

Table 6.11. ATP requirement for growth and Y_{ATP} under different nutritional conditions

Polymer	Cellular content (g/100 g dry wt)	ATP requirement (mmol/g cell) in medium						
		A	B	C	D	E	F	G
Polysaccharide	16.6	2.06	2.06	7.18	7.18	5.10	9.20	19.50
Protein	52.4	19.14	20.50	19.14	33.94	28.50	42.70	90.70
Lipid	9.4	0.14	0.14	2.70	2.70	2.50	5.00	17.20
RNA	15.7	2.40	4.37	4.62	7.13	7.00	10.10	17.84
DNA	3.2	0.57	1.05	0.99	1.59	1.30	1.90	3.36
mRNA turnover		1.39	1.39	1.39	1.39	1.39	1.39	1.39
Subtotal		25.70	29.51	36.02	53.93	45.79	70.29	149.99
Transport		5.74	5.20	11.55	20.00	20.00	30.60	5.20
Total		31.44	34.71	47.57	73.93	65.79	100.80	155.19
Y_{ATP} (g cell/mol ATP)		31.80	28.81	21.02	13.53	15.20	9.92	6.44

Cellular content is based on *Escherichia coli*.

Medium:

A, glucose + amino acids + nucleic acid bases + mineral salts.

B, glucose + mineral salts.

C, pyruvate + amino acids + nucleic acid bases + mineral salts.

D, pyruvate + mineral salts.

E, malate + mineral salts.

F, acetate + mineral salts.

G, carbon dioxide + mineral salts (chemolithotrophic metabolism).