

**Table S5** Final concentrations of ingredients in chemically defined media (CAH-CDM and AA-CDM)<sup>1</sup>

		CAH - CDM	AA - CDM	Manufacturer
		g/L	g/L	
Carbohydrate	D-(+)-Cellobiose	2	2	Millipore
Carbohydrate	D-(+)-Galactose	2	2	Sigma-Aldrich
Carbohydrate	D-(+)-Glucose	2	2	Sigma-Aldrich
Carbohydrate	D-(-)-Fructose	2	2	Sigma-Aldrich
Carbohydrate	D-(+)-Maltose * H <sub>2</sub> O	2.11	2.11	Sigma-Aldrich
Mineral	CaCl <sub>2</sub>	0.09	0.09	Sigma-Aldrich
Mineral	KHCO <sub>3</sub>	4	4	Sigma-Aldrich
Mineral	K <sub>2</sub> HPO <sub>4</sub>	0.45	0.45	Fisher Scientific
Mineral	KH <sub>2</sub> PO <sub>4</sub>	0.45	0.45	Riedel-de Haën
Mineral	MgSO <sub>4</sub> * 7H <sub>2</sub> O	0.09	0.09	EMD Millipore
Mineral	NaCl	0.9	0.9	Fisher Scientific
Mineral	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	0.9	0.9	Sigma-Aldrich
Nucleotide	Adenine	0.01	0.01	Sigma-Aldrich
Nucleotide	Cytosine	0.01	0.01	Sigma-Aldrich
Nucleotide	Guanine	0.01	0.01	Sigma-Aldrich
Nucleotide	Orotic acid	0.005	0.005	Sigma-Aldrich
Nucleotide	Thymine	0.01	0.01	Sigma-Aldrich
Nucleotide	Thymidine	0.005	0.005	Sigma
Nucleotide	Uracil	0.01	0.01	Sigma-Aldrich
Nucleotide	Xanthine	0.01	0.01	Sigma-Aldrich
Organic source of Fe	Haemin	0.01	0.01	Sigma-Aldrich
SCFA	Acetic acid	33 mM	33 mM	Fisher Scientific
SCFA	iso-Butyric acid	1 mM	1 mM	Sigma-Aldrich
SCFA	iso-Valeric acid	1 mM	1 mM	Sigma-Aldrich
SCFA	Propionic acid	9 mM	9 mM	Sigma-Aldrich
SCFA	Valeric acid	1 mM	1 mM	Sigma-Aldrich
Redox indicator	Resazurin sodium salt	0.001	0.001	Sigma-Aldrich
Trace element	CoCl <sub>2</sub> * 6H <sub>2</sub> O	0.00025	0.00025	Sigma-Aldrich
Trace element	CuCl <sub>2</sub> * 2H <sub>2</sub> O	0.00001	0.00001	Sigma
Trace element	FeSO <sub>4</sub> * 7H <sub>2</sub> O	0.00210	0.00210	BDH
Trace element	H <sub>3</sub> BO <sub>3</sub>	0.00050	0.00050	Sigma-Aldrich
Trace element	MnCl <sub>2</sub> * 4H <sub>2</sub> O	0.00007	0.00007	Sigma-Aldrich
Trace element	Na <sub>2</sub> MoO <sub>4</sub> * 2H <sub>2</sub> O	0.00005	0.00005	Sigma
Trace element	Na <sub>2</sub> SeO <sub>3</sub> * 5H <sub>2</sub> O	0.00001	0.00001	Sigma-Aldrich
Trace element	Na <sub>2</sub> WO <sub>4</sub> * 2H <sub>2</sub> O	0.00001	0.00001	Sigma-Aldrich
Trace element	NiCl <sub>2</sub> * 6H <sub>2</sub> O	0.00001	0.00001	Sigma
Trace element	ZnSO <sub>4</sub> * 7H <sub>2</sub> O	0.00018	0.00018	Sigma-Aldrich

Vitamin <sup>2</sup>	Biotin	0.00002	0.00002	Supelco
Vitamin <sup>2</sup>	Pimelic acid	0.00002	0.00002	Sigma-Aldrich
Vitamin <sup>2</sup>	Cyanocobalamin	0.00001	0.00001	Sigma-Aldrich
Vitamin <sup>2</sup>	Folic acid	0.00005	0.00005	Sigma-Aldrich
Vitamin <sup>2</sup>	<i>p</i> -Aminobenzoic acid	0.00005	0.00005	Sigma-Aldrich
Vitamin <sup>2</sup>	±-α-Lipoic acid	0.00005	0.00005	Sigma-Aldrich
Vitamin	Menadione	0.00001	0.00001	Supelco
Vitamin	Menaquinone-4	0.00001	0.00001	Supelco
Vitamin <sup>2</sup>	Nicotinic acid	0.00005	0.00005	Sigma-Aldrich
Vitamin <sup>2</sup>	Nicotinamide	0.00005	0.00005	Sigma-Aldrich
Vitamin <sup>2</sup>	Calcium D-Pantothenate	0.00005	0.00005	Sigma-Aldrich
Vitamin <sup>2</sup>	D-Pantethine	0.00005	0.00005	Supelco
Vitamin <sup>2</sup>	Pyridoxine HCl	0.00010	0.00010	Sigma-Aldrich
Vitamin <sup>2</sup>	Pyridoxal HCl	0.00010	0.00010	Sigma-Aldrich
Vitamin <sup>2</sup>	Pyridoxamine:2HCl	0.00010	0.00010	Supelco
Vitamin <sup>2</sup>	(-)-Riboflavin	0.00005	0.00005	Sigma-Aldrich
Vitamin <sup>2</sup>	Thiamine HCl	0.00005	0.00005	Sigma-Aldrich
AA <sup>3</sup> + Peptides	Vitamin-free casein hydrolysate	10		Millipore
AA	L-Alanine		0.62	Sigma-Aldrich
AA	L-Arginine		0.73	Sigma-Aldrich
AA	L-Asparagine	0.2	0.41	Sigma-Aldrich
AA	L-Aspartic acid		0.54	Sigma-Aldrich
AA	L-Glutamine	0.2	0.42	Sigma-Aldrich
AA	L-Glutamic acid		0.71	Sigma-Aldrich
AA	Glycine		0.41	Sigma-Aldrich
AA	L-Histidine		0.25	Sigma-Aldrich
AA	L-Isoleucine		0.67	Sigma-Aldrich
AA	L-Leucine		1.04	Sigma-Aldrich
AA	L-Lysine		0.64	Sigma-Aldrich
AA	L-Methionine		0.29	Sigma-Aldrich
AA	L-Phenylalanine		0.53	Sigma-Aldrich
AA	L-Proline		0.38	Sigma-Aldrich
AA	L-Serine	0.2	0.49	Sigma-Aldrich
AA	L-Threonine	0.2	0.48	Sigma-Aldrich
AA	L-Tryptophan	0.2	0.19	Sigma-Aldrich
AA	L-Tyrosine		0.43	Sigma-Aldrich
AA	L-Valine		0.63	Sigma-Aldrich
AA	L- Cysteine HCl	1	1	Sigma-Aldrich

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<sup>1</sup>Solutions of different nucleotides were based on the recipe described in Heinken et al. (1), trace elements based on trace element solution SLA of Imhoff and Trüper (2) and vitamins were added to compensate for the lack of yeast extract in CDM. The amount of AA present in the free amino acid medium (AA-CDM), except L-Cys, is based on the  $\delta$  index weighed - AA relative contents of bacteria described by Moura *et al.* (3). The L-cysteine (L-Cys) concentration, as also used to reduce the medium, remained the same as in YCFA. Amino acids were added before the medium was autoclaved. The target pH for all media was 6.5, with a pH range of  $6.5 \pm 0.1$  for vitamin auxotrophy experiments and  $6.6 \pm 0.2$  for amino acid auxotrophy experiments after gas phase equilibration in the anaerobic cabinet.

<sup>2</sup>The amounts of vitamins used in CDM were based on those reported in YCFA (4) and extra compounds based on empirical information regarding synthesis salvage pathways (5) were added as follows. Biotin (B7): Pimelic acid; Cobalamin (B12): Cyanocobalamin; Folate (B9): Folic acid, *p*-Aminobenzoic acid; Niacin (B3): Nicotinic acid, Nicotinamide; Pantothenate (B5): Pantethine; Pyridoxine (B6): Pyridoxal HCl, Pyridoxamine:2HCl. All vitamins were filter sterilised (0.22  $\mu\text{m}$  filter) and added after the medium was autoclaved.

## REFERENCES

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