Table S1. Strains and plasmids used in this study

Name	Relevant genotype	Source
Strains		
APQ12-GFP	MATa his3 ura3Δ0 leu2Δ0 met15Δ0 APQ12-GFP	Invitrogen
*apq12*Δ, a	MATa his3 ura3Δ0 leu2Δ0 met15Δ0 apq12::KAN^R	EUROSCARF
*apq12*Δ, α	MATα his3 ura3Δ0 leu2Δ0 lys2 apq12::KAN^R	Research Genetics
*nup188*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 nup188::KAN^R	Research Genetics
*nup170*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 nup170::KAN^R	Research Genetics
*pom152*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 pom152::KAN^R	Research Genetics
JSy064	his3 ura3Δ0 leu2Δ0 pom152::KAN^R apq12::KAN^R	This study
*pom34*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 pom34::KAN^R	Research Genetics
JSy058	his3 ura3Δ0 leu2Δ0 pom34::KAN^R apq12::KAN^R	This study
*nup60*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 nup60::KAN^R	Research Genetics
JSy063	his3 ura3Δ0 leu2Δ0 nup60::KAN^R apq12::KAN^R	This study
*nup2*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 nup2::KAN^R	Research Genetics
JSy062	his3 ura3Δ0 leu2Δ0 nup2::KAN^R apq12::KAN^R	This study
*nup100*Δ	MATα his3 ura3Δ0 leu2Δ0 lys2 nup100::KAN^R	Research Genetics
JSy051	ura3Δ0 leu2Δ0 nup100::KAN^R apq12::KAN^R	This study
CHY255	MATα his3 ura3Δ0 leu2Δ0 lys2 rat8-2::NAT^R	This study
CDy3	his3 ura3Δ0 leu2Δ0 rat8-2::NAT^R apq12::KAN^R	This study
mex67-5	MATα his3 lys2 leu2Δ0 ura3Δ0 mex67-5::NAT^R	This study
CHy245	MATa rat7ΔN ura3-52 leu2Δ1 his3Δ200 trp1Δ63	This study
CDy4	ura3 leu2 his3 rat7ΔN apq12::KAN^R	This study
SPY23	MATα trp1Δ63 ura3-52 leu2Δ1 gle1-37	Hodge et al., 1999
CHy119	MATα ura3-52 leu2Δ1 rip1::HIS3	Saavedra et al., 1997
CHy108	MATα ura3-52 leu2Δ1 trp1Δ63 nup120::HIS3	Heath et al., 1995
AGy916	MATα ura3-52 leu2Δ1 trp1Δ63 nup85::HIS3	Goldstein et al., 1996
JSy052	ura3 leu2 nup85Δ::HIS3 apq12::KAN^R	This study
JSy059	his3 ura3Δ0 leu2Δ0 nup188::KAN^R apq12::KAN^R	This study
JSy061	his3 ura3Δ0 leu2Δ0 nup170::KAN^R apq12::KAN^R	This study
JSy049	his3 ura3Δ0 leu2Δ0 NIC96-mRFP::HIS3 apq12::KAN^R	This study
NIC96-mRFP	MATα his3 ura3Δ0 leu2Δ0 NIC96-mRFP::HIS3	J. Falvo[a]
NUP82-GFP	MATa his3 ura3Δ0 leu2Δ0 NUP82-GFP::HIS3	Invitrogen
JSy050	his3 ura3Δ0 leu2Δ0 NUP82-GFP::HIS3 apq12::KAN^R	This study
JSy054	MATα his3Δ200 ura3-52 leu2Δ1 GFP-NUP49::URA3	This study
JSy055	MATα his3 ura3Δ0 leu2Δ0 met15Δ0 apq12::KAN^R GFP-NUP49::URA3	This study
NUP1-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 NUP1-GFP::HIS3	Invitrogen
NUP60-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 NUP60-GFP::HIS3	Invitrogen
NUP170-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 NUP170-GFP::HIS3	Invitrogen
NUP188-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 NUP188-GFP::HIS3	Invitrogen
NSP1-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 NSP1-GFP::HIS3	Invitrogen
MLP1-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 MLP1-GFP::HIS3	Invitrogen
SAC3-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 SAC3-GFP::HIS3	Invitrogen
NUP57-GFP	MATa his3Δ1 ura3Δ0 leu2Δ0 met15Δ0 NUP57-GFP::HIS3	Invitrogen
JSy065	his3 ura3Δ0 leu2Δ0 NUP1-GFP::HIS3 apq12::KAN^R	This study
JSy066	his3 ura3Δ0 leu2Δ0 NUP60-GFP::HIS3 apq12::KAN^R	This study
JSy067	his3 ura3Δ0 leu2Δ0 NUP170-GFP::HIS3 apq12::KAN^R	This study
JSy068	his3 ura3Δ0 leu2Δ0 NUP188-GFP::HIS3 apq12::KAN^R	This study
JSy048	his3 ura3 leu2 rip1::HIS3 apq12::KAN^R pRIP1-GFP	This study
JSy071	his3 ura3Δ0 leu2Δ0 NUP57-GFP::HIS3 apq12::KAN^R	This study
JSy072	his3 ura3Δ0 leu2Δ0 SAC3-GFP::HIS3 apq12::KAN^R	This study
JSy073	his3 ura3Δ0 leu2Δ0 MLP1-GFP::HIS3 apq12::KAN^R	This study
JSy077	his3 ura3Δ0 leu2Δ0 NSP1-GFP::HIS3 apq12::KAN^R	This study
CSy513	MATa trp1Δ63 ura3-52 leu2Δ1 rat8/dbp5::HIS3 pRat8.31	Snay-Hodge et al., 1998
CSy1052	ura3 leu2 apq12::KAN^R rat8/dbp5::HIS3 pRat8.31 (YCplac33RAT8)	This study
YDPy111	MATα gle1::HIS3 ura3-52 leu2Δ1 his3Δ200 trp1Δ63 (pVDP9: YCpLac33-GLE1)	Del Priore et al., 1996
CSy1054	ura3 leu2 apq12::KAN^R gle1::HIS3 pVDP9	This study
2709	MATα ndc1::KanMX + pALR10-NDC1	Lau et al., 2004
JSy084	apq12::KAN^R ndc1::KanMX + pALR10-NDC1	This study
JSy085	GAL10-GFP-S65T-nup49-URA3	This study
JSy086	GAL10-GFP-S65T-nup49-URA3 apq12::KAN^R	This study
SWY27	MATα ade2-1 ura3-1 his3-11,15 trp1-1 leu2-3,112 can1-100 nup116-5::HIS3	Wente and Blobel, 1993

JSy090	*apq12::*KAN^R *nup116-5::HIS3*	This study
JSy096	*SEC63*-RFP*::HIS3 NUP82*-GFP*::HIS3 apq12::*KAN^R	This study
JSy101	*NUP188*-RFP*::* KAN^R *NUP82*-GFP*::HIS3 apq12::*KAN^R	This study
RSy281	*MATα sec23-1 ura3-52 his4-619*	C. Barlowe[b]
erv25Δ	*MATa his3Δ leu2Δ0 ura3Δ0 lys2Δ0 erv25::*KAN^R	Research Genetics
SWY2515	*MATa trp1-1 ura3-1 his3-11,15 leu2-3,112 can1-100 NIC96*-GFP*::HIS3 NUP170*-GFP*::URA3 prp20 (G282S)*	Ryan et al., 2003
YRX12	*MATα ura3-52 his3Δ200 leu2Δ1 lys2-801 acc1-7-1*	Schneiter et al., 1996
JSy102	*ura3-52 his3 leu2 apq12::*KAN^R *mtr7-1(acc1)*	This study
Name	Description	Source
Plasmids		
pFS1030	*GLE1-GFP*, *LEU2*, *CEN*	Strahm et al., 1999
pCS835	*RAT8-GFP* in YCplac111	Snay-Hodge et al., 1998
pMex67-GFP	pUN100-*LEU2*-*MEX67*-GFP	Segref et al., 1997
pCSNup49-GFP-1	*GFP-NUP49* in YIplac211	This study
pRip1-GFP	*RIP1-GFP, LEU2, 2μm*	F. Stutz[c]
	pRS314-*ndc1-39*-3xmyc	Lau et al., 2004
	pRS315-*NDC1-GFP*	Chial et al., 1998
pALR-10	*pNDC1, URA3, CEN*	Chial et al., 1998
pJK59	p*SEC63-GFP*, *URA3, CEN*	Prinz et al., 2000
CBB1794	*p4xUPRE-GFP URA3*	Wilson et al., 2006
Yip-Nupp116-GFP	*Nup116-GFP* in YIplac211	Izawa et al., 2004

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References

Chial, H.J., M.P. Rout, T.H. Giddings, and M. Winey. 1998. *Saccharomyces cerevisiae* Ndc1p is a shared component of nuclear pore complexes and spindle pole bodies. *J. Cell Biol.* 143:1789–1800.

Del Priore, V., C.A. Snay, A. Bahr, and C.N. Cole. 1996. The product of the *Saccharomyces cerevisiae* RSS1 gene, identified as a high-copy suppressor of the rat7-1 temperature-sensitive allele of the RAT7/NUP159 nucleoporin, is required for efficient mRNA export. *Mol. Biol. Cell.* 7:1601–1621.

Goldstein, A.L., C.A. Snay, C.V. Heath, and C.N. Cole. 1996. Pleiotropic nuclear defects associated with a conditional allele of the novel nucleoporin Rat9p/Nup85p. *Mol. Biol. Cell.* 7:917–934.

Heath, C., C. Copeland, D. Amberg, V. Del Priore, M. Snyder, and C. Cole. 1995. Nuclear pore complex clustering and nuclear accumulation of poly(A)+ RNA associated with mutation of the *Saccharomyces cerevisiae* RAT2/NUP120 gene. *J. Cell Biol.* 131:1677–1697.

Hodge, C.A., H.V. Colot, P. Stafford, and C.N. Cole. 1999. Rat8p/Dbp5p is a shuttling transport factor that interacts with Rat7p/Nup159p and Gle1p and suppresses the mRNA export defect of xpo1-1 cells. *EMBO J.* 18:5778–5788.

Izawa, S., R. Takemura, and Y. Inoue. 2004. Gle2p is essential to induce adaptation of the export of Bulk poly(A)+ mRNA to heat shock in *Saccharomyces cerevisiae*. *J. Biol. Chem.* 279:35469–35478.

Lau, C.K., T.H. Giddings Jr., and M. Winey. 2004. A novel allele of *Saccharomyces cerevisiae* NDC1 reveals a potential role for the spindle pole body component Ndc1p in nuclear pore assembly. *Eukaryot. Cell.* 3:447–458.

Prinz, W.A., L. Grzyb, M. Veenhuis, J.A. Kahana, P.A. Silver, and T.A. Rapoport. 2000. Mutants affecting the structure of the cortical endoplasmic reticulum in *Saccharomyces cerevisiae*. *J. Cell Biol.* 150:461–474.

Ryan, K.J., J.M. McCaffery, and S.R. Wente. 2003. The Ran GTPase cycle is required for yeast nuclear pore complex assembly. *J. Cell Biol.* 160:1041–1053.

Saavedra, C.A., C.M. Hammell, C.V. Heath, and C.N. Cole. 1997. Yeast heat shock mRNAs are exported through a distinct pathway defined by Rip1p. *Genes Dev.* 11:2845–2856.

Schneiter, R., M. Hitomi, A. Ivessa, E. Fasch, S. Kohlwein, and A. Tartakoff. 1996. A yeast acetyl coenzyme A carboxylase mutant links very-long-chain fatty acid synthesis to the structure and function of the nuclear membrane-pore complex. *Mol. Cell. Biol.* 16:7161–7172.

Segref, A., K. Sharma, V. Doye, A. Hellwig, J. Huber, R. Luhrmann, and E. Hurt. 1997. Mex67p, a novel factor for nuclear mRNA export, binds to both poly(A)+ RNA and nuclear pores. *EMBO J.* 16:3256–3271.

Snay-Hodge, C.A., H.V. Colot, A.L. Goldstein, and C.N. Cole. 1998. Dbp5p/Rat8p is a yeast nuclear pore-associated DEAD-box protein essential for RNA export. *EMBO J.* 17:2663–2676.

Strahm, Y., B. Fahrenkrog, D. Zenklusen, E. Rychner, J. Kantor, M. Rosbach, and F. Stutz. 1999. The RNA export factor Gle1p is located on the cytoplasmic fibrils of the NPC and physically interacts with the FG-nucleoporin Rip1p, the DEAD-box protein Rat8p/Dbp5p and a new protein Ymr 255p. *EMBO J.* 18:5761–5777.

Wente, S.R., and G. Blobel. 1993. A temperature-sensitive NUP116 null mutant forms a nuclear envelope seal over the yeast nuclear pore complex thereby blocking nucleocytoplasmic traffic. *J. Cell Biol.* 123:275–284.

Wilson, J.D., Y. Liu, C. Bentivoglio, and C. Barlowe. 2006. Sel1p/Ubx2p participates in a distinct Cdc48-dependent endoplasmic reticulum-associated degradation pathway. *Traffic.* 7:1213–1223.