Supplementary Table S1

AT Island Name	Chromosome	Origin Activity	AT island position	Estimated Pre-RC Position	ArchAlign Center	ArchAlign Orientation	Alignment By Eye Center	Alignment By Eye Orientation	Origin Cluster Group
AT1011	1	0	61,883	62,226	61,673	-	61,980	R	6
AT1012	1	0	69,875	70,226	70,075	+	69,740	L	6
AT1013	1	0	79,100	79,226	78,910	+	79,160	R	6
AT1014	1	0	85,100	84,726	85,260	+	85,360	R	6
AT1015+	1	1	112,616	112,976	112,846	+	112,470	L	8
AT1018	1	1	193,340	199,476	199,570	+	193,450	R	4
AT1020	1	0	244,052	244,101	243,932	-	243,960	R	1
AT1021	1	0	294,353	294,476	294,123	+	294,190	L	6
AT1022-	1	0	302,237	302,226	302,407	-	302,130	L	8
AT1025	1	1	364,688	364,726	364,818	-	364,790	R	7
AT1026	1	0	410,210	410,351	410,180	+	410,330	R	5
AT1027	1	1	440,291	440,726	440,181	-	440,300	R	5
AT1028	1	1	473,526	473,476	473,758	+	473,470	L	1
AT1029	1	1	489,647	489,601	489,497	+	489,660	R	6
AT1030	1	1	562,682	562,726	562,742	-	562,750	R	4
AT1031	1	0	608,015	607,976	608,155	+	608,170	R	8
AT1032	1	0	649,973	650,101	650,163	-	650,120	R	10
AT1033+ori12	1	1	714,881	715,101	714,641	-	714,800	L	2
AT1034	1	0	765,300	765,101	765,340	+	765,450	R	7
AT1035	1	0	794,126	793,976	794,096	+	793,950	L	1
AT1039	1	1	902,342	902,226	902,112	-	902,200	L	4
AT1040	1	1	965,468	965,601	965,608	-	965,440	R	9
AT1041+	1	0	1,027,487	1,027,476	1,027,367	+	1,027,470	L	8
AT1042	1	1	1,079,624	1,079,351	1,079,444	-	1,079,630	R	2
AT1043	1	1	1,090,154	1,090,351	1,090,374	+	1,090,220	R	5
AT1044+ars1	1	1	1,095,955	1,096,226	1,095,799	+	1,095,850	L	1
AT1045+ori1324(L)	1	0	1,148,285	1,147,976	1,148,095	-	1,148,130	L	2
AT1046	1	1	1,156,574	1,156,601	1,156,734	+	1,156,420	L	6
AT1047	1	1	1,196,318	1,196,351	1,196,368	-	1,196,320	R	6
AT1048	1	1	1,255,016	1,254,976	1,255,106	+	1,255,210	R	4
AT1049	1	1	1,274,915	1,275,101	1,274,855	+	1,274,970	R	6
AT1050	1	0	1,359,760	1,359,726	1,359,610	+	1,359,780	R	7
AT1053	1	1	1,476,423	1,476,726	1,476,193	-	1,476,430	L	2
AT1055	1	1	1,509,093	1,509,101	1,508,923	-	1,509,050	L	10
AT1057	1	1	1,708,074	1,708,226	1,707,974	-	1,707,920	L	1
AT1061	1	1	1,834,218	1,834,101	1,834,068	-	1,834,210	L	9
AT1062	1	0	1,894,654	1,894,351	1,894,404	+	1,894,810	R	6
AT1063	1	1	1,953,558	1,953,976	1,953,778	+	1,953,720	L	8
AT1064	1	1	1,974,718	1,974,976	1,974,558	-	1,974,720	L	1
AT1065	1	0	2,041,975	2,041,976	2,041,865	+	2,042,010	R	4
AT1067	1	0	2,095,876	2,096,101	2,096,036	+	2,095,910	L	9
AT1068	1	0	2,140,013	2,140,351	2,139,773	+	2,140,000	R	3
AT1069	1	1	2,193,959	2,194,351	2,193,759	+	2,193,950	L	1
AT1070+ori18	1	1	2,227,913	2,227,976	2,227,873	-	2,227,900	L	3
AT1073	1	1	2,249,699	2,249,726	2,249,459	+	2,249,800	R	10
AT1074	1	1	2,280,038	2,279,976	2,279,898	-	2,280,190	R	4
AT1077	1	0	2,339,438	2,339,601	2,339,248	-	2,339,360	L	6
AT1079	1	0	2,405,696	2,406,101	2,405,856	+	2,405,800	R	4
AT1082	1	1	2,451,766	2,451,851	2,451,526	+	2,451,690	L	9
AT1085	1	0	2,617,595	2,617,851	2,617,755	+	2,617,510	L	1
AT1086	1	0	2,642,794	2,643,226	2,642,664	-	2,642,980	R	1
AT1088	1	0	2,667,783	2,667,726	2,667,863	+	2,667,900	R	9
AT1090	1	1	2,719,467	2,719,726	2,719,727	+	2,719,360	L	8
AT1092	1	1	2,761,402	2,761,726	2,761,272	+	2,761,480	R	4
AT1094	1	0	2,882,821	2,882,851	2,882,901	-	2,882,830	R	10
AT1095	1	1	2,959,798	2,959,976	2,959,698	-	2,959,690	L	9
AT1096	1	1	3,009,792	3,009,976	3,010,032	+	3,009,930	R	4
AT1097	1	1	3,022,351	3,022,351	3,022,561	-	3,022,360	L	7
AT1098+ars766	1	1	3,059,904	3,060,101	3,059,914	-	3,059,870	R	8
AT1099	1	1	3,127,142	3,126,976	3,127,062	-	3,127,030	L	1
AT1101	1	1	3,184,327	3,184,476	3,184,247	-	3,184,440	R	4
AT1104	1	1	3,300,586	3,300,726	3,300,816	-	3,300,630	L	3
AT1106	1	1	3,404,760	3,404,851	3,405,010	+	3,404,630	L	10
AT1107	1	1	3,410,079	3,410,476	3,410,289	+	3,410,105	L	1
AT1109+oric27	1	1	3,497,987	3,498,226	3,497,857	-	3,497,960	L	1
AT1110	1	1	3,541,135	3,541,226	3,540,983	-	3,541,140	L	5
AT1111	1	1	3,548,757	3,548,726	3,548,927	+	3,548,810	R	4
AT1112	1	1	3,570,030	3,570,101	3,569,850	+	3,569,970	R	1
AT1114	1	1	3,576,699	3,576,851	3,576,799	+	3,576,620	L	3
AT1115	1	1	3,634,834	3,634,726	3,635,010	+	3,634,830	R	1
AT1116	1	1	3,700,368	3,700,601	3,700,138	-	3,700,400	L	8
AT1124	1	1	3,852,468	3,852,476	3,852,598	+	3,852,430	R	8
AT1125	1	1	3,877,955	3,878,226	3,877,825	+	3,878,020	R	10
AT1126	1	1	3,881,843	3,881,976	3,881,953	-	3,881,750	L	1
AT1127	1	1	3,897,655	3,897,851	3,897,565	+	3,897,540	L	2
AT1128	1	1	3,952,743	3,953,101	3,952,973	+	3,952,890	L	4
AT1130	1	1	4,019,009	4,019,351	4,018,909	-	4,019,060	L	9
AT1131+ori19	1	1	4,071,563	4,071,851	4,071,653	+	4,071,620	R	7
AT1132	1	1	4,088,058	4,088,226	4,087,838	+	4,087,930	L	5
AT1133	1	1	4,136,472	4,136,476	4,136,252	-	4,136,350	L	8
AT1134	1	1	4,185,037	4,184,976	4,185,247	+	4,184,960	R	7
AT1135+pcr1	1	1	4,254,118	4,254,226	4,254,338	+	4,254,040	R	4
AT1136	1	1	4,274,774	4,274,727	4,274,934	-	4,274,630	L	1
AT1137	1	1	4,325,804	4,325,852	4,325,894	+	4,325,780	L	10
AT1138	1	0	4,368,234	4,365,352	4,365,324	-	4,365,090	L	4
AT1139	1	1	4,414,644	4,414,852	4,414,514	+	4,414,750	R	9
AT1140	1	0	4,450,279	4,450,477	4,450,439	+	4,450,330	R	7
AT1141	1	1	4,533,196	4,533,227	4,533,106	+	4,533,250	R	4
AT1142	1	0	4,604,503	4,604,477	4,604,373	+	4,604,640	R	4
AT1143	1	0	4,652,617	4,652,602	4,652,477	-	4,652,780	R	4
AT1145	1	1	4,739,441	4,739,477	4,739,671	-	4,739,500	R	4
AT1146	1	1	4,778,861	4,778,727	4,779,031	-	4,778,895	R	7
AT1147	1	1	4,852,506	4,852,602	4,852,406	+	4,852,750	R	4
AT1148	1	1	4,881,717	4,882,102	4,881,507	+	4,881,600	L	1
AT1149	1	1	4,963,182	4,963,227	4,963,042	+	4,963,010	L	6
AT1152+ori22	1	1	5,024,510	5,024,477	5,024,490	+	5,024,670	R	10
AT1154	1	0	5,096,737	5,096,852	5,096,847	+	5,096,680	R	1
AT1155	1	1	5,155,732	5,156,102	5,155,672	+	5,155,680	R	4
AT1156-	1	1	5,233,665	5,233,477	5,233,565	+	5,233,520	L	3
AT1159	1	0	5,321,925	5,322,102	5,322,065	-	5,321,790	L	10
AT1160	1	1	5,392,989	5,393,102	5,393,229	-	5,392,880	L	1
AT1162	1	1	5,448,528	5,448,477	5,448,708	+	5,448,640	R	9
AT1163	1	1	5,476,122	5,476,102	5,476,062	-	5,476,170	R	5
AT1164	1	1	5,481,954	5,482,102	5,482,204	-	5,482,070	L	5
AT1168	1	0	5,521,031	5,520,977	5,521,121	+	5,521,100	R	4
AT1169	1	0	5,529,266	5,528,977	5,529,526	+	5,529,020	L	6
AT1003	2	0	31,591	31,376	31,811	-	31,620	L	7
AT1004	2	0	37,990	38,126	38,230	-	38,200	R	5
AT1006	2	0	52,947	53,126	52,907	+	53,200	R	7
AT1007	2	0	66,448	66,876	66,308	-	66,270	L	6
AT1009	2	0	74,629	74,376	74,779	+	74,710	R	8
AT2001	2	0	86,095	85,976	86,245	+	85,920	R	4
AT2002	2	1	90,118	90,226	90,358	+	90,000	L	9
AT2011	2	1	141,229	141,351	141,189	-	141,200	R	3
AT2012	2	1	151,246	151,226	151,096	+	151,360	R	5
AT2013	2	0	201,150	201,101	201,060	+	201,090	L	1
AT2014	2	0	203,715	203,476	203,595	-	203,580	L	5
AT2015	2	1	258,359	258,226	258,349	-	258,470	R	8
AT2016	2	1	277,745	277,726	277,765	-	277,910	R	4
AT2018	2	1	325,987	325,726	325,857	-	325,500	L	3
AT2019	2	1	332,332	332,476	332,492	+	332,520	R	3
AT2023	2	0	453,571	453,726	453,771	+	453,390	L	9
AT2024	2	1	519,965	520,226	519,795	-	520,180	R	6
AT2025	2	1	569,900	569,976	569,820	-	569,840	R	5
AT2026+	2	1	603,036	603,226	602,906	-	602,780	L	8
AT2028	2	1	673,979	674,101	674,149	-	674,110	R	7
AT2029	2	1	745,662	745,351	745,812	-	745,490	R	8
AT2031	2	1	842,880	843,351	842,760	+	842,830	L	1
AT2035	2	0	948,909	948,726	949,109	+	948,940	R	7
AT2036	2	0	957,123	957,226	957,323	+	957,110	L	5
AT2038	2	1	1,105,417	1,105,601	1,105,187	+	1,105,430	L	1
AT2039	2	1	1,141,734	1,141,736	1,141,894	-	1,142,100	R	3
AT2041+	2	1	1,255,105	1,254,851	1,255,165	+	1,255,300	R	1
AT2044+oriC7	2	1	1,277,494	1,277,726	1,277,434	+	1,277,500	L	9
AT2046	2	1	1,312,921	1,312,726	1,312,901	-	1,312,240	L	8
AT2047	2	1	1,443,584	1,443,601	1,443,844	-	1,443,830	R	1
AT2048	2	1	1,456,609	1,456,726	1,456,395	+	1,456,470	L	5
AT2049+ars2004	2	1	1,545,393	1,545,601	1,545,473	+	1,545,620	R	8
AT2051	2	1	1,588,874	1,589,101	1,588,764	-	1,588,950	R	3
AT2062	2	0	1,867,909	1,868,076	1,868,009	+	1,867,800	L	2
AT2063	2	1	2,023,135	2,023,451	2,023,185	-	2,023,090	R	4
AT2065	2	1	2,051,953	2,051,951	2,052,143	-	2,052,030	R	9
AT2066	2	0	2,069,851	2,069,951	2,070,031	-	2,069,830	R	1
AT2067+	2	0	2,104,745	2,104,701	2,104,645	-	2,104,800	R	5
AT2068+ars756	2	2	2,117,386	2,117,701	2,117,426	+	2,117,560	R	6
AT2072+	2	2	2,183,595	2,186,326	2,186,027	+	2,185,820	L	10
AT2073	2	1	2,246,422	2,246,076	2,246,612	+	2,245,650	L	6
AT2074	2	1	2,318,875	2,318,951	2,319,055	+	2,318,730	L	4
AT2075	2	0	2,410,842	2,410,826	2,411,052	+	2,410,700	L	4
AT2076	2	2	2,443,087	2,443,451	2,443,347	+	2,443,200	R	6
AT2080+	2	2	2,581,223	2,581,201	2,581,163	-	2,581,080	L	10
AT2081	2	2	2,593,770	2,593,826	2,593,580	-	2,593,780	R	7
AT2085	2	2	2,738,855	2,738,701	2,739,073	-	2,738,860	R	8
AT2086+tug1	2	2	2,790,853	2,790,951	2,791,003	+	2,790,810	L	1
AT2089	2	2	2,900,791	2,900,951	2,900,901	+	2,900,800	L	2
AT2091	2	2	2,939,044	2,939,201	2,939,194	+	2,939,130	R	4
AT2092	2	2	2,986,505	2,986,951	2,986,465	+	2,986,600	R	9
AT2094	2	2	3,052,169	3,052,201	3,052,349	-	3,052,000	R	4
AT2095	2	0	3,097,745	3,097,826	3,097,945	+	3,097,820	R	1
AT2097	2	2	3,175,879	3,176,076	3,175,669	+	3,175,930	R	4
AT2100	2	2	3,287,345	3,287,201	3,287,416	-	3,287,560	R	5
AT2102+ori4	2	1	3,361,351	3,361,451	3,361,601	+	3,361,500	L	1
AT2104	2	0	3,407,996	3,408,326	3,407,926	-	3,408,170	R	10
AT2105	2	1	3,422,201	3,422,201	3,422,211	-	3,422,100	L	7
AT2107	2	1	3,491,311	3,491,326	3,491,091	+	3,491,290	R	7
AT2108	2	1	3,556,572	3,556,576	3,556,602	+	3,556,560	R	5
AT2110	2	1	3,605,263	3,605,451	3,605,033	+	3,605,490	R	5
AT2111	2	1	3,634,936	3,635,076	3,635,136	+	3,634,830	R	1
AT2114	2	1	3,720,365	3,720,826	3,720,595	-	3,720,540	R	4
AT2115	2	2	3,762,551	3,762,951	3,762,411	-	3,762,650	R	7
AT2116	2	1	3,839,008	3,839,076	3,839,248	-	3,838,920	L	1
AT2119	2	1	3,916,012	3,916,201	3,916,032	-	3,916,050	L	10
AT2123	2	2	4,019,245	4,019,451	4,019,395	+	4,019,410	R	10
AT2125	2	0	4,107,292	4,107,576	4,107,102	-	4,107,290	L	4
AT2128	2	0	4,202,614	4,203,076	4,202,364	+	4,202,780	R	6
AT2129	2	0	4,292,268	4,292,576	4,292,508	+	4,292,370	R	7
AT2130	2	1	4,360,316	4,360,201	4,360,286	-	4,360,290	L	4
AT2132	2	1	4,440,658	4,440,451	4,440,478	+	4,440,620	R	6
AT2133	2	0	4,451,769	4,451,451	4,451,579	+	4,451,800	R	1
AT3003	3	1	76,546	76,501	76,386	-	76,420	L	10
AT3005+ars3002	3	1	123,246	123,376	123,460	-	123,350	R	10
AT3006	3	1	207,048	207,376	207,098	-	207,020	R	7
AT3007	3	1	232,105	232,001	231,945	-	232,000	R	1
AT3009	3	1	253,945	254,001	254,065	+	253,990	R	6
AT3010	3	1	286,507	286,501	286,487	+	286,460	R	9
AT3013	3	1	397,828	398,126	397,848	+	397,800	L	5
AT3015	3	1	505,423	505,626	505,193	+	505,530	R	5
AT3016	3	1	518,869	518,751	518,889	+	518,780	R	5
AT3017	3	1	565,309	565,626	565,099	+	565,450	R	3
AT3018	3	1	575,083	575,126	575,283	+	574,870	L	3
AT3019	3	1	643,042	643,126	643,102	-	642,900	L	1
AT3020	3	1	666,316	666,126	666,076	+	666,320	L	1
AT3021	3	1	719,776	720,126	719,676	+	719,790	L	10
AT3023	3	1	827,479	827,376	827,279	-	827,300	L	8
AT3024	3	1	854,020	853,626	854,170	+	854,000	R	9
AT3025	3	1	936,788	936,626	936,758	+	936,770	R	5
AT3026	3	1	971,536	971,251	971,775	+	972,060	R	6
AT3027	3	0	1,039,386	1,039,626	1,039,316	-	1,039,330	L	5
AT3040	3	1	1,323,039	1,323,101	1,322,919	-	1,323,030	L	8
AT3043+	3	1	1,410,384	1,410,351	1,410,144	-	1,410,400	R	5
AT3044+	3	1	1,416,918	1,416,976	1,416,848	-	1,416,800	L	4
AT3045	3	1	1,448,481	1,448,226	1,448,231	-	1,448,480	R	1
AT3046	3	1	1,510,851	1,510,976	1,510,871	+	1,510,970	R	4
AT3048	3	1	1,594,295	1,594,351	1,594,455	+	1,594,240	L	2
AT3049	3	1	1,608,524	1,608,976	1,608,314	-	1,608,660	R	7
AT3052	3	1	1,689,416	1,689,476	1,689,166	+	1,689,270	L	6
AT3054	3	1	1,727,432	1,727,851	1,727,352	-	1,727,330	L	1
AT3055+oriC11	3	1	1,821,905	1,822,226	1,821,985	+	1,822,010	L	10
AT3056+nmt1	3	1	1,837,457	1,837,601	1,837,287	+	1,837,580	R	4
AT3057+	3	1	1,844,126	1,844,476	1,844,276	-	1,844,300	R	1
AT3059	3	1	1,928,933	1,929,101	1,928,903	-	1,929,150	R	6
AT3060	3	1	2,035,313	2,035,476	2,035,543	-	2,035,510	R	8
AT3062	3	1	2,107,456	2,107,476	2,107,355	+	2,107,490	L	7
AT3064	3	1	2,200,754	2,200,976	2,200,504	+	2,200,860	R	7
AT3065	3	1	2,276,165	2,276,226	2,276,005	-	2,276,000	R	4
AT3066	3	0	2,308,565	2,308,726	2,308,645	+	2,308,580	L	3
AT3068	3	1	2,382,140	2,382,601	2,381,970	+	2,382,010	L	1

This table shows all the AT islands that are within ±500 bp of a pre-RC, along with some of their characteristics. The column "AT Island Name" shows the original name of the AT island [1], plus an indication (+ or –) of whether the AT island has previously been tested for origin activity by 2D gel electrophoresis (+ indicates origin activity was detected; – indicates it was not), plus the name assigned to the AT island/origin in publications prior to 2006. The column "Origin Activity" indicates whether the pre-RC associated with the AT island was found by Hayashi et al. [2] to be active in early S phase ("1") or inactive in early S phase ("0"). The latter set of origins were thought to be either weak or late-firing. The column "AT Island Position" shows the position of the AT island based on visual estimation of the peak of A+T content in a sliding 500-bp window within the intergenic region originally associated with the AT island [1, 3]. The column "Estimated Pre-RC Position" shows the average of the estimated positions of peaks of Orc1 and Mcm6 content [2]. "ArchAlign Center" shows the position of the origin center as determined by the ArchAlign algorithm. "ArchAlign Orientation" indicates whether, in the final ArchAlign alignment, the indicated origin is in the chromosomal orientation ("+") or in the reverse orientation ("-"). "Alignment by Eye Center" shows the origin center positions as estimated by eye, based primarily on the position of minimal predicted nucleosome occupancy. "Alignment by Eye Orientation" indicates whether, in the final alignment by eye, the indicated origin is in the chromosomal orientation ("R") or in the reverse orientation ("L"). The column "Origin Cluster Group" shows the number of the cluster group to which the indicated origin was assigned by k-means clustering (Figure 6).

1. Segurado M, Luis Ad, Antequera F: Genome-wide distribution of DNA replication origins at A + T-rich islands in *Schizosaccharomyces pombe*. EMBO reports 2003, 4:1048-1053.
2. Hayashi M, Katou Y, Itoh T, Tazumi A, Yamada Y, Takahashi T, Nakagawa T, Shirahige K, Masukata H: Genome-wide localization of pre-RC sites and identification of replication origins in fission yeast. EMBO J 2007, 26:1327-1339.
3. Mickle KL, Ramanathan S, Rosebrock A, Oliva A, Chaudari A, Yompakdee C, Scott D, Leatherwood J, Huberman JA: Checkpoint-independence of most DNA replication origins in fission yeast. BMC Mol Biol 2007, 8:112.

Supplementary Table S2. Positions of peaks and centers of mass of the pre-RC protein profiles in Figures 5A and S8.

	ArchAlign (Figure 5A)		**Alignment by eye** (Figure S8)	
	Peak Positions	Center of Mass Positions	Peak Positions	Center of Mass Positions
MCM6	-104	-17	-159	-78
ORC1	-84	-28	-101	-80
ORC4	-58	-31	-79	-79

To calculate center of mass positions for each of the pre-RC protein profiles in Figures 5A and S8, we chose the point on the X axis that allowed the sum of values on its left to be as close as possible to the sum of values on its right. Note that in Figure 5A the minimum value within the NDR (based on LFN data; orange line) is at position +44 bp. Thus in Figure 5A the binding peaks for the three pre-RC proteins are located ~100–150 bp to the left of the NDR center, and the centers of mass for the three pre-RC proteins are located ~60–75 bp to the left of the NDR center. Similarly, in Figure S8, the position of the minimum within the NDR (based on LFN data) is -6. Thus in Figure S8 the binding peaks for the three pre-RC proteins are ~70–160 bp to the left of the NDR center, while their centers of mass are 72-74 bp to the left. In both cases, the smaller distances of the centers of mass (compared to the peak positions) from the NDR center may be due to incorrect orientation of a subset of origins by the ArchAlign algorithm.

Supplementary Table S3. Origins ordered by their appearance (top to bottom) in the heat map of Figure 6.

AT island	Cluster Group		AT island	Cluster Group		AT island	Cluster Group		AT island	Cluster Group
AT1025	1		AT2036	3		AT1101	5		AT2075	7
AT1030	1		AT2065	3		AT1128	5		AT2097	7
AT1040	1		AT2067+	3		AT1130	5		AT2110	7
AT1055	1		AT2072+	3		AT1147	5		AT2128	7
AT1065	1		AT2100	3		AT1155	5		AT2132	7
AT1068	1		AT2104	3		AT1168	5		AT3026	7
AT1085	1		AT2119	3		AT2001	5		AT3044+	7
AT1107	1		AT2123	3		AT2013	5		AT3059	7
AT1109+oric27	1		AT2125	3		AT2026+	5		AT3065	7
AT1112	1		AT3005+ars3002	3		AT2031	5		AT1028	8
AT1115	1		AT3013	3		AT2076	5		AT1034	8
AT1126	1		AT3027	3		AT2102+ori4	5		AT1061	8
AT1134	1		AT3052	3		AT2115	5		AT1082	8
AT1136	1		AT3055+oriC11	3		AT2116	5		AT1124	8
AT1137	1		AT1015+	4		AT2133	5		AT1127	8
AT1140	1		AT1020	4		AT3040	5		AT1131+ori19	8
AT1146	1		AT1022-	4		AT3045	5		AT1139	8
AT1148	1		AT1026	4		AT3056+nmt1	5		AT1162	8
AT2035	1		AT1027	4		AT1029	6		AT1006	8
AT2038	1		AT1044+ars1	4		AT1070+ori18	6		AT2002	8
AT2066	1		AT1049	4		AT1094	6		AT2019	8
AT2095	1		AT1063	4		AT1104	6		AT2081	8
AT2107	1		AT1067	4		AT1106	6		AT3010	8
AT2111	1		AT1079	4		AT1114	6		AT3018	8
AT2129	1		AT1090	4		AT1145	6		AT3023	8
AT3003	1		AT1099	4		AT1149	6		AT3046	8
AT3007	1		AT1116	4		AT1156-	6		AT3049	8
AT3019	1		AT1133	4		AT2011	6		AT1092	9
AT3020	1		AT1143	4		AT2039	6		AT1096	9
AT3054	1		AT1160	4		AT2048	6		AT1142	9
AT3057+	1		AT1007	4		AT2051	6		AT1154	9
AT3062	1		AT1009	4		AT2063	6		AT2025	9
AT3064	1		AT2015	4		AT2068+ars756	6		AT2041+	9
AT3068	1		AT2023	4		AT2074	6		AT2047	9
AT1031	2		AT2029	4		AT2086+tug1	6		AT2080+	9
AT1043	2		AT2044+oriC7	4		AT3017	6		AT2091	9
AT1048	2		AT2046	4		AT3021	6		AT2114	9
AT1163	2		AT2049+ars2004	4		AT3066	6		AT3043+	9
AT2012	2		AT2085	4		AT1011	7		AT1033+ori12	10
AT2014	2		AT2092	4		AT1012	7		AT1042	10
AT2018	2		AT2108	4		AT1013	7		AT1045+ori1324(L)	10
AT2094	2		AT2130	4		AT1014	7		AT1050	10
AT3009	2		AT3015	4		AT1021	7		AT1053	10
AT3016	2		AT3024	4		AT1039	7		AT1095	10
AT3025	2		AT3060	4		AT1074	7		AT1097	10
AT1032	3		AT1018	5		AT1077	7		AT1003	10
AT1047	3		AT1035	5		AT1088	7		AT2028	10
AT1073	3		AT1041+	5		AT1125	7		AT2062	10
AT1110	3		AT1046	5		AT1135+pcr1	7		AT2089	10
AT1111	3		AT1057	5		AT1138	7		AT2105	10
AT1132	3		AT1062	5		AT1141	7		AT3006	10
AT1152+ori22	3		AT1064	5		AT1169	7		AT3048	10
AT1159	3		AT1069	5		AT2016	7			
AT1164	3		AT1086	5		AT2024	7			
AT1004	3		AT1098+ars766	5		AT2073	7			