TABLE 2 Summary of genes that increase the HEMF production capacities by deletion

ORF	Gene	growth (OD_{600})	HEMF yield $\times 10^4$ (μAU)	HEMF production capacity*	PR [2]†	Description
Metabolism						
YOL086C	*ADH1*	2.76 ± 0.01	19.17 ± 0.88	6.95 ± 0.36	10.7	Alcohol dehydrogenase required for the reduction of acetaldehyde to ethanol
YGR204W	*ADE3*	1.59 ± 0.03	6.52 ± 0.39	4.10 ± 0.06	6.3	Cytoplasmic trifunctional enzyme involved in amino acid and nucleotide biosynthesis
YAR015W	*ADE1*	0.96 ± 0.13	2.89 ± 0.15	3.03 ± 0.25	4.7	Rrequired for 'de novo' purine nucleotide biosynthesis
YGR061C	*ADE6*	1.34 ± 0.11	3.87 ± 0.40	2.90 ± 0.28	4.5	Rrequired for 'de novo' purine nucleotide biosynthesis
YMR300C	*ADE4*	6.36 ± 0.45	7.94 ± 0.24	1.25 ± 0.05	1.9	Rrequired for 'de novo' purine nucleotide biosynthesis
YDR408C	*ADE8*	5.67 ± 0.53	6.98 ± 0.19	1.24 ± 0.08	1.9	Rrequired for 'de novo' purine nucleotide biosynthesis
Cellular transport, transport facilities and transport routes						
YMR038C	*CCS1*	3.90 ± 0.02	10.6 ± 0.75	2.73 ± 0.18	4.2	Copper chaperone for superoxide dismutase Sod1p, involved in oxidative stress protection
YGL095C	*VPS45*	2.74 ± 0.16	5.69 ± 0.02	2.08 ± 0.11	3.2	Essential for vacuolar protein sorting
YNL297C	*MON2*	1.53 ± 0.08	2.19 ± 0.01	1.44 ± 0.08	2.2	Peripheral membrane protein with a role in endocytosis and vacuole integrity
YPR139C	*LOA1*	5.77 ± 0.52	7.64 ± 0.74	1.32 ± 0.01	2.0	Lysophosphatidic acid acyltransferase involved in triacelglyceride homeostasis
Transcription						
YDR138W	*HPR1*	3.56 ± 0.03	5.97 ± 0.50	1.68 ± 0.13	2.6	Subunit of THO/TREX complexes that couple transcription elongation with mitotic recombination and with mRNA metabolism and export
YDR392W	*SPT3*	4.83 ± 0.12	6.12 ± 0.03	1.27 ± 0.03	2.0	Subunit of the SAGA and SAGA-like transcriptional regulatory complexes
Protein synthesis						
YAL035W	*FUN12*	3.66 ± 0.16	6.87 ± 0.40	1.88 ± 0.03	2.9	GTPase required for general translation initiation
Protein fate (folding, modification, destination)						
YGL058W	*RAD6*	3.26 ± 0.27	4.29 ± 0.07	1.32 ± 0.13	2.0	Ubiquitin-conjugating enzyme (E2) involved in protein degradation

* HEMF production capacity : [HEMF yield $\times 10^4$ (μAU) / Growth (OD_{600})]

† PR [2] : HEMF production capacity ratio [2] (see Materials and Methods)

Data are expressed as mean values ± SD. Number of independent experiment = 2.

Values of Growth, HEMF yield, and HEMF production capacity in control wild type strain are 5.91 ± 0.38, 3.84 ± 0.35, and 0.65 ± 0.04, respectively.