

1 Supplemental Tables

2 **Table S1. Related to Figures 1-7, and STAR Methods. Growth medium composition.**

Abbreviation	Medium composition
CAB	0.5 g/l casamino acids, 144 g/l NaCl, 18 g/l MgCl ₂ ·6H ₂ O, 21 g/l MgSO ₄ ·7H ₂ O, 4.2 g/l KCl, 12 ml/l Tris·HCl (pH 7.5), 0.05 g/l EDTA, 0.008 g/l FeCl ₃ , 0.0005 g/l ZnCl ₂ , 0.0001 g/l CuCl ₂ , 0.0001 g/l CoCl ₂ , 0.0001 g/l H ₃ BO ₃ , 1.6 g/l MnCl ₂
CYE	1% casitone, 0.5% yeast extract, 10 mM MOPS (pH 7.6), 4 mM MgSO ₄
DSMZ Medium 172	1 g/l yeast extract, 1g/l tryptone, 24.7 g/l NaCl, 0.7 g/l KCl, 6.3 g/l MgSO ₄ ·7H ₂ O, 4.6 g/l MgCl ₂ ·6H ₂ O, 1.2 g/l CaCl ₂ ·2H ₂ O, 0.2 g/l NaHCO ₃
GMM	2 g/l tryptone peptone, 1 g/l yeast extract, 0.4 g/l D-glucose, 0.5 g/l L-cysteine, 1 g/l cellobiose, 1 g/l maltose, 1 g/l fructose, 5 g/l meat extract, 100 mM KH ₂ PO ₄ , 0.008 mM MgSO ₄ ·7H ₂ O, 4.8 mM NaHCO ₃ , 1.37 mM NaCl, 8 mg/l CaCl ₂ , 5.8 mM menadione (vitamin K), 1.44 mM FeSO ₄ , 1 ml/l histidine hematin solution (200 mM stock solution), 2 ml Tween 80 (25% stock solution), 10 ml ATCC vitamin mix, 10 mL ATCC trace mineral mix, 30 mM acetic acid, 1 mM isovaleric acid, 8 mM propionic acid, 4 mM butyric acid, 4 mM resazurin
LB	10 g/l NaCl, 5 g/l yeast extract, 10 g/l tryptone
LBS	20 g/l NaCl, 5 g/l yeast extract, 10 g/l tryptone
M2G	0.87 g/l Na ₂ HPO ₄ , 0.54 g/l KH ₂ PO ₄ , 0.50 g/l NH ₄ Cl, 0.2% glucose, 0.5 mM MgSO ₄ , 0.5 mM CaCl ₂ , 0.01 mM FeSO ₄
M9 salts	6 g/l Na ₂ HPO ₄ ·7H ₂ O, 3 g/l KH ₂ PO ₄ , 0.5 g/l NaCl, 1 g NH ₄ Cl, 2 mM MgSO ₄ , 0.1 mM CaCl ₂
M9acet	1x M9 salts, 0.2% acetate (sodium salt)
M9acetCAAT	1x M9 salts, 0.2% acetate, 0.1% casamino acids, 1 µg/ml thiamine
M9αKG	1x M9 salts, 0.2% α-ketoglutarate (sodium salt)
M9αKGCAAT	1x M9 salts, 0.2% α-ketoglutarate, 0.1% casamino acids, 1 µg/ml thiamine
M9CAAT	1x M9 salts, 0.1% casamino acids
M9fuc	1x M9 salts, 0.2% fucose
M9fucCAAT	1x M9 salts, 0.2% fucose, 0.1% casamino acids, 1 µg/ml thiamine
M9fum	1x M9 salts, 0.2% fumarate (disodium salt)
M9fumCAAT	1x M9 salts, 0.2% fumarate, 0.1% casamino acids, 1 µg/ml thiamine
M9glcnac	1x M9 salts, 0.2% N-acetylglucosamine

M9glcnacCAAT	1x M9 salts, 0.2% N-acetylglucosamine, 0.1% casamino acids, 1 µg/ml thiamine
M9glu	1x M9 salts, 0.2% glucose
M9gluCAAT	1x M9 salts, 0.2% glucose, 0.1% casamino acids, 1 µg/ml thiamine
M9gluCAAT+LB	1x M9 salts, 0.2% glucose, 0.1% casamino acids, 1 µg/ml thiamine, 10 % LB
M9gly	1x M9 salts, 0.2% glycerol
M9glyCAAT	1x M9 salts, 0.2% glycerol, 0.1% casamino acids, 1 µg/ml thiamine
M9lact	1x M9 salts, 0.2% lactose
M9lactCAAT	1x M9 salts, 0.2% lactose, 0.1% casamino acids, 1 µg/ml thiamine
M9Lala	1x M9 salts, 0.2% L-alanine
M9LalaCAAT	1x M9 salts, 0.2% L-alanine, 0.1% casamino acids, 1 µg/ml thiamine
M9Lara	1x M9 salts, 0.2% L-arabinose
M9LaraCAAT	1x M9 salts, 0.2% L-arabinose, 0.1% casamino acids, 1 µg/ml thiamine
M9mala	1x M9 salts, 0.2% malate (sodium salt)
M9malaCAAT	1x M9 salts, 0.2% malate, 0.1% casamino acids, 1 µg/ml thiamine
M9malt	1x M9 salts, 0.2% maltose
M9maltCAAT	1x M9 salts, 0.2% maltose, 0.1% casamino acids, 1 µg/ml thiamine
M9mann	1x M9 salts, 0.2% mannose
M9mannCAAT	1x M9 salts, 0.2% mannose, 0.1% casamino acids, 1 µg/ml thiamine
M9pyr	1x M9 salts, 0.2% pyruvate (sodium salt)
M9pyrCAAT	1x M9 salts, 0.2% pyruvate, 0.1% casamino acids, 1 µg/ml thiamine
M9sorb	1x M9 salts, 0.2% sorbitol
M9sorbCAAT	1x M9 salts, 0.2% sorbitol, 0.1% casamino acids, 1 µg/ml thiamine
M9succ	1x M9 salts, 0.2% succinate (disodium salt)
M9succCAAT	1x M9 salts, 0.2% succinate, 0.1% casamino acids, 1 µg/ml thiamine
M9treh	1x M9 salts, 0.2% trehalose
M9trehCAAT	1x M9 salts, 0.2% trehalose, 0.1% casamino acids, 1 µg/ml thiamine
M9xyl	1x M9 salts, 0.2% xylose
M9xylCAAT	1x M9 salts, 0.2% xylose, 0.1% casamino acids, 1 µg/ml thiamine
Nutrient broth medium	3 g/l beef extract, 5 g/l peptone
PYE	2 g/l bacto-peptone, 1 g/l yeast extract, 1 mM MgSO ₄ , 0.5 mM CaCl ₂

TYG	10 g/l tryptone peptone, 5 g/l bacto yeast extract, 2 g/l D-glucose, 500 mg L-cysteine, 1 ml vitamin K solution (1 mg/ml stock solution), 1 ml/l 0.8% CaCl ₂ , 1 ml FeSO ₄ solution (0.4 mg/ml stock solution), 1 ml/l histidine hematin solution (200 mM stock solution), 4 mL resazurin solution (0.25 g/ml stock solution), 100mM potassium phosphate buffer (pH 7.2), 20 mg/l MgSO ₄ ·7H ₂ O, 400 mg/l NaHCO ₃ , 80 mg/l NaCl
YPC	0.5 g/l yeast extract, 0.1 g/l peptone, 0.1 g/l casamino acids, 144 g/l NaCl, 18 g/l MgCl ₂ ·6H ₂ O, 21 g/l MgSO ₄ ·7H ₂ O, 4.2 g/l KCl, 12 ml/l Tris·HCl (pH 7.5)

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4 **Table S2. Related to STAR Methods. Construction of strains and plasmids used in this study.**

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6 **Table S3. Related to STAR Methods. Oligonucleotides used in this study.**

Name	Sequence (5' to 3')
SG1	GGCAGCGGCAGCGGCAGCTCCAAGGGCGAGGAGGATAAC
SG2	TTATTAGGATCCGCCAGCACCTT
SG3	CTGTACAAAGGTGCTGGCGGATCCTAATAATGTGTAGGCTGGAGCTGCTTC
SG4	CTCGCCCTTGGAGCTGCCGCTGCCGCTGCCATCGCTCAAGACGTGTAATGCTG
SG5	AGTCGATGCAATTCGCCGCGGAATTGATTGAGAAGGTTTGCGGAACATCGGCAGCGGCAGCGG CA
SG6	TTAATCAAATCACTCTGTTGTGCAGGTTGGCCTGCACGATTGTGGATTGCCATATGAATATCCT CCTTAGTTCCTATTC
SG19	CTGTACAAAGGTGCTGGCGGATCCTAATAAGTGTAGGCTGGAGCTGCTTCGA
SG20	CTCGCCCTTGGAGCTGCCGCTGCCGCTGCCAATCGCTCAAGACGTGTAATGCTG
SG25	CCATAAACTGCCAGGCATCAA
SG28	ATGTTTGAACCAATGGAACCTTACC
SG41	TTAAGAAAACAGCGTTCGCACC
SG36	GTCATTGGTAAGTTCCATTGGTTCAAACATAATCGCTCAAGACGTGTAATGCTG
SG43	TAAAAAACGGTGCGAACGCTGTTTTCTTAAGTGTAGGCTGGAGCTGCTTCGA
SG59	GCACTTTTCCGCACAACCTTATC
SG60	ACCCTTTTCAGACGGCGTG
SG61	ACCCAGGAAGGCACGCCGTCTGAAAAGGGTTAATTCTCATGTTTGACAGCTTATCACTG
SG62	CGAATGAAGATAAGTTGTGCGGAAAAGTGCATTCCGGGGATCCGTCGACC

SG291	TGGGTGCAGGTGTTGCAGTTGACCAGGCTGGCCTGAGCGCTTCTGTAAACGGCAGCGGCAGCGG CA
SG292	TTATACGTGGGGGTAAGATTGTAGACAAAATCACCGCCACGTAAAGGCAATTCCGGGGATCCG TCGACC
SG295	GTTCTCAGGATCTGGCTTCCCAGGCGGAAGAAAGCTTCGTAGAAGCTGAGGGCAGCGGCAGCGG CA
SG296	TTGCCGCCTTCTGCAACTCGAACTATTTTGGGGGAGTTATCAAGCCTTAATTCCGGGGATCCGT CGACC
WTG1	ACGTGCTAGCGTGTAAGGCTGGAGCTGCTTC
WTG2	ACGTGCTAGCATGGGAATTAGCCATGGTCC
WTG3	CCATGGGTGCAGGTGTTGCAGTTGACCAGGCTGGCCTGAGCGCTTCTGTAAACGGTCCGCCACC ATGGTGAGC
WTG4	GCATTATACGTGGGGGTAAGATTGTAGACAAAATCACCGCCACGTAAAGGCTCCTGCAGCCCG GGGGATCC
WTG5	TAATTAATATGCATGGTACCTCCAGTGACATGGTAGACGGGATTA
WTG6	TCCCCGGGCTGCAGCTAGCTCAGGCTGAAAATCTTCTCTCATCC
YP3	GTGTAGGCTGGAGCTGCTTC
YP4	GCTGCCGCTGCCGCTGCCAA
YP5	AGCGATTGGCAGCGGCAGCGGCAGCTCAAAAGGCGAAGAAGCTTTTACC
YP6	TAGGAAGCTCGAAGCAGCTCCAGCCTACACTTATTTATACAATTCATCCATTCCATGAGT

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Table S4. Related to Figures 1, 2, 3, 4, 5, S1, S2, S3, S4, S5 and S6. Raw data underlying figures.