Arabidopsis rRNA modification sites and conservation with human and yeast

SnoRNA	Predicted Sites	Mapped Sites	Human SnoRNA	Human sites	Yeast SnoRNA	Yeast Sites	Conservation of sites
5.8S							
AtsnoR9	Am47	1,2	-	-	-	-	P
AtsnoR85	Ψ78						P
AtsnoR39BY	Gm79	1.2	Nd	Gm75	-	-	PH
18S							
AtU27	Am28		U27	Am27	SnR74	Am28	PHY
AtsnoR66	Cm38		-	-	-	-	P
AtsnoR100	Ψ111		Nd	Ψ110			PH
AtsnoR18	Am162		U44	Am166	-	-	PH
AtsnoR89	Ψ220		-	-	-		P
AtsnoR42	Um305		-	-	-		P
AtsnoR86	Ψ360		-	-	-		P
AtsnoR30	Gm390	1,2	Nd	Gm436	-	-	PH
AtsnoR58	Gm391	1	Nd	Gm436	-	-	PH
AtU14	Cm416		U14	Cm462	U14	Cm414	PHY
AtsnoR15/ AtU16	Am438	1,2	U16	Am484	-	-	PH
AtsnoR17	Am466	2	Nd	Am512	-	-	PH
AtU56	Cm471	2	U56	Cm517	-	-	PH
AtsnoR43/ AtsnoR41Y	Am543	1	Nd	Am590	SnR41	Am541	PHY
AtsnoR77Y	Um580		Nd	Um627	SnR77	Um578	PHY
AtU54	Gm597		U54	Gm644	-	-	PH
AtsnoR91	Ψ604		-	-	-		P
AtsnoR13	Um613		-	-	-	-	P
AtU36	Am621		U36a	Am668	SnR47	Am619	PHY
AtsnoR73	Ψ634		Nd	Ψ681	-	-	PH
AtsnoR39	Gm668		-	-	-	-	P
AtsnoR87	Ψ715		-	-	-		P
AtsnoR77	Ψ752		-	-	-		P
AtsnoR91	Ψ761		Nd	Ψ815	-	-	PH
AtsnoR25	Cm795		-	-	-	-	P
AtsnoR53Y	Am799	2	-	-	SnR53	Am796	PY

AtsnoR99	Ψ803						P
AtsnoR84	Ψ827						P
AtsnoR76	Ψ918						P
AtsnoR90	Ψ948		Nd	Ψ1004			PH
AtsnoR59	Am975	2	U59	Am1031	SnR54	Am975	PHY
AtsnoR5/ AtsnoR72	Ψ1000		Nd	Ψ1056	SnR31	Ψ998	PHY
AtsnoR20.1	Um1010	1,3	-	-	-	-	P
AtsnoR20.2	Cm1011	3	-	-	-	-	P
AtsnoR91	Ψ1090						P
AtsnoR35	Um1104		-	-	-	-	P
AtsnoR5/ AtsnoR72	Ψ1118		-	-	-	-	P
AtsnoR38	Um1158		-	-	-	-	P
AtsnoR46	Cm1174		-	-	-	-	P
AtsnoR14	Um1232		Nd	Um1288	-	-	PH
AtsnoR8/ AtsnoR67	Um1261		-	-	-	-	P
AtsnoR32	Um1263	3	-	-	-	-	P
AtsnoR34/ U33	Um1270	2	U33	Um1326	SnR55	Um1267	PHY
AtsnoR21	Gm1272	2	U32	Gm1328	SnR40	Gm1269	PHY
AtsnoR88	Ψ1302		-	-	-	-	P
AtsnoR32	Am1327		Nd	Am1383	-	-	PH
AtU61	Um1381		U61	Um1442	-	-	PH
AtsnoR69	Gm1415		-	-	-		P
AtsnoR19	Gm1431		U25	Gm1490	SnR56	Gm1427	PHY
AtsnoR19	Um1445	1	-	-	-	-	P
AtsnoR73	Ψ1520		-	-	-	-	P
AtsnoR78	Ψ1523		-	-	-	-	P
AtsnoR64	Am1527		-	-	-	-	P
AtsnoR54	Am1558		-	-	-	-	P
AtsnoR8	Am1575		-	-	-	-	P
AtsnoR48	Gm1596		-	-	-	-	P
AtU43	Cm1641		U43	Cm1705	SnR70	Cm1638	PHY
AtsnoR11	Am1662		-	-	-	-	P
AtsnoR23	Am1754	1	Nd	Am1850	Nd	Am1779	PHY
25S							
AtsnoR89	Ψ35		-	-	-	-	P
AtsnoR16.2	Um36		-	-	-	-	P
AtsnoR16	Um48		-	-	-	-	P
AtsnoR94	Ψ132		-	-	-	-	P
AtsnoR36	Um145		-	-	-	-	P
AtsnoR55	Am184		-	-	-	-	P
AtsnoR45	Gm207		-	-	-	-	P
AtsnoR76	Ψ214		-	-	-	-	P
AtsnoR65	Gm398		-	-	-	-	P

AtU18	Am660		U18	Am1313	U18	Am647	PHY
AtsnoR58Y	Cm674		Nd	Cm1327	SnR58	Cm661	PHY
AtsnoR82	Ψ783		-	-	-	-	P
AtsnoR70	Um784	1	-	-	-	-	P
AtsnoR39BY	Gm812	1,2	Nd	Gm1509	SnR39B	Gm803	PHY
AtU51	Am814	2	U51/U32a	Am1511	SnR39/59	Am805	PHY
AtU80	Am824		U80/U77	Am1521	SnR60	Am815	PHY
AtsnoR77	Ψ826		Nd	Ψ1523			PH
AtsnoR57	Gm849		-	-	-	-	P
AtsnoR72Y	Am883		-	-	SnR72	Am874	PY
AtU80	Um915		U80	Gm1612	SnR60	Gm906	PHY
AtsnoR80	Ψ999		nd	Ψ1717	SnR49	Ψ990	PHY
AtsnoR81/ AtsnoR98	Ψ1013		Nd	Ψ1731	SnR5	Ψ1004	PHY
AtsnoR41Y	Um1064		-	-	-	-	P
AtsnoR47	Gm1079		-	-	-	-	P
AtsnoR80	Ψ1130		nd	Ψ1909	SnR5	Ψ1124	PHY
AtU38	Am1140		U38ab	Am1858	SnR61	Am1131	PHY
AtsnoR36	Um1218		-	-	-	-	P
AtsnoR96	Ψ1246		-	-	-	-	P
AtsnoR61	Am1248		-	-	-	-	P
AtsnoR22	Am1260	1	-	-	-	-	P
AtsnoR22	Um1275	1	-	-	-	-	P
AtU24	Cm1439	2	U24	Cm2338	U24	Cm1435	PHY
AtU24	Am1451	2	U76	Am2350	U24	Am1447	PHY
AtU49	Cm1510	2	U49	Cm2409	-	-	PH
AtsnoR56	Gm1583		-	-	-	-	P
AtsnoR50	Gm1717		-	-	-	-	P
AtsnoR63	Cm1840		-	-	-	-	P
AtsnoR59	Gm1845	2	-	-	-	-	P
AtsnoR15	Cm1850	2	U55/U39	Cm2791	-	-	PH
AtU55							
AtsnoR33	Am1861	2	Nd	Am2802	-	-	PH
AtU34	Um1882	1,2	U34	Um2824	SnR62	Um1886	PHY
AtsnoR47	Gm1989		-	-	-	-	P
AtsnoR60	Gm2114	1,4	-	-	-	-	P
AtsnoR12	Am2116	3,4	-	-	-	-	P
AtsnoR87	Ψ2126		Nd	Ψ3618			PH
AtsnoR99	Ψ2201		Nd	Ψ3694			PH
AtU37	Am2204	2	U37	Am3697	-	-	PH
AtU36a	Am2210	2	U36	Am3703	SnR47	Am2218	PHY
AtU36a	Gm2226		-	-	-	-	P
AtsnoR92	Ψ2244		Nd	Ψ3737	-	-	PH
AtsnoR79	Ψ2248		Nd	Ψ3741	-	-	PH
AtU19	Ψ2250		Nd	Ψ3743			PH
AtU15	Am2271	1,2	U15	Am3764	SnR13	Am2279	PHY
AtsnoR62	Cm2275		-	-	-	-	P
AtU15	Gm2278	2	-	-	SnR75	Gm2286	PY
AtsnoR83	Ψ2304		Nd	Ψ3797			PH
AtU30	Am2311	2	U30	Am3804	-	-	PH

AtsnoR44	Am2316	1,2	U79	Am3809	-	-	PH
AtsnoR44	Cm2327	1	U74	Cm3820	SnR64	Cm2235	PHY
AtsnoR83	Ψ2339		Nd	Ψ3832			PH
AtsnoR37/ AtU53	Cm2355	1	U53	Am3848	-	-	PH
AtsnoR29	Gm2381		-	-	-	-	P
AtsnoR53	Um2400	1	-	-	-	-	P
AtsnoR24	Cm2404	1,2	-	-	-	-	P
AtsnoR37	Um2411		U52	Um3904	SnR78	Um2414	PHY
AtsnoR16.1	Um2445		-	-	-	-	P
AtsnoR40	Um2483		-	-	-	-	P
AtsnoR86	Ψ2555		-	-	-	-	P
AtsnoR35/ AtU31	Gm2610	2	U31	Gm4166	SnR67	Gm2616	PHY
AtsnoR78	Ψ2620		-	-	-	-	P
AtsnoR68Y	Am2631	2	-	-	SnR68	Am2637	PY
AtsnoR10	Um2641	2	Nd	Um4197	-	-	PH
AtsnoR95	Ψ2703		-	-	-	-	P
AtsnoR97	Ψ2707		Nd	Ψ4263			PH
AtsnoR68	Um2726		-	-	-	-	P
AtsnoR93	Ψ2773		Nd	Ψ4330			PH
AtsnoR1	Gm2781	1,2,4	-	-	SnR48	Gm2788	PY
AtsnoR38Y	Gm2805		-	-	SnR38	Gm2812	PY
AtU65	Ψ2816		U65	Ψ4373	SnR34	Ψ2823	PHY
AtsnoR24	Cm2826		-	-	-	-	P
AtsnoR71	Gm2831		-	-	-	-	P
AtsnoR41	Gm2829		-	-	-	-	P
AtsnoR49	Um2863		-	-	-	-	P
AtU49	Cm2869	1,2	U49	Cm4426	-	-	PH
AtU65	Ψ2870		U65	Ψ4427	SnR34	Ψ2877	PHY
AtsnoR64	Um2873		-	-	-	-	P
AtsnoR52	Gm2885		-	-	-	-	P
AtsnoR31	Am2901		-	-	-	-	P
AtsnoR34	Gm2907		Nd	Gm4464	-	-	PH
AtsnoR74/ AtsnoR75	Ψ2913		Nd	Ψ4470	Nd	Ψ2920	PHY
AtsnoR18	Am2924		-	-	-	-	P
AtU29	Am2936		U29	Am4493	SnR71	Am2943	PHY
AtsnoR69Y	Cm2938		-	-	SnR69	Cm2945	PY
AtsnoR51	Gm2942		-	-	-	-	P
AtU35	Cm2949	2	U35	Cm4506	SnR73	Cm2956	PHY
AtsnoR13	Um3289		-	-	-	-	P

Mapped sites with unknown snoRNA

Nd	Gm1452	2	Nd	Gm2351	U24	Gm1448	PHY
Nd		Um1634	-	-	-	-	P
Nd		Um1918	-	-	-	-	P

Nd	Gm2642	U58	Gm4198	-	-	PH
Nd	Gm2783	U60	Gm4340	SnR48	Gm2790	PHY
Nd	Cm2847	-	-	-	-	P
Nd	Cm2856	Nd	Cm4413	-	-	PH
Nd	Um2943	Nd	Um4500	-	-	PH

Nd - methylation site but no snoRNA identified; "-" - no human/yeast site and no known human/yeast snoRNA. Numbering of *Arabidopsis,* human and yeast rRNAs are based on Genbank Accessions: X16077 and X52320, U13369 (see Kiss-László et al. 1996) and the snoRNA database for *S. cerevisiae* methyl guide snoRNAs (http://fisher.wustl.edu/eddy/snoRNAdb/SC/Sc-snos-bysno.html). P – plant, H – Human, Y – yeast.

References for mapped sites:

1. Barneche et al. (2001)
2. Brown et al. (2001)
3. Qu et al. (2001)
4. Barneche et al. (200)