

Table 8. Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
<i>Adenine</i>				
human erythrocytes	0.4	0.3		24
pig follicular fluid	60			21
rabbit erythrocytes	0.5			23
rabbit reticulocyte	3.3			23
rat liver	0.4			26
rat plasma	2.0			25
rat serum	8.0			27
<i>Adenosine</i>				
human erythrocytes	0.9	0.6		24
human fat	0.1			28
human placenta	42	33.3		29
rabbit erythrocyte	0.6			23
rabbit reticulocyte	3.6			23
rat cerebro-spinal fluid	1.0			28
rat liver	0.01			26
rat plasma	2.4			25
rat serum	8.0			27
<i>AMP</i>				
human blood	6.0			75
human eosinophils	3.5		9	87
human erythrocytes	12		1.2	87
human erythrocytes	17	12		24
human erythrocytes	247	173		76
human lymphocytes	1.5		4	87
human lymphocytes	23		47.8	88
human lymphocytes	70			48
human lymphoblasts	208		250	85
human monocytes	1.9		5	87
human neutrophils	2.3		6	87
mouse Ehrlich ascites cells	208	166		24
mouse leukemia L1210	186			8
mouse neuroblastoma	230		480	77
rabbit blood	66			23
rabbit erythrocytes	40			23
rabbit reticulocytes	141			23
rat brain (2 mos)	40	32		89
rat brain	31	25		89
rat heart	188	150		42
rat heart	120	96		90
rat hepatoma 3924A	343	274		63
rat hepatoma 9618A	486	389		63
rat hepatoma 8999	561	449		63
rat liver	6.8		30.6	105
rat liver	19	15		78
rat liver (2 mos)	19		28.8	105
rat liver	423	339		63
rat liver	450	360		79

Table 8 (Contd.). Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
<i>dAMP</i>				
mouse leukemia P388/D ₁	12		25	73
<i>ADP</i>				
human blood	48			75
human eosinophils	22		58	87
human erythrocyte	171		12	87
human erythrocyte	191	134		24
human erythrocyte	871	610		76
human lymphoblasts	230		460	85
human lymphocytes	16		33	87
human lymphocytes	212		441	88
human lymphocytes	360			48
human monocytes	32		67	87
human neutrophils	24		49	87
mouse Ehrlich ascites cells	1,101	881		24
mouse leukemia L1210	550		1,100	86
mouse leukemia L1210	1,050			8
mouse neuroblastoma	1,394		2,900	77
rabbit blood	328			23
rabbit erythrocytes	310			23
rabbit reticulocytes	395			23
rat brain (2 months)	228	182		89
rat brain	309	247		89
rat heart	875	700		42
rat heart	887	710		90
rat hepatoma 3924A	973	778		63
rat hepatoma 8999	1,073	858		63
rat hepatoma 9618A	1,215	972		63
rat liver	948	758		78
rat liver	982	786		63
rat liver	1,325	1,060		79
<i>ATP</i>				
human blood	433			75
human erythrocytes	1,519	1,063		76
human erythrocytes	1,629	1,140		24
human erythrocytes	1,871		131	87
human lymphocytes	390		812	87
human lymphocytes	463		948	88
human lymphocytes	1,900			48
human lymphocytes	2,303		4,790	85
mouse Ehrlich ascites cells	1,827		3,800	64
mouse Ehrlich ascites cells	2,950	2,360		81
mouse Ehrlich ascites cells	3,140	2,512		64
mouse leukemia L1210	2,740		5,700	86
mouse leukemia L1210	4,520			8
mouse leukemia P388/D ₁	1,563		3,250	73
mouse lymphoma L5178Y	2,195		1,932	80
mouse neuroblastoma	9,426		18,100	77
rabbit blood	2,403			23
rabbit erythrocytes	1,395			23
rabbit reticulocytes	3,580			23
rat hepatoma 3924A	1,206	965		63
rat hepatoma 8999	1,763	1,410		63
rat hepatoma 9618A	2,256	1,805		63
rat brain (2 months)	3,175	2,540		89
rat brain	3,325	2,660		89
rat heart	5,138	4,110		42

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Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
rat liver	2,788	2,230		79
rat liver	3,044		10,960	82
rat liver	3,050	2,440		83
rat liver	3,088	2,470		63
rat liver	4,300	3,440		78
rat hepatoma 3924A	1,206	965		63
rat hepatoma 3924A	1,261		5,045	67
rat hepatoma 8999	1,763	1,410		63
rat hepatoma 9618A	2,256	1,805		63
rat Novikoff hepatoma	6,510		12,500	84
<i>dATP</i>				
human fibroblasts HeLa	3.6		7.4	65
human lymphocytes	1.3		2.6	68
human lymphocytes	2.3		4.8	7
baby hamster kidney cells	8.9		25	64
chinese hamster ovary cells	27			66
mouse fibroblasts 3T3	62		96	64
mouse fibroblasts L929	12		15	64
rat hepatoma 9618A	4.7	3.7		63
rat hepatoma 8999	5.9	4.7		63
rat hepatoma 3924A	22	17.7		63
rat hepatoma 3924A	34		135	67
rat liver	1.5		1	63
<i>Cytidine</i>				
human plasma	0.6			32
human plasma (female)	0.7			32
human plasma (children)	<2			34
dog plasma	1.0			31
guinea pig plasma	3.9			31
rabbit plasma	4.8			31
rat cerebro-spinal fluid	2.0			35
rat plasma	3.3			32
rat plasma	5.2			25
rat plasma	5.4			30
rat plasma	8.6			33
rat serum	10			27
<i>deoxyCytidine</i>				
human plasma	<0.5			31
human plasma	0.7			22
dog plasma	26			31
guinea pig plasma	1.4			31
rabbit plasma	2.3			31
rat cerebro-spinal fluid	1.0			35
rat plasma	1.4			35
rat plasma	23			25
rat plasma	41			31
<i>Cytosine</i>				
human plasma	1.4			31
human plasma	1.7			31
dog plasma	0.9			31
guinea pig plasma	0.4			31
rabbit plasma	2.2			31
rat plasma	1.1			30
rat plasma	10			25
rat serum	24			27

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Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
<i>CMP</i>				
human erythrocyte	0	0		76
human blood (leukemia patient)	96		200	106
human leukocytes	38		80	106
mouse leukemia L1210	36			8
mouse liver	14			69
mouse lymphoma S-49	8.4		8.4	69
rat hepatoma 9618A	36	29		63
rat hepatoma 8999	50	40		63
rat hepatoma 3924A	69	55		63
rat liver	41	33		79
rat liver	44	35		63
rat liver	4.8		21.7	105
rat liver (2 months)	25		37.9	105
<i>dCMP</i>				
human H-9 cells	1.9		4	74
mouse liver	0.2			69
mouse lymphoma S-49	0.4		0.34	69
<i>CDP</i>				
human eosinophils	0.5		1	87
human erythrocyte	0	ND		76
human erythrocyte	0		ND	87
human lymphocytes	0		ND	87
human monocytes	1.4		3	87
human neutrophils	0.5		1	87
mouse leukemia L1210	190			8
mouse liver	4.1			69
mouse lymphoma S-49	21		20.9	69
rat hepatoma 8999	53	42		63
rat hepatoma 9618A	54	43		63
rat hepatoma 3924A	63	50		63
rat liver	44	35		63
rat liver	70	56		63
<i>dCDP</i>				
human H-9 cells	0.1		0.2	74
mouse liver	0.1			69
mouse lymphoma S-49	1.7		1.7	69
<i>CTP</i>				
human eosinophils	23		47	87
human erythrocytes	0	ND		76
human erythrocytes	0		ND	87
human lymphocytes	10		21.5	87
human lymphocytes	380		790	85
human monocytes	28		58	87
human neutrophils	15		32	87
chick embryo fibroblast	25		90	64
mouse fibroblasts 3T3	419		1,500	64
mouse leukemia L1210	689			8
mouse liver	3.6			69
mouse lymphoma S-49	166		166	69
mouse neuroblastoma	447		1,600	77
rat hepatoma 9618A	94	75		63
rat hepatoma 8999	96	77		63
rat hepatoma 3924A	140		560	67
rat hepatoma 3924A	259	207		63

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Compound (source)	Concentration (μ M)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
rat Novikoff hepatoma	253	500		92
rat Novikoff hepatoma	422	810		84
rat Novikoff hepatoma	427	820		64
rat brain (2 months)	220	176		89
rat brain	90	72		89
rat liver	50	40		79
rat liver	53		190	82
rat liver	71	57		63
rat liver	100	80		83
rat liver	143	114		47
<i>dCTP</i>				
human fibroblasts HeLa	20		31	65
human H-9 cells	0.3		0.5	74
human lymphocytes	0.7		1.4	68
human lymphocytes	2.0		4.2	7
baby hamster kidney	23		65	64
chinese hamster ovary fibroblasts	33		48	66
mouse liver	0.1			69
mouse lymphoma S-49	18		18.1	69
mouse lymphoma S-49	54		56	64
mouse lymphoma S-49	37		38	64
rat liver	7.4	5.9		63
rat hepatoma 9618A	9.1	7.3		63
rat Novikoff hepatoma	5.7		11	62
rat hepatoma 9618A	9.1	7.3		63
rat hepatoma 8999	23	18.6		63
rat hepatoma 3924A	66	52.5		63
<i>Guanine</i>				
human lymphoblasts	97			36
rat plasma	0.4			25
<i>Guanosine</i>				
human serum	0.9			37
rat plasma	0.3			25
rat serum	3.0			27
<i>GMP</i>				
human eosinophils	2.0		4.1	87
human erythrocytes	0		ND	87
human lymphocytes	1.0		2	87
human lymphocytes	7.3		14.9	88
human lymphocytes	30			48
human lymphocytes	34		70	85
human monocytes	2.4		5	87
human neutrophils	1.4		3	87
mouse Ehrlich ascites cells	148	118		24
mouse leukemia L1210	19			8
mouse neuroblastoma	140		140	77
rat hepatoma 3924A	65	52		63
rat hepatoma 9618A	71	57		63
rat hepatoma 8999	84	67		63
rat liver	20	16		79
rat liver	3.6		16.2	105
rat liver	41	33		63

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Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
<i>dGMP</i>				
mouse leukemia P388/D ₁	9.1		19	73
<i>GDP</i>				
human eosinophils	1.7		3.5	87
human erythrocytes	14	10		24
human erythrocytes	16		1.1	87
human lymphocytes	5.8		12	87
human lymphocytes	29.7		60.9	88
human lymphocytes	70			48
human lymphocytes	72		150	85
human monocytes	14		30	87
human neutrophils	17		35	87
human platelets	2.3		4.8	87
mouse Ehrlich ascites cells	287	201		24
mouse leukemia L1210	115		240	86
mouse leukemia L1210	200			8
rabbit erythrocytes	63			23
rabbit reticulocytes	95			23
rat brain (2 months)	101	81		89
rat brain	156	125		89
rat heart	100	80		90
rat liver	121	97		63
rat liver	140	112		79
rat hepatoma 8999	148	118		63
rat hepatoma 3924A	171	137		63
mouse neuroblastoma	212		440	77
<i>GTP</i>				
human eosinophils	138		286	87
human erythrocytes	86	60		24
human erythrocytes	64		4.5	87
human leukemia HL-60	543		1,130	91
human lymphocytes	72		150	87
human lymphocytes	86		176.8	88
human lymphocytes	310			48
human lymphocytes	582		1,210	85
human monocytes	140		291	87
human neutrophils	185		384	87
chick embryo fibroblasts	47		170	64
mouse Ehrlich ascites	240		500	64
mouse Ehrlich ascites	799	639		24
mouse fibroblasts 3T3	528	1,900		64
mouse leukemia L1210	449			8
mouse leukemia L1210	481		1,000	86
mouse leukemia P388/D ₁	108		225	73
mouse neuroblastoma	875	3,150		77
rabbit erythrocytes	216			23
rabbit reticulocytes	680			23
rat brain (2 months)	651	521		89
rat brain	551	441		89
rat heart	188	150		90
rat heart	238	190		42
rat hepatoma 9618A	313	250		63
rat hepatoma 8999	324	259		63
rat hepatoma 3924A	356		1,425	67
rat hepatoma 3924A	405	324		63
rat Novikoff hepatoma	729		1,400	64
rat liver	344		1,240	82

Table 8 (Contd.). Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
rat liver	388	310		83
rat liver	390	312		63
rat liver	443	354		47
rat liver	464	371		79
rat liver	1,028		3,700	64
<i>dGTP</i>				
human fibroblasts HeLa	6.4		10	65
human lymphocytes	0.4		0.9	68
human lymphocytes	2.9		6.1	7
baby hamster kidney fibroblasts	1.4		3.8	64
chinese hamster ovary fibroblasts	1.3		1.9	66
mouse fibroblasts 3T3	15		24	64
mouse fibroblasts L929	13		17	64
rat hepatoma 9618A	1.7	1.3		63
rat hepatoma 8999	2.7	2.2		63
rat hepatoma 3924A	5.4	4.3		63
rat hepatoma 3924A	8.6		34.5	67
rat liver	1.3	1		63
<i>Hypoxanthine</i>				
human placenta	284	227		29
human plasma	0.5			40
human plasma	1.0			39
human plasma	1.2			41
human serum	<10			38
porcine follicular fluid	1,410			21
rabbit erythrocyte	13			23
rabbit reticulocyte	68			23
rat cerebro-spinal fluid	4.5			35
rat heart	138	110		42
rat liver	0.2			26
rat plasma	0.1			25
rat plasma	5.1			35
<i>Inosine</i>				
human brain	750			44
human cerebro-spinal fluid (adult)	1.8			45
human cerebro-spinal fluid (adult)	4.0			43
human cerebro-spinal fluid (newborn)	0.6			45
human placenta	85	68		29
human plasma	0.5			40
human plasma	1.0			39
human plasma	1.2			41
human serum	5.6			37
rabbit erythrocytes	2.5			23
rabbit reticulocytes	41			23
rat cerebro-spinal fluid	1.2			35
rat liver	0.2			26
rat plasma	0.5			25
rat plasma	1.6			35
rat serum	20			27
<i>IMP</i>				
human eosinophils	11		22	87
human erythrocytes	100	70		24
human erythrocytes	14		1	87
human lymphocytes	1.0		2	87

Table 8 (Contd.). Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
human monocytes	24		49.1	88
human monocytes	2.9		6	87
human neutrophils	11		23	87
rabbit erythrocytes	50			23
rabbit reticulocytes	110			23
rat heart	114	91		90
rat hepatoma 3924A	89		355	67
rat liver	10	8		79
rat liver	39	31		63
<i>Orotate</i>				
human lymphoblasts	<10		<20	48
human serum	<0.045			46
mouse leukemia L1210	132			8
rat liver	0.5	0.4		47
rat plasma	0.2			49
<i>Orotidine</i>				
human erythrocytes	20			50
human erythrocytes (renal failure)	221			50
human plasma	5			50
mouse leukemia L1210	149			8
<i>OMP</i>				
mouse leukemia L1210	16			8
rat liver	0.1	0.07		47
<i>Thymine</i>				
rat plasma	0.1			25
rat serum	4.7			27
<i>DeoxyThymidine</i>				
human plasma (cancer patients)	0.8			22
fetal calf serum	1.4			51
fetal calf serum	13			53
horse serum	0.2			51
mouse serum	1.0			52
rat cerebro-spinal fluid	0.6			35
rat plasma	0.6			35
rat plasma	1.3			25
rat serum	13			27
<i>dTMP</i>				
human H-9 cells	1.4		2.8	74
mouse liver	0.5			69
mouse lymphoma S-49	0.5		0.52	69
<i>dTDP</i>				
human H-9 cells	2.4		4.9	74
mouse liver	0.2			69
mouse liver	0.6			69
mouse lymphoma S-49	3.7	3.4	69	
<i>dTTP</i>				
human HeLa cells	39		82	65
human H-9 cells	4.1		8.6	74
human lymphoblasts	19		40	70

Table 8 (Contd.). Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
human lymphocytes	0.7		1.4	7
human lymphocytes	5.8		12.1	68
baby hamster kidney fibroblasts	11		31	64
chinese hamster ovary fibroblasts	29		38.4	66
<i>E. coli</i>	100			71
mouse leukemia P388/D ₁	89		185	73
mouse lymphoma S-49	22		19.9	69
mouse fibroblasts 3T3	49		77	64
mouse fibroblasts 3T6	58		90	64
mouse fibroblasts L929	51		80	64
rat liver	0.9	0.7		63
rat liver	1.6	1.3		63
rat hepatoma 9618A	1.9	1.5		63
rat hepatoma 8999	4.0	3.2		63
rat hepatoma 3924A	11	8.5		63
rat hepatoma 3924A	25		47	67
rat Novikoff hepatoma	22		42	62
<i>Uracil</i>				
human plasma	1.0			54
human plasma (male)	1.0			31
human plasma (female)	1.8			31
dog plasma	0.7			31
guinea pig plasma	0.5			31
pig follicular fluid	440			21
rabbit plasma	5.0			31
rat plasma	1.7			31
rat plasma	2.9			25
rat serum	24			27
<i>Uridine</i>				
human cerebro-spinal fluid (newborn)	3.5			45
human cerebro-spinal fluid (adult)	1.8			45
human cerebro-spinal fluid (adult)	3.9			43
human cerebro-spinal fluid (head injury)	0.4			43
human plasma	4.5			40
human plasma	4.8			41
human plasma	4.3			54
human plasma	3.1			58
human plasma	3.5			57
human plasma	4.5			31
human plasma (children)	2.5			34
human plasma (male)	4.9			31
human plasma (female)	21			22
human serum	3.0			60
human serum	3.2			37
human serum	4.5			40
human serum	5.1			61
human serum	5.4			60
human serum	15			55
calf serum	3.8			58
dog plasma	<3			31
fetal calf serum	5.1			58
guinea pig plasma	13			31
mouse cells HCT-8	9.0			56
mouse cells W256	12.1			56
mouse colon tumor	7.3			56
mouse fibroblasts L1210	9.2			56

Table 8 (Contd.). Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
mouse intestine	13			56
mouse kidney	31			56
mouse liver	27			56
mouse lymphoma L5178Y	7.9			56
mouse mast cell P388	8.4			56
mouse plasma	1.2			30
mouse plasma	3.2			56
mouse sarcoma 180	6.9			56
mouse serum	5.0			58
mouse serum	10			61
mouse spleen	38			56
rabbit cerebro-spinal fluid	7.6			35
rabbit plasma	8.5			35
rabbit plasma	11			31
rat plasma	0.9			32
rat plasma	1.2			30
rat plasma	2.4			25
rat plasma	3.6			33
rat plasma	3.9			58
rat serum	6.5			61
<i>DeoxyUridine</i>				
human plasma	0.6			22
rat cerebro-spinal fluid	1.1			35
rat Novikoff hepatoma	0.2		0.3	62
rat plasma	0.5			35
<i>UMP</i>				
human erythrocytes	0	0		76
mouse leukemia L1210	77			8
mouse liver	301			69
mouse lymphoma S-49	15		15.2	69
rat brain (2 months)	28	22		89
rat brain	18.9	15		89
rat liver	38	30		83
rat liver	5.4		19.5	105
rat liver	90	72		63
rat liver	259	207		47
rat liver	301			69
rat liver	370	296		79
rat hepatoma 9618A	170	136		63
rat hepatoma 3924A	196	157		63
rat hepatoma 8999	364	291		63
<i>dUMP</i>				
human H-9 cells	4.8		10	74
human lymphoblasts	0.5		1	70
mouse liver	0.2			69
mouse lymphoma S-49	<0.1		<0.1	69
rat Novikoff hepatoma	6.3		12	62
<i>UDP</i>				
human eosinophils	2.8		6	87
human erythrocytes	0		ND	87
human erythrocytes	0	ND		76
human lymphocytes	2.4		5	87
human monocytes	5.8		12	87
human neutrophils	2.9		6	87
mouse Ehrlich ascites cells	40	32		24

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Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
mouse leukemia L1210	331			8
mouse liver	50			37
mouse lymphoma S-49	108		108	37
mouse neuroblastoma	410		850	77
rat brain (2 months)	55	44		89
rat brain	24	19		89
rat liver	50			37
rat liver	75	60		83
rat liver	140	112		63
rat liver	161	129		63
rat liver	170	136		47
rat liver	263	210		79
rat hepatoma 9618A	131	105		63
rat hepatoma 8999	160	128		63
rat hepatoma 3924A	311	249		63
<i>dUDP</i>				
human H-9 cells	1.0		2	74
human lymphoblasts	0.02		0.05	70
mouse liver	<0.1		<0.1	69
mouse lymphoma S-49	<0.1		<0.1	37
<i>UTP</i>				
human eosinophils	65		135	87
human erythrocytes	0	ND		76
human erythrocytes	2.9		0.2	87
human lymphocytes	56		116	87
human lymphocytes	942		1,960	85
human monocytes	140		291	87
human neutrophils	61		127	87
human platelets	0.2		0.41	87
chick embryo fibroblasts	56		200	64
mouse Ehrlich ascites cells	124	99		24
mouse Ehrlich ascites cells	264		550	64
mouse fibroblasts 3T3	865		3,100	64
mouse leukemia L1210	1,460			8
mouse liver	29			37
mouse lymphoma S-49	609		560	37
mouse lymphoma L5178Y	519		470	64
mouse neuroblastoma	1,808		3,760	77
rat hepatoma	825	660		92
rat hepatoma 9618A	266	213		63
rat hepatoma 8999	285	228		63
rat hepatoma 3924A	318		1,270	67
rat hepatoma 3924A	321	257		63
rat brain (2 months)	973	778		89
rat brain	260	208		89
rat liver	295	236		47
rat liver	325	260		83
rat liver	338	270		79
rat liver	370	296		63
rat liver	379	303		63
rat liver	419		1,510	82
rat liver	551	441		47
rat Novikoff hepatoma	1,133		2,175	84
rat sarcoma 180	380		380	64
<i>dUTP</i>				
human lymphoblasts	<0.0003		<0.3 pmol	70

Table 8 (Contd.). Specific concentrations of purine and pyrimidines

Compound (source)	Concentration (μM)	nmoles/ g wet wt.	nmoles/ 10^9 cells	Reference
<i>E. Coli</i>	0.5			107
mouse fibroblasts 3T6	0.2		0.4	72
mouse liver	0.1			69
mouse lymphoma S-49	<0.1		<0.1	69
<i>Xanthine</i>				
human brain	125			44
human cerebro-spinal fluid (adult)	1.8			45
human cerebro-spinal fluid (adult)	3.3			43
human cerebro-spinal fluid (newborn)	5.0			45
human erythrocytes	3.6	2.5		24
human plasma	0.4			40
human plasma	4.9			39
human serum	2.6			37
rat heart	50	40		42
rat liver	0.5			26
<i>XMP</i>				
human lymphocytes	7.3		14.9	88
rat liver	4.0	3		79
rat liver	4.0	3		63