

Table 4.

Biomodule ID	Proteins	GO Biological process	
Biomodule 1	UGA3	Regulation of transcription from Pol II promoter Nitrogen utilization	
	CHA4	Regulation of transcription, DNA-dependent Amino acid catabolism	
	DAL81	Regulation of transcription from Pol II promoter Nitrogen utilization	
	LYS14	Lysine biosynthesis, aminoacidic pathway	
Biomodule 2	DIP5	Amino acid transport	
	SUP35	Translational termination	
	EFT1	Translational elongation	
	GCD11	Translational initiation	
	RIA1	Ribosome biogenesis	
	TEF2	Translational elongation	
	FUN12	Translational initiation	
	PMC1	Calcium ion transport Calcium ion homeostasis	
	SPF1	Protein amino acid glycosylation Calcium ion homeostasis	
YOR291W			
Biomodule 3	LAS17	Cytokinesis Endocytosis Response to osmotic stress Actin filament organization Polar budding Actin polymerization and/or depolymerization	
	RVS167	Endocytosis Response to osmotic stress Polar budding	
	AGP2	Fatty acid metabolism Response to osmotic stress	
	HOR2	Carbohydrate metabolism Response to osmotic stress Glycerol biosynthesis	
	RHR2	Glycerol metabolism Response to osmotic stress Glycerol biosynthesis	
	SKN7	Response to oxidative stress Response to osmotic stress Transcription	
	Biomodule 4	SSB1	Protein biosynthesis
		SSB2	Protein biosynthesis
		DPS1	Protein biosynthesis
		RPL13A	Protein biosynthesis
RPL31A		Protein biosynthesis	
RPL5		Protein biosynthesis Ribosomal large subunit assembly and maintenance	
Biomodule 5	ACC1	Fatty acid biosynthesis Nuclear membrane organization and biogenesis	
	DUR1,2	Urea metabolism	
	URA2	Pyrimidine base biosynthesis	
	CPA1	Arginine biosynthesis	
	CPA2	Arginine biosynthesis	
	PYC2	NADPH regeneration	

	URA8	Gluconeogenesis Pyrimidine base biosynthesis Phospholipid biosynthesis
	ABZ1	Para-aminobenzoic acid metabolism
	GLC7	Negative regulation of transcription from Pol II promoter Glycogen metabolism Mitotic spindle checkpoint Meiosis Response to heat Filamentous growth
	GAC1	Negative regulation of transcription from Pol II promoter Glycogen metabolism Mitotic spindle checkpoint Meiosis Response to heat
Biomodule 6	GSY2	Glycogen metabolism
	GSY1	Glycogen metabolism
	PGM1	Glucose 1-phosphate utilization Glucose 6-phosphate utilization Glycogen metabolism Trehalose biosynthesis Galactose metabolism
	PGM2	Glucose 1-phosphate utilization Glucose 6-phosphate utilization Glycogen metabolism Trehalose biosynthesis Galactose metabolism
	TPK3	Protein amino acid phosphorylation Pseudohyphal growth
	PHO85	Protein amino acid phosphorylation Phosphate metabolism Cell cycle Glycogen metabolism
	PKH2	Protein amino acid phosphorylation MAPKKK cascade (cell wall biogenesis)
	SPS1	Sporulation (sensu Saccharomyces) Protein amino acid phosphorylation
	TPK1	Pseudohyphal growth Protein amino acid phosphorylation RAS protein signal transduction
Biomodule 7	DBF20	Protein amino acid phosphorylation Cell cycle
	SLT2	Protein amino acid phosphorylation Signal transduction
	YCK1	Protein amino acid phosphorylation Signal transduction
	KSS1	Protein amino acid phosphorylation Cell cycle arrest Pseudohyphal growth
	PPT1	Protein amino acid phosphorylation
	SSK2	Activation of MAPKK (osmolarity sensing) MAPKKK cascade (osmolarity sensing) Protein amino acid phosphorylation Osmosensory signaling pathway
Biomodule 8	GAL80	Galactose metabolism Regulation of transcription, DNA-dependent
	GAL1	Galactose metabolism

	GAL3	Galactose metabolism Regulation of transcription, DNA-dependent
	GAL4	Galactose metabolism Regulation of transcription, DNA-dependent
	GAL10	Galactose metabolism
	GAL2	Galactose metabolism Extracellular carbohydrate transport
	GAL7	Galactose metabolism
Biomodule 9	ARA1	Carbohydrate metabolism
	GLK1	Carbohydrate metabolism
	GLO2	Carbohydrate metabolism
	MAL33	Maltose metabolism Carbohydrate metabolism
		Regulation of transcription, DNA-dependent
Biomodule 10	CDC28	G2/M transition of mitotic cell cycle Regulation of cell cycle G1/S transition of mitotic cell cycle S phase of mitotic cell cycle Regulation of meiosis
	CLN1	Regulation of CDK activity G1/S transition of mitotic cell cycle
	FAR1	Cell cycle arrest
	MCM1	Regulation of transcription from Pol II promoter
	SMP1	Transcription
Biomodule 11	GBP2	Biological_process unknown
	LHP1	tRNA processing
	NOP13	Biological_process unknown
	CUS2	mRNA splicing
	MRD1	35S primary transcript processing
	MUD1	mRNA splicing
	NOP8	Ribosomal large subunit assembly and maintenance rRNA processing
	STO1	mRNA splicing
	NPL3	mRNA-nucleus export
	PAB1	Regulation of translational initiation
	HRP1	mRNA cleavage mRNA polyadenylation
	MSL1	mRNA splicing
	PUB1	mRNA catabolism, nonsense-mediated
	IST3	Spliceosome assembly
	NAB3	Regulation of transcription from Pol II promoter
	MOT2	Regulation of transcription from Pol II promoter Poly(A) tail shortening
	CWC22	Biological_process unknown
	YRA1	Poly(A)+ mRNA-nucleus export
	MIP6	mRNA-nucleus export
	DBP3	Ribosomal large subunit assembly and maintenance 35S primary transcript processing
	NMD2	mRNA catabolism mRNA catabolism, nonsense-mediated
	SGD1	Osmoregulation
	NOG2	mRNA splicing
NOP1	rRNA modification Ribosomal large subunit assembly and maintenance 35S primary transcript processing Processing of 20S pre-rRNA	
DBP2	Biological_process unknown	

Biomodule 12	EMI2	Biological_process unknown
	HXK1	Fructose metabolism
	HXK2	Fructose metabolism
	YDL036C	
Biomodule 13	YML131W	
	YNL134C	
	ADH6	Aldehyde metabolism Alcohol metabolism
	YIM1	Mitochondrial processing
	AST2	Biological_process unknown
	YAL061W	
	AST1	Protein-membrane targeting
	SFA1	Formaldehyde assimilation
Biomodule 14	ADH5	Alcohol metabolism
	BEM1	Establishment of cell polarity (sensu Saccharomyces)
	ABP1	Establishment of cell polarity (sensu Saccharomyces) Actin cortical patch assembly
	ACT1	Cytokinesis Exocytosis Endocytosis Response to osmotic stress Vacuole inheritance Spindle assembly Mitotic spindle orientation Mitochondrion inheritance Cell wall organization and biogenesis Apical bud growth Isotropic bud growth Establishment of cell polarity (sensu Saccharomyces) Protein secretion Vesicle transport along actin filament Cell cycle dependent actin filament reorganization Sporulation (sensu Saccharomyces) Histone acetylation Histone modification Regulation of transcription from Pol II promoter
	CDC24	Chitin localization Apical bud growth Isotropic bud growth Pseudohyphal growth Invasive growth Small GTPase mediated signal transduction Establishment of cell polarity (sensu Saccharomyces)
	CDC42	Exocytosis Apical bud growth Isotropic bud growth Pseudohyphal growth Invasive growth Rho protein signal transduction Establishment of cell polarity (sensu Saccharomyces)
	CDC12	Cytokinesis Cell wall organization and biogenesis Axial budding Polar budding Establishment of cell polarity (sensu Saccharomyces)
	SSA1	Protein-nucleus import, translocation Protein folding

Biomodule 15	SSA2	SRP-dependent, co-translational membrane targeting, translocation Protein folding
	SSE2	SRP-dependent, co-translational membrane targeting, translocation Protein folding
	KAR2	SRP-dependent, co-translational membrane targeting, translocation
	PRC1	Vacuolar protein catabolism
	SEC61	SRP-dependent, co-translational membrane targeting, translocation
Biomodule 16	SSA3	Protein folding SRP-dependent, co-translational membrane targeting, translocation Response to stress
	SSA4	SRP-dependent, co-translational membrane targeting, translocation Response to stress Protein folding
	DOG2	Glucose metabolism Response to stress
	HSF1	Response to stress Response to heat
	HSP30	Response to stress Protein folding
Biomodule 17	PSR2	Response to stress
	ASH1	Regulation of transcription, mating-type specific Pseudohyphal growth
	FKH1	Chromatin modeling Chromatin silencing Chromatin silencing at silent mating type cassettes (sensu Fungi) Chromatin silencing at HML and HMR (sensu Saccharomyces) Pseudohyphal growth Regulation of cell cycle
	HMS2	Pseudohyphal growth
	PHD1	Pseudohyphal growth
	SOK2	Pseudohyphal growth
	NSR1	Ribosomal small subunit assembly and maintenance rRNA processing
Biomodule 18	UTP4	processing of 20S pre-rRNA
	NOP4	rRNA processing
	PWP1	Biological_process unknown
	UTP13	Processing of 20S pre-rRNA
	RRB1	Ribosome biogenesis
	NOP12	rRNA metabolism
	SIK1	rRNA modification
	NOP15	35S primary transcript processing Processing of 20S pre-rRNA Ribosomal large subunit biogenesis
	NOP58	rRNA modification 35S primary transcript processing Processing of 20S pre-rRNA
	NUG1	Biological_process unknown
	HAS1	Biological_process unknown
Biomodule 19	NOP7	Ribosomal large subunit biogenesis
	SDP1	MAPKKK cascade (cell wall biogenesis)
	YPL247C	
	GIP2	Biological_process unknown
Biomodule 20	PIG2	Biological_process unknown
	SEC17	ER to Golgi transport
Biomodule 20	GIP1	Spore wall assembly (sensu Saccharomyces)
	GRE3	Response to stress Arabinose metabolism

YPR1	Arabinose metabolism
GCY1	Salinity response
YJR096W	
YPR127W	
