Compiled estimates of b and γ This document provides our compilation for cell mass, b, and γ . The γ values are calculated from b and μ_{max} . Temperature normalizations have been carried out for b and μ_{max} . A digital spreadsheet (Dataset S2 in .csv format) of this table is included as part of the supplementary material and it should be noted that this copy includes additional information such as the calculated Y and P values, culture conditions, the temperature of each reference, and notes on several of the calculations.

Species Name	Mass (g)	$b (s^{-1})$	$\mu_{max} (s^{-1})$	$\bar{\gamma}$	ref. for mass	ref. for b	ref. for μ_{max}
		normalized to 20° C	maximum specific growth rate normalized to 20°	average fraction of metabolism devoted to growth			
Aeromonas punctata Aeromonas punctata Arthrobacter globiformis Azotobacter chroococcum Azotobacter chroococcum Azotobacter vinilandii Azotobacter vinilandii Bacillus amyloliquefaciens	1.2×10^{-11} 1.2×10^{-11} 1.2×10^{-11}	$\begin{array}{c} 3.52 \times 10^{-6} \\ 8.45 \times 10^{-6} \\ 1.5 \times 10^{-6} \\ 7.12 \times 10^{-6} \\ 2.03 \times 10^{-6} \\ 4.87 \times 10^{-6} \\ 8.74 \times 10^{-6} \\ 1.62 \times 10^{-6} \\ 1.62 \times 10^{-6} \end{array}$	1.61×10^{-4} 1.61×10^{-4} 1.61×10^{-4}	0.958 0.961 0.988	[2] [2] [2]	[1] [1] [1] [1] [1] [1] [1] [3]	[2] [2] [2]
Bacillus cereus Bacillus cereus	3.7×10^{-12} 3.7×10^{-12}	1.32×10^{-6} 1.05×10^{-6}	2.9×10^{-4} 2.9×10^{-4}	0.995 0.996	[2] [2]	[4] [5]	[2] [2]
Bacillus coagulans Bacillus licheniformis Bacillus licheniformis	$\begin{array}{c} 8.\times10^{-13}\\ 8.\times10^{-13}$	$\begin{array}{c} 2.53 \times 10^{-6} \\ 4.58 \times 10^{-6} \\ 6.88 \times 10^{-6} \\ 1.15 \times 10^{-6} \\ 4.23 \times 10^{-6} \\ 4.23 \times 10^{-6} \\ 1.04 \times 10^{-6} \\ 7.71 \times 10^{-6} \\ 1.12 \times 10^{-7} \\ 1.09 \times 10^{-6} \\ 1.03 \times 10^{-6} \\ 9.64 \times 10^{-7} \\ 8.99 \times 10^{-7} \end{array}$	$\begin{array}{r} 4.73 \times 10^{-5} \\ 4.73 \times 10^{-5} \\$	0.912 0.873 0.976 0.91 0.918 0.979 0.86 0.998 0.977 0.979 0.98 0.98 0.981	[2] [2] [2] [2] [2] [2] [2] [2] [2] [2]	[1] [6] [6] [7] [6] [8] [8] [8] [7] [9] [9] [9] [9] [9]	[2] [2] [2] [2] [2] [2] [2] [2] [2] [2]
Bacillus licheniformis Bacillus licheniformis	$\begin{array}{c} 8.\times 10^{-13}\\ 8.\times 10^{-$	$\begin{array}{c} 8.17 \times 10^{-7} \\ 7.07 \times 10^{-7} \\ 1.91 \times 10^{-6} \\ 1.52 \times 10^{-6} \\ 1.52 \times 10^{-6} \\ 2.62 \times 10^{-7} \\ 1.57 \times 10^{-6} \\ 2.34 \times 10^{-6} \\ 2.12 \times 10^{-6} \\ 2.04 \times 10^{-6} \\ 1.94 \times 10^{-6} \\ 1.85 \times 10^{-6} \\ 1.74 \times 10^{-6} \\ 2.21 \times 10^{-6} \end{array}$	$\begin{array}{r} 4.73 \times 10^{-5} \\ 4.73 \times 10^{-5} \end{array}$	0.983 0.985 0.961 0.969 0.947 0.98 0.968 0.953 0.957 0.949 0.959 0.961 0.962 0.955	[2] [2] [2] [2] [2] [2] [2] [2] [2] [2]	[9] [9] [7] [8] [6] [7] [8] [9] [9] [9] [9] [9] [9] [9] [9] [9] [9	[2] [2] [2] [2] [2] [2] [2] [2] [2] [2]

Species Name	Mass (g)	$b \ (s^{-1})$	$\mu_{max} \ (\mathrm{s}^{-1})$	$\bar{\gamma}$	ref. for mass	for b	for μ_{max}
		normalized to 20° C	maximum specific growth rate normalized to 20 [°]	average fraction of metabolism devoted to growth			
Bacillus licheniformis	$8. \times 10^{-13}$	1.46×10^{-6}	4.73×10^{-5}	0.97	[2]	[9]	[2]
Bacillus licheniformis	$8. \times 10^{-13}$	2.28×10^{-6}	4.73×10^{-5}	0.954	[2]	[8]	[2]
Bacillus licheniformis	$8. \times 10^{-13}$	2.14×10^{-6}	4.73×10^{-5}	0.957	[2]	[9]	[2]
Bacillus licheniformis	$8.\times10^{-13}$	2.05×10^{-6}	4.73×10^{-5}	0.958	[2]	[9]	[2]
Bacillus licheniformis	8×10^{-13}	1.07×10^{-6}	4.73×10^{-5}	0.978	[2]	[9]	[2]
Bacillus licheniformis	$8.\times10^{-13}$	1.96×10^{-6}	4.73×10^{-5}	0.96	[2]	[9]	[2]
Bacillus licheniformis	$8.\times10^{-13}$	1.85×10^{-6}	4.73×10^{-5}	0.962	[2]	[9]	[2]
Bacillus licheniformis	$8.\times10^{-13}$	1.65×10^{-6}	4.73×10^{-5}	0.966	[2]	[9]	[2]
Bacillus licheniformis	8×10^{-13}	1.58×10^{-6}	4.73×10^{-5}	0.968	[2]	[9]	[2]
Bacillus licheniformis	8×10^{-13}	1.67×10^{-6}	4.73×10^{-5}	0.966	[2]	[0]	[2]
Bacillus licheniformis	8×10^{-13}	1.60×10^{-6}	4.73×10^{-5}	0.966	[2]	[0]	[2]
Bacillus licheniformis	8×10^{-13}	1.03×10 1.21×10^{-6}	4.73×10^{-5}	0.900	[2]	[0]	[2]
Bacillus licheniformis	8.×10 ⁻¹³	1.21×10 1.74×10^{-6}	4.73×10^{-5}	0.975	[2]	[9]	[4]
Bacillus licheniformis	8.×10 ⁻¹³	1.74×10^{-6}	4.73×10^{-5}	0.905	[2]	[9]	[4]
Pacillus licheniformia	8.×10 ⁻¹³	1.74×10 2.21×10 ⁻⁶	4.73×10^{-5}	0.905	[2]	[9]	[4]
Bacillus megatorium	2.28×10^{-12}	5.31×10^{-6}	4.73×10^{-5}	0.935	[4]	[3]	[4]
Pacillus megaterium	2.28×10^{-12}	1.51×10	9.74×10^{-5}	0.954	[10]	[1]	[11]
Pagillug pumilug	2.28 × 10	4.08×10^{-6}	9.74×10	0.954	[10]	[1]	[11]
Bacillus punitus	6 2 4 10 - 13	1.90×10 8.61×10 ⁻⁶	1.10×10^{-4}	0.022	[10]	[0]	[1.4]
Bacillus subtilis	6.3×10^{-13}	1.14×10^{-5}	1.19×10^{-4}	0.933	[12]	[10]	[14]
Pagillag gabtilig	6.3×10^{-13}	1.14×10 2.22×10^{-6}	1.19×10^{-4}	0.912	[12]	[2]	[14]
Bacillus subtilis	6.3×10^{-13}	2.55×10^{-6}	1.19×10^{-4}	0.931	[12]	[12]	[14]
Bacillus subtilis	6.3×10^{-13}	4.11×10^{-6}	1.19×10^{-4}	0.975	[12]	[13]	[14]
Bacillus subtilis	6.3×10^{-13}	3.58×10^{-6}	1.19×10^{-4}	0.971	[12]	[10]	[14]
Bacillus subtilis	6.3×10^{-13}	2.9×10^{-6}	1.19×10^{-4}	0.976	[12]	[3]	[14]
Beneckea natriegens	010/110	3.81×10^{-6}	1110/110	0.010	[+=]	[0]	[++]
Beneckea natriegens		3.36×10^{-5}				[1]	
Cellulomonas LC-10		3.24×10^{-6}				[4]	
Corvnebacterium alutamicum	6.19×10^{-13}	2.4×10^{-6}	7.23×10^{-5}	0.968	[2]	[15]	[2]
Corvnebacterium alutamicum	6.19×10^{-13}	1.03×10^{-6}	7.23×10^{-5}	0.986	[2]	[15]	[2]
Escherichia coli	1.2×10^{-12}	2.01×10^{-6}	4.17×10^{-4}	0.995	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	3.5×10^{-6}	4.17×10^{-4}	0.992	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	3.65×10^{-6}	4.17×10^{-4}	0.991	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	8.31×10^{-7}	4.17×10^{-4}	0.998	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	2.81×10^{-5}	4.17×10^{-4}	0.937	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	9.29×10^{-6}	4.17×10^{-4}	0.978	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	2.57×10^{-6}	4.17×10^{-4}	0.994	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	1.33×10^{-6}	4.17×10^{-4}	0.997	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	3.62×10^{-6}	4.17×10^{-4}	0.991	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	1.47×10^{-5}	4.17×10^{-4}	0.966	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	1.67×10^{-5}	4.17×10^{-4}	0.962	[2]	[1]	[2]
Escherichia coli	1.2×10^{-12}	2.05×10^{-5}	4.17×10^{-4}	0.953	[2]	[1]	[2]
Klebsiella aerogenes		3.49×10^{-6}				[1]	
Klebsiella aerogenes		3.13×10^{-6}				[1]	
Klebsiella aerogenes		6.5×10^{-6}				[1]	
Klebsiella aerogenes		3.44×10^{-6}				[1]	
Klebsiella aerogenes		3.44×10^{-6}				[1]	
Klebsiella aerogenes		7.72×10^{-6}				[1]	
Klebsiella aerogenes	10	4.28×10^{-6}				[1]	
Lactobacillus casei	1.9×10^{-12}	4.38×10^{-7}	1.37×10^{-4}	0.997	[2]	[16]	[2]
Lactococcus lactis	$2.\times 10^{-13}$	1.08×10^{-5}	1.24×10^{-4}	0.92	[2]	[17]	[2]
Lactococcus lactis	$2.\times 10^{-13}$	2.01×10^{-6}	1.24×10^{-4}	0.984	[2]	[17]	[2]
Lactococcus lactis	$2.\times 10^{-13}$	7.54×10^{-5}	1.24×10^{-4}	0.622	[2]	[17]	[2]
Lactococcus lactis	$2.\times 10^{-13}$	3.69×10^{-5}	1.24×10^{-4}	0.771	[2]	[18]	[2]
Lactococcus lactis	$2.\times 10^{-13}$	3.48×10^{-5}	1.24×10^{-4}	0.781	[2]	[18]	[2]
Lactococcus lactis	$2. \times 10^{-13}$	3.72×10^{-5}	1.24×10^{-4}	0.769	[2]	[18]	[2]
Lactococcus lactis	$2. \times 10^{-13}$	2.81×10^{-5}	1.24×10^{-4}	0.815	[2]	[18]	[2]
Lactococcus lactis	$2. \times 10^{-13}$	3.56×10^{-5}	1.24×10^{-4}	0.777	[2]	[18]	[2]
Lactococcus lactis	$2. \times 10^{-13}$	2.85×10^{-6}	1.24×10^{-4}	0.978	[2]	[19]	[2]
Methylcoccus sp.		1.63×10^{-6}				[1]	
				i		1 111	

Species Name	Mass (g)	$b (s^{-1})$	$\mu_{max} \ (\mathrm{s}^{-1}) \qquad \bar{\gamma}$		ref. for mass	ref. for b	ref. for μ_{max}
		normalized to 20° C	maximum specific growth rate normalized to 20°	average fraction of metabolism devoted to growth			
				0			
Metylmonas methanolica		1.2×10^{-5}				[1]	
Metylmonas methanolica Miarooggaya denitrifaana		1.31×10^{-6}				[1]	
Micrococcus denitrificans		2.32×10^{-6}				[1]	
Micrococcus denitrificans		6.41×10^{-7}				[1]	
Micrococcus denitrificans		1.27×10^{-7}				[1]	
Micrococcus denitrificans		3.94×10^{-6}				[1]	
Micrococcus denitrificans		5.52×10^{-6}				[1]	
Micrococcus denitrificans		2.19×10^{-6}				[1]	
Micrococcus denitrificans		2.12×10^{-6}				[1]	
mixed bacterial culture		1.08×10^{-7}				[1]	
mixed bacterial culture		4.86×10^{-6}				[1]	
mixed bacterial culture		4.71×10^{-6}				[1]	
mixed culture bacterium		2.04×10^{-6}				[1]	
mixed culture bacterium		2.44×10^{-6}				[1]	
mixed culture bacterium		3.75×10^{-6}				[1]	
mixed culture bacterium		5.72×10^{-6}				[1]	
mixea culture bacterium Neisseria meningitidisB	3×10^{-13}	8.1×10^{-6}	5.13×10^{-5}	0.975	[0]	[20]	[0]
Pseudomonas 1	3. \ 10	1.94×10^{-6}	5.15×10	0.375	[2]	[1]	[4]
Pseudomonas aeruginosa	$6. \times 10^{-13}$	1.25×10^{-6}	1.03×10^{-4}	0.988	[2]	[21]	[2]
$Pseudomonas \ C$		4.27×10^{-6}				[1]	
Pseudomonas I		1.58×10^{-6}				[1]	
Pseudomonas 135		2.83×10^{-6}				[1]	
Pseudomonas 135 Pseudomonas mothultzopha		2.85×10^{-6}				[1]	
Pseudomonas oxalaticus		7.58×10^{-7}				[1]	
Pseudomonas oxalaticus		2.04×10^{-6}				[1]	
$Rhizobium \ leguminos arum$	$6. \times 10^{-13}$	3.71×10^{-7}	2.4×10^{-5}	0.985	[2]	[22]	[2]
$Rhizobium \ leguminos arum$	$6. \times 10^{-13}$	6.81×10^{-7}	2.4×10^{-5}	0.972	[2]	[22]	[2]
Rhodopseudomonas sheperoides		8.37×10^{-7}				[1]	
Rhodopseudomonas sheperoides Streptococcus faecalis	1×10^{-12}	3.46×10^{-6}	1.37×10^{-4}	0.973	[0]	[1]	[0]
Streptococcus faecalis	1×10^{-12}	3.78×10 3.21×10^{-6}	1.37×10^{-4}	0.973	[2]	[23]	[2]
Streptococcus faecalis	$1.\times 10^{-12}$	4.1×10^{-5}	1.37×10^{-4}	0.769	[2]	[23]	[2]
Candida Albicans	1.71×10^{-11}	2.48×10^{-7}	1.49×10^{-5}	0.984	[24]	[25]	[26]
Candida Albicans	1.71×10^{-11}	7.66×10^{-7}	1.49×10^{-5}	0.951	[24]	[25]	[26]
Candida boidinii	4.22×10^{-10}	1.63×10^{-6}	1.65×10^{-5}	0.91	[27]	[1]	[28]
Candida lipolytica	4.22×10^{-10}	8.73×10^{-6}	4.15×10^{-5}	0.979	[29]	[1]	[30]
Candida lipolytica	4.22×10^{-10}	6.6×10^{-6}	4.15×10^{-5}	0.859	[29]	[1]	[30]
Candida lipolytica	4.22×10^{-10}	3.96×10^{-6}	4.15×10^{-5}	0.913	[29]	[1]	[30]
Candida lipolytica	4.22×10^{-10}	1.08×10^{-6}	4.15×10^{-5}	0.975	[29]	[1]	[30]
$Candida\ lipolytica$	4.22×10^{-10}	7.99×10^{-6}	4.15×10^{-5}	0.838	[29]	[1]	[30]
Candida lipolytica	4.22×10^{-10}	1.23×10^{-5}	4.15×10^{-5}	0.772	[29]	[1]	[30]
Candida lipolytica	4.22×10^{-10}	1.21×10^{-6}	4.15×10^{-5}	0.775	[29]	[1]	[30]
Candida lipolytica	4.22×10^{-10}	1.2×10^{-5}	4.15×10^{-5}	0.852	[29]	[1]	[30]
Candida utilis	$1.\times 10^{-11}$	2.09×10^{-6}	4.15×10^{-5} 4.46×10^{-5}	0.955	[31, 32]	[1]	[32]
Candida utilis	$1.\times 10^{-11}$	1.88×10^{-6}	4.46×10^{-5}	0.96	[31, 32]	[1]	[32]
Candida utilis	$1. \times 10^{-11}$	1.58×10^{-6}	4.46×10^{-5}	0.966	[31, 32]	[1]	[32]
Candida utilis	$1.\times 10^{-11}$	3.52×10^{-6}	4.46×10^{-5}	0.927	[31, 32]	[1]	[32]
Candida utilis	$1.\times 10^{-11}$	2.5×10^{-6}	4.46×10^{-5}	0.947	[31, 32]	[1]	[32]
Chlamadamanasi-ttii	$1.\times10^{-11}$	5.44×10^{-6}	4.46×10^{-5}	0.891	[31, 32]	[1]	[32]
Chiamyaomonas reinharatii Chiamudomonas reinhardtii	3.09×10 3.69×10^{-11}	1.41×10^{-6}	1.74×10^{-5}	0.97	[33]	[36]	[35]
Chlorella ellipsoidea	3.4×10^{-11}	7.15×10^{-7}	1.93×10^{-5}	0.964	[37]	[38]	[37]
Chlorella pyrenoidosa	1.25×10^{-11}	2.19×10^{-6}	1.66×10^{-5}	0.884	[39]	[38]	[40]
Chlorella regularis	5.22×10^{-12}	8.12×10^{-7}	1.96×10^{-5}	0.96	[41, 42]	[1]	[42]
Chlorella regularis		8.12×10^{-7}				[1]	
		3					

Species Name	Mass (g)	$b (s^{-1})$	$\mu_{max} (s^{-1})$	$\bar{\gamma}$	ref. for mass	ref. for b	ref. for μ_{max}
		normalized to 20° C	maximum specific growth rate normalized to 20°	average fraction of metabolism devoted to growth			
Chlorella regularis Chlorella regularis	5.22×10^{-12}	1.56×10^{-6} 1.56×10^{-6}	1.96×10^{-5}	0.926	[41, 42]	[1] [1]	[42]
Chlorella sorokiniana	2.65×10^{-12}	1.52×10^{-6}	1.87×10^{-5}	0.925	[43]	[38]	[43]
Chlorella vulgaris	4.68×10^{-12}	4.2×10^{-6}	1.55×10^{-5}	0.787	[44]	[45]	[44]
Dunaliella tertiolecta	2.13×10^{-11}	6.3×10^{-6}			[46]	[46]	
Hansenula polymorpha	2.65×10^{-12}	1.27×10^{-6}	1.66×10^{-5}	0.929	[47]	[1]	[48]
Hansenula polymorpha	2.65×10^{-12}	1.2×10^{-6}	1.66×10^{-5}	0.932	[47]	[1]	[48]
Hansenula polymorpha	2.65×10^{-12}	1.81×10^{-6}	1.66×10^{-5}	0.902	[47]	[1]	[48]
Hansenula polymorpha	2.65×10^{-12}	2.57×10^{-6}	1.66×10^{-5}	0.866	[47]	[1]	[48]
id		1.28×10^{-6}	8.55×10^{-6}	0.87		[38]	[38]
Isochrysis galbana	1.26×10^{-11}	7.45×10^{-7}	_		[49]	[49]	
Ochromonas sp.	1.56×10^{-10}	5.09×10^{-6}	$5. \times 10^{-5}$	0.908	[2]	[50]	[2]
Paecilomyces varioti		9.75×10^{-6}				[1]	
Pen. chrysogenum		1.74×10^{-6}				[1]	
Pen. chrysogenum		2.09×10^{-6}				[1]	
Pen. chrysogenum		6.42×10^{-6}				[1]	
Pen. chrysogenum	10	6.71×10^{-6}				[1]	
Prorocentrum micans	6.57×10^{-10}	5.31×10^{-7}	-		[49]	[49]	
Saccharomyces cerevisiae	8.25×10^{-12}	1.02×10^{-6}	4.1×10^{-5}	0.976	[51]	[1]	[52]
Saccharomyces cerevisiae	8.25×10^{-12}	2.17×10^{-6}	4.1×10^{-3}	0.95	[51]	[1]	[52]
Saccharomyces cerevisiae	8.25×10^{-12}	6.08×10^{-6}	4.1×10^{-5}	0.871	[51]	[53]	[52]
Scenedesmus obliquus	3.57×10^{-11}	1.64×10^{-6}	9.86×10^{-6}	0.858	[54]	[38]	[55]
Skeletonema costatum	1.98×10^{-11}	-1.26×10^{-0}			[46]	[46]	
Thalassiosira weisflogii	2.25×10^{-10}	4.67×10^{-7}	1.01×10^{-5}	0.956	[49]	[49]	[56]
Trichoderma viride	2.16×10^{-10}	8.93×10	1.43×10^{-5}	0.941	[57]	[1]	[58]
Trichoderma viride	2.16×10^{-10}	4.47×10^{-6}	1.43×10^{-5}	0.762	[57]	[1]	[58]
Trichoderma viride	2.16×10^{-10}	1.2×10 °	1.43×10^{-5}	0.923	[57]	[1]	[58]
Trichoderma viride	2.16×10^{-7}	5.96×10^{-6}	1.43×10^{-5}	0.706	[57]	[1]	[58]
Brachionus calyciflorus	1.25×10	2.87×10 °	1.01×10 °	0.778	[59]	[59]	[[5a]

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