

Collection of published 5S and 5.8S RNA sequences and their precursors

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The 1980 collection (1) of mature 5S and 5.8S RNA sequences as well as those of their precursors are updated. This summary does not include those earlier publications in which the oligonucleotide composition, but not the sequences of 5S RNAs has been reported. For this information the reader is referred to reference 2.

The possible structures and functions of prokaryotic 5S and 5.8S RNAs are discussed in two other reviews (3,4).

I would also like to thank those colleagues who have sent me their pre- or reprints on small ribosomal RNA sequences in 1981.

Eubacterial 5S RNA Sequences

Abbreviation	RNA Source	Reference Number
A.N.	<u>Anacystis nidulans</u> 1405/1 Katz/Allen (Blue-green Alga)	5
B.H.	<u>Beneckea harveyi</u> 392	72
B.L.	<u>Bacillus licheniformis</u> S 244	6, 7, 9
B.M.	<u>Bacillus megaterium</u> KM	8
B.S. (a)	<u>Bacillus stearothermophilus</u> 1439 FV	9
B.S. (b)	<u>Bacillus stearothermophilus</u> (strain not given)	10
B.S. (b)	<u>Bacillus stearothermophilus</u> 799	11
B.Su.	<u>Bacillus subtilis</u> 168	7, 9
B.Q.	<u>Bacillus Q</u>	7
C.P.	<u>Clostridium pasteurianum</u> ATCC 6013	12
E.C. (a)	<u>Escherichia coli</u> MRE 600	13 - 17
E.C. (b)	<u>Escherichia coli</u> CA265	13 - 16

EUBACTERIAL 5S RNA SEQUENCES

		10	20	30	40	50	60	70	80	90	100	110	120
L.V. (m)	pUGUUGUGAUGAUGGCAUUGAGGCCACACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC
L.V.	pUGUUGUGAUGAUGGCAUUGAGGCCACACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC	CAUAGGCGCCACACCGUUC
M.S.	pUUCACAUCCGCCAGGACCGCGGGAUUAACAGCGCGG	GAUUAACAGCGCGGGAUUAACAGCGCGGGAUUAAC	AGCGCGGGAUUAACAGCGCGGGAUUAACAGCGCGG	GAUUAACAGCGCGGGAUUAACAGCGCGGGAUUAAC	AGCGCGGGAUUAACAGCGCGGGAUUAACAGCGCGG	GAUUAACAGCGCGGGAUUAACAGCGCGGGAUUAAC	AGCGCGGGAUUAACAGCGCGGGAUUAACAGCGCGG	GAUUAACAGCGCGGGAUUAACAGCGCGGGAUUAAC	AGCGCGGGAUUAACAGCGCGGGAUUAACAGCGCGG	GAUUAACAGCGCGGGAUUAACAGCGCGGGAUUAAC	AGCGCGGGAUUAACAGCGCGGGAUUAACAGCGCGG	GAUUAACAGCGCGGGAUUAACAGCGCGGGAUUAAC	AGCGCGGGAUUAACAGCGCGGGAUUAACAGCGCGG
F.V.	pUGUCUGCGCCCAUAGCGGCAUGUGGUC	CCACUAGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAU	AGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCC	CAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAU	AGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCC	CAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAU	AGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCC	CAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAU	AGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCC	CAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAU	AGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCC	CAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAU	AGUCCCAUAGUCCCAUAGUCCCAUAGUCCCAUAGUCC
F.	pUGUUGCGGCAUAGCGGUUUGGACACCCACUAGUCC	CUUUGGACACCCACUAGUCCCUUUGGACACCCACUAGU	CCCUUUGGACACCCACUAGUCCCUUUGGACACCCACU	AGUCCCUUUGGACACCCACUAGUCCCUUUGGACACCC	ACUAGUCCCUUUGGACACCCACUAGUCCCUUUGGAC	ACCCACUAGUCCCUUUGGACACCCACUAGUCCCUU	UGGACACCCACUAGUCCCUUUGGACACCCACUAGUCC	CUUUGGACACCCACUAGUCCCUUUGGACACCCACU	AGUCCCUUUGGACACCCACUAGUCCCUUUGGACACCC	ACUAGUCCCUUUGGACACCCACUAGUCCCUUUGGAC	ACCCACUAGUCCCUUUGGACACCCACUAGUCCCUU	UGGACACCCACUAGUCCCUUUGGACACCCACUAGUCC	CUUUGGACACCCACUAGUCCCUUUGGACACCCACU
F.F.	pUGUUCUGGACGAGUAGCGCAUUGGAAACCVGAUCC	CAUUGGAAACCVGAUCCCAUUGGAAACCVGAUCCCAU	UGGAAACCVGAUCCCAUUGGAAACCVGAUCCCAUUG	GAAACCVGAUCCCAUUGGAAACCVGAUCCCAUUGG	AAACCVGAUCCCAUUGGAAACCVGAUCCCAUUGG	AACCVGAUCCCAUUGGAAACCVGAUCCCAUUGG	ACCVGAUCCCAUUGGAAACCVGAUCCCAUUGG	CCVGAUCCCAUUGGAAACCVGAUCCCAUUGG	CVGAUCCCAUUGGAAACCVGAUCCCAUUGG	VGAUCCCAUUGGAAACCVGAUCCCAUUGG	GAUCCCAUUGGAAACCVGAUCCCAUUGG	CCCAUUGGAAACCVGAUCCCAUUGG	CAUUGGAAACCVGAUCCCAUUGG
T.A.	pAAUCCCGCCUUAAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC
T.T.	pAAUCCCGCCUUAAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC	CCCAUAGCGCGGUGGAACACACCGUUC
M.C.	pUUGGUGGUUAGCAUAGAGGUCACACCUUUGCC	AUGCCACACCUUUGCCACACGAAAGUUAAGCUCU	UUAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUA	AGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGC	UCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCU	UAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUA	AGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGC	UCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCU	UAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUA	AGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGC	UCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCU	UAAGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUA	AGCUCUUAAGCUCUUAAGCUCUUAAGCUCUUAAGC

EUBACTERIAL 5S RNA PRECURSORS

P.B.Q. (A1)	pUGAGAGAACACCCUCUCAUUGG.....mature 5S RNA.....AAUCAUACGGUCCCAUGCGAUGC	CUAAAGGCUUUU ^X OH
P.B.Q. (A2)	pUGAGAGAACACCCUCUCAUUGG.....mature 5S RNA.....AAUCAUACGGUCCCAUGCGAUGC	CUAAAGGCUUUU ^X OH
P.B.Q. (A3)	pUGAGAGAACACCCUCUCAUUGG.....mature 5S RNA.....GAAUUCUACCCAGUUCUA	Gxxxxxxx ^X OH
P.B.Q. (B1)	pUGAGAGAACACCCUCUCAUUGG.....mature 5S RNA.....UUUUU ^X OH	
P.B.Q. (B2)	pUGAGAGAACACCCUCUCAUUGG.....mature 5S RNA.....UUUUU ^X OH	
P.B.Su.	pUGAGAGAACACCCUCUCAUUGG.....Mature 5S RNA.....AAGCUUAAAACCCAGCUCAAU	AGCGCGGCUUUUUUUUUUUG ^X OH
P.E.C.	pAAUU, pUU and pU have been found at the 5' end of E. coli 5S RNA	

The single underlined sequences are tentative. The double underlined nucleotides occur in less than one mole per mole 5S RNA. Nucleotides written directly under another nucleotide in the sequence indicates that it may also be found in this position. X indicates nucleotide unknown. For abbreviation of organisms and literature reference see opposite page.

Eubacterial 5S RNA Sequences

Abbreviation	RNA Sources	Reference Number
L.V. (m)	<u>Lactobacillus viridescens</u> ATCC 12 706 (minor)	73
L.V.	<u>Lactobacillus viridescens</u> ATCC 12 706	19
M.S.	<u>Mycobacterium smegmatis</u> SN2	20
P.V.	<u>Proteus vulgaris</u> (strain not given)	17
P	<u>Photobacter</u> 8265	21
P.F.	<u>Pseudomonas fluorescens</u> ATCC 13430	22
T.A.	<u>Thermus aquaticus</u> ATCC 25104	23
T.T.	<u>Thermus thermophilus</u> HB8	74
M.C.	<u>Mycoplasma capricolum</u> ATCC 27 343	75
<u>Prokaryotic 5S RNA Precursors</u>		
p.B.Q. (A ₁ -B ₂)	<u>Bacillus Q</u>	24
p.B.Su.	<u>Bacillus subtilis</u> 168	25, 26
p.E.C.	<u>Escherichia coli</u> 217 (sud-1)	27

CHLOROPLAST 5S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100	110	120
B. B.	P	A	U	U	C	G	G	U	C	U	A	G	C
D.	P	A	U	U	C	G	G	U	C	U	A	G	C
D. B.	P	A	U	U	C	G	G	U	C	U	A	G	C
S.	P	A	U	U	C	G	G	U	C	U	A	G	C
T.	P	A	U	U	C	G	G	U	C	U	A	G	C

MITOCHONDRIA 5S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100	110	120
W.	P	A	A	C	C	G	G	C	A	C	U	A	C

The double underlined nucleotides occur in less than one mole per mole 5S RNA. For abbreviation of organisms and literature reference see opposite page.

Chloroplast 5S RNA Sequences

Abbreviation		Reference Number
B.B.	Broad bean (<u>Vicia faba</u>)	28
D.	Duckweed (<u>Lemna minor</u>)	28
D.B.	Dwarf bean (<u>Phaseolus vulgaris</u>)	28
S.	Spinach (<u>Spinacia oleracea</u>)	76
T.	Tobacco (<u>Nicotiana tabacum</u> var. Bright Yellow 4)	28, 77
<u>Mitochondria 5S RNA Sequences</u>		
W.	Wheat embryo (<u>Triticum vulgare</u> Vill., <u>Triticum aestivum</u> L. var. Thatcher)	29

ARCHAEBACTERIAL 5S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100	110	120
H.C.	p	U	A	A	G	G	C	C	A	U	A	G	C
H.M.	† <td>p</td> <td>U</td> <td>A</td> <td>A</td> <td>G</td> <td>C</td> <td>C</td> <td>A</td> <td>U</td> <td>A</td> <td>G</td> <td>C</td>	p	U	A	A	G	C	C	A	U	A	G	C
S.A.	p	U	A	A	G	C	C	A	U	A	G	C	C
T.A.	p	U	A	A	G	C	C	A	U	A	G	C	C

† H.M. 5S RNA sequence has the following 108 nucleotide insertion between positions 108 and 109 :

GCCUCGCAAGAGGGCCAGUGUGAGCCAGGAGCGCAUICGGUAGUACACCGGAGUICCGCGUGGAACCGGAGCCGUCGGUUAACAACGGCUCUAACUAGU

The double underlined nucleotides occur in less than one mole per mole 5S RNA. For abbreviation of organisms and literature reference see opposite page.

Archaeobacterial 5S RNA Sequences

Abbreviation	RNA Source	Reference Number
H.C.	<u>Halobacterium cutirubrum</u> N.R.C. 34001	18
H.M.	<u>Halococcus morrhuae</u> ATCC 17082	78
S.A.	<u>Sulfolobus acidocaldarius</u>	79
T.A.	<u>Thermoplasma acidophilum</u> (122-1B2 or 122-1B3)	80

EUKARYOTIC 5S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100	110	120
A.C.	p	g	g	a	u	a	c	g	g	u	a	c	u
A.N.	p	g	a	u	a	c	g	g	u	a	c	u	u
B.B.	p	g	g	u	c	g	g	u	a	c	u	u	u
B.M.	p	g	c	a	u	a	c	g	g	u	a	c	u
C(a)	p	p	p	p	p	p	p	p	p	p	p	p	p
C(b)	p	p	p	p	p	p	p	p	p	p	p	p	p
C.C.	p	g	c	u	a	c	g	g	u	a	c	u	u
C.F.	p	g	a	u	a	c	g	g	u	a	c	u	u
C.R.I	p	a	u	g	a	u	a	c	g	g	u	a	c
C.R.II	p	a	u	g	a	u	a	c	g	g	u	a	c
C.P.	p	p	p	p	p	p	p	p	p	p	p	p	p
D.	p	g	g	u	c	g	g	u	a	c	u	u	u
D.M.	p	p	p	p	p	p	p	p	p	p	p	p	p
D.B.	p	g	c	u	a	c	g	g	u	a	c	u	u
H.L.	p	p	p	p	p	p	p	p	p	p	p	p	p
K.B.	p	g	c	u	a	c	g	g	u	a	c	u	u
L.A.	p	g	c	u	a	c	g	g	u	a	c	u	u
L.V.	p	g	c	u	a	c	g	g	u	a	c	u	u
M.F.O.	p	g	c	u	a	c	g	g	u	a	c	u	u
M.F.S.	p	g	c	u	a	c	g	g	u	a	c	u	u
N.C.	p	a	u	a	c	g	g	u	a	c	u	u	u
Re.	p	g	c	u	a	c	g	g	u	a	c	u	u
Ry.	p	g	a	u	a	c	g	g	u	a	c	u	u
R.T.	p	p	p	p	p	p	p	p	p	p	p	p	p

Single underlined sequences are tentative. Double underlined nucleotides or 5' phosphates occur in less than one mole per mole 5S RNA. ? underneath the 3' terminal U of the D.B. sequence indicates that it has not clearly been identified as uridine. For abbreviations of organisms and literature references see opposite page.

Eukaryotic 5S RNA Sequences

Abbreviation	Source	Reference Number
A.C.	<u>Acanthamoeba castellanii</u>	81
A.N.	<u>Aspergillus nidulans</u> (strain paba A1, bi A1)	82
B.B.	Broad bean (<u>Vicia faba</u>)	30, 31
B.M.	<u>Bombyx mori</u>	83
C (a)	Chicken (<u>Gallus gallus</u>), embryo fibroblast culture	32
C (b)	Chicken, embryo fibroblast culture	33
C.C.	<u>Cryptocodinium cohnii</u>	84
C.F.	<u>Crithidia fasciculata</u>	34
C.R. I. and II.	<u>Chlamydomonas reinhardtii</u> (CW 15)	85
C.P.	<u>Chlorella pyrenoidosa</u> 211/8b	35
D.	Duckweed (<u>Lemna minor</u>)	28
D.M.	<u>Drosophila melanogaster</u> F6 of KC	36
D.B.	Dwarf bean (<u>Phaseolus vulgaris</u>)	30, 31
H.L.	HeLa Cells	37, 38
K.B.	KB cells	39, 40
L.A.	<u>Lingula anatina</u>	86
L.V.	<u>Lytechinus variegatus</u> (sea urchin)	41
M.F.O.	<u>Misgurnus fossilis</u> (Oocyte)	87
M.F.S.	<u>Misgurnus fossilis</u> (Somatic)	87
N.C.	<u>Neurospora crassa</u>	82
Re.	Reptile (<u>Iguana iguana</u>)	42
Ry.	Rye (<u>Secale cereale</u> c.v. Lovaszpatonai)	30, 31
R.T.	Rainbow trout (<u>Salmo gairdneri</u> , RTG-2)	43

EUKARYOTIC 5S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100	110	120
Sp.	p	g	g	g	g	g	g	g	g	g	g	g	g
S.	p	g	g	g	g	g	g	g	g	g	g	g	g
To.	p	g	g	g	g	g	g	g	g	g	g	g	g
Tu.	p	g	g	g	g	g	g	g	g	g	g	g	g
T.t.	p	g	g	g	g	g	g	g	g	g	g	g	g
W.E.	p	g	g	g	g	g	g	g	g	g	g	g	g
XLS	p	g	g	g	g	g	g	g	g	g	g	g	g
XLO	p	g	g	g	g	g	g	g	g	g	g	g	g
XMS	p	g	g	g	g	g	g	g	g	g	g	g	g
XMO	p	g	g	g	g	g	g	g	g	g	g	g	g
YSc ^a	p	g	g	g	g	g	g	g	g	g	g	g	g
YSc ^b	p	g	g	g	g	g	g	g	g	g	g	g	g
YSc ^c	p	g	g	g	g	g	g	g	g	g	g	g	g
YSc ^e	p	g	g	g	g	g	g	g	g	g	g	g	g
YKL	p	g	g	g	g	g	g	g	g	g	g	g	g
YPM	p	g	g	g	g	g	g	g	g	g	g	g	g
YSch	p	g	g	g	g	g	g	g	g	g	g	g	g
YTU	p	g	g	g	g	g	g	g	g	g	g	g	g

EUKARYOTIC 5S RNA PRECURSORS

P.D.M. Drosophila melanogaster 5S RNA sequence plus at 3' end ... CUUCCACAUUUUUU^{OH} 125 130 135
 P.H.L. 5S RNA synthesized by isolated HeLa cell nuclei in vitro was found to terminate at the 3' end with CUU^{OH} (60%), CUUU^{OH} (20%) and CUUUU^{OH} (20%).

Single underlined sequences are tentative. Double underlined nucleotides or 5' phosphates occur in less than one mole per mole 5S RNA. X in W.E. is not certain; could be occupied by one or more unknown nucleotides. For abbreviation of organisms and literature references see opposite page.

Eukaryotic 5S RNA Sequences

Abbreviation	Source	Reference Number
Sp.	Spinach (<u>Spinacia oleracea</u> L. var. 424)	88
S.	Sunflower (<u>Helianthus annuus</u>)	30, 31
To.	Tomato (<u>Lycopersicon esculentum</u>)	30, 31
Tu.	Turtle (Terrapene carolina, TH-I line of hear cells)	44
T.t.	<u>Tetrahymena thermophila</u>	45
W.E.	Wheat embryo	46
X.L.S.	<u>Xenopus laevis</u> (somatic from kidney)	42-44, 49-51
X.L.O.	<u>Xenopus laevis</u> (oocytes)	42-44, 49-51
X.M.S.	<u>Xenopus mulleri</u> (somatic)	52
X.N.O.	<u>Xenopus mulleri</u> (oocytes)	52
Y.S.Ca. (a)	Yeast (<u>Saccharomyces carlsbergensis</u>)	53
Y.S.Ca. (b)	Yeast (<u>Saccharomyces carlsbergensis</u>)	54
Y.S.Ce.	Yeast (<u>Saccharomyces cerevisiae</u>)	54, 55
Y.K.L.	Yeast (<u>Kluyveromyces lactis</u>)	54
Y.P.M.	Yeast (<u>Pichia membranaefaciens</u>)	54
Y.Sch.	Yeast (<u>Schizosaccharomyces pombe</u> , IFO No. 0345)	89
Y.T.U.	Yeast (<u>Torulopsis utilis</u>)	56
<u>Eukaryotic 5S RNA Precursors</u>		
p.D.M.	Drosophila melanogaster Kco	57
p.H.L.	HeLa cells	58

EUKARYOTIC 5.8S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100	
A. C.	P	A	A	C	C	C	A	A	C	C	C	C
C.	P	A	A	C	C	C	A	A	C	C	C	C
C. C.	P	A	A	C	C	C	A	A	C	C	C	C
C. R.	P	A	A	C	C	C	A	A	C	C	C	C
H. L.	P	A	A	C	C	C	A	A	C	C	C	C
M.	P	A	A	C	C	C	A	A	C	C	C	C
N. C.	P	A	A	C	C	C	A	A	C	C	C	C
N. H.	P	A	A	C	C	C	A	A	C	C	C	C
R. T.	P	A	A	C	C	C	A	A	C	C	C	C
T.	P	A	A	C	C	C	A	A	C	C	C	C
	101	110	120	130	140	150						
A. C.	U	G	A	A	C	C	A	A	C	C	C	C
C.	U	G	A	A	C	C	A	A	C	C	C	C
C. C.	U	G	A	A	C	C	A	A	C	C	C	C
C. R.	U	G	A	A	C	C	A	A	C	C	C	C
H. L.	U	G	A	A	C	C	A	A	C	C	C	C
M.	U	G	A	A	C	C	A	A	C	C	C	C
N. C.	U	G	A	A	C	C	A	A	C	C	C	C
N. H.	U	G	A	A	C	C	A	A	C	C	C	C
R. T.	U	G	A	A	C	C	A	A	C	C	C	C
T.	U	G	A	A	C	C	A	A	C	C	C	C

The double underlined nucleotides occur in less than one mole per mole 5.8S RNA. Nucleotide written directly under another nucleotide in the sequence indicates that it may also be found in this position. m indicates that the nucleotide is methylated. N.C. sequence has been derived from rDNA.

Eukaryotic 5.8S RNA Sequences

Abbreviation	RNA Source	Reference Number
A.C.	<u>Acanthamoeba castellanii</u>	81
C.	Chicken (embryonic cells)	59
C.C.	<u>Cryptosporidium cohnii</u>	84
C.R.	Chlamydomonas reinhardtii	85
H.L.	HeLa cells	59, 60
M.	Mouse (MPC-11 cells)	60
N.C.	<u>Neurospora crassa</u>	61
N.H.	Novikoff hepatoma ascites cells	62
R.T.	Rainbow trout (<u>Salmo gairdneri</u> , RTG-2)	63
T.	Turtle (heart cells CCL 50)	64

EUKARYOTIC 5.8S RNA SEQUENCES

	1	10	20	30	40	50	60	70	80	90	100
V.F.	P	A	G	A	U	G	A	U	G	A	U
W.E.	P	A	C	A	C	A	C	U	C	C	G
X.B.	P	G	A	C	U	U	A	G	C	C	G
X.L.	P	G	A	C	U	U	A	G	C	C	G
Y.S.Ce.	P	A	A	C	U	U	A	G	C	C	G
D.M.*	P	A	C	U	U	A	G	C	C	G	A
	101	110	120	130	140	150					
V.F.	C	U	U	U	A	G	C	C	G	A	U
W.E.	G	U	U	U	A	G	C	C	G	A	U
X.B.	U	U	C	A	G	C	C	C	C	C	C
X.L.	U	U	C	A	G	C	C	C	C	C	C
Y.S.Ce.	U	U	C	A	G	C	C	C	C	C	C
D.M.*	A	M	C	C	A	U	U	C	C	G	A

The double underlined nucleotides occur in less than one mole per mole 5.8S RNA. Nucleotide written directly under another nucleotide in the sequence indicates that it may also be found in this position. m indicates that the nucleotide is methylated. N.C. sequence has been derived from rDNA.* Nucleotides 1-123 correspond to m5.8S and nucleotides 152-181 to 2S RNA; nucleotides 124-151 are part of the precursor and removed during processing. For abbreviations of organisms and literature references see opposite page.

Eukaryotic 5.8S RNA Sequences

Abbreviation	RNA Source	Reference Number
V.F.	<u>Vicia faba</u> (broad bean)	65
W.E.	wheat embryo	46
X.B.	<u>Xenopus borealis</u> (somatic)	66
X.L.	<u>Xenopus leavis</u> (somatic)	59, 66
Y.S'.Cé.	Yeast (<u>Saccharomyces cerevisiae</u> A364A gal-1 ade-1 ade-2 ura-1 his-7 lys-2 try-1 (ATCC 22 244))	67
D.M.*	<u>Drosophila melanogaster</u>	68

EUKARYOTIC 5.8S RNA PRECURSORS

- p.H.L. pUCG instead of pCG has also been found at the 5' end of HeLa cell 5.8S RNA.
- p.X.L. Three different 5' nucleotides are reported: pUCG (40%), pCG (20%) and pC (40%).
From DNA sequencing data the additional 5' and 3' nucleotide sequences in precursor 5.8S RNA were deduced as follows:
5' end: GCGGGCCCGGACCGUCAGACGGCAGCCCGGGUAGCCUCCGACCCGAAAGAAAACCGACCGCGGCGGAGAGCCUG...
3' end: ...GACGUCCAUCGCCCCCGCGGUCGCGGCOH

p.Y.S.Ca. The following additional sequence has been found at the 3' end: CCUUCUCAAACAUAUCUGp

p.Y.S.Ce. pUAUUA and pUAUUA have been found at the 5' end of this yeast 5.8S RNA.

EUKARYOTIC 5.8S RNA PRECURSORS

Abbreviation	RNA Source	Reference Number
p.H.L.	HeLa cells	59
p.X.L.	<u>Xenopus leavis</u> (somatic)	66,69
p.Y.S.Ca.	Yeast (<u>Saccharomyces carlsbergensis</u> , S-74)	70
p.Y.S.Ce.	Yeast (<u>Saccharomyces cerevisiae</u> S288 α mal gal-2)	71

Single underlined sequences are tentative.

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