeng, Yan-Ming Wang, and Yue Wang

## Figure S1

MSSIYIGVYK**A**LYDYAAQAEELNIKQNDLLYLLEKSDIDDWWKVKKRVVATGEE  
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ILVGDLAKE**K**FGFVPSNYIQ**L**DSTAEP**A**QHQQQQQQQVFPQPPQQQQAI**P**QQQTQ  
IPINNF~~FFFF~~THKDRTPDFPAPP**A**RDRSPEH~~PPPT~~PEKD**Y**PRM**F**E**Q**E**P**RSLGSR  
YDRQPEGREEEDEAPPMP*S*RPTGSNIVAPEPVVGRSNTYE**Q**EEENVEHSEHSYD  
GEFFT**W**IIDEVDGRKKRAIKLSIG**Q**GLVI**I**KPNTTNPKKLRMRSSSLDNQWRIK  
DLITFNNEKKHVLFKNPAASLELHAGSKDV**E**AIMAILGDLKGAEAAHGLREV  
AKASKASANERNRKIGRLLYDFEVQGDDEL**C**KEGDEVYI**I**D**Q**KKSKDWWMVENI  
ATRRQGVVPSTYIEIISTSNLDKLT**D**GPLRRKST**K**SGRVVET**K**DKRSSHHRTRE  
ERDRIREKDRAQRDKAPTSQTE**Q**DKSMPNFHRVRTWIDSSGTFKVEAEFLGCVEG  
KIHLHKTNGVKIAVAADKLSVEDLEYVERVTGTSLE**Q**YKE**Q**VM**Q**AKRAKS**K**  
SGATAT**P**SSTNET**K**YASSATAAINDIAPPKPTRPQTT**Q**VSNNGAPLYDWFDFFL  
ECGVDIGNCQRYTLNFEREQMDENILED**I**SPS**I**LLRT**I**GLREGDI**I**RV**M****K**YLD**A**KF  
DR**K**K**T**PEAP**Q**QNG**G**LFID**K**GNLKNNS**S**TE**I****S**KVSADALP**S**PV**K**T**Q**VT**S**FT**P**VN  
ESTQNNNKIEDDAWAMKPAARSSED**L**LP**S**P**Q****Q**T**P**Q**Y**T**G**ALS**D**LV**N**IKPVGTSN  
ENKAKTE**Q****I**P**V**E**P**SAPAL**Q**PMKTSNT**A**T**S****S****I****P****Q****G****P****G****V****T****P****Q****R****T****G****T****L****V****P****V****Q****K****T****G**  
**L****V****P****Q****R****T****G****A****G****L****V****P****Q****T****G****G****Y****L****P****A****Q****P****T****G****F****V****P****I****A****Q****P****T****G****F****I****P****I****Q****A****T****G****I****L****Q****P****Q****L****T****F****G****I**  
PLQTGTSTFNANNK**T**APPRPDTAPPPI**T**FG**Q****Q****P****T****F****Q****P****A****F****V****P****L****Q****T****G****V****I****T****M****P****Q****T****T****F**  
**G****G****Q****S****Q****Q****L****P****T****Q****I****T****G****G****A****P****P****Q****T****S****F****N****Q****P****A****L****V****P****T****Q****R****T****G****Q****I****T****G****G****F****V****P****Q****S****N****F****G****K****Q****I****T****G****G****F**  
DTNTLSFGQQITGNAAQQQPPPSTSFGQQITGGLPATSGQQITGGFPQTSFGQQM  
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MNQFQQQPQQQQQPFYNQFQSQPNLNQMTNMFQNTSISSPATFNQQ**I****P****T****T****T****F****G****Q****Q**  
**P****Q****F****E****G****F****G****S****Q****P****L****Q****S****Q****P****T****G****M****G****F****G****N****A****P****L****Q****S****Q****P****T****G****K****R****A****N****L****Q****A****A****T****P****D****N****P****F****G****F**

**Figure S1.** MS mapping of phosphorylation sites on Sla1. Amino acids covered by the mapping are highlighted in bold. CDK consensus sites are shaded in grey and putative Prk1 recognition motifs are underlined. Asterisks (\*): phosphorylated Thr or Ser within CDK sites; Black dots (•): phosphorylated Thr within Prk1 recognition motifs; Open circles (o): Other phosphorylated Thr and Ser residues.

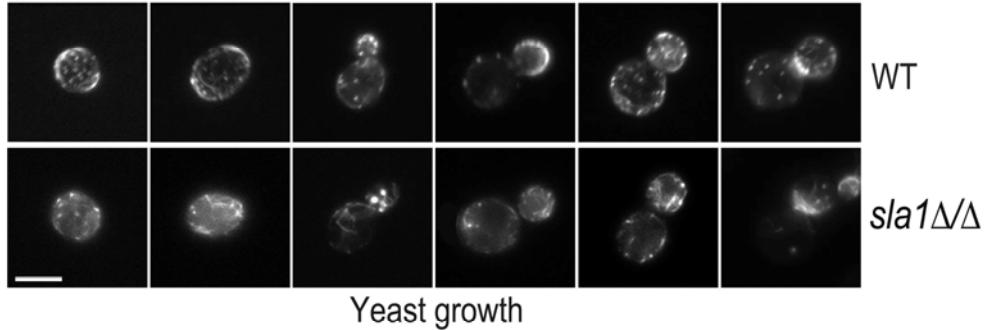
**Figure S2**



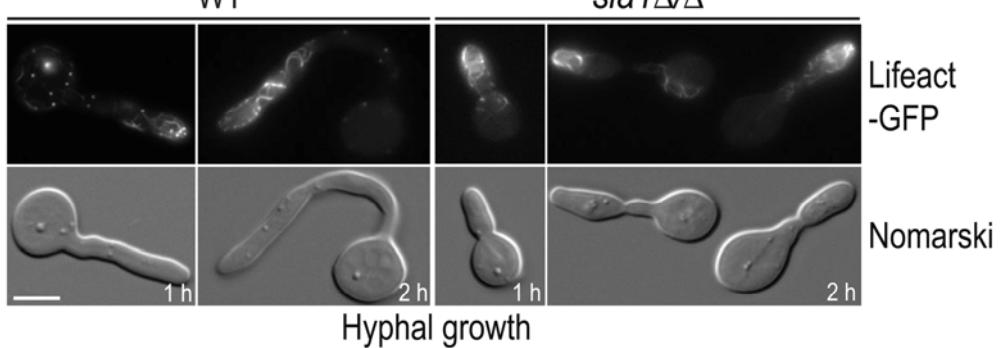
**Figure S2.** Subcellular localization of Sla1 during yeast and hyphal growth. **(A)** Visualization of GFP-Sla1 in yeast and hyphal cells of GZY707 (*sla1Δ/P<sub>MET3</sub>-GFP-SLA1*). **(B)** Visualization of GFP-Sla1 and Act1-mCherry in yeast and hyphal cells of GZY752 (*sla1Δ/P<sub>MET3</sub>-GFP-SLA1 ACT1/ACT1-mCherry*). Cells were either grown in GMM at 30°C, or induced for hyphal formation by incubating with 20% FBS at 37°C for several hours. Samples were taken at the indicated time points and cells were fixed with Stopmix before microscopic visualization. Note that Act1-mCherry is not fully functional in vivo and results in abnormal hyphal morphology.

**Figure S3**

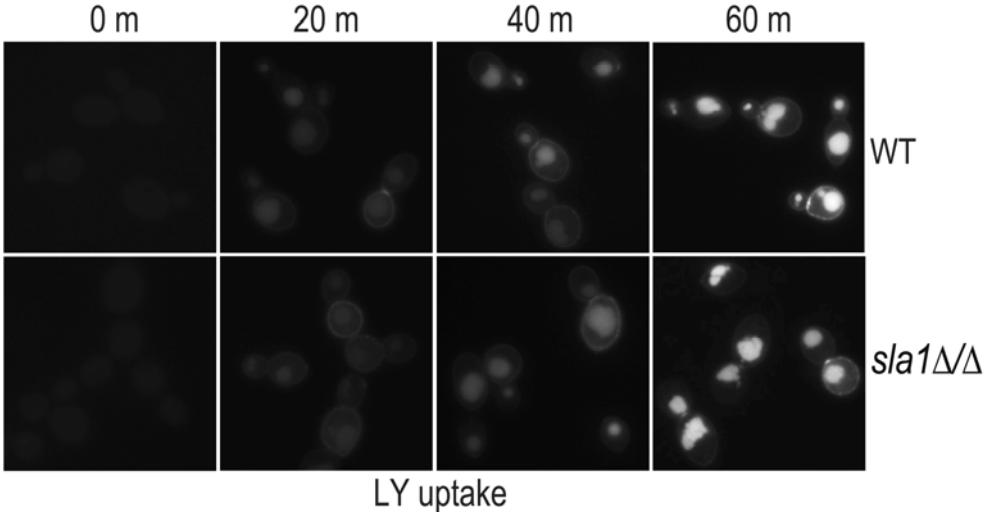
**A**



**B**



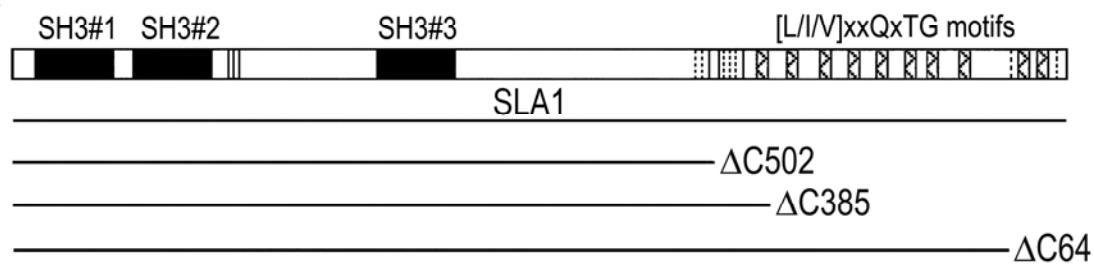
**C**



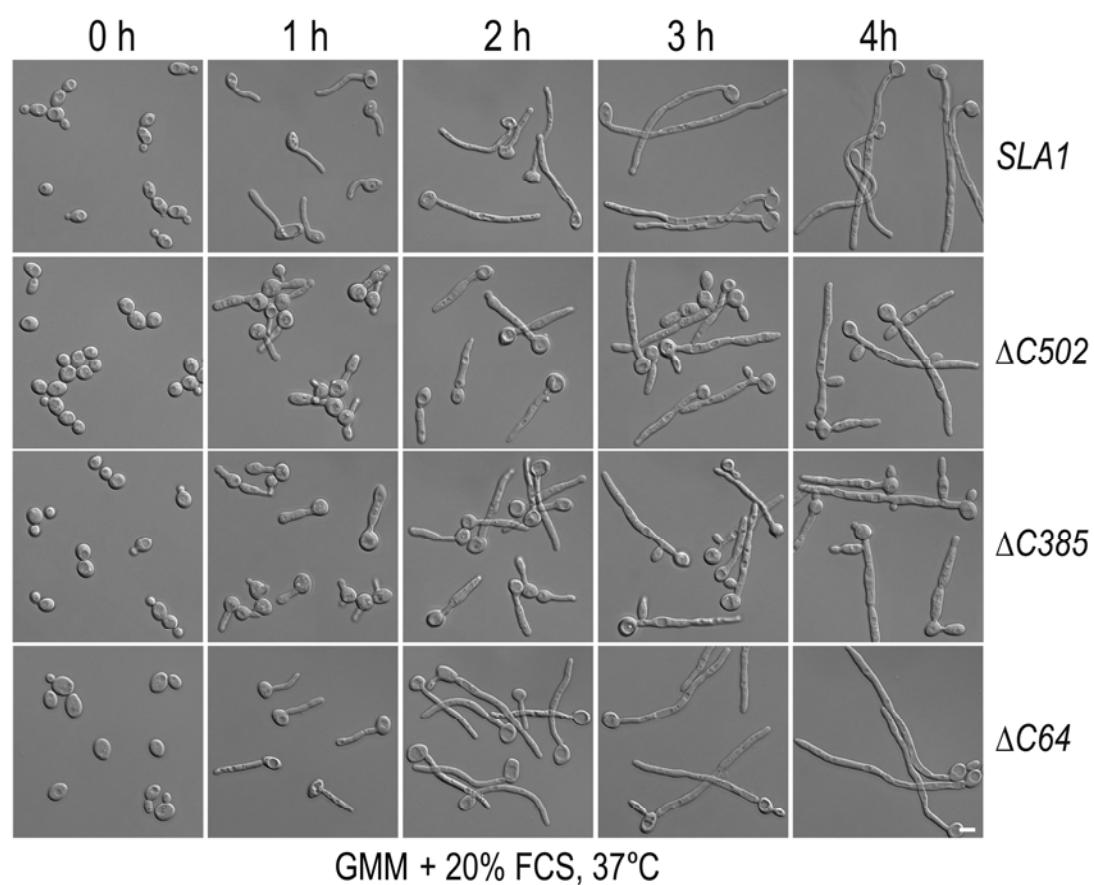
**Figure S3.** Actin cytoskeleton organization and LY uptake in *sla1Δ/Δ* cells. (**A** and **B**) Direct visualization of actin cytoskeleton in the *sla1Δ/Δ* cells during yeast (A) and hyphal growth (B). WT (GZY730) and *sla1Δ/Δ* (GZY733) cells expressing Lifeact-GFP were either grown in GMM at 30°C or induced for hyphal growth with 20% FBS at 37°C for 1 to 2 h. Cells were fixed with Stopmix for microscopy. (**C**) LY uptake of the *sla1Δ/Δ* cells. WT (BWP17) and *sla1Δ/Δ* (GZY602) cells were grown in GMM at 30°C and incubated with LY for 20, 40, and 60 min, respectively. Cells were washed with PBS and examined for LY uptake.

**Figure S4**

**A**



**B**



**Figure S4.** Defective hyphal formation of *sla1* C-terminal truncated mutants. **(A)** Schematic diagram to indicate the regions absent in different *sla1* mutants. **(B)** Hyphal morphology of the *sla1* C-terminal truncated mutants. Cells of *SLA1*-WT (GZY652), *sla1*- $\Delta C502$  (GZY625), *sla1*- $\Delta C385$  (GZY629), and *sla1*- $\Delta C64$  (GZY639) were grown in YPD at 30°C and induced for hyphal growth by incubation with 20% of FBS at 37°C. Samples were taken at 1-h intervals upon hyphal induction for morphological examination.

**Movie 01.** Live cell imaging of Lifeact-GFP in BWP17 (GZY730) yeast cells.

**Movie 02.** Live cell imaging of Lifeact-GFP in *sla1Δ/Δ* (GZY733) yeast cells.

**Movie 03.** Live cell imaging of Lifeact-GFP in BWP17 (GZY730) hyphal cells.

**Movie 04.** Live cell imaging of Lifeact-GFP in *sla1Δ/Δ* (GZY733) hyphal cells.

## References

- Murad, A.M., Lee, P.R., Broadbent, I.D., Barelle, C.J., and Brown, A.J. (2000). Clp10, an efficient and convenient integrating vector for *Candida albicans*. *Yeast* 16, 325-327.
- Sinha, I., Wang, Y.M., Philp, R., Li, C.R., Yap, W.H., and Wang, Y. (2007). Cyclin-dependent kinases control septin phosphorylation in *Candida albicans* hyphal development. *Dev Cell* 13, 421-432.
- Wilson, R.B., Davis, D., and Mitchell, A.P. (1999). Rapid hypothesis testing with *Candida albicans* through gene disruption with short homology regions. *J Bacteriol* 181, 1868-1874.
- Zheng, X., Wang, Y.M., and Wang, Y. (2004). Hgc1, a novel hypha-specific G1 cyclin-related protein regulates *Candida albicans* hyphal morphogenesis. *EMBO J* 23, 1845-1856.

**Table S1.** Yeast strains used in this study

Strain	Relevant genotype*
BWP17	<i>ura3::imm434/ura3::imm434 his1::hisG/his1::hisG arg4::hisG/arg4::hisG</i> (Wilson et al., 1999)
IS82	<i>ccn1Δ::URA3-FLP/ccn1Δ::ARG4</i> (Sinha et al., 2007)
IS89	<i>cdc28<sup>F85G</sup>-ARG4/cdc28Δ::HIS1</i> (Sinha et al., 2007)
WYZ12	<i>hgc1Δ::ARG4/hgc1Δ::HIS1</i> (Zheng et al., 2004)
GZY559	<i>CLN3/CLN3-Myc-URA3</i>
GZY584	<i>SLA1/SLA1-HA-ARG4</i>
GZY585	<i>CLN3/CLN3-Myc-URA3 SLA1/SLA1-HA-ARG4</i>
GZY601	<i>SLA1/sla1Δ::FRT</i>
GZY602	<i>sla1Δ::FRT/sla1Δ::ARG4</i>
GZY603	<i>cln3Δ::FRT/P<sub>MET3</sub>-Myc-CLN3-ARG4</i>
GZY622	<i>cln3Δ::FRT/P<sub>MET3</sub>-Myc-CLN3-ARG4 SLA1/SLA1-HA-URA3</i>
GZY624	<i>hgc1Δ::ARG4/hgc1Δ::HIS1 SLA1/SLA1-HA-URA3</i>
GZY625	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-ΔC502-HA-URA3</i>
GZY629	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-ΔC385-HA-URA3</i>
GZY631	<i>SLA1/P<sub>GAL1</sub>-HA-SLA1-URA3</i>
GZY639	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-ΔC64-HA-URA3</i>
GZY641	<i>cdc28<sup>F85G</sup>-ARG4/cdc28Δ::HIS1 CLN3/CLN3-Myc-URA3</i>
GZY652	<i>sla1Δ::FRT/sla1Δ::ARG4 SLA1-WT-HA-URA3</i>
GZY658	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13A-HA-URA3</i>
GZY670	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13E-HA-URA3</i>
GZY707	<i>sla1Δ::FRT/P<sub>MET3</sub>-GFP-SLA1-URA3</i>
GZY718	<i>sla1Δ::FRT/sla1Δ::ARG4 SLA1-WT-HA-URA3 PAN1/PAN1-Myc-HIS1</i>
GZY719	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13A-HA-URA3 PAN1/PAN1-Myc-HIS1</i>
GZY720	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13E-HA-URA3 PAN1/PAN1-Myc-HIS1</i>
GZY727	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-23E-HA-URA3</i>
GZY730	<i>TEF1/tef1::P<sub>TEF1</sub>-LifeAct-GFP-HIS1</i>
GZY733	<i>sla1Δ::URA3-FLP/sla1Δ::ARG TEF1/tef1::P<sub>TEF1</sub>-Lifeact-GFP-HIS1</i>
GZY739	<i>sla1Δ::FRT/sla1Δ::ARG4 SLA1-WT-HA-URA3 TEF1/tef1::P<sub>TEF1</sub>-LifeAct-GFP-HIS1</i>
GZY740	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13A-HA-URA3 TEF1/tef1::P<sub>TEF1</sub>-LifeAct-GFP-HIS1</i>
GZY741	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13E-HA-URA3 TEF1/tef1::P<sub>TEF1</sub>-LifeAct-GFP-HIS1</i>

GZY742	<i>ccn1Δ::FRT/ccn1Δ::ARG4</i>
GZY744	<i>ccn1Δ::FRT/ccn1Δ::ARG4 SLA1/SLA1-HA-URA3</i>
GZY745	<i>prk1Δ::ARG4/prk1Δ::HIS1 SLA1/sla1Δ::FRT</i>
GZY746	<i>MET3/MET3::P<sub>MET3</sub>-ARN1-GFP-URA3</i>
GZY747	<i>sla1Δ::FRT/sla1Δ::ARG4 MET3/MET3::P<sub>MET3</sub>-ARN1-GFP-URA3</i>
GZY750	<i>prk1Δ::ARG4/prk1Δ::HIS1 sla1Δ::FRT/SLA1-HA-URA3</i>
GZY752	<i>SLA1/P<sub>MET3</sub>-GFP-SLA1-HIS1 ACT1/ACT1-mCherry-TADH1-URA3</i>
GZY761	<i>sla1Δ::FRT/sla1Δ::ARG4 SLA1-WT-HA-URA3 MET3/MET3::P<sub>MET3</sub>-ARN1-GFP-HIS1</i>
GZY762	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13A-HA-URA3 MET3/MET3::P<sub>MET3</sub>-ARN1-GFP-HIS1</i>
GZY763	<i>sla1Δ::FRT/sla1Δ::ARG4 sla1-13E-HA-URA3 MET3/MET3::P<sub>MET3</sub>-ARN1-GFP-HIS1</i>

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\* Strains used in this study are of derivatives of BWP17.

**Table S2. Plasmid constructs used in this study**

Construct	Description
CIP10U	Yeast integration vector generated by removing the <i>RP10</i> gene from Clp10 (Murad et al., 2000).
pYGS829	CLN3c-Myc-UTR/CIP10U; DNA fragment encoding Cln3 (268-465 aa) was cloned in frame with a C-terminal 6xMyc epitope (followed by <i>UTR</i> , the 3' untranslated region of <i>CaGAL4</i> ) into CIP10U. The plasmid was linearized by <i>BamHI</i> within <i>CLN3</i> for integration to generate <i>CLN3-Myc-URA3</i> .
pYGS837	GST-CLN3; DNA fragment encoding Cln3 (1-465 aa) was cloned into pGEX-4T-1.
pYGS859	SLA1c-HA-UTR/CIP10U; DNA fragment encoding Sla1 (658-1257 aa) was cloned in frame with a C-terminal 2xHA epitope (followed by <i>UTR</i> ) into CIP10U. The plasmid was linearized by <i>XcmI</i> within <i>SLA1</i> for integration to generate <i>SLA1-HA-URA3</i> .
pYGS861	CLN3ΔURA3-FLP/pBKS; <i>CLN3</i> promoter region (-556 to -1 bp) and terminator region (1399 to 1773 bp) were cloned to flank the <i>CaURA3</i> flipper in pBKS vector. The knock-out cassette was released by <i>KpnI</i> and <i>SacII</i> for transformation to generate <i>cln3Δ::FRT</i> .
pYGS868	SLA1ΔURA3-FLP/pBKS; <i>SLA1</i> promoter region (-509 to -1 bp) and terminator region (3775 to 4240 bp) were cloned to flank the <i>CaURA3</i> flipper in pBKS vector. The knock-out cassette was released by <i>KpnI</i> and <i>SacII</i> for transformation to generate <i>s/a1Δ::URA3-FLP</i> and <i>s/a1Δ::FRT</i> .
pYGS870	SLA1ΔARG4/pBKS; <i>CaURA3</i> flipper in pYGS868 was replaced with <i>CaARG4</i> . The knock-out cassette was released by <i>KpnI</i> and <i>SacII</i> for transformation to generate <i>s/a1Δ::ARG4</i> .
pYGS877	CLN3ΔARG4-P <sub>MET3</sub> -Myc/pTEZ; <i>CLN3</i> promoter region (-444 to -1 bp) and coding region (1 to 500 bp) were cloned to flank <i>ARG4-P<sub>MET3</sub>-Myc</i> ( <i>CaARG4</i> followed by 6xMyc epitope under <i>CaMET3</i> promoter control) in pTEZ vector. The knock-in cassette was released by <i>KpnI</i> and <i>SacII</i> for transformation to generate <i>P<sub>MET3</sub>-Myc-CLN3-ARG4</i> .
pYGS893	SLA1c-HA-UTR/CIP10A; <i>CaURA3</i> in pYGS859 was replaced with <i>CaARG4</i> . The plasmid was linearized by <i>XcmI</i> within <i>SLA1</i> for integration to generate <i>SLA1-HA-ARG4</i> .
pYGS894	SLA1ΔC502-HA-UTR/CIP10U; DNA fragment encoding Sla1 (457-755 aa) was cloned in frame with a C-terminal 2xHA epitope (followed by <i>UTR</i> ) into CIP10U. The plasmid was linearized by <i>SalI</i> within <i>SLA1</i> for integration to generate <i>SLA1ΔC502-HA-URA3</i> .
pYGS895	P <sub>GAL1</sub> -HA-SLA1n/CIP10U; DNA fragment encoding Sla1 (1-304 aa) was cloned in frame with an N-terminal 2xHA epitope (under <i>CaGAL1</i> promoter control) into CIP10U. The plasmid was linearized by <i>BsaBI</i> within <i>SLA1</i> for integration to generate <i>P<sub>GAL1</sub>-HA-SLA1-URA3</i> .
pYGS896	SLA1ΔC385-HA-UTR/CIP10U; DNA fragment encoding Sla1 (457-872 aa) was cloned in frame with a C-terminal 2xHA epitope (followed by <i>UTR</i> ) into CIP10U. The plasmid was linearized by <i>SalI</i> within <i>SLA1</i> for integration to generate <i>SLA1ΔC64-HA-URA3</i> .
pYGS913	SLA1ΔC64-HA-UTR/CIP10U; DNA fragment encoding Sla1 (658-1193 aa) was cloned in frame with a C-terminal 2xHA epitope (followed by <i>UTR</i> ) into CIP10U. The plasmid was linearized by <i>XcmI</i> within <i>SLA1</i> for integration to generate <i>SLA1ΔC385-HA-URA3</i> .
pYGS920	Pro-SLA1-WT-HA-UTR/CIP10U; DNA fragment containing <i>SLA1</i> promoter and coding region (-1000 to 3771 bp) was cloned in frame with a C-terminal 2xHA epitope (followed by <i>UTR</i> ) into CIP10U. The plasmid was linearized by <i>Pmel</i> (generated by mutagenesis at promoter region -550 bp) for integration to generate <i>SLA1-WT-HA-URA3</i> .

pYGS924	Pro-sla1-13A-HA-UTR/CIP10U; pYGS920 was used as the template for mutagenesis to introduce 13 mutations (T181A, S194A, T201A, T611A, S690A, T720A, S757A, T767A, S800A, T805A, T865A, S1194A, T1250A) on Sla1. The plasmid was linearized by <i>Pmel</i> for integration to generate <i>sla1-13A-HA-URA3</i> .
pYGS929	Pro-sla1-13E-HA-UTR/CIP10U; pYGS920 was used as the template for mutagenesis to introduce 13 mutations (T181E, S194E, T201E, T611E, S690E, T720E, S757E, T767E, S800E, T805E, T865E, S1194E, T1250E) on Sla1. The plasmid was linearized by <i>Pmel</i> for integration to generate <i>sla1-13E-HA-URA3</i> .
pYGS964	$P_{MET3}$ -GFP-SLA1n/CIP10U; DNA fragment encoding Sla1 (1-304 aa) was cloned in frame with an N-terminal <i>GFP</i> epitope (under <i>CaMET3</i> promoter control) into CIP10U. The plasmid was linearized by <i>BsaBI</i> within <i>SLA1</i> for integration to generate $P_{MET3}$ -GFP-SLA1-URA3.
pYGS965	$P_{MET3}$ -GFP-SLA1n/CIP10H; <i>CaURA3</i> in pYGS964 was replaced with <i>CaHIS1</i> . The plasmid was linearized by <i>BsaBI</i> within <i>SLA1</i> for integration to generate $P_{MET3}$ -GFP-SLA1-HIS1.
pYGS968	PAN1c-Myc-UTR/CIP10U; DNA fragment encoding Pan1 (800-1397 aa) was cloned in frame with a C-terminal 6xMyc epitope (followed by <i>UTR</i> ) into CIP10U.
pYGS970	PAN1c-Myc-UTR/CIP10H; <i>CaURA3</i> in pYGS968 was replaced with <i>CaHIS1</i> . The plasmid was linearized by <i>HindIII</i> within <i>PAN1</i> for integration to generate PAN1-Myc-HIS1.
pYGS971	Pro-SLA1 <sup>23E</sup> -HA-UTR/CIP10U; pYGS929 was used as the template for mutagenesis to introduce 10 mutations (T869E, T878E, T887E, T905E, T915E, T923E, T1002E, T1022E, T1226E, T1240E) on Sla1-13E. The plasmid was linearized by <i>Pmel</i> for integration to generate SLA1 <sup>23E</sup> -HA-URA3.
pYGS972	ACT1c-mCherry-TADH1/CIP10U; DNA fragment encoding Act1 (4-376 aa, including 367 bp intron region) was cloned in frame with a C-terminal mCherry epitope (followed by <i>CaADH1</i> terminator) into CIP10U. The plasmid was linearized by <i>ClaI</i> within <i>ACT1</i> for integration to generate ACT1-mCherry-TADH1-URA3.
pYGS974	TEF1ΔLifeAct-GFP-HIS1/pJET; DNA fragment amplified from pFA-GFP-CaHIS1 with the primer pairs Lifeact S1 (5'-atcttgattttacttcttccttcacacattatgtcataa tcaatcatgggtg tcgcagattgtacaagaattcgaaaggcatctcaaggaaaggtaatcgctggcccgagggtgc-3') and LifeAct S2 (5'-taagaaaaataaaactaaataatgaataaaaaactctaacagatttacataatatt caactagctgtatcatcgatgaattcgag-3') was cloned into pJET vector. The knock-in cassette was released by <i>NotI</i> and <i>XbaI</i> for transformation to generate $P_{TEF1}$ -LifeAct-GFP-HIS1.
pYGS983	PRK1ΔHIS1/pTEZ; <i>PRK1</i> promoter region (-499 to -1 bp) and terminator region (2073 to 2472 bp) were cloned to flank <i>CaHIS1</i> in pTEZ vector. The knock-out cassette was released by <i>NotI</i> for transformation to generate prk1Δ::HIS1.
pYGS985	PRK1ΔARG4/pTEZ; <i>CaHIS1</i> in pYGS983 was replaced with <i>CaARG4</i> . The knock-out cassette was released by <i>NotI</i> for transformation to generate prk1Δ::ARG4.
pYGS987	$P_{MET3}$ -ARN1-GFP-UTR/CIP10U; DNA fragment encoding Arn1 (1-604 aa) was placed under <i>CaMET3</i> promoter control and cloned in frame with a C-terminal <i>GFP</i> epitope (followed by <i>UTR</i> ) into CIP10U. The plasmid was linearized by <i>NsiI</i> within $P_{MET3}$ for integration to generate $P_{MET3}$ -ARN1-GFP-URA3.
pYGS994	$P_{MET3}$ -ARN1-GFP-UTR/CIP10H; <i>CaURA3</i> in pYGS987 was replaced with <i>CaHIS1</i> . The plasmid was linearized by <i>NsiI</i> within $P_{MET3}$ for integration to generate $P_{MET3}$ -ARN1-GFP-URA3.

**Table S3. List of GST-CIn3 affinity purified proteins identified by MS**

Protein ID	Matched Peptides (Bold)
URA2	<p>1 MAQLSVPITP PMESTGDMIL TLETQDGIAL QGYSFGAAKP AAGEVVFTQG MVGVPESTID PSYEGQILVI TYPLVGNYGV PDRELLDEDY EPALPKYFES          101 NKİHİAGLUV AHYTEEYSHW LAKSSLGKWL QEQQIPAIYG VDTRSLTTRL REKGSTLGRQ AİQNSDYKSE EİISQSNSP QNWKKFFNPV EFDDPNVKNL          201 VAKVSTDKPI LYTPKKTNEEN IKLKGNGKPI RILAVDVGMR YNQIRCFVRR GVELLVPWD YDFTTEEYDG LFISNGPGDS AVMDKTVRL QKILKEGKTP          301 VFGICLGLHQI LARATGKNCI KLPKGNGRHN IPCSTSISRG CYITSQNHGY AVDTATLSNG WKEFLVNGS NSNEGYIYHES KPFSSVQFH P ESTPGPRDTE          401 FLFDVFVFKSV VDFNQSGGGVY KQVEFPGGKL AENRAHPKV DFKVVLVLS GGLSIGQAGE FDYSGSQAIIK ALKEEGIYT LINPNIATIQ TSKGLADKVY          501 FLPVTPEFVR KVİKHERRPDG İYCTFGGQT A LSGVIALKDE FEGLGVKVLG TQIDTVITTE DRELFASAM AINEKCARSE ACNTVKE<b>AEV</b> AANAIGYPLI          601 VRAAYALGGL GSCGFADNEH LVALCNKAFA <b>TSPQVLVER</b> MKGWEKEYVE VVRDAFDNCI TWCNMFNDP VAPSQTLSDE DYNMLRTTAV          701 NVIRHLGVVG ECNIOYALNP FSKEYCILEV NARLRSRSSAL ASKATGYPLA YTAALKL<b>G</b>LN PLENEIKNSVT KSTSAFCFPS LDYCVVKIPR WLMLKFTTRVS          801 ALLSSSMKSV GEVMAIGRT EEAIIQKAIKS TDYHNLGFKN TAALMSIDID QELQTPSDQR LFAIANALG SGSVDKVWKL TNIDKWFLNK LDGLIKFGNK          901 IASYGAKEDV PMSLIRQAKQ LGFEDRQIAK FLGSNEVAIR RLRKDAGIIP FVQKQIDTVA EEEPAFTNLYL TYVNAQDSDV KFDDNGVIVL GSGVYRIGSS          1001 VEFDWCAVRA IRTLRENNVK TVMINYNPET VSTDYDEADR <b>LYFEPINLER</b> VLIDYDLEQS SGVIISMGQ TSNNIALLPLV RQNVKILGTS PEMDSAENR          1101 YKFCSRMLDRI GVDQPAWKEI TSIDEAEDFA EKVGVYVPLVR PSYVLSGAAM NTVYSK<b>DLLA</b> SYLGQAVDVS <b>PDYPFWVITK</b> IENAKEIEMD AVAKDGKIM          1201 HVVSEHENVA GVHSQGDATL VPKQQLDLPET VRRIVEATAP IGKHALVYD YNIQFCIADN DIKVCECNVR ASRSRFPVFSK VGVVDLIEMA TKAMLDPLIV          1301 PYPGERLPED YCAVVKQPFQ FSRLAGADPV LGEVMASTGB VAFGKGNKYE AYLKSLISTO FLPLPKNNILF SIGSFKEKQH LLPSIAKHLH LGYKJIFATAG          1401 TADPIKEHGI PVAYHEVLKS DEDQKSEYNL SQHANNLNIID LYVNVNLSANR FRRPQVMSK GYESRNRMAVD NAKLLEVEATA RNISLEVSNR          1501 DAQTSHGTAI LPGLINITSF ATSFQDFEQT TKESELAGFT FNAFLPHTQA GAVSYDYRSL IDAIDAVGAS ATYDVSIA ASETNSQSVS DAADNAGSLF          1601 LPPFNDFANSK VSAALTQAFS WPNNKPIITD AKTTDLSAVL LLASLYNRSI HITGVSKSED LLDLIMAKEK TLQVTCBVAV HSLFLSK<b>DEL</b> DYPFPLPNQD          1701 QEYLWENLKD UDCFSIGVLP YLIAKASGET IAPGMGIKEN VPLLNTAVKA GKLITDGIVS KFHNDPAQVV NLPKQDQAVV LLDLDRFATVE PVYPVEFSKLR          1801 LRAVAKERVS HNETVVLDDG VLSQIALGKVN EYVVERSRFGS TAGIPESRPL GNKRVSFSDD MRRPSLAPEP PEPQPAIFER <b>LGSSELVSPQI AGSLEGEIAAL</b>          1901 SDYTRHNNTF LRNNNIIISVKA ITRSSDLHSLF TVAQEMRLAV ERQGVLDLQQ GRVLATMFYE PSTRSTSTSFD AAQRLGGRV VAVDHGSSV KKGETLQDTI          2001 RTLSCYSDAI VLRHPSSEES DIAAKYSPV <b>P</b>IINAGNGTKE HPTQALLLDF TIREELCTVN GITVTFMGLD KYGRPVHSLC HLLRHYQVVR QLVAPKELQI          2101 PAEIRQLQID NNMLIAESEEN LTKEILARSD VLYCTRVQEE RFADKEQYQR LKDTYIVDNK ILSNAQHMC VMHPLPRTNE IREEVFDQD AAYFRQMRHG          2201 LFIRMALLAM VIGVDF       </p>
	<p>1 MSTHRPFQLT HGSIEHTLLV PNDLFFNYSQ LKDEFIKTL P EPTEGFAGDD EPSSPAELYG KFIGFISNAQ FPPQIVELSLK DFESRFLLDNN NDNIHSFAVK          101 LLDDETPYTT IAKVKENIV NYYKAVKSI N KVESNLLYHC KHDAKLVAFG QGQGNTDDYF EELRELYTLY QGLIEDLVLV IAEKLNQQLPH SFDKIYTQD          201 NILSWLKHPE TTPDQDYLIS VEVSCPVCV IQLCHYITC <b>KVLGLTPGEF</b> RNSLKWTGHS SQGLVTAFTI AASDSDWSFL KNSLTAWSLL LFISGRCLST          301 YPRRTSLPTM LDQSLDNGEC RPSPLMSVRD LSIKQVEKF1 EOTNSHLPRE KHIAISLING ARNLVLSGP P ESLYGFNLNL RNQKAPMGLD QRSPVFSERK          401 LKCSNRFLPI FAPFHSHLLA DATELILHD KEHGLQVLF K1PVPYDFTFG SDFVQDNGK I DRVVKLITE LPVHVVKLITE HKAHILDFG PGGSVGLGV          501 THRKECTGA RIIILACTLDS NPIDEYGFK HEIFQTSADK A1KWPADWLK ERLPTLVKNS EGKIVKTKF S QLGLGRAPLM VAGMPTPTV N TDIVASLNA          601 GYHIELAGGG YFSPVMMTRE IIDIVSRLKQ GYLGGLINQY VNPFMLQWGI PLIKLDRKEQ YPIQSLTIGA GPVSLATEV YIEDLGLTHL GLKPGVSDAI          701 SQVIAIAKAR PTTPVLFQWT GCRGGHHFS EDFPHQPIQM YSKIRRCNSI VLVAGSGFSGS DEDTYPYI LSC YWSEKQFNPP MPFDGVLFGS RVMTKESHE          801 SLAACKLIVL CKGVPDQWNE QTYYKKPAGGI ITVRSEMEGP IHKIAITRGMV FWKELDDTIP NLPKPNKLLDA LNKKRHDHIIK KLNNDQPKW FGKNNANGVCD          901 LQEMLTYKEVA NRVLRLKVKH KSHRWDVSL RNMYQGDFLRR VEERPTTSSAG TVSSLQNFQN LNEPEQFTADL FPLMFLQPAQH QLISEECDYD FLMMLARPGQ          1001 KPVPFVPLD ERFEFFPKKD SLWQSEDES VVDEDVQRTC ILHGWPVASY DEPEVQDPEIDG ILNSIHEGHII ARLIKEEVAG DESK <b>IPVPEV</b> FGGLKPPASVS          1101 ATSVNVTDGN QVYYEIDSEL PNQKEWLDL AGTELNLWA FISTDRIVQG SKHVSNPLHD ILTPAKHSKV TIDKKTKL AFENIKGDL P PVEIELVVP          1201 NTIOLISHEE RTADANP <b>FPLYTKYNNP</b> GFAPLILEME DRNERKEVY WKLWGVSSP YNSNDINVEKA ILGDEITISS QTISEFTHAI GNKCDFAVDR          1301 PGKATLAPMD FAIVGKWA1 KIAF1PKSVD GDLLKLVHLS VNGYKMITGAA PLKGGDVST KAEIKAVLN PSGKLVEVVG TIYREGKPVN EVTSQFLYRG          1401 EYNDYCNTFQ KVTETPVQVA <b>FKS</b>AKDLAVL RSKEWFHLEK DVQFDVLTFR CESTYKFKSA NYVSSIKTTG QVLLELPPTKE VIQGVSVDYE AGTSYGNPVT          1501 DYLSPRNTT EESVIPENA PLSSVFAPEL <b>KAPGTFNPEPYA</b> IVSGDYNPIH VSRLVFAAYAK LPGTITYHGMY SSAS1R1ALVVE EWANNNVAAR VRAFKDFVG          1601 MVLPLNDTLQT TMEHVGMING RKKI1KVETRN VETELPLVLC EAEIOPPTT YVFTGQSQE QGMGMELYNS SEAREVWDE ADRHVFVNNYF FSILDIVONN          1701 PNELTIHFGG AKGRAIRDNVQ IMGMFETIE DGALKSEKIP KDIDEETTYS TFVSPTGLS ATQFQTPALT LMEKAYEDI KSKGLIPSDI MFAGHSLGEY          1801 SALSSLANVNM PIESLVDVVF YRGMTMQVAV PRDELGRSNY GMVAVNPSRV <b>SATFDDSA</b> L R VFDEVANKE KWLLEIVVN YN VENQQYVAAG DLRALDTLN          1901 <b>VNLVLIK</b>NK V DIVKLQEQMS IEKVKEHLYE IVEDEVAKS1 A KQPQFIDLER GFAVIPLKG1 SVPFHSSYLN SGVCPKFQRL CKKIPKSSVQ PQDLRDGYKIP          2001 NLTAKPFLT KEYFQSYD L TKSEKIKSIL DNWEQYE       </p>
FAS1	<p>1 MSTHRPFQLT HGSIEHTLLV PNDLFFNYSQ LKDEFIKTL P EPTEGFAGDD EPSSPAELYG KFIGFISNAQ FPPQIVELSLK DFESRFLLDNN NDNIHSFAVK          101 LLDDETPYTT IAKVKENIV NYYKAVKSI N KVESNLLYHC KHDAKLVAFG QGQGNTDDYF EELRELYTLY QGLIEDLVLV IAEKLNQQLPH SFDKIYTQD          201 NILSWLKHPE TTPDQDYLIS VEVSCPVCV IQLCHYITC <b>KVLGLTPGEF</b> RNSLKWTGHS SQGLVTAFTI AASDSDWSFL KNSLTAWSLL LFISGRCLST          301 YPRRTSLPTM LDQSLDNGEC RPSPLMSVRD LSIKQVEKF1 EOTNSHLPRE KHIAISLING ARNLVLSGP P ESLYGFNLNL RNQKAPMGLD QRSPVFSERK          401 LKCSNRFLPI FAPFHSHLLA DATELILHD KEHGLQVLF K1PVPYDFTFG SDFVQDNGK I DRVVKLITE LPVHVVKLITE HKAHILDFG PGGSVGLGV          501 THRKECTGA RIIILACTLDS NPIDEYGFK HEIFQTSADK A1KWPADWLK ERLPTLVKNS EGKIVKTKF S QLGLGRAPLM VAGMPTPTV N TDIVASLNA          601 GYHIELAGGG YFSPVMMTRE IIDIVSRLKQ GYLGGLINQY VNPFMLQWGI PLIKLDRKEQ YPIQSLTIGA GPVSLATEV YIEDLGLTHL GLKPGVSDAI          701 SQVIAIAKAR PTTPVLFQWT GCRGGHHFS EDFPHQPIQM YSKIRRCNSI VLVAGSGFSGS DEDTYPYI LSC YWSEKQFNPP MPFDGVLFGS RVMTKESHE          801 SLAACKLIVL CKGVPDQWNE QTYYKKPAGGI ITVRSEMEGP IHKIAITRGMV FWKELDDTIP NLPKPNKLLDA LNKKRHDHIIK KLNNDQPKW FGKNNANGVCD          901 LQEMLTYKEVA NRVLRLKVKH KSHRWDVSL RNMYQGDFLRR VEERPTTSSAG TVSSLQNFQN LNEPEQFTADL FPLMFLQPAQH QLISEECDYD FLMMLARPGQ          1001 KPVPFVPLD ERFEFFPKKD SLWQSEDES VVDEDVQRTC ILHGWPVASY DEPEVQDPEIDG ILNSIHEGHII ARLIKEEVAG DESK <b>IPVPEV</b> FGGLKPPASVS          1101 ATSVNVTDGN QVYYEIDSEL PNQKEWLDL AGTELNLWA FISTDRIVQG SKHVSNPLHD ILTPAKHSKV TIDKKTKL AFENIKGDL P PVEIELVVP          1201 NTIOLISHEE RTADANP <b>FPLYTKYNNP</b> GFAPLILEME DRNERKEVY WKLWGVSSP YNSNDINVEKA ILGDEITISS QTISEFTHAI GNKCDFAVDR          1301 PGKATLAPMD FAIVGKWA1 KIAF1PKSVD GDLLKLVHLS VNGYKMITGAA PLKGGDVST KAEIKAVLN PSGKLVEVVG TIYREGKPVN EVTSQFLYRG          1401 EYNDYCNTFQ KVTETPVQVA <b>FKS</b>AKDLAVL RSKEWFHLEK DVQFDVLTFR CESTYKFKSA NYVSSIKTTG QVLLELPPTKE VIQGVSVDYE AGTSYGNPVT          1501 DYLSPRNTT EESVIPENA PLSSVFAPEL <b>KAPGTFNPEPYA</b> IVSGDYNPIH VSRLVFAAYAK LPGTITYHGMY SSAS1R1ALVVE EWANNNVAAR VRAFKDFVG          1601 MVLPLNDTLQT TMEHVGMING RKKI1KVETRN VETELPLVLC EAEIOPPTT YVFTGQSQE QGMGMELYNS SEAREVWDE ADRHVFVNNYF FSILDIVONN          1701 PNELTIHFGG AKGRAIRDNVQ IMGMFETIE DGALKSEKIP KDIDEETTYS TFVSPTGLS ATQFQTPALT LMEKAYEDI KSKGLIPSDI MFAGHSLGEY          1801 SALSSLANVNM PIESLVDVVF YRGMTMQVAV PRDELGRSNY GMVAVNPSRV <b>SATFDDSA</b> L R VFDEVANKE KWLLEIVVN YN VENQQYVAAG DLRALDTLN          1901 <b>VNLVLIK</b>NK V DIVKLQEQMS IEKVKEHLYE IVEDEVAKS1 A KQPQFIDLER GFAVIPLKG1 SVPFHSSYLN SGVCPKFQRL CKKIPKSSVQ PQDLRDGYKIP          2001 NLTAKPFLT KEYFQSYD L TKSEKIKSIL DNWEQYE       </p>
	<p>1 MNSILHCTH SNDNTITRLS DDQMYAAIFN YIEHLFQIIK POKTFYMAID GVAPRAKMNQ QRARRFRTAY EAEINLKKAI ENGEIIPKED PFDNSNSITPG          101 TEFMANLTTN LKYFIHKKIT EDSSWANIEI ILSGHEVPG EGEHKIMEYIR SIRSQDDYNN NLRHCYIGLD ADLIMLGLVT HDHPFALLRE EVTFGPQRKV          201 GPKDLHDKQF YLLHSLRLE YLSLEQFQIE NQLNFYEDFD RILDDDFILIM YVIGNDFLPN LPDPLFINKGA <b>FPLLIAAFQ</b> TLLESDGYIN ENGKINLVR          301 NIYIKILSKF EFEFNKLHKG DVEWFNKKLD DISISEKGRN QRGKLLILK EQKLLVGFIFK PWLMEWASQP JNEILNLDDQ GKLPLTLHNLN DDVEKNLNEFI          401 KEFAKEAGFL IIHSQSDNTY EAKLIDIGIS PTESEEEHHE RITELRKTIQ YQYSANLIES EEVLNNEKTEV YSEKFQSWKN DYYQPKLHF5 IDTEEGKGD          501 IEMTKHYIEG LQWVLYYYYR GCPSPWNWYR YHAPRISDI SLGLEELINE KTDLKFELSH PFKPFQVLM QLVPARSKLM P VVYRPLMSD EKSPIINFY          601 HEVIDDMNGE TASWEAVLNF DFVDEKKLLE ALKPIESLK PEEKRQNSYH HAIFKHFNPQ IDHVFQSSPLP GFFHDEIHQD CYEEEFKPLK IENLKGIFIK          701 GAKTKDLLA <b>GPFPLSTIIP</b> TSELALNEVK IFNPFSRSSES MILNVEDWVS DLTVQAFQAS FVNKLVYSSW KPLFRECVRV VVSEENKFES IKTNTGLKKV          801 VTNELSVEDK KSFRSEVSNL KWTWDKFKGK V KLGEINALVY VKPVNGLIRN HKGAYVKTYS <b>KDVEVYPLQ</b> IVKEVTNKDQ RYLTLPPLI DQEFPIDSQV          901 VFLGDMAYGS PAKIVGNYD KTKLGVKVKI IQSTAEPPN KKR1LVEEYK ICYKPVFSEVA KTLRNLPLL SKITSQFVMQ DSSSKGKVNQY LEFLKFESRQ          1001 KVLGYTRKSS NGKFWEFSPSL AINLINTYKTF KFPGLFKLKV NNVSGSNFPT <b>DEIESSL</b> ELK E1RSLWKEV K SELIPVSLK E SESFTKFSYQ AIEQYMDNYL          1101 SMNQIPTINK DIKGVPREAI LNANESYQLL SDQRFELGDR <b>IIYVQDFGKV</b> SILSKGTVAS IILTGVSKTSL GVIFDQPLLS GNNMNGKLN S NRGLIIDSSL          1201 VNLNTNQFV YHSHASKRNK LKTDEEIKL A LKAEAKKQN KQKQDQVQKQ TKQKQVQEQK QKGANELLNS LKKSNSDMST TTTSSTTDGDC K KTEEKDYD          1301 NNGNEDERUV PNAIKQIYH IYSNVMQNGN VRPPPPPTC PCHGQPFQFYG MP1PPGAPM HPGYIPVVPG NPLPPSFYQQ YPPNGQQFVN SQPPPPP          1401 PSQQQQPQVVA ESTSDEKSKN DNKHNVNGR RGGSRGRGGY RGRGGVRRGGY GGNKSSHQNQ PKDKVKQES       </p>
KEM1	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>QNDL</b> LYLLEKSDID DWWKVKR<b>VV</b> ATGEEIVDEP <b>SGLVPS</b>TYIE EAPVFKTATA LYDYDKQTE ELSFNENDKF          101 NVFDLNDPBD ILVGDLAKEK FGFVPSNYIQ LDSTAEPQAH QQQQPQQQAI P PPPQQQQAIP QQQTQIPINN FPPPPPTKDR TPDPFPAPPB RDRSPHEPPP          201 TPEKDYPRMF EQEPRSLGSR YDROPEGREG EEEDEAPPMPM SRPTGSNIVA PEPVVGSRNT YBQEENVEHS EHSDYGEFFT WYIDEVDGRK KRAIKLSIGQ          301 GLVIIKPNNT NPKKLRMNSR SSSLDNQWRK DLTIFNNEKQH HVFLFKNPA ASLELHAGSK DVAEEAMAIL CDLKGAEAAH GLREVAKASK ASANERNRKI          401 GRLFLDFEVQ GDLDECKEG DEVYI1DQK SKDWWMVENI ATRRQGVVPS YIEB1IYD S LDKLTDPGLR FKSTSKSRV VETKDKRSSH HTRERERD          501 REKDRQAQD EPTSQTEQDK SMPNPFHVRV WIDSSGTFKV EAEFLCGVEG KIHLHKTNGV KIAVAADKLS <b>VEDLEYVERV</b> TGTSLSQYKE QVMQKQAKRA          601 KSKSKSGKTA TPSSTNETYK ASSATAA1N IAPPKTPTRP TTTQVSNNGA PLYDFWDFPL ECGVDFQNCNQ RYTLNFEREQ MDENILEDID PSLLRTLCLR          701 EGDIIIRVMKY LDAKFLDRKKT PEAPQPNQGL FIDKNGNLNKS NSSSTEISKV SADALPSPKV TQVTSQNNKIE DDAWAMKPA R SSEDELLKPS          801 PQPQTPQYTG ALSLDLVNPK VGTSENKAK TEQIPVPEPSA PALQPMKTSN TAATSSIPQO PGPVTFQRTG TLVPVQKTTG LVPVQRTGAG LVPVQVTGGY          901 PAQPTGFPV1 TAQPTGFPV1 QATGILQPKL TFGIVPLQTF STSFNANNKTP APPRDPDAPPE PITTGQQPTF FQPAFVPLQF GVTIMQPTTQ GQSQSPLTQ          1001 ITGGAPOPTS FNQPALVPTO RTGGQITGFFP VPQNSFQGK1 TGGFDNTNL SFGQGQITGNA QQPPEPSFQ GQQTGGLPA TSFGQQITGG FPOTSFGQV          1101 TGGAPQTSFG QHITGGNMPN TSFQGPFSQO ATSNPPFQMA NQFTQQQQYQ QQQFVNMQFQ QQPQQQQQPF YNQFQSQPNL NQMTNMFQNT SISSPATFNQ          1201 QIPTTTFGQQ PQFEGFGSQP LQSOPGTMGF GNAPLQSQPT GKRANLQAAT PDNPFGE       </p>
	<p>1 MSDNTTSNQS STGDSKSTPG AVPSSTDGS SAPIGNVNS VDQTSVSTDK QHGNQNPQGS SGAYSGQNYN ANYQGYGNP N YNNNNYNNNN NNNPNYHKN          101 OYNKNYTTGNN SGGSGRQNN YNNNNANQNNN QRYNNNNKKOY NNQKMNHHHH NOOOPQOOYV NPYVNTAAA ASQMYGYMG GYOPVYGLPL OYGGIPATPG          201 QQYPGQVASP VVPTVQPPQO STPTTPKIRL TTKDGPVDSL DEKKRKTASS TPVASPQPAR ATTVSSEKDK TPSSSATPAT ENKPAGISAA EEFKRKIRER          301 AAAAAAASK GKEKETEKE ETTATETKKE TEETPIAKES SSTVDQPSVW PPQESHKDIV ETPKPEVTTET SVEATKELPA SEETKEVLS ETNDTTAVEK          401 PKVEEKFVEV NDKVSEQIQL QSPSFGEDSE SIVENEDEEE STISEKGEFQ TETETETETO PEPESESEPT PTANAPEFTI SFQFLERLKIA <b>TFIDDILATK</b>          501 YPETIQQVGDG SKQISGKVKYR <b>YDPQFLIQFR</b> DVISYTIIDPT FKAHLESLDI HPNAMKRSGS TRDASSRGGL PNKFQFTGLPA RFNGPGKGKQ GOFDGGRONS          601 RSGSKRGGR GASSRDKSTR KGTPSKRGGR GGDGRSEMRER GGAGAGAGAG AGGENDGNNQ GDGKPVEEVK PLEKSANRWV PKSRMQAKKE TKVAEDGTIL          701 LEPEDEKKK KSLLNKLTLE MFTAISDEII ALTINQSKHEK DAATIKQIIS LTFAKACDEP HWESEMAYKL AKMCTSNSD ITDESITLKD GTHASGGV          801 RLLLALATCQK EYEKGWTDKL PTNPDPGSPL EPEMSDEYYA MAAAKRRLG LVKFIGHLYN LNMLNDHVIY VCLKDQTKNT VDPSSDLSLEN LTQLIQTGVGP          901 KLDNSERTRT MLKIVFVDYIE KVLEGVKLTS RIKFVLMIDLQ DLREAKWVSL KGDAGPKTIE EIHRADEIKK MEEERAKNEK KRKQHQLGGG VGGGSDRSRN          1001 SSRGGSNWNN NNNNNNNNNNNNQ QSSNGPFSMK KSPSFMTQRV GSSRSPSTST FQNSDLQRD T SKRSEPSQSN IFAALEGGD DEDE       </p>
	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>QNDL</b> LYLLEKSDID DWWKVKR<b>VV</b> ATGEEIVDEP <b>SGLVPS</b>TYIE EAPVFKTATA LYDYDKQTE ELSFNENDKF          101 OYNKNYTTGNN SGGSGRQNN YNNNNANQNNN QRYNNNNKKOY NNQKMNHHHH NOOOPQOOYV NPYVNTAAA ASQMYGYMG GYOPVYGLPL OYGGIPATPG          201 QQYPGQVASP VVPTVQPPQO STPTTPKIRL TTKDGPVDSL DEKKRKTASS TPVASPQPAR ATTVSSEKDK TPSSSATPAT ENKPAGISAA EEFKRKIRER          301 AAAAAAASK GKEKETEKE ETTATETKKE TEETPIAKES SSTVDQPSVW PPQESHKDIV ETPKPEVTTET SVEATKELPA SEETKEVLS ETNDTTAVEK          401 PKVEEKFVEV NDKVSEQIQL QSPSFGEDSE SIVENEDEEE STISEKGEFQ TETETETETO PEPESESEPT PTANAPEFTI SFQFLERLKIA <b>TFIDDILATK</b>          501 YPETIQQVGDG SKQISGKVKYR <b>YDPQFLIQFR</b> DVISYTIIDPT FKAHLESLDI HPNAMKRSGS TRDASSRGGL PNKFQFTGLPA RFNGPGKGKQ GOFDGGRONS          601 RSGSKRGGR GASSRDKSTR KGTPSKRGGR GGDGRSEMRER GGAGAGAGAG AGGENDGNNQ GDGKPVEEVK PLEKSANRWV PKSRMQAKKE TKVAEDGTIL          701 LEPEDEKKK KSLLNKLTLE MFTAISDEII ALTINQSKHEK DAATIKQIIS LTFAKACDEP HWESEMAYKL AKMCTSNSD ITDESITLKD GTHASGGV          801 RLLLALATCQK EYEKGWTDKL PTNPDPGSPL EPEMSDEYYA MAAAKRRLG LVKFIGHLYN LNMLNDHVIY VCLKDQTKNT VDPSSDLSLEN LTQLIQTGVGP          901 KLDNSERTRT MLKIVFVDYIE KVLEGVKLTS RIKFVLMIDLQ DLREAKWVSL KGDAGPKTIE EIHRADEIKK MEEERAKNEK KRKQHQLGGG VGGGSDRSRN          1001 SSRGGSNWNN NNNNNNNNNNNNQ QSSNGPFSMK KSPSFMTQRV GSSRSPSTST FQNSDLQRD T SKRSEPSQSN IFAALEGGD DEDE       </p>
	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>QNDL</b> LYLLEKSDID DWWKVKR<b>VV</b> ATGEEIVDEP <b>SGLVPS</b>TYIE EAPVFKTATA LYDYDKQTE ELSFNENDKF          101 OYNKNYTTGNN SGGSGRQNN YNNNNANQNNN QRYNNNNKKOY NNQKMNHHHH NOOOPQOOYV NPYVNTAAA ASQMYGYMG GYOPVYGLPL OYGGIPATPG          201 QQYPGQVASP VVPTVQPPQO STPTTPKIRL TTKDGPVDSL DEKKRKTASS TPVASPQPAR ATTVSSEKDK TPSSSATPAT ENKPAGISAA EEFKRKIRER          301 AAAAAAASK GKEKETEKE ETTATETKKE TEETPIAKES SSTVDQPSVW PPQESHKDIV ETPKPEVTTET SVEATKELPA SEETKEVLS ETNDTTAVEK          401 PKVEEKFVEV NDKVSEQIQL QSPSFGEDSE SIVENEDEEE STISEKGEFQ TETETETETO PEPESESEPT PTANAPEFTI SFQFLERLKIA <b>TFIDDILATK</b>          501 YPETIQQVGDG SKQISGKVKYR <b>YDPQFLIQFR</b> DVISYTIIDPT FKAHLESLDI HPNAMKRSGS TRDASSRGGL PNKFQFTGLPA RFNGPGKGKQ GOFDGGRONS          601 RSGSKRGGR GASSRDKSTR KGTPSKRGGR GGDGRSEMRER GGAGAGAGAG AGGENDGNNQ GDGKPVEEVK PLEKSANRWV PKSRMQAKKE TKVAEDGTIL          701 LEPEDEKKK KSLLNKLTLE MFTAISDEII ALTINQSKHEK DAATIKQIIS LTFAKACDEP HWESEMAYKL AKMCTSNSD ITDESITLKD GTHASGGV          801 RLLLALATCQK EYEKGWTDKL PTNPDPGSPL EPEMSDEYYA MAAAKRRLG LVKFIGHLYN LNMLNDHVIY VCLKDQTKNT VDPSSDLSLEN LTQLIQTGVGP          901 KLDNSERTRT MLKIVFVDYIE KVLEGVKLTS RIKFVLMIDLQ DLREAKWVSL KGDAGPKTIE EIHRADEIKK MEEERAKNEK KRKQHQLGGG VGGGSDRSRN          1001 SSRGGSNWNN NNNNNNNNNNNNQ QSSNGPFSMK KSPSFMTQRV GSSRSPSTST FQNSDLQRD T SKRSEPSQSN IFAALEGGD DEDE       </p>
	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>QNDL</b> LYLLEKSDID DWWKVKR<b>VV</b> ATGEEIVDEP <b>SGLVPS</b>TYIE EAPVFKTATA LYDYDKQTE ELSFNENDKF          101 OYNKNYTTGNN SGGSGRQNN YNNNNANQNNN QRYNNNNKKOY NNQKMNHHHH NOOOPQOOYV NPYVNTAAA ASQMYGYMG GYOPVYGLPL OYGGIPATPG          201 QQYPGQVASP VVPTVQPPQO STPTTPKIRL TTKDGPVDSL DEKKRKTASS TPVASPQPAR ATTVSSEKDK TPSSSATPAT ENKPAGISAA EEFKRKIRER          301 AAAAAAASK GKEKETEKE ETTATETKKE TEETPIAKES SSTVDQPSVW PPQESHKDIV ETPKPEVTTET SVEATKELPA SEETKEVLS ETNDTTAVEK          401 PKVEEKFVEV NDKVSEQIQL QSPSFGEDSE SIVENEDEEE STISEKGEFQ TETETETETO PEPESESEPT PTANAPEFTI SFQFLERLKIA <b>TFIDDILATK</b>          501 YPETIQQVGDG SKQISGKVKYR <b>YDPQFLIQFR</b> DVISYTIIDPT FKAHLESLDI HPNAMKRSGS TRDASSRGGL PNKFQFTGLPA RFNGPGKGKQ GOFDGGRONS          601 RSGSKRGGR GASSRDKSTR KGTPSKRGGR GGDGRSEMRER GGAGAGAGAG AGGENDGNNQ GDGKPVEEVK PLEKSANRWV PKSRMQAKKE TKVAEDGTIL          701 LEPEDEKKK KSLLNKLTLE MFTAISDEII ALTINQSKHEK DAATIKQIIS LTFAKACDEP HWESEMAYKL AKMCTSNSD ITDESITLKD GTHASGGV          801 RLLLALATCQK EYEKGWTDKL PTNPDPGSPL EPEMSDEYYA MAAAKRRLG LVKFIGHLYN LNMLNDHVIY VCLKDQTKNT VDPSSDLSLEN LTQLIQTGVGP          901 KLDNSERTRT MLKIVFVDYIE KVLEGVKLTS RIKFVLMIDLQ DLREAKWVSL KGDAGPKTIE EIHRADEIKK MEEERAKNEK KRKQHQLGGG VGGGSDRSRN          1001 SSRGGSNWNN NNNNNNNNNNNNQ QSSNGPFSMK KSPSFMTQRV GSSRSPSTST FQNSDLQRD T SKRSEPSQSN IFAALEGGD DEDE       </p>
	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>QNDL</b> LYLLEKSDID DWWKVKR<b>VV</b> ATGEEIVDEP <b>SGLVPS</b>TYIE EAPVFKTATA LYDYDKQTE ELSFNENDKF          101 OYNKNYTTGNN SGGSGRQNN YNNNNANQNNN QRYNNNNKKOY NNQKMNHHHH NOOOPQOOYV NPYVNTAAA ASQMYGYMG GYOPVYGLPL OYGGIPATPG          201 QQYPGQVASP VVPTVQPPQO STPTTPKIRL TTKDGPVDSL DEKKRKTASS TPVASPQPAR ATTVSSEKDK TPSSSATPAT ENKPAGISAA EEFKRKIRER          301 AAAAAAASK GKEKETEKE ETTATETKKE TEETPIAKES SSTVDQPSVW PPQESHKDIV ETPKPEVTTET SVEATKELPA SEETKEVLS ETNDTTAVEK          401 PKVEEKFVEV NDKVSEQIQL QSPSFGEDSE SIVENEDEEE STISEKGEFQ TETETETETO PEPESESEPT PTANAPEFTI SFQFLERLKIA <b>TFIDDILATK</b>          501 YPETIQQVGDG SKQISGKVKYR <b>YDPQFLIQFR</b> DVISYTIIDPT FKAHLESLDI HPNAMKRSGS TRDASSRGGL PNKFQFTGLPA RFNGPGKGKQ GOFDGGRONS          601 RSGSKRGGR GASSRDKSTR KGTPSKRGGR GGDGRSEMRER GGAGAGAGAG AGGENDGNNQ GDGKPVEEVK PLEKSANRWV PKSRMQAKKE TKVAEDGTIL          701 LEPEDEKKK KSLLNKLTLE MFTAISDEII ALTINQSKHEK DAATIKQIIS LTFAKACDEP HWESEMAYKL AKMCTSNSD ITDESITLKD GTHASGGV          801 RLLLALATCQK EYEKGWTDKL PTNPDPGSPL EPEMSDEYYA MAAAKRRLG LVKFIGHLYN LNMLNDHVIY VCLKDQTKNT VDPSSDLSLEN LTQLIQTGVGP          901 KLDNSERTRT MLKIVFVDYIE KVLEGVKLTS RIKFVLMIDLQ DLREAKWVSL KGDAGPKTIE EIHRADEIKK MEEERAKNEK KRKQHQLGGG VGGGSDRSRN          1001 SSRGGSNWNN NNNNNNNNNNNNQ QSSNGPFSMK KSPSFMTQRV GSSRSPSTST FQNSDLQRD T SKRSEPSQSN IFAALEGGD DEDE       </p>
	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>QNDL</b> LYLLEKSDID DWWKVKR<b>VV</b> ATGEEIVDEP <b>SGLVPS</b>TYIE EAPVFKTATA LYDYDKQTE ELSFNENDKF          101 OYNKNYTTGNN SGGSGRQNN YNNNNANQNNN QRYNNNNKKOY NNQKMNHHHH NOOOPQOOYV NPYVNTAAA ASQMYGYMG GYOPVYGLPL OYGGIPATPG          201 QQYPGQVASP VVPTVQPPQO STPTTPKIRL TTKDGPVDSL DEKKRKTASS TPVASPQPAR ATTVSSEKDK TPSSSATPAT ENKPAGISAA EEFKRKIRER          301 AAAAAAASK GKEKETEKE ETTATETKKE TEETPIAKES SSTVDQPSVW PPQESHKDIV ETPKPEVTTET SVEATKELPA SEETKEVLS ETNDTTAVEK          401 PKVEEKFVEV NDKVSEQIQL QSPSFGEDSE SIVENEDEEE STISEKGEFQ TETETETETO PEPESESEPT PTANAPEFTI SFQFLERLKIA <b>TFIDDILATK</b>          501 YPETIQQVGDG SKQISGKVKYR <b>YDPQFLIQFR</b> DVISYTIIDPT FKAHLESLDI HPNAMKRSGS TRDASSRGGL PNKFQFTGLPA RFNGPGKGKQ GOFDGGRONS          601 RSGSKRGGR GASSRDKSTR KGTPSKRGGR GGDGRSEMRER GGAGAGAGAG AGGENDGNNQ GDGKPVEEVK PLEKSANRWV PKSRMQAKKE TKVAEDGTIL          701 LEPEDEKKK KSLLNKLTLE MFTAISDEII ALTINQSKHEK DAATIKQIIS LTFAKACDEP HWESEMAYKL AKMCTSNSD ITDESITLKD GTHASGGV          801 RLLLALATCQK EYEKGWTDKL PTNPDPGSPL EPEMSDEYYA MAAAKRRLG LVKFIGHLYN LNMLNDHVIY VCLKDQTKNT VDPSSDLSLEN LTQLIQTGVGP          901 KLDNSERTRT MLKIVFVDYIE KVLEGVKLTS RIKFVLMIDLQ DLREAKWVSL KGDAGPKTIE EIHRADEIKK MEEERAKNEK KRKQHQLGGG VGGGSDRSRN          1001 SSRGGSNWNN NNNNNNNNNNNNQ QSSNGPFSMK KSPSFMTQRV GSSRSPSTST FQNSDLQRD T SKRSEPSQSN IFAALEGGD DEDE       </p>
	<p>1 MSSIYIGVYK ALYDVAQAE EELNIK<b>Q</b></p>

PNG2	<p>1 MSSTIPSEDK KPLLDSEMEV EVSVNNNKEHS LLSDNEKCDL BEVPTSYRVT RHSNKFKRFC QILSLFGVLY LVNFLYINRD DFARGMSTHF      101 RFNCGSLVSQ QPLQETKLHDH HPFRNLIDV VDTTYSDDQE GNNTAKEIIS VTNPYTPNPR YGESLYTTTL IKNHKFGNSW NQPAVUNFTA PSNISFDAAV      201 LTLHTEVEGV QFDRLANLVE <b>DGIQWRTST</b> IEPGGRKVFS DFKKDVKSYKSLKFKKNVQI LFQDLNLVTS KLTGIFDVTL TADFYKFHRH PHYRDGKNEH      301 NEKRYGHEDA LNEFYBEQND QDYKEFIDS FEHHRGDFQE DEKNHHDDH KDKHHKGKHE KDKHHKDHD GPKPKPEHPP HEPHHEPPF PPHEPHHEP      401 HEPPHEPPHE PPHEPPHPP HEPHHEPPH PKHEPPHEPP PEPPHKPPHE PHHPPHEPP HHPPHPPHD PHDPNHHHGK YHEERRIFTE AKPADEIYPL      501 <b>TFNKNPQAF</b> <b>VVYLASNLKS</b> VNSPKVSKNT TRLTLSIFTS GNAADEFWT NVVDKYKDIF ADGRGNFIGK GPVERVNVY NGEKIAAQTP EPVIFTGGIS      601 PALWSPVSP NAFDPSVSD DVSGLLPWLH EHOAIEDKIL ELEVSNGLGE IDKDTTTSVN ENWTSANLL YIQNEQVIDA TGEVINIDNE SSGVVLTVAP      701 PYTRSLQQII DASFSAQLIS QFSLTKNMR TLNTTISSSYSAEVSNSVQY SRSGDIQSIV HAGRSSRSVL IQNDNSPESK DYTEHKSKHH KSEPIENTIS      801 IVNITLNPL VLHLQQISKD IGSGDFFVD YDVRALAHKS TDIIFGAIHG GIHTTSQNG TSRRFLSSKG NHGPGSTFSK YKSKIKFGPH QRKYKRVVNA      901 VNGTIVLDKS KSGKDDEHGK THLSSMMKAM EKTSVYKAS EMLQSIVNAS KASFKEFFGA KPGCHGMKHH ENEDGKHMKM HKMRKHLSDA H</p>
PYC2	<p>1 MRVVREGDDI EDAFKRATSE AKTAFGNGTC FIERFLDKPK HIEVQLLADN YGNVIHLFER DCVSQRHHQK VVEIAPAKNL PKSVRDAILT DAVKLAKSAN      101 YRNAGTAEFL VDEQRHRYPI EINPRIQVEH TITEEITGVD IVAQIQIAA GASLQLQGLL QDKITTRGFA IQCRITTEDP TKNFQDGTG IEVYRASAGGN      201 GVRLDGGNGF VGSIIISPHYD SMLVKCSCG STYEIARRKM LRALIEFRIR GVKTNIPFLL ALLTNEVFT GDCWTTFIDD TPSLFQMISS QRATKMLSY      301 LADLUVNGSK IKQVGVYGPK DTDAIIPEIH EPKPTGTDV DHTPPGRWR QVLLEEGPEV FAKVKRQFNQ TLITDTTWRD AHOSLLATRVR RTIDLNLAP      401 TTAHALKGAF SLECWGAGTF DVCMRFLYED PWARLKRRLS <b>LVPNIPFQML</b> LRANGVAYS SLPDNAIDOF VKEAKENGVD IFRVF DALND LEQQLKVGIDA      501 VKKAGGVYEA TVCYSGDMK PGKKYLNQYY LVKVVDEIVKM GTHFLGIKDM AGTLKPAAR LLVGEIRSRY PDLPILHVHTH DSAGTVASM TACAIAAGADV      601 VDAASNSMSG LTQPSLISA LASLEGSI TLQPSLISA GLSESVMREL DNYQAMQRLM YSCFDADLKG DPVEVYQHEI PGQLLTNLFF QAQQLGLGKQ WQTKTKEV      701 <b>ANQILGDLV</b> VPTPSKVGDL LAQFMVNSTL TEEDVNRLAS ELDFDPSVLD FFQGLMCTPY GGFPEPLRTN ILGNKROKLM QRPGTLPLPI DFIAIKEELT      801 SRYGTQITET DIASYVMPK VFEQFRKLIVD KYGDLSVLPT RYFLKPCNIG EELTVDIEQG KTTLIILKMAV GDVSEKGTGR EVFFELNGEM RSVSVEDKTV      901 SVESKTRPKA SASNEVGAMP AGVVIEIRAH KHQQIAKGD IAVLSAMKME MVISAPCSGE IGDILIHEGD SVDANDLITS IH</p>
GCR3	<p>1 MEFSNKRSRD DFEQDEGQFH DGPSHDSFDH KRHHIDPAQE LINNICKDIR <b>RLGEAGDIE</b> LIADTNYISN PIVAEFKID NLRSNLSLTI YALITEQPHK      101 ISAIANLILLI CNAKNFVIAK YVIBYLSHSM QTMLDSQEGS VPNDIKNLK FLSTLTPIIIE DNGIIQIFQK PLNFAIELQE QTENVRLAQI EIYYNVLTAI      201 PVYLSNDNSD DLKMSNIELI ELARNFKVIA ESATVLLPFP <b>TRMNFQBLF</b> IPKQMFVBLI PALIKLQNND WNFRFLDFK THLDPVQFNSA LENNSNISSEL      301 VPKHLPOLPS PSVENASFKS TSIDKLWNND PRYLFQVYNN TTEYETVPPV ETYGLFHKD IFADILTNLS FNKNETAEI SILDMMPFDNK <b>LEAPPGTSID</b>      401 QLNAYIENDK SGTNPDSLST <b>WKIEDVAVES</b> ILTMIFQLPN PLEVEIYIYT VLISCCRESP ESIAFPVFGRA IRYFYNHLET LDYELKIRFL DWMSIQLSNF      501 EFSWKWEWW SDSSKLLKND YPKKPNFIK LIKEIRNLNS KKRKFIKID IVDEGVNNL EFYQYLDISM DFBVPSKSYIIS YDTELYGESS <b>RDTLQIYEQ</b>      601 KQEQLNNSKNS IGAQNEIFN FTNSELPHFEE TASKVYDFIL THWKSNTDFN <b>ELYKSVLESI</b> TAPNERNFAI NLIQTYAYI GSRSIYSVVS ILSRDINKLK      701 <b>FLSGAPIDVY</b> GDEARFEDLH FTEEKEQNRQ NWIIAEAVFRI WIHQPVQVFL ILEYLIEFGI IDPKYILVKA LESNLIIIDNV SCMESINRIL SKAESKELII      801 QLFTAIIDLNL NKLELDEKHER VEIEEVTESTN ATEVDKQWLF YEYLGLLKSY YRKIIYGDVE CHDKVKIEVQ QLENASAKDE ILKWFG</p>
NAB3	<p>1 MEVSPVNLLH EETEENKAIQ VQDSETAAET VITASDEKHA VEAGDEVNQE PAVDNDGNDK DNQSDDEQNQ DEAAIDPAPQ ADTDDTEKD SETKTEPEEV      101 KEPVESKEPE QVAATDEPDV KKSTNEIVQE LFADATPTAD NKSSSPGNE SEDYDPEAF TDNNIEKDSDK FNDNSEIQLN KDNSDYEPPEL KEDAERKSPA      201 TANISLTKPH GPAGLKPBL VNATVKPSTA AITEESSSQO RLKNDAYDAAI NSPIGRDPEF LKLPABEQUVQ AIKDQQLKLG ILDSSGSHPI NFQDVYISYK      301 PFKNLKDPIP LPVIGQFCRQ PNITAPITFEE EEQEYADFIE RENYQNLNQ WDEPPDKSRL <b>FIGNLPANTI</b> SKQDLPFIRFS KYGEVIIQIAI KAGYGFAGQFR      401 <b>TGEACLCIR</b> GETNIPLNHK ILRLRDLASRQK KSRSRGPBII NNPNPMGRGR ERVDRDESDQD DEQPSHKKRQF QNIDCVVVT GKSSVFLIRK VKKAMPSMV      501 TIDVEDVQTQ NINEVLSEA YSGVLAACVII KEQKVDIQTPE <b>ESTPDGQIFK</b> DEYADVEPEE GAEIVLAKAV KKYGDRLLPAY VPQDTSYHDN SRSHPAGPAY      601 NSGPRRGER NRGSRRGDRH GGRRGGYGRP NNDYHGHRGR GSNNHSWNQQ PYGSVPPPPQ PQYGSVPPPPQ PPQSSSRPQ QSYGQYYGN QPPTYGSPVQ      701 QPAMQNWNSP PQQPQNPNAI LLQQLNPAQI QSMIQLLQSQ QQGGQPPQGN YQQPQRPAPN SYGGMGYNNN NNYGSNAPRSM APQPQGCTNDN SANQVALLA      801 QLQSNQGQNS YQGPSSQNQQ GQGSSFYDTL SRLAKQ</p>
BDF1	<p>1 MSETFPETNT PVQTPSTESF VNKMNAGDKT IGNНИFQS DSNQQSSHQE PLSPPNPSPT PEKQRQLDDEV <b>DNSIEPESK</b> QKVEEETEAS QTGVVIQTEVS      101 ETVPEIESV NKDSEPVNGV SEESENTNNE QEKPQEEAPE ENPQEEVPEA KPQEEAAGEN PQEIPNDPKP DDEPDQIEVD PPKVVPVF EPAPKPPQEP      201 DMNLPNENPI PQHQAQFVNLN TIKAVKRNRE <b>AVFPLHPVT</b> VKLNVFPYNN <b>YIPRPMDSL</b> IERKINLKAY EDVSQVVDFF NLMVKNCKKF NGEEAAGISK      301 <b>ATNIQAFQF</b> EGETNIPLNHK PAGTNTVAEAT SVATSPITNPK RKSVAEASSSS HQHDRSVAEEA RPKTRIHPPK KNKVVAEELR FCNQTIKELM      401 SKKHYNNFNPFL FLAPDVTAL NIPNYPEMLVQ QPMDLTIOS KLANNEYENA <b>DFDEKDVRV</b> FKNCYLFPNE <b>GTDVNMGMHR</b> LEAVFDKWA NKPVPEPTQ      501 NSDVSREYS SEEDENVEIS EAMLSEIPAI QVMENQIIRM RKELDELKE HLKLLREQQA ARKKKKQQKG KRRAPKAKHT KDTQHQVQAP PEPPKLTPTQ      601 PVVITYEMKQ <b>VSEMPVNLD</b> KKLNALIKII QDDVQISNND EVELMDQLE DRTVLKLYDF <b>LFGDKALKNS</b> AGKKKKPVAN NNLDELAHLR <b>SQALFDEGV</b>      701 NGQQGSDNGF MKVNVQEEESS EDEASSENNE EE</p>
PSP2	<p>1 MASISVPIEK GSFHDGDGFN QHHLGDPVIS GPPYIILKLN <b>LPVTANDSFV</b> QDLFQSRFTP YVKFKIVTDP <b>ASNILETHVI</b> RQVAFVELES ASDMSKALKW      101 HDLYYKANRR VTVEVADFDN FQNCIKFQNQE HEREIMQIQQ EPIAQKQQR OPRHMALLDE FERNQRGPBS PLHNQNHDDHNN PHPQQQQQHNN HPNPNLNRP      201 GRSSLPFLDET SHSRRLSFEA QLHQBHQTHQ QRIRQPSFDN AFPDTHPFPF GGGGGMRQQI <b>HPTNQFAPVS</b> SAPASKPFTT PISSASTSSR PKSNFQGAAK      301 <b>PVDTLNSQOE</b> IEKKLNLNPK <b>TTVQLGDLVE</b> TPEEVQATIK FHENGNSPKL RASVGTPRK LSERKSPVS ILSEKRLPERQ QPPPQQQQQO QQQPQQQDQ      401 NTKQTALHQD DQLQNHSN SSTQPSGEESP LAETQSLSTN PYTSNNTGKSL <b>LAQLLSEQSD</b> IMSAPPITGK KTPRSNSNTQ KVVAAKPVII LKKKPTTSP      501 VQIRDLQDET KLELDANPAT KLEKDLNPK TLELGIATNPKR ENDQHDDRPN KFLNDQQLVQK RNDSRASSSS SNSSRFEFIR GRGRGRRGFS PRSRGFGF      601 GLKEENERVPS SPSSSSSSSS ATKTQSNNFNE KSSSEASIRK DDQDQLSSSTN <b>TGSEGRWNER</b> GAGFRGSGRG GPRFRGGNGA      701 SGAGGTASGS TGSANYNLH VRSKPTPVET NE</p>
ESF1	<p>1 MAKNNNNNNK SSNPRPKITQ DERFKSVHND PRFKMPKLNK LRVKVDDRFS KDELKLNAG ALGKKVKIDR YGRKIKKESD DLSKFYHEEE DSKEEQSSDD      101 SSEGEESDND LQLATEKLQQ <b>EQQFLDRA</b> EGTVSSSEDE ESSLSSSDD SDEENEVGVE DEEESDIEIE ETKPEDTEPT CAPAVVNMDW DNIRAVDLM      201 TFSVFPVKG AIKSVTIYPS EFGKERMQKE EIEGPPRELK KSKKKKEEDS DSEIESDWD VNDADNLAKI TRKLYEEDDG KEDYDSKALR RYQLQRLRY      301 YAVVCKDSEVTE ASYKQDQHNGT GTEYESANT FDLYRVPDMF EPDDDEAKDT CSKIPSYSSR DSTFVTLDALQ HSKVLTWDE TPKERLTLTSS RPLSQEKEEE      401 NDFKAYLASD SDESEVEKDS SIKDKYQSLN GNTLTKFGEK ENDDVLDMEI TFDPGLNDKS GNNAEEDDE ETTIEAYRKR EKERRQKRLA KFKESQTE      501 VANSQEGSAD KSSKRNKNKSK KGKSMPDMDE KSKAELELIL MDNQEGNNNE HFSMKEVIKS EKDKNKNNK KGGKIDQEMV QDGFVANLDD PRFKEVFESH      601 DYADPTNSE FKKTETMKKI LKERSARNKD KKNKKNSSKN ATKNSKRSRS ELESNDNVHS LAEKIKKRNK SK</p>
KAR2	<p>1 MRSSQSSWLP RIGLLYVALV IILIPFLVSPK HAFAVAASD DSESTDNYGT VIGIDLGTV SCVGVMKNGK <b>VEILANDQGN</b> RITPSVFSN GDERLVGDA      101 KNQASSNVNN TVFDIKRLIG LKYNDNTDVTQK ELKHLHPKIE NKGKPKVVKV EYQEEKTFPS PEEISSMVLG KMKSIAEYDL GKKVTHAVVT VPAVYFNDAQR      201 QATKDAGTIA <b>GLNVLRLIVE</b> PTAAAIAYGL DKGDEQKQII VYDLGGTGTDF VSSLIESGEGV FEVLATAGDT HLGGEDDFK IVRYLAKQFK KKHNDITAN      301 AKAISKLRE AAEAKRKLZT QMSTRVEELS FVDGIDSET LSRAKFEELN <b>IAAFRKTTLK</b> GPKVQFLLGGV KKSDFYDGGF DCMPPAVKDRQ TLMSATFPR DIQMLARDFL      401 KKASKGINPQD EAVYGAQAVG AVGLSGEEGV DDIVLVDVN ETLGIETSGG UMTLTIKRNNT APTTKKSQIF STADNQPTV LIQVYEGERT MAKDNRLNKG      501 <b>FELTGIPAP</b> RGVPQIEVTF SLDANGILKV EAADKGTGKES SISITITNEKG RLSKDEIDRM VEEAAEKYQAQD OQELKEKIEA RNSLENYAHV LRGQLSDTSE      601 TGLSKLDK DKETLDDAIK ETLEFIEDNF DTATAEEFEE QKQKLIDVAN <b>PITAKLYGA</b> AEGGAGGAGD AKFGDDDSDD EFDHDEL</p>
DED1	<p>1 MSDISKQMNNSVNNN LSVNDGANTV NNNNSFRGGR <b>SQYVPPHLRN</b> RQGGGNQSGS SSESDDVPGF GSQRGGFNSN GFNNNNRGGF NGGYNNRGG FNNGGFFNNG      101 NYNSQSGGRRG GRGGFNGNGG RYQRPTPGVG KWQDGKHEPA PRNELEVEL FGTADDASHFQ SSGINFNDYD DIPVEASGDK VPEPITSFTA PFLDELLVEN      201 IQLSRFTKPT PVQKYSVPV <b>AAGDRMLAC</b> QTGGKGTGFPE LFPVPLSESYM KGPAPVPESN GAFSSHKVYP TILVMAPTRE LVSQIYEEESK KFSYRSWRA      301 CVVYGGADIG QMQRNMDRGC DLLVATPGRL KDLIDDRKVS LANIRYLVLD EADRMFLDMGF EPQIRYIVEE CDMPAVKDRQ TLMSATFPR DIQMLARDFL      401 KDVYFLVSGVR VGSTSENITQ KILYVDEDEK KSVILDLSSA NENGLTIVFT ETKRMADNL AYLYDQGFPFA TAIHGDRSQY EREKALAFAK NGAAPILVAT      501 AVAARGLDIP NVSHVINYDLD PSDIDDVYHR IGRTGFRAGNV <b>GIATAFFRN</b> NKNVVKGLIE LLSLEANQEVF DFLTKIAREG AFKEMTRGGG RGSSRGPSR      601 DFRRSGNSGW GNSNGSGWGN SGNASSSSWG GNSSSSYNSNT NSNYGGYNN QRQSNFSSGG SYGNQGTSNS WW</p>
HSP70	<p>1 MSKAVGIDLG TTYSVCAHFA NDRVEIILAND QGNRTTPSFV AFTDTERLIG DAAKNQAMN PANTVFDAKR LIGRKFDDE VIINDAKHFPV KVIDKAGKPV      101 IQVEYKGETK TFSPEEISSM VLTKMKIEAE GYLGTSVKA VVTVPAYFND SQRQATKDG <b>TIAGLNLRI</b> INEPTAAIAA YGLDKKGSRG EHNVLFIDLG      201 GGTPDVSLLA IDEGIFEVKA TAGDTHLGGE DFNDNRLVNFF IQEFRKRNNK DISTNQRALE RLRTACERAK RTLSSQAOTS IEIDSLSYEGI DFYTSITRAR      301 FEELCADLFR STLDPVKGVLK ADAKIDKSOV EETVILVVGST RIPKIQKLVS DFFNGKELNK SINPDEAVY QAAVQAAILT GTDSKTTQDI LLLDVAPLSL      401 GIETAGGIMT KLIPIRNSTT TKKSETFSTY ADNQPGVLIQ VFEGERAKTK DNNLLGKFLG SELIPPAPRGV PQIEVTFDID ANGILNVSAL EKGTGKTKQI      501 TITNDKGRSL KEEIDKMSVE AEKPFKEEAD EAARQAKNQDQ LESYASLXK TINDGEMDK ICAGDKEKLT KAIDETISWL DASQAASSTEE YEDKRKELES      601 VANPIISGAY GAAGGAPGGA GGFPAGGFP GGAPGAGGPG GATGGESEGP TVEEV</p>

SSA1	1 MSKAVGIDLG TTYSVAHFA NDRVEIILAND QGNRRTPSFV AFTDTERLIG DAAKNQAAMN PANTVFDAKR LIGRKFDDHE VQGDIKHFPF KVVDKASKPM 101 IQVEYKGETK TFSPEEISSM ILGKMKETAЕ GFLGTTVKDA VVTVPAYFND SQRQATKDAG TIAGLNVMRI INEPTAAIA YGLDKKSEAE KNVLIFDЛGG 201 GTFDVSLLSI EDCIFEVKAT AGDTHLGGED FDNRVLNFFI QEFKRKNKK ISTNQRALRR LRTACERAKR TLSSSAQTIS EIDSLEYEGID FYTSITRARF 301 EELCADLFRS TLEPVDPKVL DAKIDKSVD EIVLVGGSTR IPKVQKLVSD YFNGKEPNRS INPDEAVAYG AAVQAILSG DTSSKTQDLI LLDVAPLSLG 401 IETAGGIMTK LIPRNSTIPT KKSSETFSTYA DNQPGVLIQV FEGERAQTKD NNLLGKFELS GIPPAPRGVP QIEVTFDIDA NGILNVSALE KGTGKTQKIT 501 ITNDKGRLSK EEEKVMSEA EKFKEEDEKE ASRVQAKNQL ESYAYSLSKNT LGEEQFKSKL DASEIEEVTK AADETIAWLD SNQTAQEEF ADQQKELESK 601 ANPIMTCKAYQ AGATPSGAAG AAPGQFPGGA APEPSNDGPT VEEVD
SSB1	1 MADGVFOGAI GIDLGTTYS VATYDSAVEI IANEQGNRVI PSFVAFTSEE RLIGDAAKNO AALNPKNTRV DAKRLLGRAF DDESVOVDKI SWPFKVVESN 101 GQPLIEVEYL DETKTFSPQK ISSMVLTMKM EIAEAKIGKK VEKAUTVPA YFNDAQRQAT KDAGAAGLN VLRIINEPTA AAIAYGLGAG KSEKERHVL 201 FDLGGGTFDV SLLNITGGV TVKATAGDTH LGQQDFDTNL LEHFKKEFQK KTGNDISGDA RALRRLRTAC ERAKRSLSGG TQTTVEIDSL FDGEDFSANI 301 TRARFEDINS ALFKSTLKPQ EQLVLDKQS KSQVDEVFLV GGSTPKVQ KLLSDFDFGK QLEKSINPP GEFDLKNIIP MQAGEPVLEA IFEVFDANGIL KVTAKEKSTG 401 IPLSLGVAMQ GNVFABVPR NTTPVTKR TFTTVAHDQ TQOFPVYQGE RVNCTENTLL GEFDLKNIIP MQAGEPVLEA IFEVFDANGIL KVTAKEKSTG 501 RSANITISNS IGRLSTEEIE KMISDAEKFK SSDDAFAKRH EQKQKLEAYV ASVESTTDP VLSAKLKSA KDKIEAALSD ALQTLIEES SADDYRKAEL 601 ALKRAVTKGM ATR
TEF1	1 MGKEKTHVN VVIGHVDSGK STTTGHILIY CCGIDKRTIE KFEKEAAELG KGSFKYAWVL DKLKAERERG ITIDIALWKF ETPKYHVTVI DAPGHDRDFIK 101 NMITGTSQAD CAIIIIAGGT GEFEAIGISKD GQTREHALLA YTLCVQKLV AVNKMDSVKW DKNRFEEIIK ETSNFVKKVG YNPKTVFVFP ISGWNQDNMMI 201 EPSTNCWPWYK GWEKETKSGK VTGKTLLEAI DAIIEPPTRPT DKPLRPLQD VYKIGGIGTV PVGRVETGII KAGMVVTFAP AGVTTEVKSV EMHHEQLAEG 301 VPGDNVGFNV KNVSKVKEIRR GNVCQDSKND PPKGCDSFNA QVIVLNHPQ ISAGYSPVLD CHTAHIACKF DTLVEKIDRR TGKKLEENPK FVKGSDAAIV 401 KMVPTKPMCV EAFTDYPPLG RFAVRDMRQTA VAVGVIKSVE KSDKAGKVTK AAQKAACK
TEF2	1 MGKEKTHVN VVIGHVDSGK STTTGHILIY CCGIDKRTIE KFEKEAAELG KGSFKYAWVL DKLKAERERG ITIDIALWKF ETPKYHVTVI DAPGHDRDFIK 101 NMITGTSQAD CAIIIIAGGT GEFEAIGISKD GQTREHALLA YTLCVQKLV AVNKMDSVKW DKNRFEEIIK ETSNFVKKVG YNPKTVFVFP ISGWNQDNMMI 201 EASTNCWPWYK GWEKETKSGK VTGKTLLEAI DAIIEPPTRPT DKPLRPLQD VYKIGGIGTV PVGRVETGII KAGMVVTFAP AGVTTEVKSV EMHHEQLAEG 301 VPGDNVGFNV KNVSKVKEIRR GNVCQDSKND PPKGCDSFNA QVIVLNHPQ ISAGYSPVLD CHTAHIACKF DTLVEKIDRR TGKKLEENPK FVKGSDAAIV 401 KMVPTKPMCV EAFTDYPPLG RFAVRDMRQTA VAVGVIKSVE KSDKAGKVTK AAQKAACK
ORF 19.7085	1 MFSYQNGDY SYDQPIDES LF DLLHQHOF YYKLETRPRV IKKLETEDF QIOQIYPYGN YNNYEVNWK SNPPIVNVK SSVQDNFKTV LFPVNYYIDI 101 DNINWQWYKQ QNVLVLNIPK RIHYVHSNQV DILNCLLGCN DADASSALKA PNQQPYAQPKQ TKKDQVAKTS PKKKEEFAKV KKEIANNNNN NLASRDANLK 201 DSIEEHENLI EQAANALQKA TENSSKQVQKQ DLNGKANALS AGAQAAAEEK HKEALEKTKQ ELEAQKAHH DKIVKAQOEL EETARKEAEA VKLHEAAQKQ 301 ELEEEKKRVE AEQQAKKEE DLEQKEYDQF VKQQQEFLQKQ FFGFNLGPQ PTKDGANAFY TAAKQAKKQ PKVAPKPKQ QTQPVQKQAKD EEEIPSPEPE 401 TEEPESSKSH NSNENLHKHP SLEEVEDEES VMFRKRFGH
ENO1	1 MSYATKIHAR YVYDSRGNPT VEVDFTTDKG LFRSIVPSGA STGVHEALEL RDGDKSKWLK KGVLKAVANV NDIIAPALIK AKIDVVQDQAK IDEFLLSDLG 101 TPNKSLGAN AILGVLSLAA AAAAQAQGIP LYKHIANISN AKKGKFVLPV PFQNVLNGGS HAGGALAFQE FMIAPTGVST FSEALRIGSE VYHNLSLTK 201 HEKPSVTVTN KSNVLSQSDG LFRETCRAVY DANANEYGGI EYKEQIVDMSM VYRMFREPEI FDVWVAPNLN QDILSDGAAA LVGSLGVVP ANVGDNFAIG 301 AEDDWDAWH FFERVGDQKIQ IVGDDLTWTN PTRIKTAIEK KAANALLKV NQIQTILTESI QAANDSYAAG WGMVMSHRSG ETEDTFTIADL SVGLRSGQIK 401 TGAPARSERL AKLNQILRIE EELGSEAIYA GKDFQKASQ
LYS12	1 MLAARSSIRR CFSTSSTTLK SLKIGLIPGD GIGREVIPAG KAVLENLPAK HDLQFEVNL DAGFELFKKT GTALPDETVD VLKKECDGAL FGAVSSPTTK 101 VAGYSSPIVA LRKKLGLYAN VRVPKSVEGI GRPVDMVIR ENTELDYKIE ERVYKKEDGT KVAEAKIRIT ETASTRIAKM AYEIALQREA VRKGTSQKQL 201 HEKPSVTVTN KSNVLSQSDG LFRETCRAVY DANANEYGGI EYKEQIVDMSM VYRMFREPEI FDVWVAPNLN QDILSDGAAA LVGSLGVVP ANVGDNFAIG 301 EPCHGSAPDI EGKGISNPVA TIRSTALMLE FMGYPEAAAT IYQAVDANLA EDKIKTPDLG GNSTTQEVID DIIRRF
RPL4B	1 MSSRPQVSVI SVKGEQGSSQ LPLPAVFAAP VRPDLVHSVF VRVNUKNKROA YAVAENAGHQ TSAESWTGR AVARI PRVGG GGTHRSGQAA FGNMCRGGRM 101 FPAKTKTWRW NVKVNHNNEKR YATASAIAS AVTSLVLRG HRVQVKELP LVVSNEFESV TKTIDAVAVL KAVGAHKDV KVIKSKKLR A GKGKLRGRRF 201 TQRGQPLLVY AQDNGVIKAL RNVPGVETAS VKHLGLLQLA PG AHLGRFII WTQGAFESLD SVYGDSTKS IKSGYTLPSN IISNTDVTRL INSAEVQAVV 301 RPAGEKTKQQ SHVLKNNPLK NKQVLLRNP YAKAYAAEKV GS AKEVQAKV KPSKGQFAEV LKN
TDH3	1 MAIKIGINGF GRIGRLVLRV ALGRKDIIEV AVNDPFIAPD YAAMYMFYD THGRYKGEVT ASGDDLVIDG HKIKVQFERD PANIPWGKSG VDYVIESSTGV 101 FTKLEGQKH IDAGAKVII TAPSADAPMF VVGVNEDKTY PDLKIISNAS CTTNCLAPLA KVNNTDFGIE EGLMTTVHSI TATQKTVDGP SHKDWRGGRT 201 ASGNIIPSST GAAKAVGKVI PELNGKLTGM SLRVPTTDS VVDLTVRLKK AASYEEIAQA IKKASEGPLK GVLGYTEDAV VSTDFLGSSY SSIFDEKAGI 301 LLSPTFVKLI SWDNEYGYG TRVVDLLEHV AKASA
NOP1	1 MAFGAPRGRG GPARGRGRGF GGGRRGRRGA RGGRRGRRGARG GSRRGARGGA RG GRRGARGAR GGAKVVIEPH RHAGVFIARG KEDLLVTRNI 101 APGESVYGEK RISVEEPAKE EGAAPTKIE RVWNPFRSKL AAGIMGGIDE LGIAPGKVKL YLGAASGTSV SHVADVVGP E GLVYAVEFSH RGRELIGMA 201 KKRPNVPIII DDAHHPQKYM MLIGMVDCVF ADVAQFDQAR II ALNSHLFL KDGGLVVISI KANCIDSTVD AETVFAREQV KLREERIKPL EQLTLEPYER 301 DHCIVVGRY RSGIKK
NPL3	1 MDGPVEVTKQ LFVRLPNDV TREEVQDHFS RAAPVVEVRL MEGYAFVTFE NEDDAKQALE LLNDAEFNGE K LQIEFAKER REDTRGKYL LITNLAEFTA 101 WQD1KDFVRE KTDQSOPVYK VFTNFDNETC TCSMQFQSR E LDRAIPLLD KAVFRDITIG AEDTSPYI P PPRGRGGRF GRRGRRGDR FRRGRRGGYDR 201 YDRGGFRGGR GGFDRGFDRC GFRGRRGGYD RGGFRGRRGG FDRGGFRGRR GGFRGRRGGY DRGGYDRDNF NDRGGSYDRF RSPTRF
RPL8B	1 MAPKGKVKAP APLATKSAKS SESKNPLFES TPKNFGIGQS IQPKRNLRSF VKWPEYVRLQ RQK KILSRLR KVPPSIAQFS QTLDKNTAAQ AFKLLNKYRP 101 ETSAEKKERL TKEAAAIAEG KTA KDVSPK VVVKYGLNH VSLIENKKAK LVL IANDVDP IELVVFPLP CKKMGVYPAI VKGKARLGLT VHKKTSAVAA 201 LTEVNSADEA ELSKLISTIN ANYIEKYEEN RKHWGGGIMG SKANDKIAKK AKAAAAAVST SN
RPS7	1 MSSKILSEN P TELELKVAQA FVDLESQADL KAE LRPLQFK SIKEIDVNGG KKALAVFVPP PSLQAYRKVQ TRLTRELEKK F PDRHVVFLA ERRILPKPAR 101 KARKQKPR SRTLTAHVHDK ILEDLVFPTE IIGKRVRYLV GGNKIQKVL DSKDSTAVDY K L DLSFQQLYS KLTGKQVVF E IPGESH
ORF 19.8442	1 MSWF GFFFDPD FDDFFGRPRK YATEVPPNPN PRKIAQGDNG KGQQVSRYGA GAGHPHRALA RR DFFDDFW KNFSSGKYFV GFDDNVKTTE ESDKYVVSYD 101 QENLSPDEVN VDFDKQENEL IITVTQETEK DGTKK S STFH SNLKF EKP VN FDDISAEIGE QGVQVTLPKV HADKEVNI PISKA AAKK
RPL16A	1 MSQVAPKWWYQ SEDVPAKQQT RKTARPQKLR ASLVPGTVLI LLAGRFRGKR VVYLNKLEDN TLLVSGPFKV NGVPLRRVNA RYVIATSTKV NVSGVDVSKF 101 NVEYFAREKS SKSKKSEAEF FNESQPKKEI KAERVADQKS VDA ALLSEIK KTPLLQYLA ASFSLKNGDR PHLLKF
RPL11	1 MSQVAPKWWYQ SEDVPAKQQT RKTARPQKLR ASLVPGTVLI LLAGRFRGKR VVYLNKLEDN TLLVSGPFKV NGVPLRRVNA RYVIATSTKV NVSGVDVSKF 101 NVEYFAREKS SKSKKSEAEF FNESQPKKEI KAERVADQKS VDA ALLSEIK KTPLLQYLA ASFSLKNGDR PHLLKF