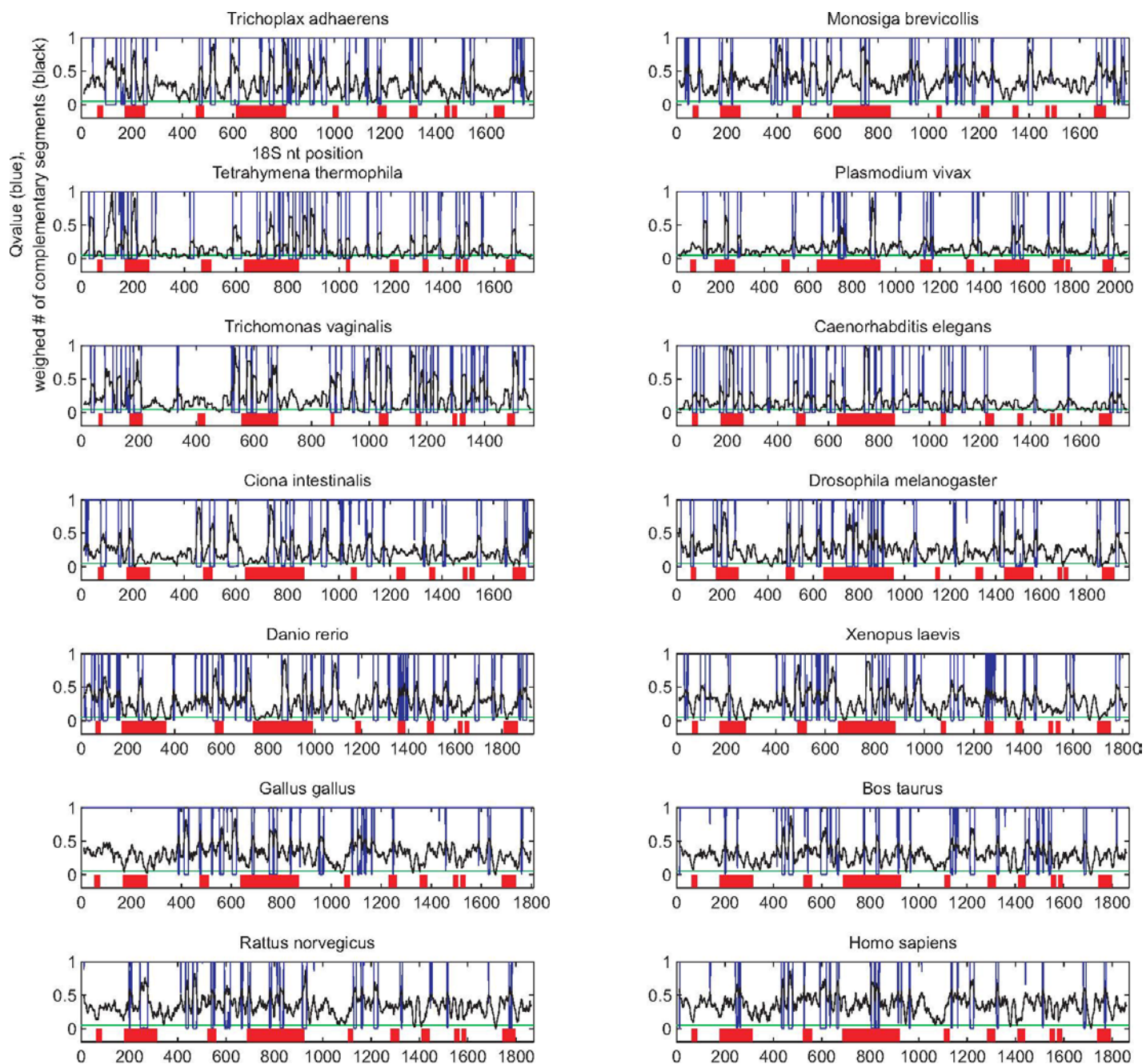
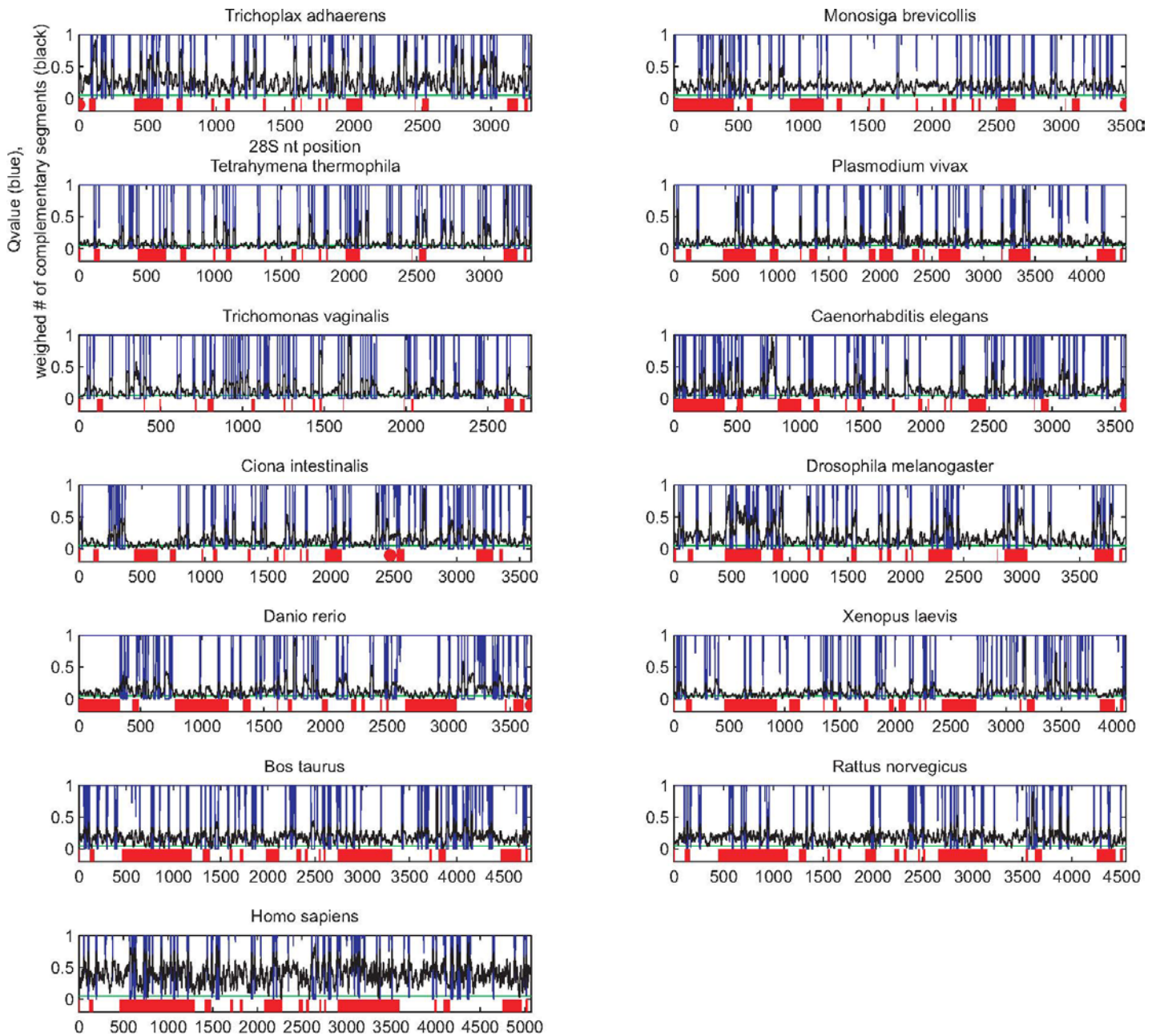


Supplementary Material

Supplementary figures

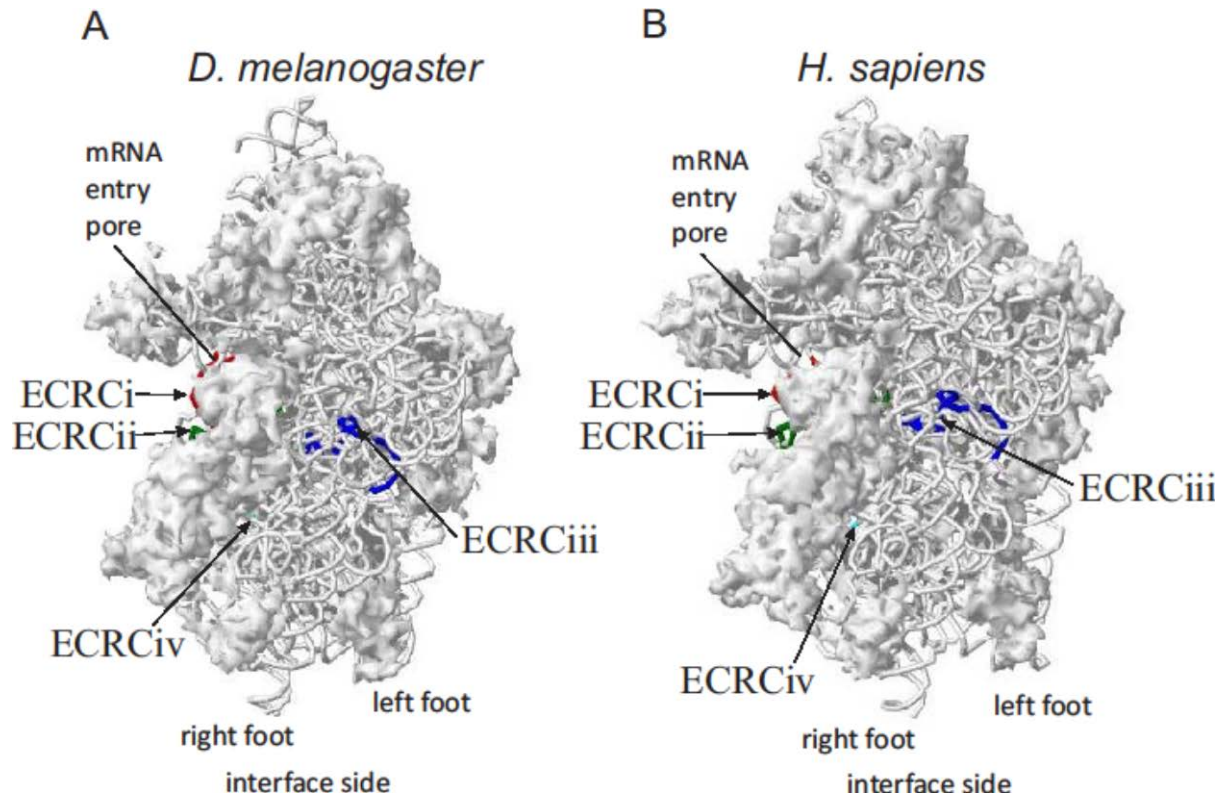
A



B

Supplementary Figure 1A and B. Statistical evaluation of sequence complementarity between rRNAs and mRNA 3' UTRs within 18S (A) and 28S (B) rRNAs of all analyzed species. In each panel, the black curve shows counts of complementary segments (y-axis) at each nucleotide position (x-axis) normalized to the number of 3' UTR sequences for individual species. The blue curve indicates the q-values for the density of complementarity within the 20 nucleotide neighborhoods. Each q-value is marked in the center of its neighborhood on the horizontal axis. Peaks of this curve are oriented downward, following the nature of the q-value: the smaller the q-value, the higher the statistical significance. Therefore, downward peaks of the q-value curve meet the upward (i.e. standard) peaks of the counts of

complementary segments (black curve), where there are 20 nucleotide neighborhoods with relatively great counts of the complementary segments causing increasing statistical significance. This is then documented by low values of q-value, producing relatively “low” peaks of the q-value curve. The q-value = 1 (the blue curve runs at the top of the panels) means the zero count of complementary segments (the black curve runs at 0 on y-axis). The blue peaks reaching below the level of 0.05 of the statistical significance (illustrated by the horizontal green line in the figure) indicate those 20 nucleotide-long regions of rRNA sequences that include statistically significant density of complementarity to 3' UTRs. The statistical significance indicates that the sequence complementarity between rRNA and 3' UTRs within these regions might be biologically relevant. The red rectangles at the bottom of the panels represent expansion segments (ESs) in the rRNAs used to guide the orientation in the rRNA sequences.



Supplementary Figure 2. Position of ECRC iii on 3D structure of 40S ribosomal subunits of *D. melanogaster* (A) and *H. sapiens* (B).. The other ECRCs (shown in Figure 5) are partly visible in this 40S structure rotation. ECRCs are color-coded as follows: ECRC i in red, ECRC ii in green, ECRCiii in blue and ECRC iv in cyan. Ribosomal proteins are colored in white.

Supplementary Table I. Nucleotide positions of the regions of complementarity in protozoan 18S RNAs.

<i>T. adhaerens</i>	<i>T. vaginalis</i>	<i>P. vivax</i>	<i>T. thermophila</i>	<i>M. brevicollis</i>
89-148	27-56	117-149	24-60	37-58
151-174	76-120	213-246	85-143	164-189
161-183	117-149	273-291	148-169	370-391
192-225	156-179	279-301	158-191	395-430
239-271	176-218	525-548	188-227	526-546
460-488	524-558	654-675	268-299	533-551
504-539	568-601	730-752	416-444	535-559
584-617	589-619	740-773	429-447	592-618
602-633	644-668	764-783	581-631	603-623
701-720	656-690	879-915	675-699	726-758
736-771	859-893	1121-1143	712-758	746-769
789-824	879-913	1153-1171	761-780	753-774
814-833	936-958	1158-1180	797-831	920-943
821-840	977-1010	1524-1555	824-857	947-967
842-872	1017-1051	1557-1575	851-885	1100-1121
896-924	1053-1085	1559-1592	880-915	1122-1140
908-930	1136-1172	1688-1708	928-961	1124-1152
944-979	1167-1198	1743-1778	988-1016	1168-1195
1038-1069	1193-1224	1886-1920	1019-1050	1390-1423
1122-1143	1216-1249	1962-2003	1102-1122	1663-1689
1165-1185	1278-1300		1142-1173	1675-1693
1170-1194	1315-1347		1270-1293	1677-1696
1292-1311	1358-1376		1277-1301	1762-1786
1326-1355	1378-1410		1318-1350	
1503-1522	1493-1528		1379-1404	
1531-1562			1447-1474	
1700-1719			1479-1512	
1737-1759			1662-1694	

Supplementary Table II. Nucleotide positions of the regions of complementarity in metazoan 18S RNAs.

<i>C. elegans</i>	<i>C. intestinalis</i>	<i>D. melanogaster</i>	<i>D. rerio</i>	<i>X. laevis</i>	<i>G. gallus</i>	<i>B. taurus</i>	<i>R. norvegicus</i>	<i>H. sapiens</i>
57-89	69-102	3-30	8-26	26-48	382-402	192-213	3-23	4-23
88-118	86-106	55-85	14-54	38-56	405-440	237-285	193-214	241-263
163-196	139-165	155-188	50-68	90-125	467-489	427-454	429-458	255-275
190-236	179-209	190-233	69-95	203-226	514-536	456-489	457-493	427-454
237-269	440-476	478-509	86-124	422-446	547-567	532-557	536-554	456-490
284-316	493-527	531-563	146-166	471-510	551-580	587-606	589-632	519-539
352-370	563-581	609-639	154-176	514-535	597-631	591-617	657-681	587-628
354-374	566-620	626-645	239-272	522-556	677-702	604-627	768-787	627-645
359-380	720-759	678-697	387-408	559-579	745-777	655-678	818-846	655-679
456-491	770-799	738-783	531-549	568-588	764-794	685-709	910-928	797-828
497-538	783-802	772-806	556-597	592-611	830-849	773-795	960-978	816-843
523-541	805-834	836-862	597-619	606-625	944-962	817-844	1125-1143	829-848
529-558	881-903	848-867	653-672	609-653	949-975	828-848	1130-1153	954-975
587-618	926-963	860-893	697-717	758-799	961-980	909-943	1145-1164	1128-1149
603-637	1000-1018	895-917	702-736	811-841	1075-1096	1122-1149	1207-1243	1154-1172
655-677	1102-1138	1035-1061	853-895	840-868	1099-1122	1152-1175	1317-1342	1206-1238
735-772	1166-1186	1215-1235	942-974	915-939	1110-1131	1205-1238	1437-1465	1317-1340
783-820	1322-1345	1412-1447	980-998	957-997	1126-1144	1318-1338	1482-1501	1505-1525
848-870	1396-1419	1480-1518	1021-1047	1100-1129	1128-1150	1508-1529	1488-1509	1676-1700
888-932	1405-1424	1503-1529	1069-1109	1132-1169	1154-1173	1765-1789	1508-1528	1763-1783
953-983	1531-1562	1567-1592	1244-1280	1242-1264	1240-1259	1776-1794	1532-1554	
1041-1071	1639-1662	1840-1867	1308-1330	1253-1271	1621-1642		1538-1556	
1071-1102	1728-1757	1920-1952	1352-1374	1255-1273	1626-1645		1540-1558	
1123-1152			1363-1386	1265-1285	1754-1772		1678-1703	
1212-1240			1373-1398	1319-1338				
1405-1430			1385-1407	1399-1418				
1541-1560			1419-1451	1437-1461				
1707-1737			1503-1522	1568-1598				
1736-1769			1543-1577	1596-1614				
			1563-1581	1766-1798				
			1679-1712					
			1752-1778					
			1869-1891					
			1883-1916					

Supplementary Table III. Nucleotide positions of the regions of complementarity in protozoan 28S RNAs.

<i>T. adhaerens</i>	<i>T. vaginalis</i>	<i>P. vivax</i>	<i>T. thermophila</i>	<i>M. brevicollis</i>
84-102	45-78	21-54	105-132	184-218
94-141	84-103	218-244	293-323	250-273
158-184	182-215	586-641	308-342	279-312
181-206	283-316	664-685	366-391	348-387
231-262	330-387	750-775	380-401	398-436
438-469	389-421	946-964	390-411	427-449
492-522	428-447	950-978	422-454	434-456
507-542	595-634	1213-1245	541-563	457-479
531-549	693-719	1367-1399	594-612	499-529
558-593	753-784	1480-1509	623-657	550-569
636-662	804-839	1646-1682	679-712	731-765
724-760	877-910	1799-1831	800-832	809-856
806-825	910-943	1833-1852	904-937	965-988
835-853	927-957	1890-1910	996-1031	1108-1149
916-941	952-984	2038-2071	1062-1097	1178-1200
1108-1128	979-1013	2090-2109	1091-1124	1720-1751
1115-1139	1011-1047	2176-2210	1135-1168	2185-2205
1204-1233	1086-1118	2210-2245	1319-1347	2215-2235
1265-1299	1127-1151	2388-2408	1465-1502	2291-2319
1346-1364	1140-1160	2392-2414	1611-1645	2407-2429
1559-1594	1145-1164	2530-2555	1696-1734	2449-2469
1666-1704	1152-1172	2654-2674	1722-1755	2487-2506
1814-1842	1208-1236	2702-2738	1810-1828	2490-2512
1841-1862	1220-1239	2818-2841	1825-1858	2513-2537
1913-1948	1240-1273	2836-2864	1930-1948	2587-2608
2041-2073	1273-1295	2969-2992	1966-1998	2696-2725
2116-2134	1307-1339	2978-3001	1996-2025	2767-2791
2137-2158	1414-1444	3168-3200	2037-2068	2778-2799
2143-2165	1462-1496	3258-3279	2062-2102	2915-2935
2320-2343	1582-1615	3266-3284	2116-2154	2944-2974
2361-2394	1601-1634	3285-3312	2275-2307	3239-3272
2442-2472	1640-1677	3375-3417	2298-2330	3294-3314
2517-2541	1717-1749	3427-3447	2364-2396	3347-3367
2708-2726	1746-1778	3434-3457	2486-2526	3379-3406
2710-2730	1776-1795	3722-3741	2533-2587	
2727-2766	1783-1817	3725-3743	2673-2696	
2776-2809	1802-1831	3746-3767	2683-2726	
2853-2883	1989-2022	4151-4172	2741-2785	
2918-2942	2012-2036		2829-2862	
2931-2951	2046-2075		2950-2983	
2937-2983	2149-2185		2984-3018	
2989-3024	2209-2241		3011-3060	
3020-3052	2289-2314		3136-3158	
3228-3257	2300-2323		3143-3188	
3270-3290	2307-2334		3202-3220	
	2421-2454		3221-3269	
	2444-2467		3290-3321	
	2456-2485		3329-3348	
	2551-2572			
	2612-2647			
	2744-2766			

Supplementary Table IV. Nucleotide positions of the regions of complementarity in metazoan 28S RNAs.

<i>C. elegans</i>	<i>C. intestinalis</i>	<i>D. melanogaster</i>	<i>D. rerio</i>	<i>X. laevis</i>	<i>H. sapiens</i>	<i>B. taurus</i>	<i>R. norvegicus</i>
3-23	3-35	34-66	330-349	25-54	97-119	122-152	48-74
36-56	233-255	70-89	343-377	47-79	186-209	161-179	70-89
62-86	272-303	185-210	369-401	92-116	564-587	249-267	92-120
74-93	303-326	198-219	460-478	276-308	571-596	253-279	187-210
86-104	318-353	303-333	514-544	364-411	582-600	579-605	286-309
153-172	341-376	444-495	540-571	633-655	611-629	670-691	371-390
161-182	785-814	488-519	600-631	1206-1231	621-643	704-723	381-409
195-228	851-880	530-634	633-653	1344-1375	721-745	707-734	394-415
221-257	985-1003	627-657	643-663	1373-1393	744-767	855-877	759-784
309-339	1048-1067	648-693	690-745	1409-1443	916-938	929-964	777-795
344-368	1051-1069	683-725	737-758	1483-1516	1055-1075	1326-1348	782-801
368-398	1060-1092	800-824	1128-1149	1562-1609	1063-1082	1380-1408	845-865
384-407	1153-1185	830-850	1231-1257	1631-1653	1100-1118	1554-1572	946-966
423-468	1172-1193	844-888	1241-1259	1664-1694	1212-1232	1978-1997	1286-1306
481-503	1217-1252	900-922	1301-1326	1818-1840	1484-1504	1997-2017	1331-1352
487-524	1367-1409	907-950	1431-1452	1830-1863	1532-1562	2063-2081	1384-1407
529-556	1435-1463	1141-1185	1463-1491	1872-1919	1554-1572	2065-2083	1434-1486
681-713	1465-1498	1227-1256	1579-1597	2126-2167	1556-1581	2360-2382	1568-1587
698-731	1636-1680	1278-1304	1602-1634	2246-2268	1931-1955	2373-2392	1571-1593
732-756	1692-1725	1401-1419	1663-1700	2252-2277	2172-2195	2386-2407	1760-1778
740-817	1794-1815	1481-1500	1735-1771	2266-2290	2210-2229	2397-2415	1824-1854
803-821	1802-1820	1531-1584	1816-1866	2310-2330	2610-2628	2424-2443	1857-1881
894-927	2004-2035	1763-1806	1880-1913	2315-2336	2618-2638	2494-2516	2179-2201
1065-1093	2026-2056	1837-1867	1917-1950	2321-2339	2630-2664	2718-2736	2235-2260
1085-1113	2093-2125	1923-1946	2083-2107	2328-2347	2794-2813	2773-2796	2250-2269
1270-1290	2141-2160	2031-2060	2096-2146	2332-2370	2806-2834	2808-2826	2283-2303
1369-1391	2144-2163	2220-2244	2139-2157	2737-2756	2886-2907	2833-2865	2456-2505
1426-1461	2353-2393	2261-2280	2142-2188	2764-2804	3124-3142	2917-2936	2584-2605
1459-1478	2400-2428	2264-2289	2358-2398	2824-2850	3134-3152	3083-3104	2589-2612
1466-1487	2430-2470	2324-2361	2477-2505	2836-2882	3136-3156	3088-3107	2632-2656
1471-1489	2518-2537	2347-2367	2495-2516	3027-3058	3367-3390	3210-3229	2657-2677
1473-1505	2535-2559	2353-2372	2534-2571	3065-3100	3504-3523	3538-3580	2724-2746
1497-1516	2615-2633	2365-2399	2555-2575	3154-3187	3693-3713	3590-3623	2822-2842
1507-1528	2706-2736	2388-2417	2562-2589	3262-3294	3960-3986	3613-3643	2901-2931
1576-1608	2727-2767	2439-2469	2906-2924	3361-3389	4004-4022	3629-3647	3193-3211
1675-1709	2862-2885	2834-2859	2995-3016	3383-3419	4106-4124	3640-3658	3412-3443
1828-1869	2870-2888	2843-2861	3070-3089	3405-3424	4166-4196	3642-3660	3585-3605
1941-1963	2928-2954	2873-2908	3099-3140	3435-3496	4180-4202	3704-3727	3621-3642
2193-2217	2940-2986	2943-2965	3149-3219	3521-3554	4238-4264	3711-3732	3665-3686
2258-2291	2999-3019	2949-2967	3281-3306	3555-3592	4266-4287	3771-3794	3685-3705
2283-2316	3004-3027	2951-2973	3352-3384	3641-3665	4351-4386	3866-3899	3775-3808
2465-2496	3028-3060	2960-3029	3371-3396	3652-3672	4638-4657	3886-3905	3827-3846
2515-2549	3085-3115	3088-3109	3383-3403	3661-3682	4644-4663	3946-3967	3884-3922
2544-2571	3126-3153	3223-3262	3398-3436	3711-3746		3952-3978	3954-3987
2592-2629	3206-3229	3604-3635	3420-3438	3733-3751		4215-4233	3979-4010
2695-2717	3214-3237	3642-3693	3422-3450	4052-4079		4280-4301	4062-4081
2772-2803	3279-3307	3698-3728	3482-3500			4359-4377	4071-4108
2814-2832	3525-3548	3752-3796	3551-3570			4364-4385	4097-4117
2833-2864			3618-3641				4107-4128
2859-2891							4144-4176
2892-2910							4336-4355
2894-2921							4354-4386
2915-2942							4724-4750
3051-3102							
3089-3109							
3096-3144							
3175-3208							
3240-3259							
3388-3413							
3423-3454							
3545-3573							
3557-3582							