Supporting information for

Inhibition of off-target cleavage by RNase H using an artificial cationic oligosaccharide

Rintaro Iwata Hara,[a,b,*] and Takeshi Wada [a,*]

(a) Department of Medicinal and Life Sciences, Faculty of Pharmaceutical Sciences, Tokyo University of Science, 2641 Yamazaki, Noda, Chiba 278-8510, Japan.

(b) Department of Neurology and Neurological Science, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, 1-5-45, Yushima, Bunkyo-Ku, Tokyo, 113-8519, Japan.

* E-mail: twada@rs.tus.ac.jp, haranuro@tmd.ac.jp

Table of contents

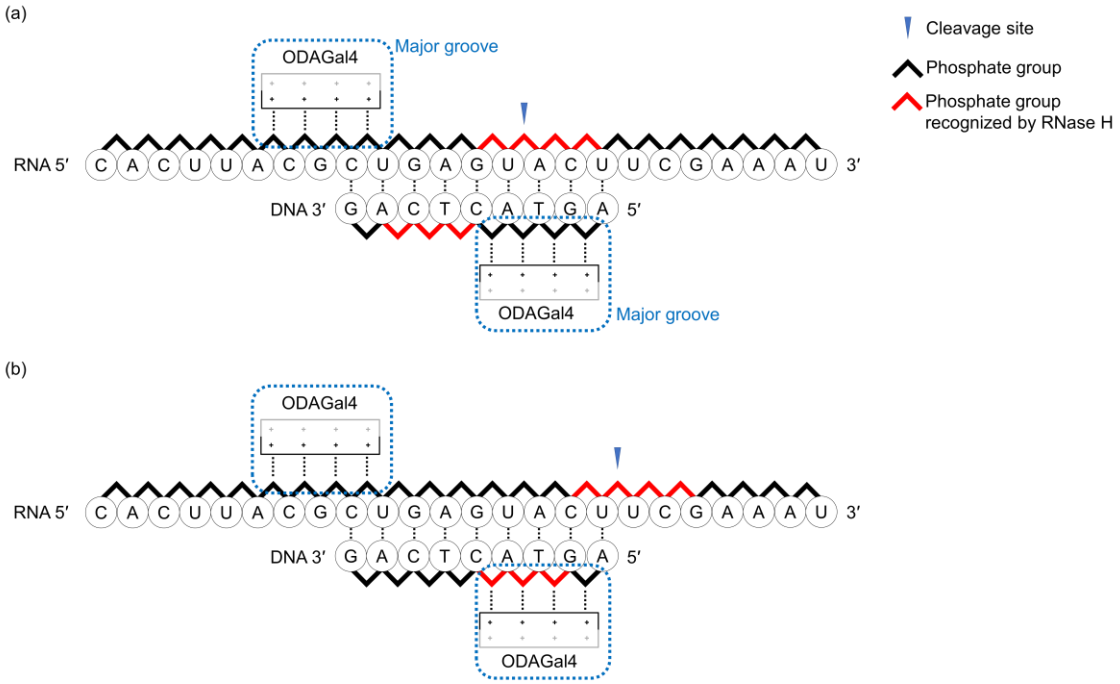
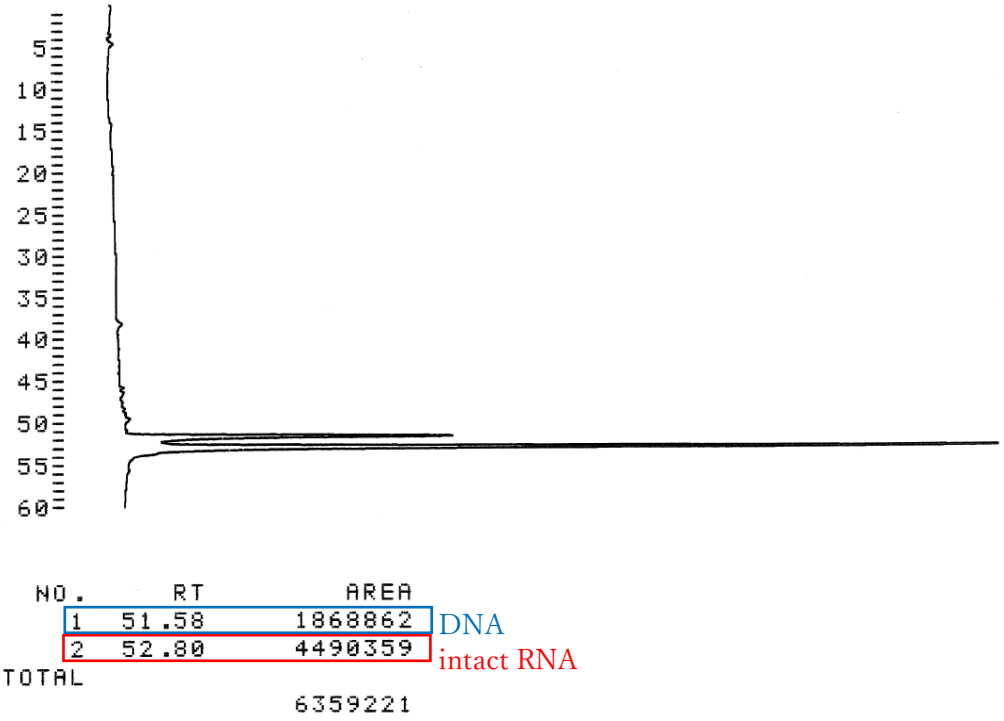
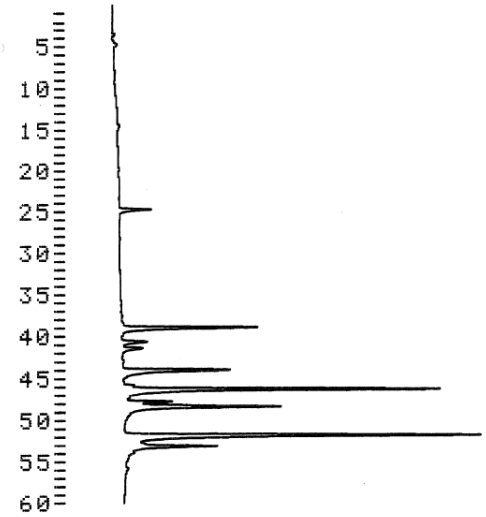


Figure S1 Putative ODAGal4 binding site on the duplex of a 9mer DNA (D1) and a 24mer RNA (R1). It should be noted that one molecule of ODAGal4 binds to the duplex in each case. It looks two molecules are in each figure just because the duplex structures are depicted in plane and therefore two sides of single ODAGal4 were inevitably depicted separately. (a) When RNase H cleaves the RNA to generate the 10mer p-RNA, RNase H would compete with ODAGal4. (b) When RNase H cleaves the RNA to generate the 7mer p-RNA, RNase H would compete with ODAGal4 for the phosphate groups of the RNA strand.



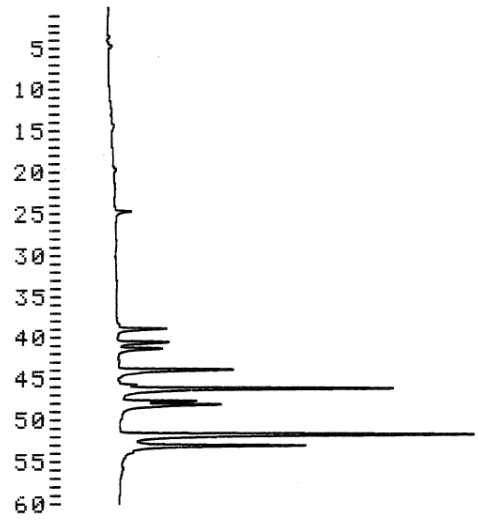
NO.	RT	AREA	
1	51.58	1868862	DNA
2	52.80	4490359	intact RNA
TOTAL		6359221	

Figure S2 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	24.71	121776	
2	38.94	572661	
3	40.59	113556	
4	41.36	104860	
5	43.95	525736	
6	46.22	1396400	
7	47.74	174113	
8	48.32	848635	
9	51.74	1729681	DNA
10	53.07	573732	intact RNA
TOTAL		6161150	

Figure S3 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	24.71	62994	
2	38.94	194110	
3	40.59	221378	
4	41.36	218719	
5	43.95	558372	
6	46.22	1243956	
7	47.74	271184	
8	48.14	539956	
9	51.74	1716239	DNA
10	53.07	976963	intact RNA
TOTAL		6003871	

Figure S4 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

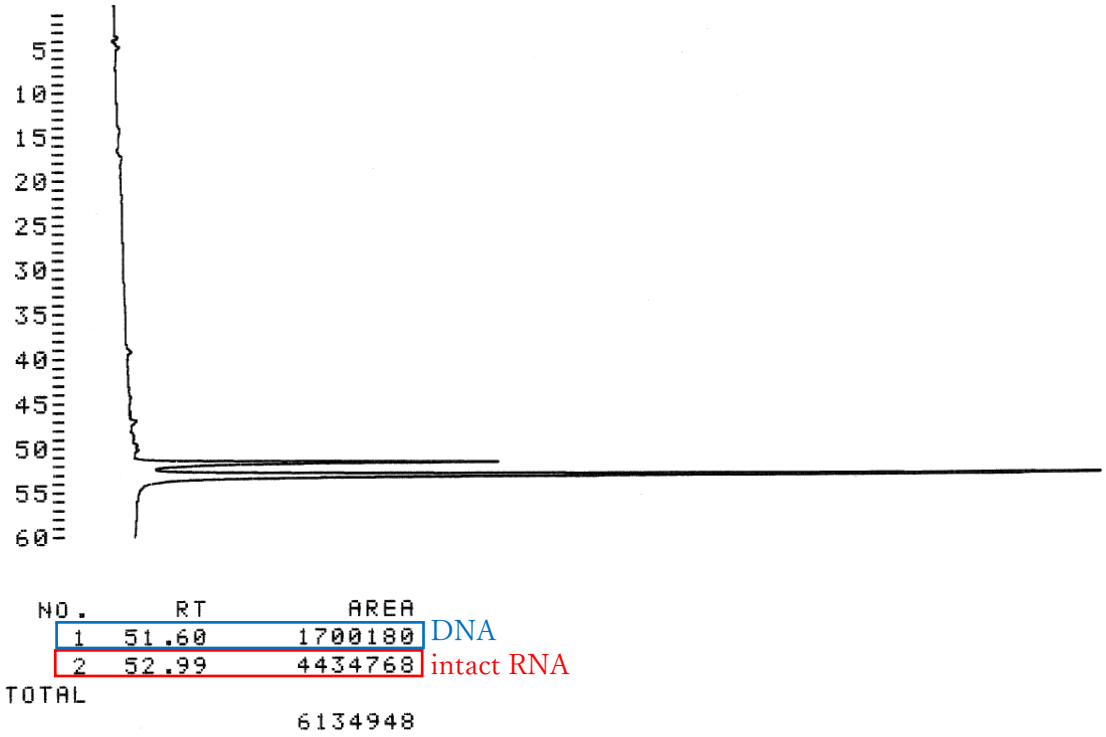
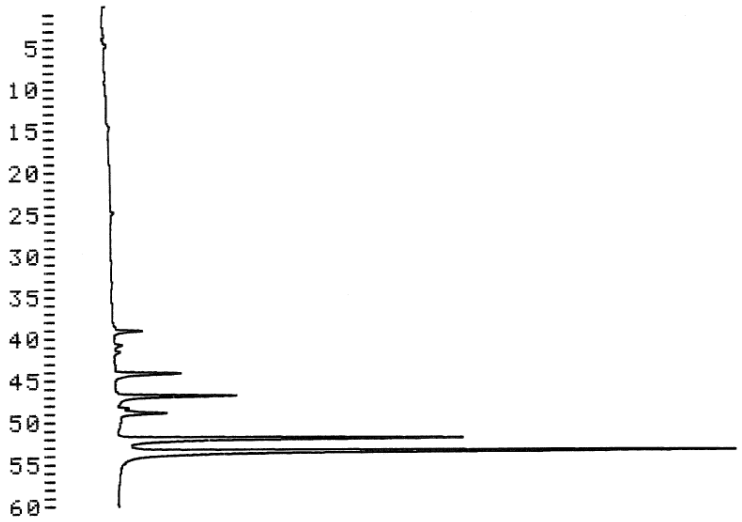


Figure S5 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	39.04	124157	
2	44.11	319188	
3	46.80	554739	
4	48.88	339268	
5	51.90	1724915	DNA
6	53.44	3112564	intact RNA
TOTAL		6174831	

Figure S6 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

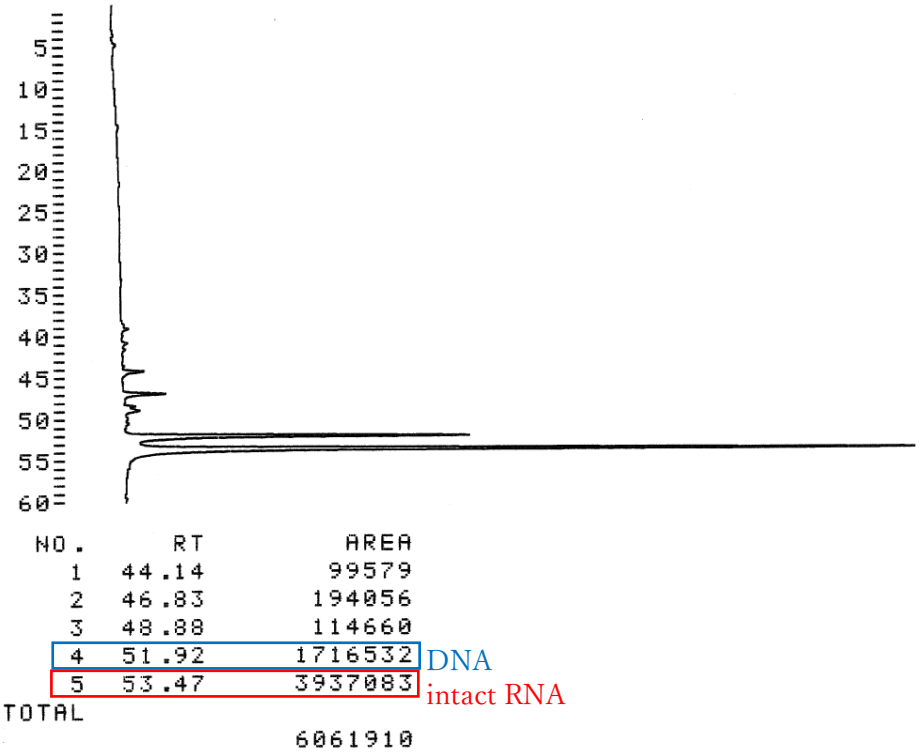
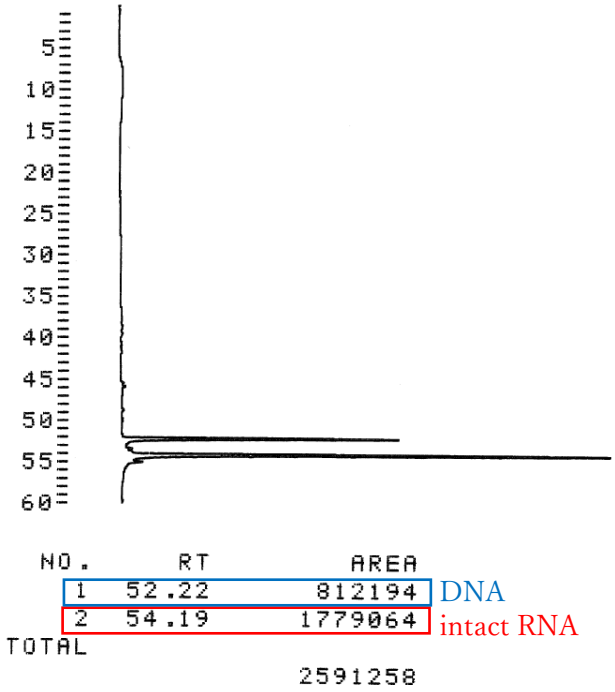
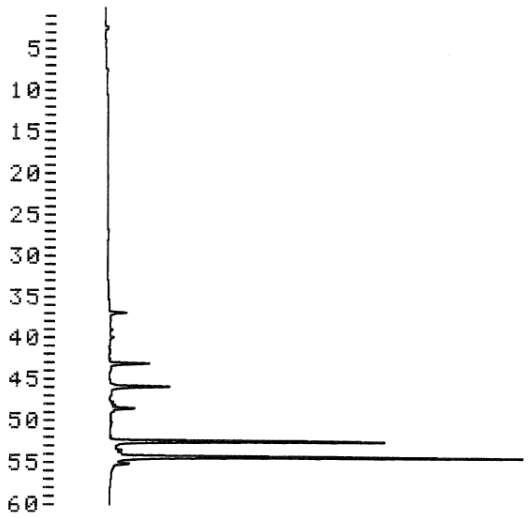


Figure S7 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



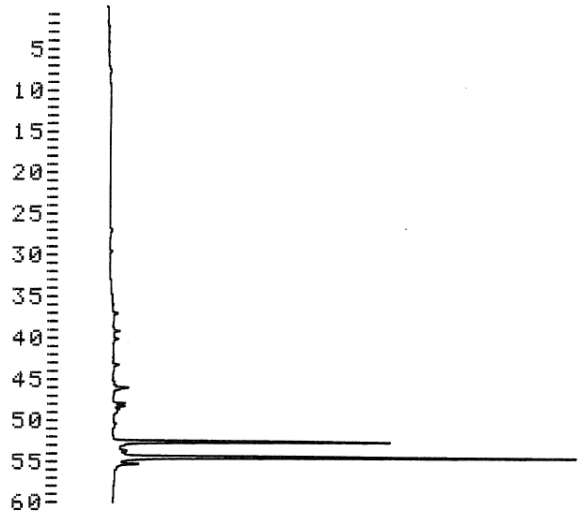
NO.	RT	AREA	
1	52.22	812194	DNA
2	54.19	1779064	intact RNA
TOTAL		2591258	

Figure S8 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R3). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



NO.	RT	AREA	
1	36.91	51096	
2	43.10	127368	
3	45.90	231540	
4	48.48	127012	
5	52.43	856350	DNA
6	54.30	1557837	intact RNA
7	55.15	17579	
TOTAL		2968782	

Figure S9 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R3) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



NO.	RT	AREA	
1	46.00	60130	
2	47.90	110631	
3	52.56	871008	DNA
4	54.40	1754343	intact RNA
5	55.26	28141	
TOTAL		2824253	

Figure S10 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R3) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.

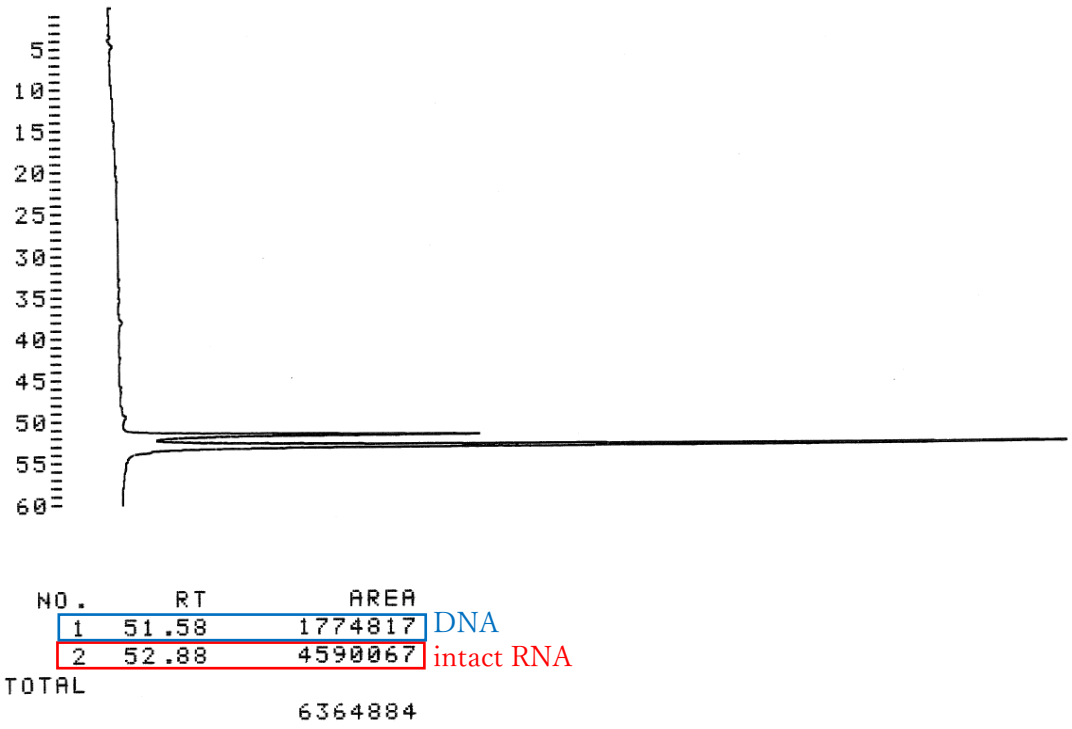


Figure S11 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

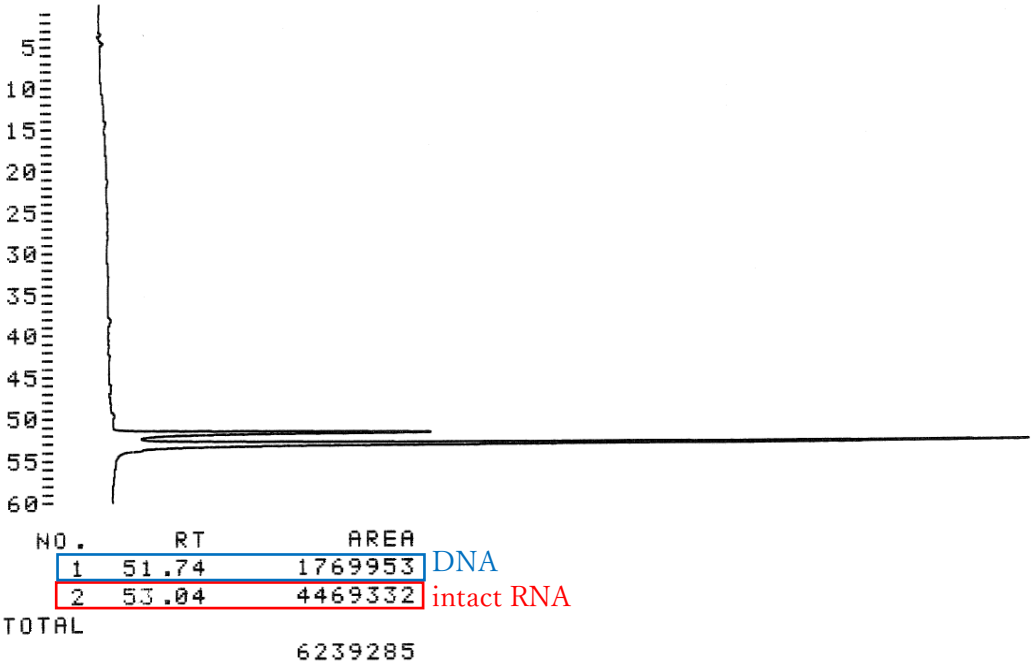


Figure S12 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R4) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

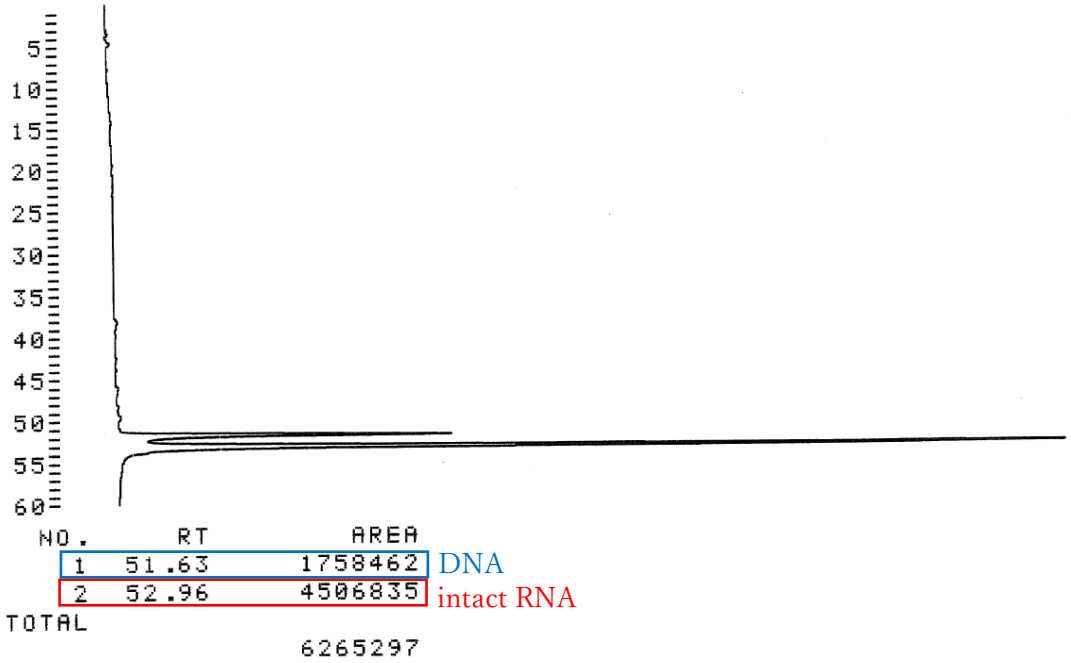


Figure S13 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R4) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

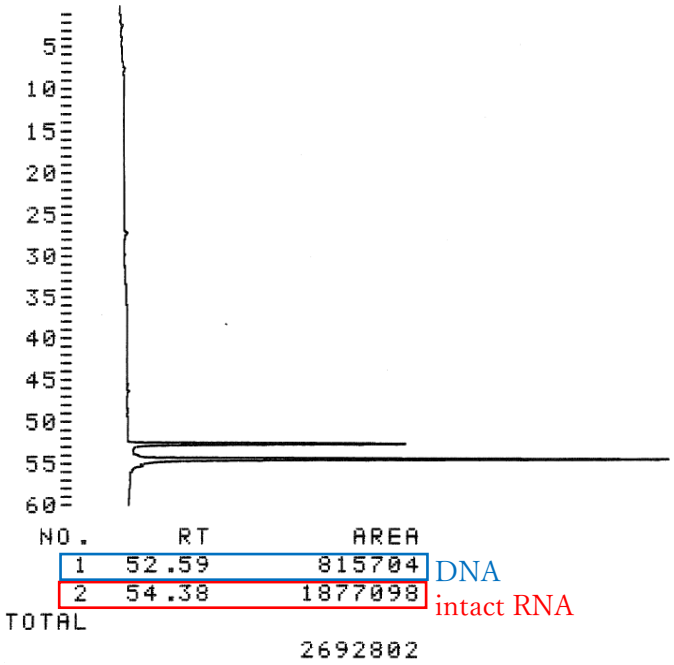
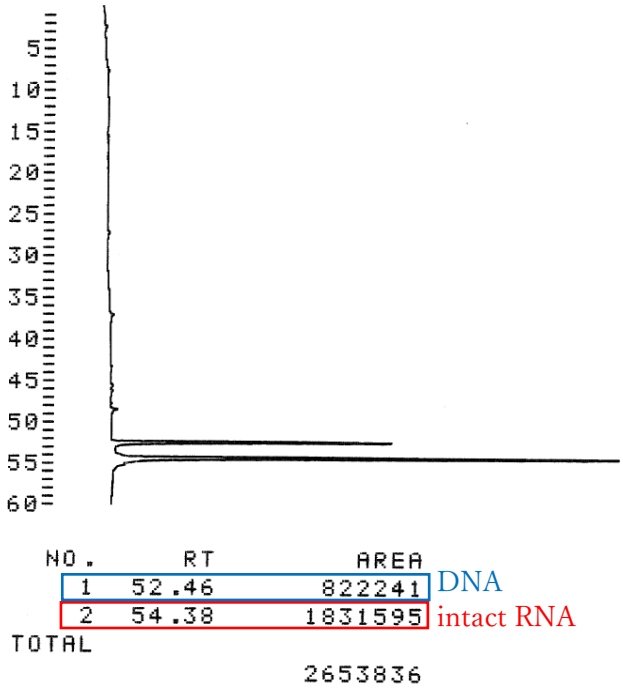


Figure S14 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



NO.	RT	AREA	
1	52.46	822241	DNA
2	54.38	1831595	intact RNA
TOTAL		2653836	

Figure S15 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R5) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.

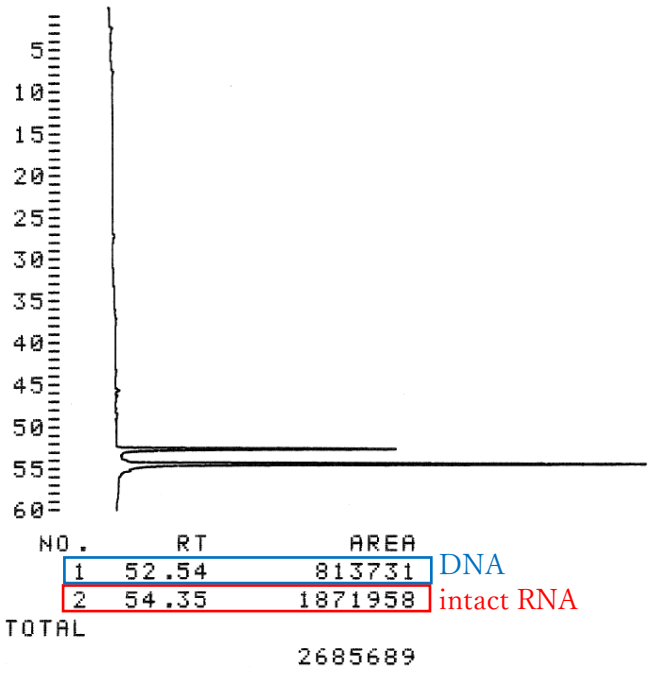
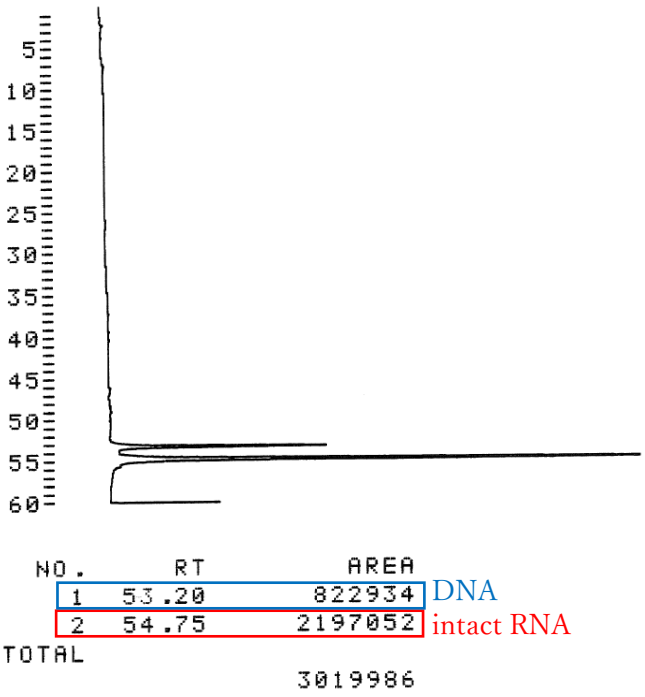


Figure S16 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R5) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



NO.	RT	AREA	
1	53.20	822934	DNA
2	54.75	2197052	intact RNA
TOTAL		3019986	

Figure S17 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R6). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.

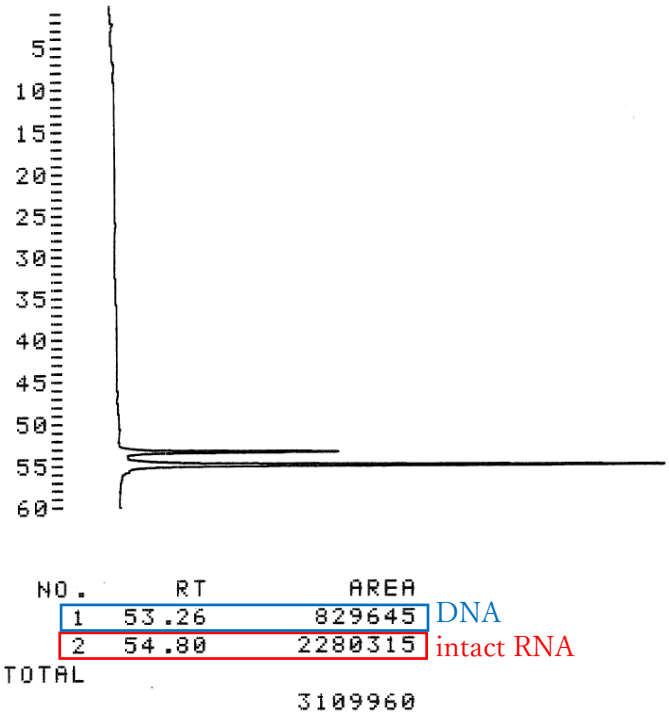


Figure S18 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R6) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.

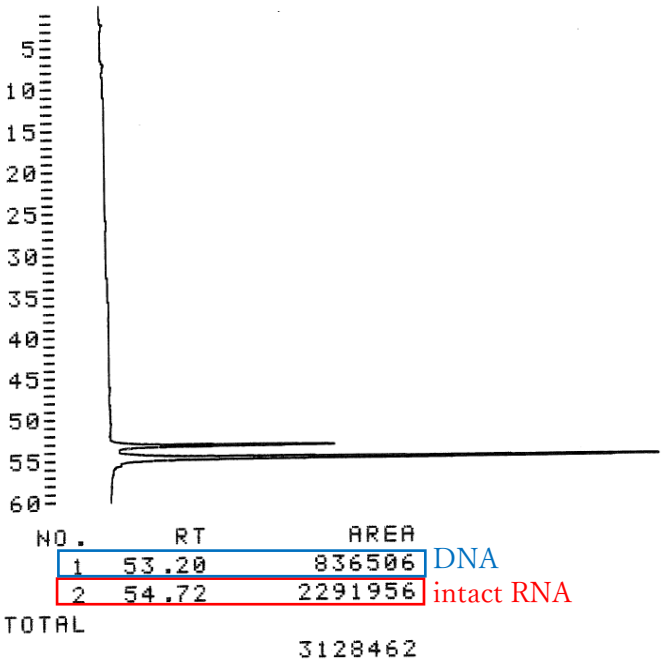
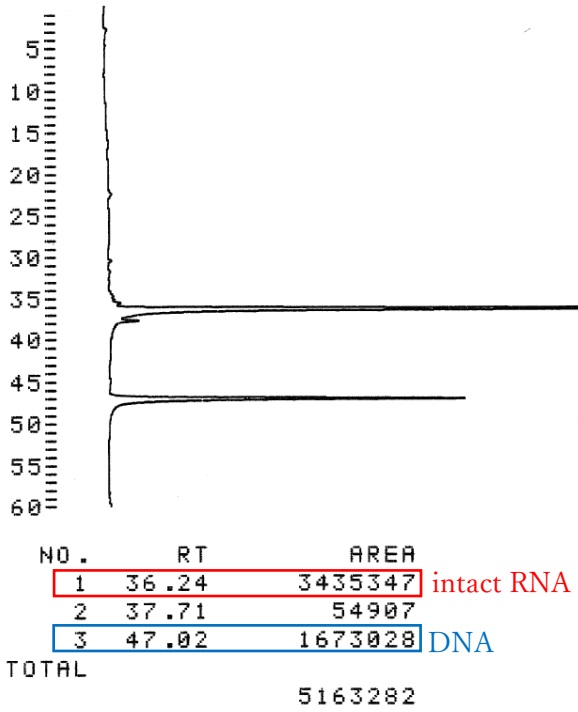
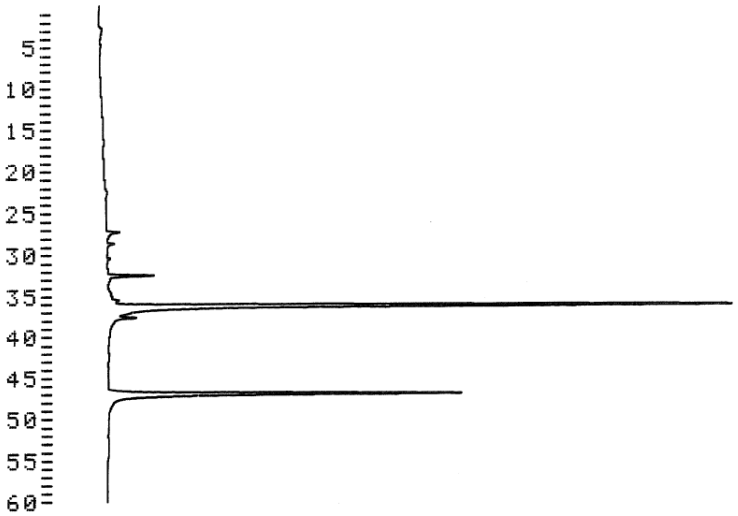


Figure S19 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R6) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



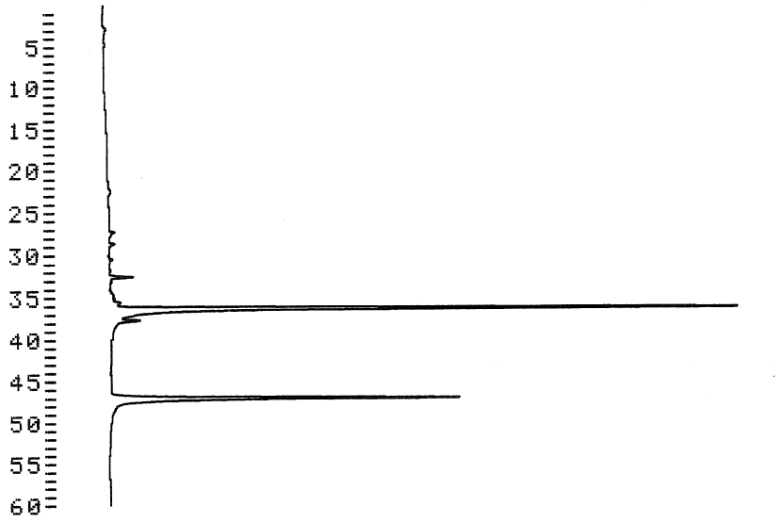
NO.	RT	AREA	
1	36.24	3435347	intact RNA
2	37.71	54907	
3	47.02	1673028	DNA
TOTAL		5163282	

Figure S20 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M ammonium acetate (AA) buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



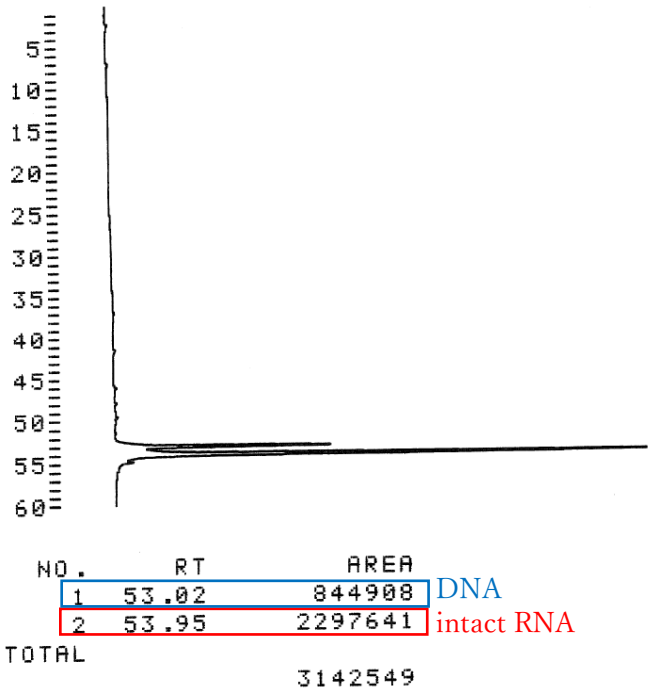
NO.	RT	AREA	
1	27.24	51117	
2	32.48	162518	
3	36.22	3036876	intact RNA
4	37.66	47889	
5	46.99	1686003	DNA
TOTAL		4984403	

Figure S21 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R7) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	32.51	84597	
2	36.24	3127350	intact RNA
3	37.71	53388	
4	47.04	1634145	DNA
TOTAL		4899480	

Figure S22 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R7) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	53.02	844908	DNA
2	53.95	2297641	intact RNA
TOTAL		3142549	

Figure S23 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R8). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.

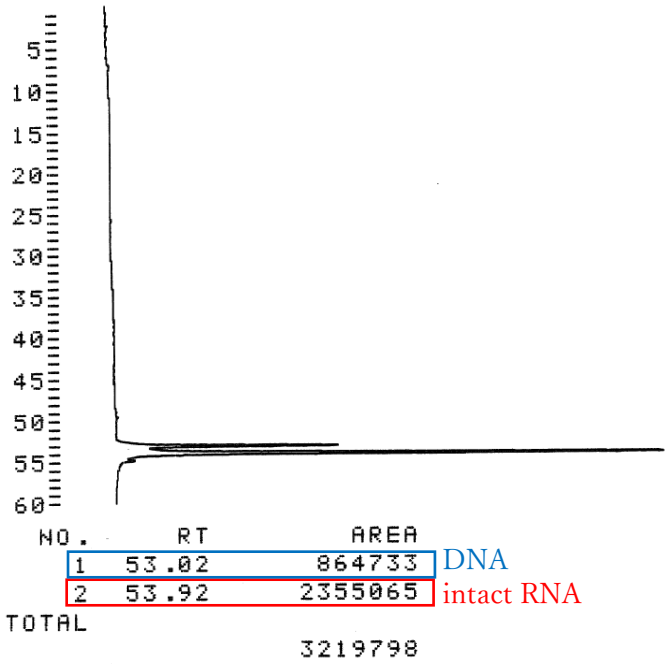
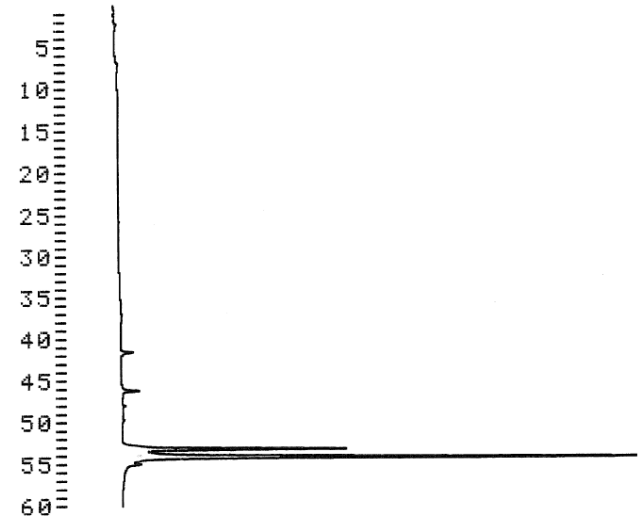
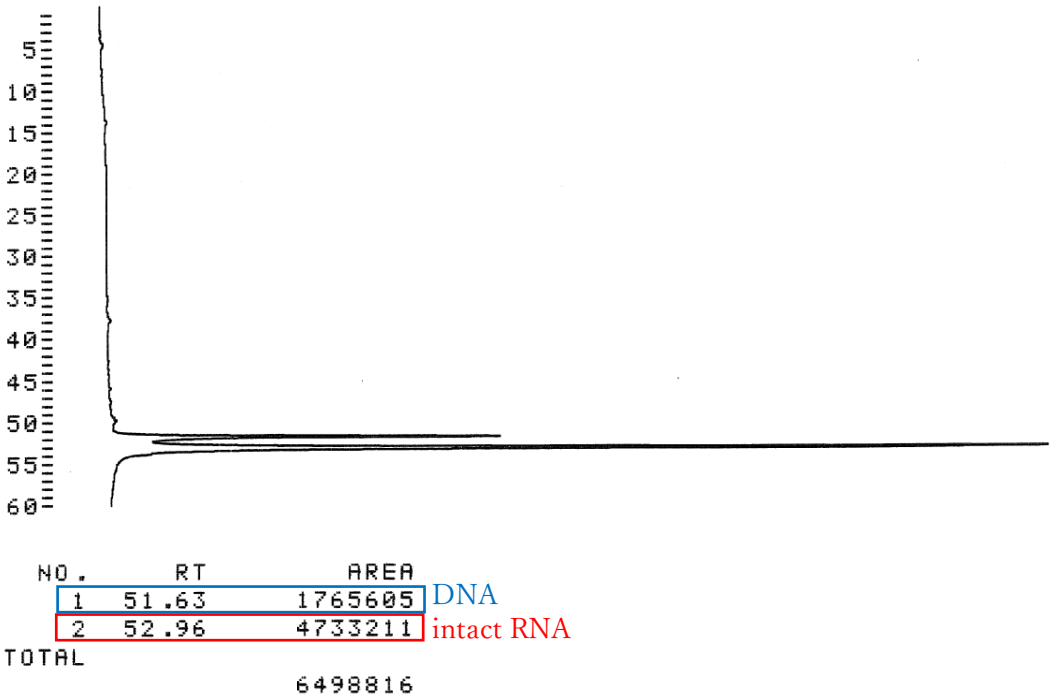


Figure S24 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R8) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



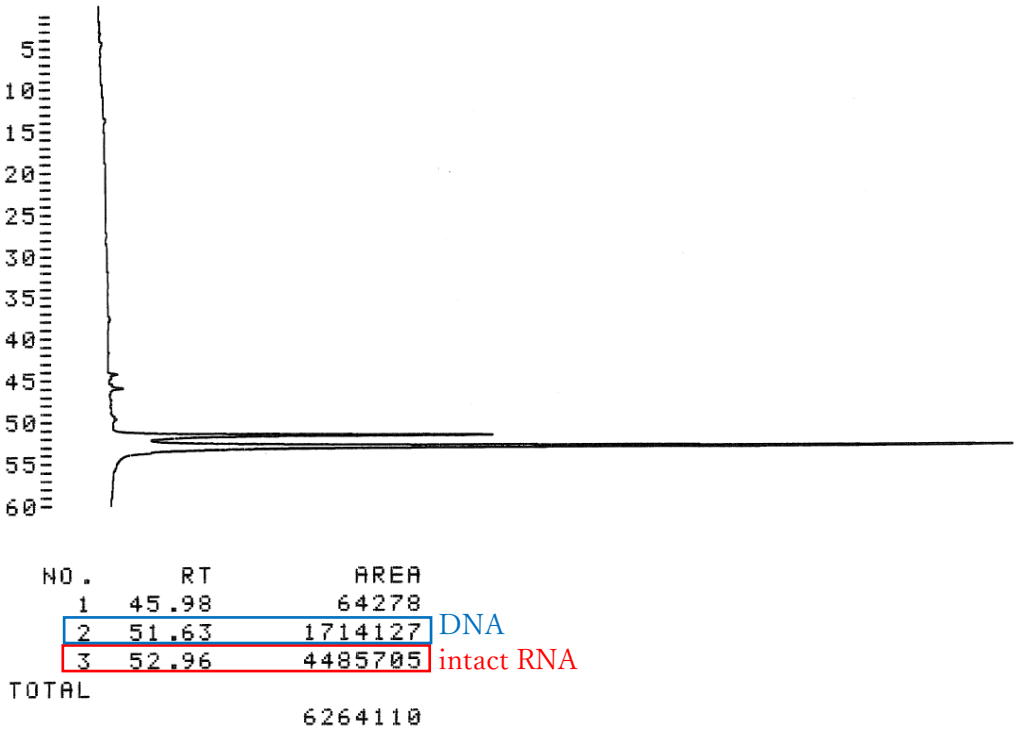
NO.	RT	AREA	
1	41.55	41263	
2	46.14	57719	
3	53.15	847016	DNA
4	54.08	2155088	intact RNA
TOTAL		3101086	

Figure S25 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R8) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



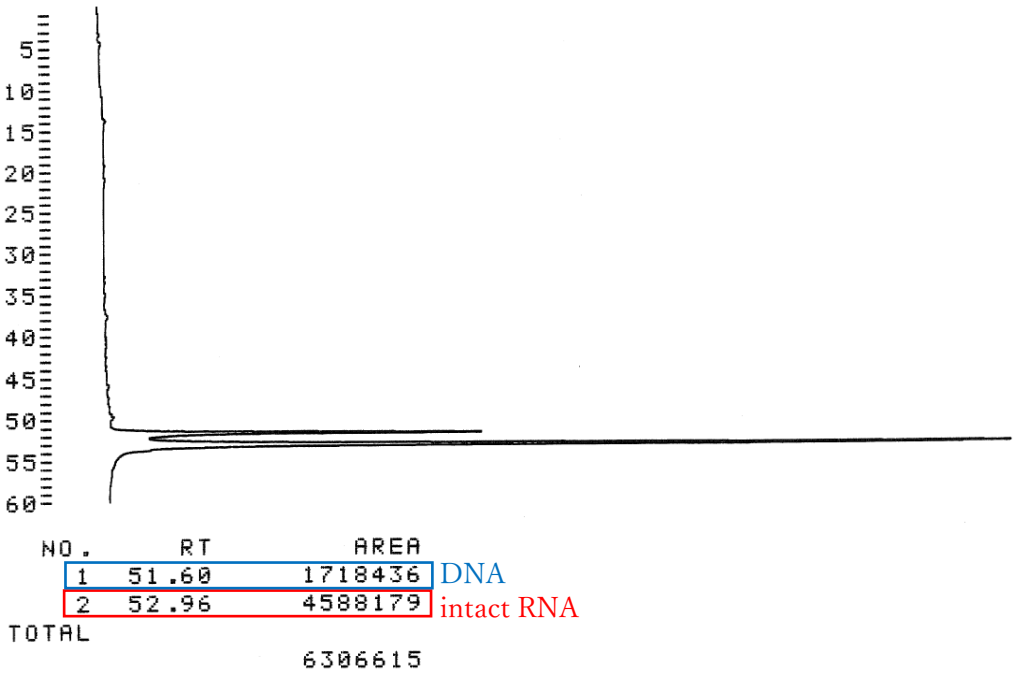
NO.	RT	AREA	
1	51.63	1765605	DNA
2	52.96	4733211	intact RNA
TOTAL		6498816	

Figure S26 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R9). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	45.98	64278	
2	51.63	1714127	DNA
3	52.96	4485705	intact RNA
TOTAL		6264110	

Figure S27 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R9) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	51.60	1718436	DNA
2	52.96	4588179	intact RNA
TOTAL		6306615	

Figure S28 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R9) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

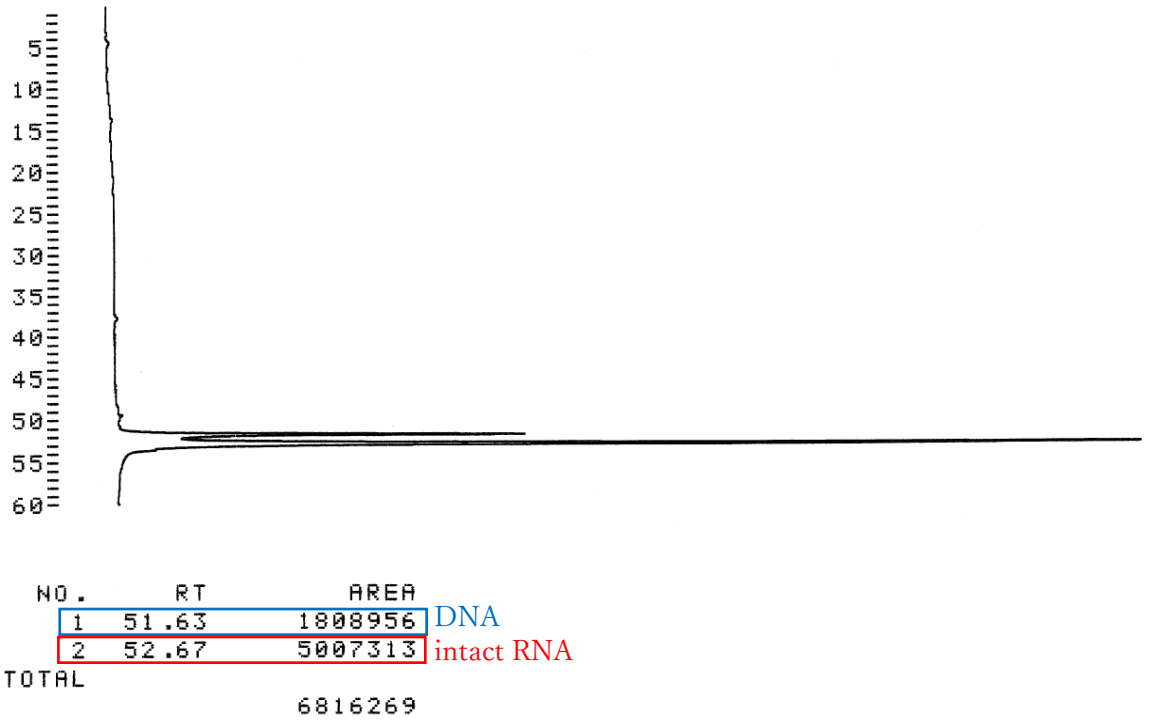
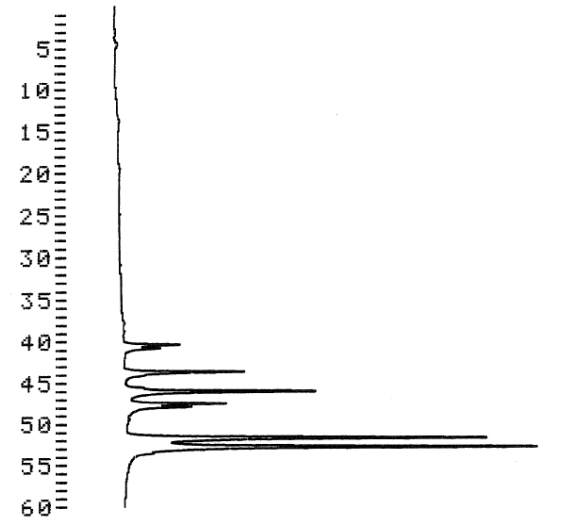
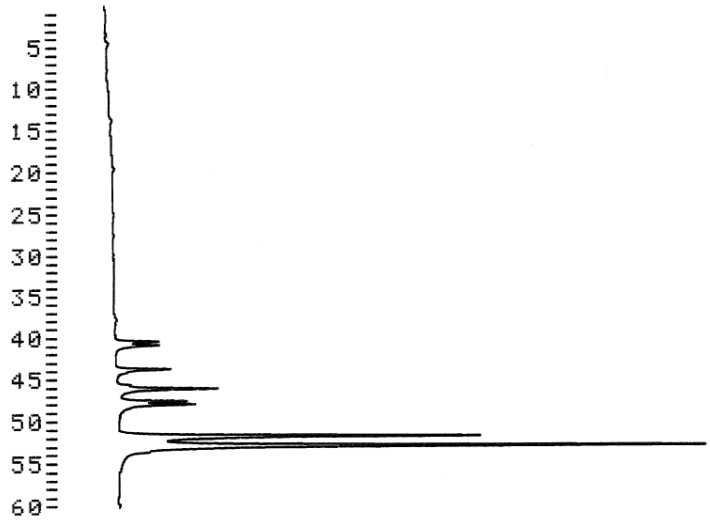


Figure S29 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R10). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



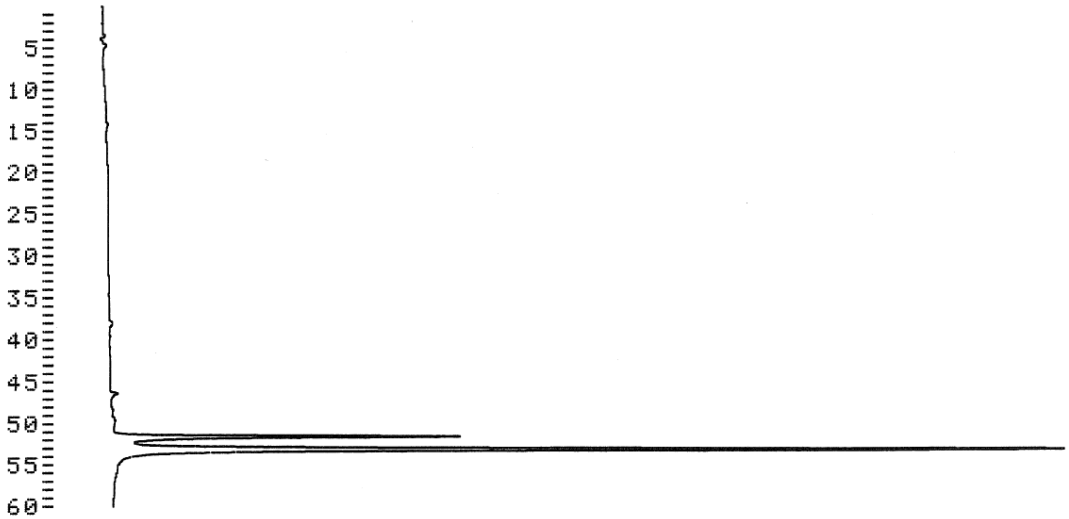
NO.	RT	AREA	
1	40.38	213331	
2	40.80	160128	
3	43.66	569214	
4	46.03	893190	
5	47.52	377512	
6	47.90	316270	
7	51.68	1687323	DNA
8	52.78	2163406	intact RNA
TOTAL		6380374	

Figure S30 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R10) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



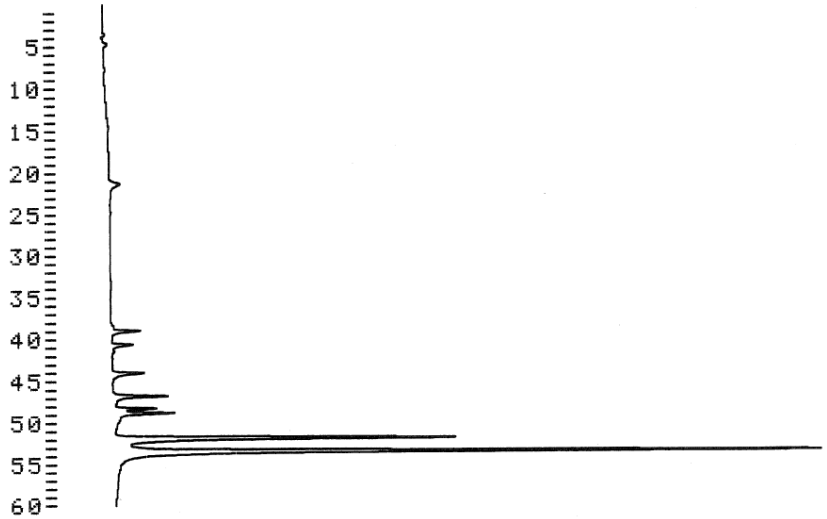
NO.	RT	AREA	
1	40.46	160234	
2	40.88	199019	
3	43.76	265787	
4	46.08	505960	
5	47.60	261518	
6	47.98	370656	
7	51.74	1758467	DNA
8	52.83	3039846	intact RNA
TOTAL		6561487	

Figure S31 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R10) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



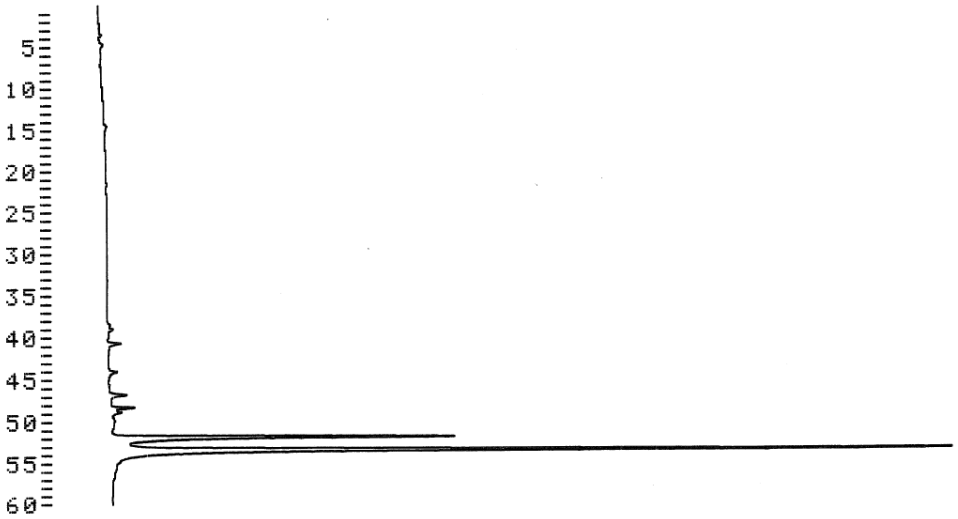
NO.	RT	AREA	
1	51.55	1717137	DNA
2	53.04	4743202	intact RNA
TOTAL		6460339	

Figure S32 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R11). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



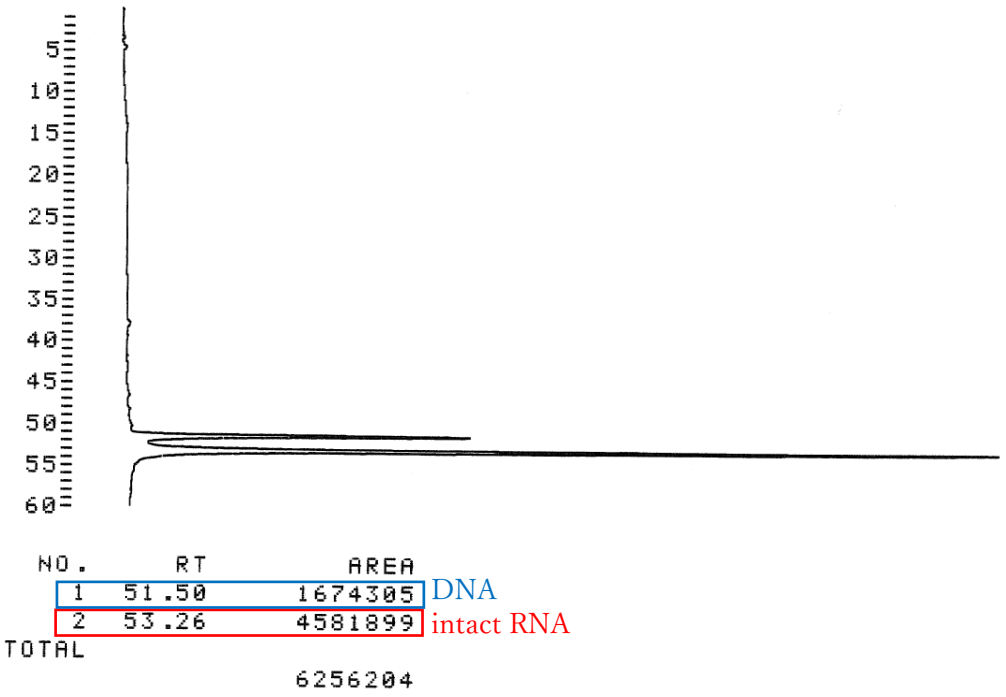
NO.	RT	AREA	
1	38.94	105521	
2	40.59	110385	
3	43.95	165550	
4	46.70	252510	
5	48.19	149568	
6	48.75	286844	
7	51.74	1682532	DNA
8	53.31	3478633	intact RNA
TOTAL		6231543	

Figure S33 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R11) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



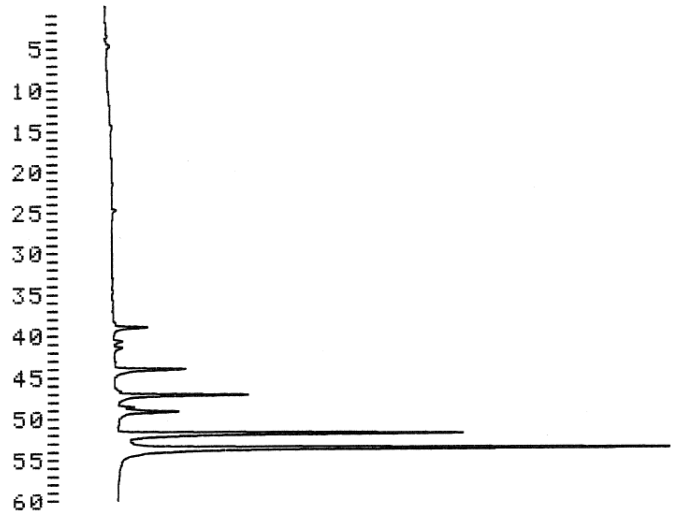
NO.	RT	AREA	
1	40.62	64700	
2	46.72	88672	
3	48.22	145404	
4	51.76	1678204	DNA
5	53.31	4242755	intact RNA
TOTAL		6219735	

Figure S34 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R11) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	51.50	1674305	DNA
2	53.26	4581899	intact RNA
TOTAL		6256204	

Figure S35 RP-HPLC profile of the mixture of a 9mer DNA (D1) and 24mer RNA (R12). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

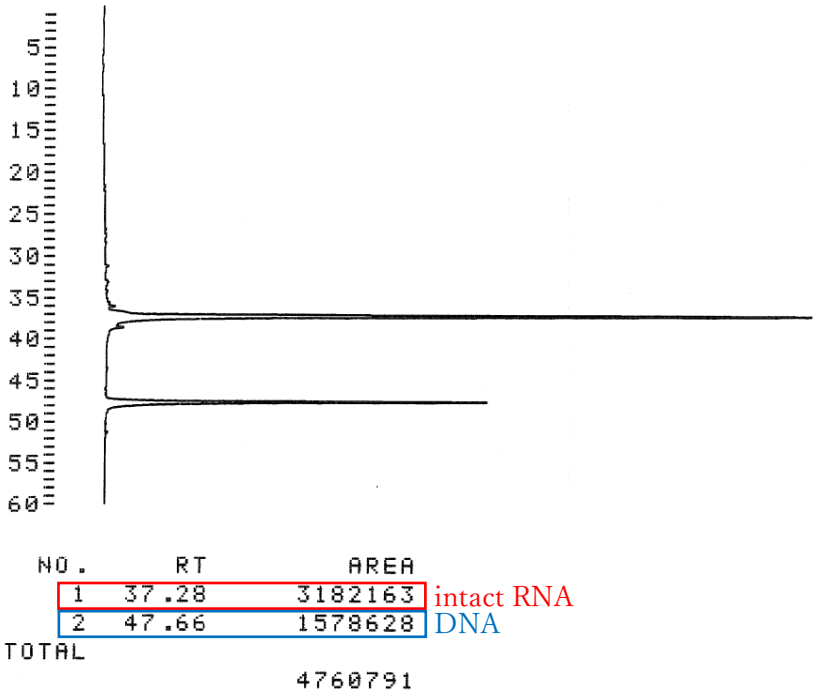


NO.	RT	AREA	
1	38.96	136584	
2	44.00	356034	
3	47.12	608705	
4	49.18	387408	
5	51.82	1685241	DNA
6	53.60	2805859	intact RNA
TOTAL		5979831	

Figure S36 RP-HPLC profile of the mixture of a 9mer DNA (D1) and 24mer RNA (R12) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

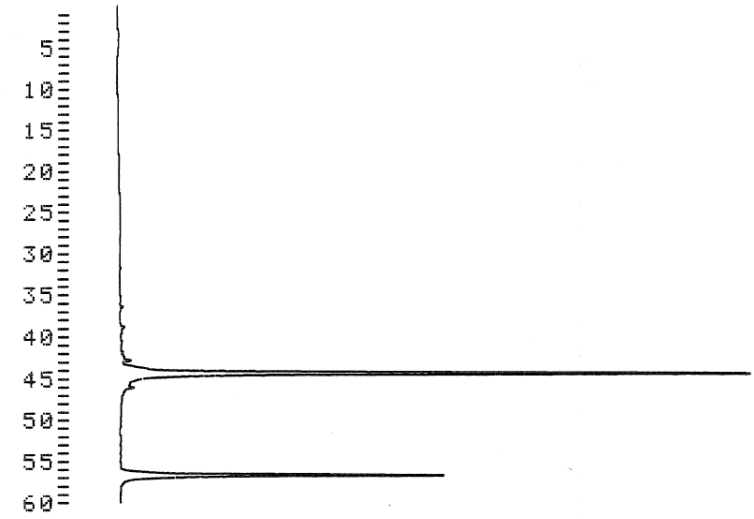
NO.	RT	AREA	
1	39.02	77485	
2	40.67	110295	
3	44.03	208726	
4	47.15	356240	
5	48.62	92350	
6	49.18	209254	
7	51.82	1697041	DNA
8	53.60	3338601	intact RNA
TOTAL		6089992	

Figure S37 RP-HPLC profile of the mixture of a 9mer DNA (D1) and a 24mer RNA (R12) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



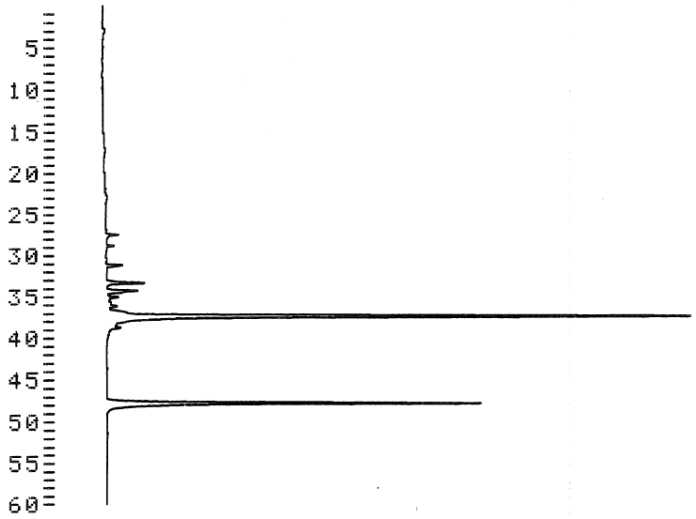
NO.	RT	AREA	
1	37.28	3182163	intact RNA
2	47.66	1578628	DNA
TOTAL		4760791	

Figure S38 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R1), which was used for the calculation of the amount of the cleaved RNA in Figure S40 and S41. The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



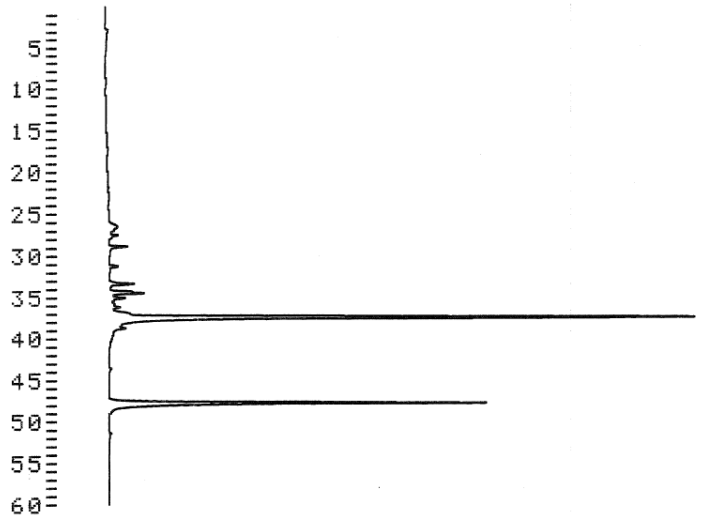
NO.	RT	AREA	
1	44.35	3515180	intact RNA
2	56.72	1544824	DNA
TOTAL		5060004	

Figure S39 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R1), which was used for the calculation of the amount of the cleaved RNA in Figure S42 and S43. The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



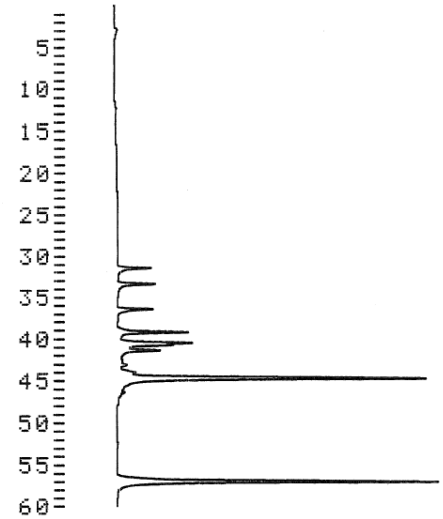
NO.	RT	AREA	
1	27.43	46807	
2	31.15	66700	
3	33.31	136344	
4	34.24	128440	
5	37.31	2610490	intact RNA
6	47.74	1540830	DNA
TOTAL		4529611	

Figure S40 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



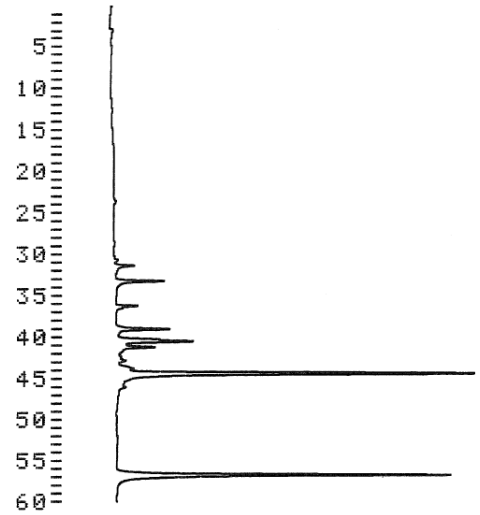
NO.	RT	AREA	
1	28.82	56312	
2	33.31	85115	
3	34.43	160065	
4	35.02	51670	
5	37.36	2810260	intact RNA
6	47.71	1547375	DNA
TOTAL		4710797	

Figure S41 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



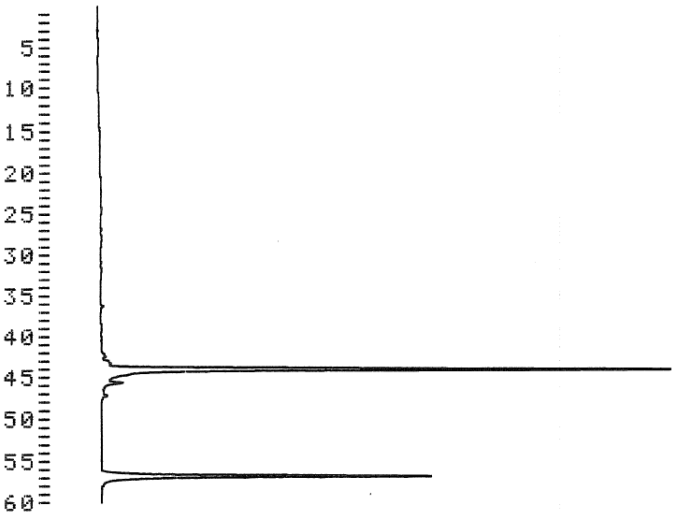
NO.	RT	AREA	
1	31.50	147504	
2	33.42	166616	
3	36.46	143945	
4	39.23	276384	
5	40.51	453827	
6	41.42	156630	
7	44.70	1460267	intact RNA
8	56.96	1517028	DNA
TOTAL		4322201	

Figure S42 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 1 h (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



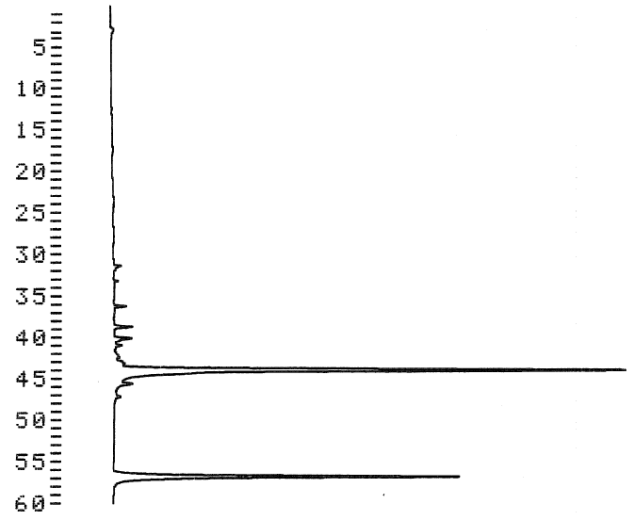
NO.	RT	AREA	
1	31.36	73955	
2	33.20	198029	
3	36.22	95611	
4	39.02	206795	
5	40.51	426998	
6	41.20	164920	
7	44.32	1842887	intact RNA
8	56.75	1535745	DNA
TOTAL		4544940	

Figure S43 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 1 h (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	43.92	2971199	intact RNA
2	45.63	40476	
3	56.75	1539965	DNA
TOTAL		4551640	

Figure S44 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R3) in the presence of ODAGal4 after treatment with RNase H for 1 h (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	36.16	48379	
2	38.67	81675	
3	40.08	116990	
4	43.90	2923647	intact RNA
5	45.60	31279	
6	56.78	1605815	DNA
TOTAL		4807785	

Figure S45 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R3) in the absence of ODAGal4 after treatment with RNase H for 1 h (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

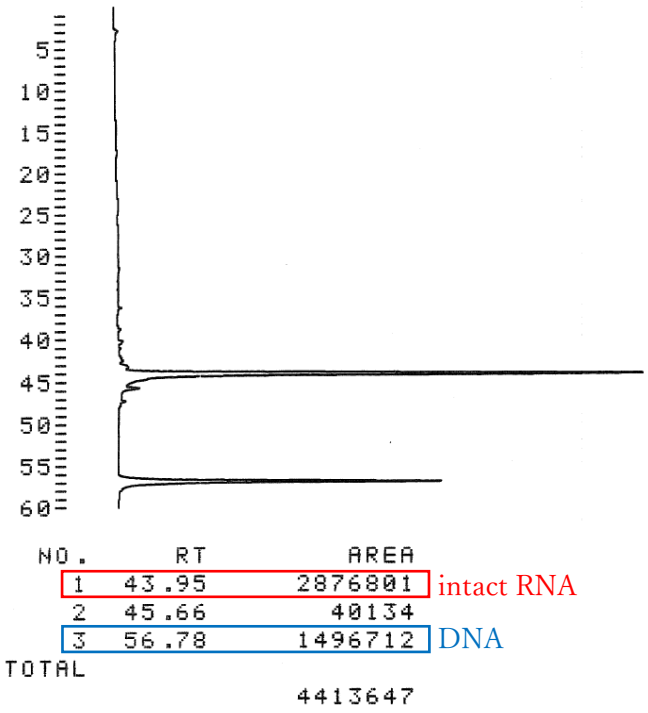
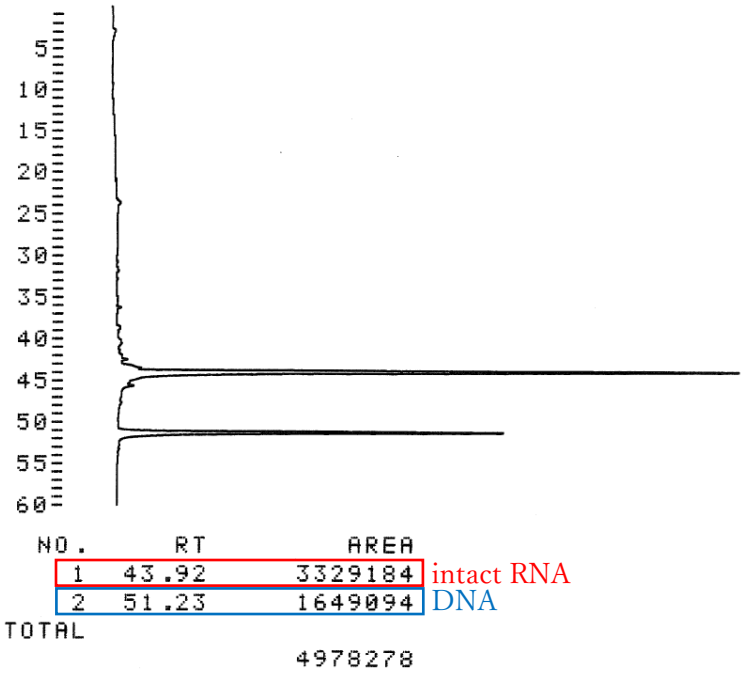
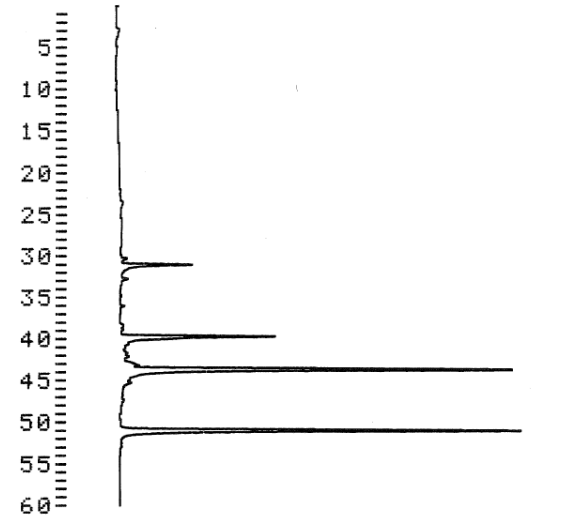


Figure S46 RP-HPLC profile of the mixture of a 9mer DNA (D2) and a 24mer RNA (R3) in the presence of ODAGal4 after treatment with RNase H for 1 h (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



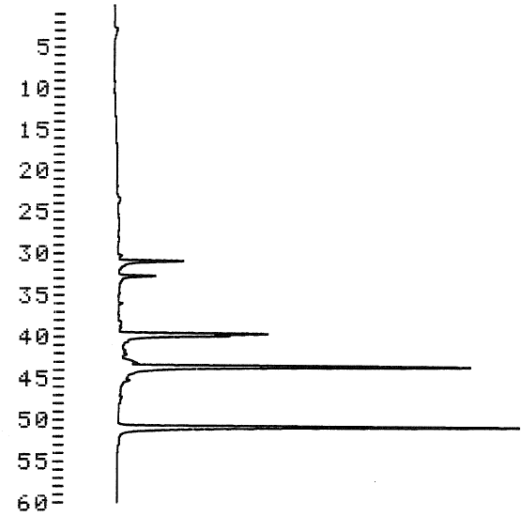
NO.	RT	AREA	
1	43.92	3329184	intact RNA
2	51.23	1649094	DNA
TOTAL		4978278	

Figure S47 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



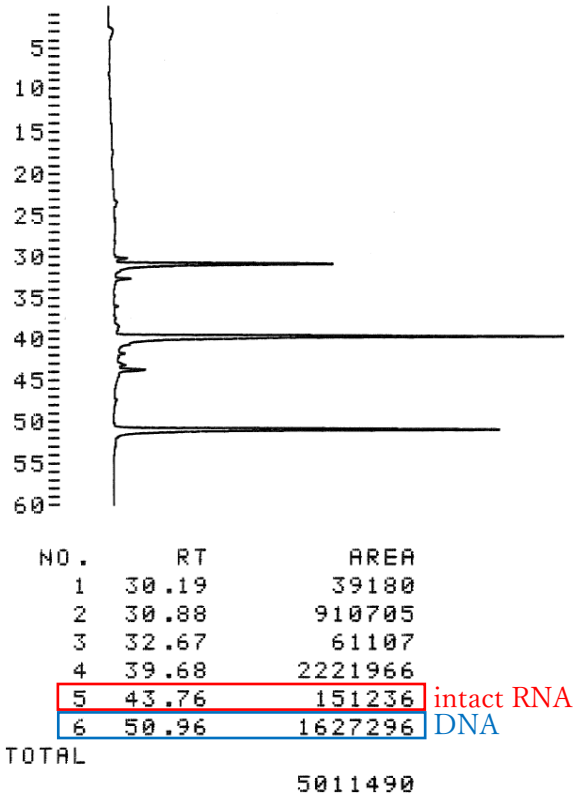
NO.	RT	AREA	
1	30.99	264772	
2	39.68	708636	
3	43.63	2158734	intact RNA
4	50.94	1655022	DNA
TOTAL		4787164	

Figure S48 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



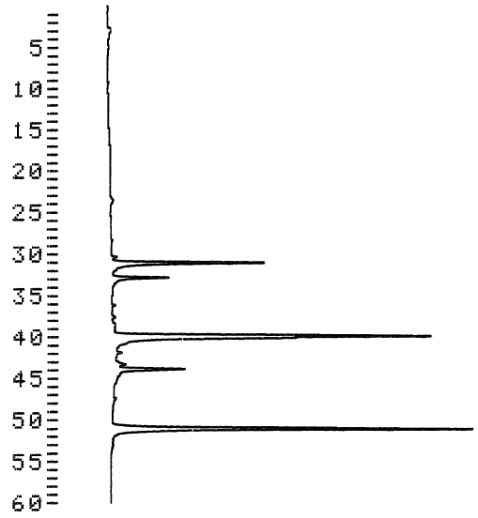
NO.	RT	AREA	
1	30.91	252921	
2	32.72	143801	
3	39.66	472896	
4	39.87	460660	
5	43.55	1813884	intact RNA
6	50.86	1658740	DNA
TOTAL		4802902	

Figure S49 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



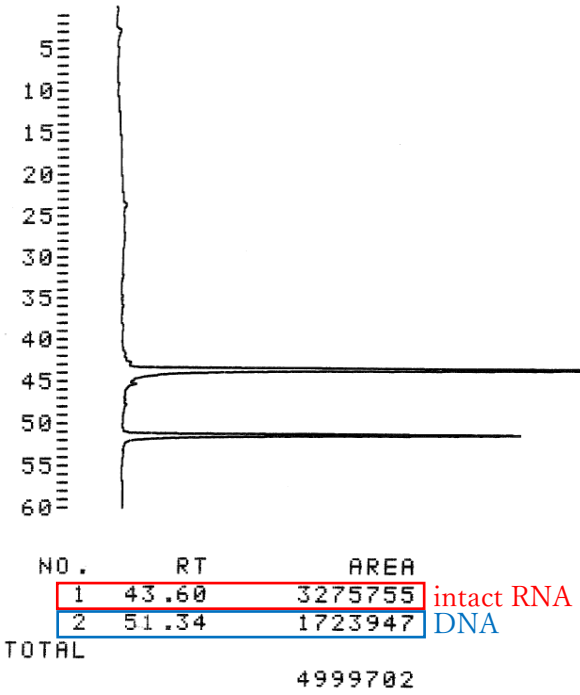
NO.	RT	AREA	
1	30.19	39180	
2	30.88	910705	
3	32.67	61107	
4	39.68	2221966	
5	43.76	151236	intact RNA
6	50.96	1627296	DNA
TOTAL		5011490	

Figure S50 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min. The peak at 40 min is the intact RNA and the peak at 51 min is the DNA.



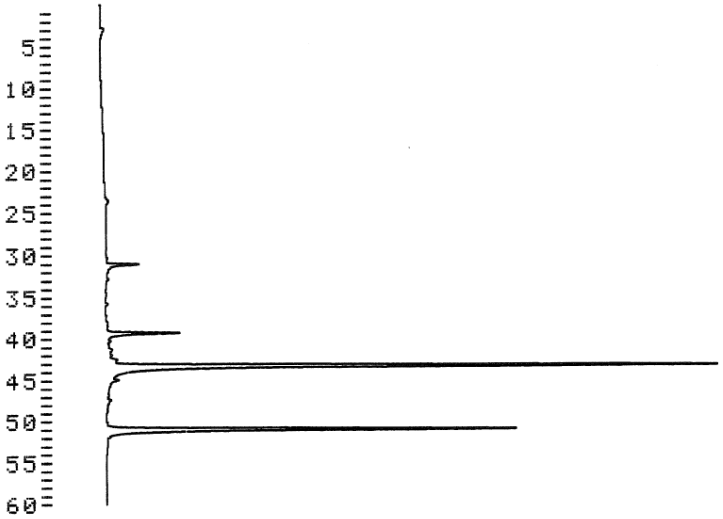
NO.	RT	AREA	
1	31.04	684572	
2	32.83	227235	
3	39.82	1944064	
4	43.90	387758	intact RNA
5	51.02	1628092	DNA
TOTAL		4871721	

Figure S51 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



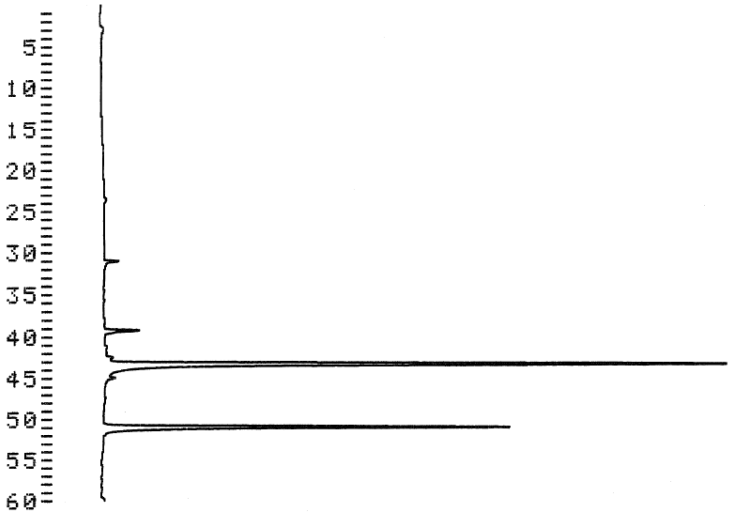
NO.	RT	AREA	
1	43.60	3275755	intact RNA
2	51.34	1723947	DNA
TOTAL		4999702	

Figure S52 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R4). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



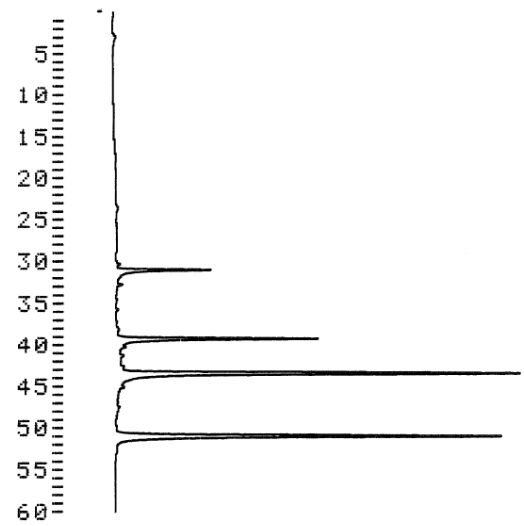
NO.	RT	AREA	
1	30.99	125382	
2	39.26	303852	
3	43.23	2912356	intact RNA
4	50.94	1743993	DNA
TOTAL		5085583	

Figure S53 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R4) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



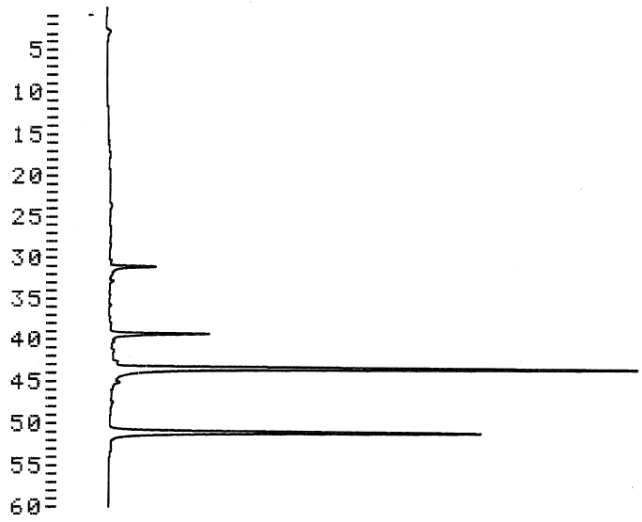
NO.	RT	AREA	
1	31.02	49653	
2	39.20	145961	
3	43.23	3073821	intact RNA
4	50.94	1727202	DNA
TOTAL		4996637	

Figure S54 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R4) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



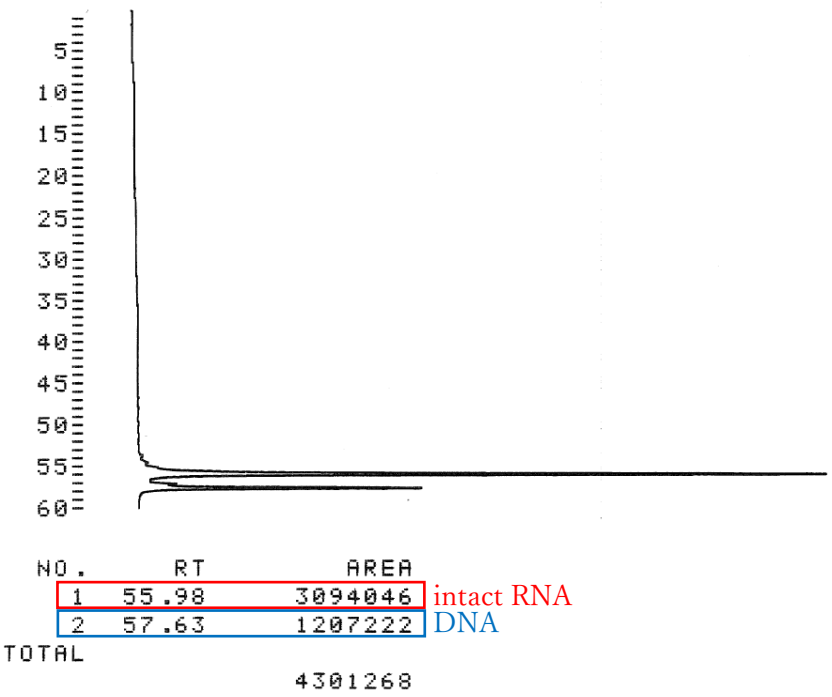
NO.	RT	AREA	
1	31.02	393291	
2	39.26	853376	
3	43.42	1951036	intact RNA
4	50.99	1695568	DNA
TOTAL		4893271	

Figure S55 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R4) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



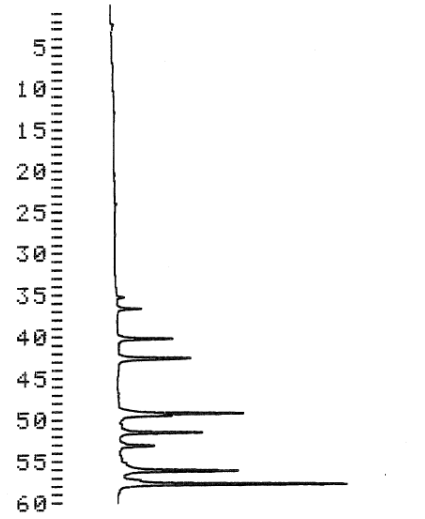
NO.	RT	AREA	
1	31.04	180291	
2	39.28	408665	
3	43.42	2519044	intact RNA
4	51.02	1672416	DNA
TOTAL		4780416	

Figure S56 RP-HPLC profile of the mixture of a 9mer DNA (D3) and a 24mer RNA (R4) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 5). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



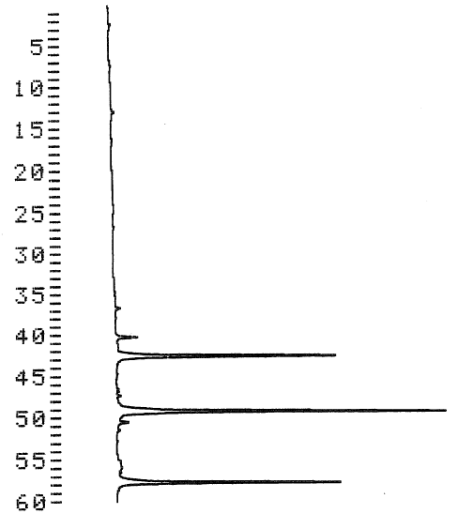
NO.	RT	AREA	
1	55.98	3094046	intact RNA
2	57.63	1207222	DNA
TOTAL		4301268	

Figure S57 RP-HPLC profile of the mixture of a 9mer DNA (D4) and a 27mer RNA (R13). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



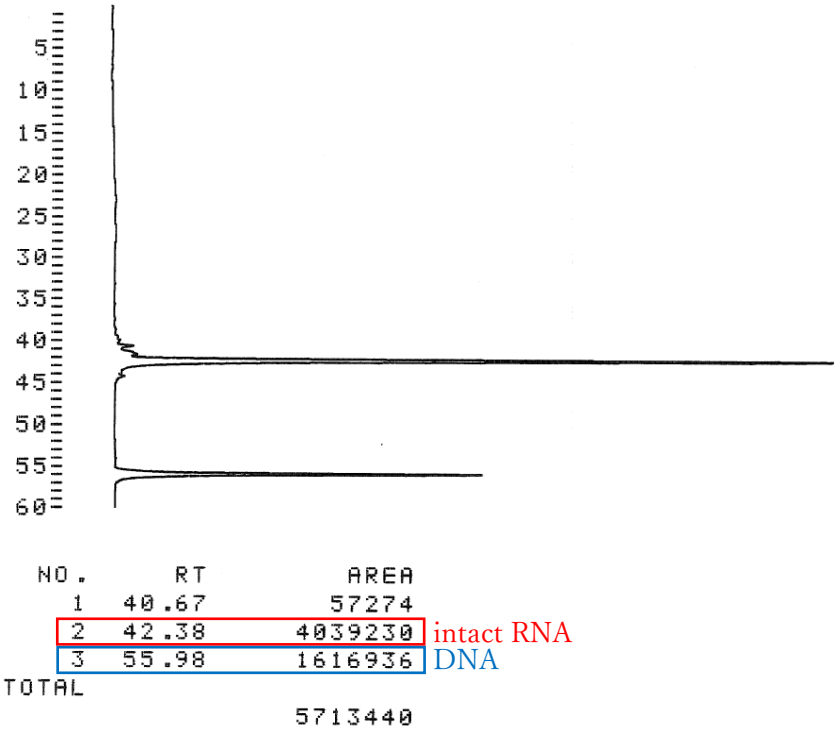
NO.	RT	AREA	
1	36.59	81262	
2	40.16	193808	
3	42.48	334268	
4	49.15	643264	
5	51.44	357630	
6	53.04	186407	
7	56.08	650056	intact RNA
8	57.71	929357	DNA
TOTAL		3376052	

Figure S58 RP-HPLC profile of the mixture of a 9mer DNA (D4) and a 27mer RNA (R13) in the absence of ODAGal4 after treatment with RNase H for 1 h (Figure 6). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



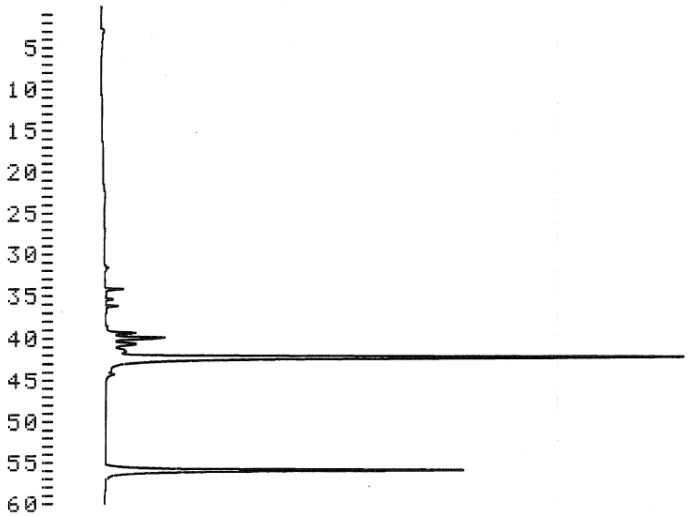
NO.	RT	AREA	
1	40.19	76204	
2	42.48	835857	
3	49.12	1366328	
4	57.68	769800	DNA
TOTAL		3048189	

Figure S59 RP-HPLC profile of the mixture of a 9mer DNA (D4) and a 27mer RNA (R13) in the presence of ODAGal4 after treatment with RNase H for 1 h (Figure 6). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–10% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 1.0 mL/min.



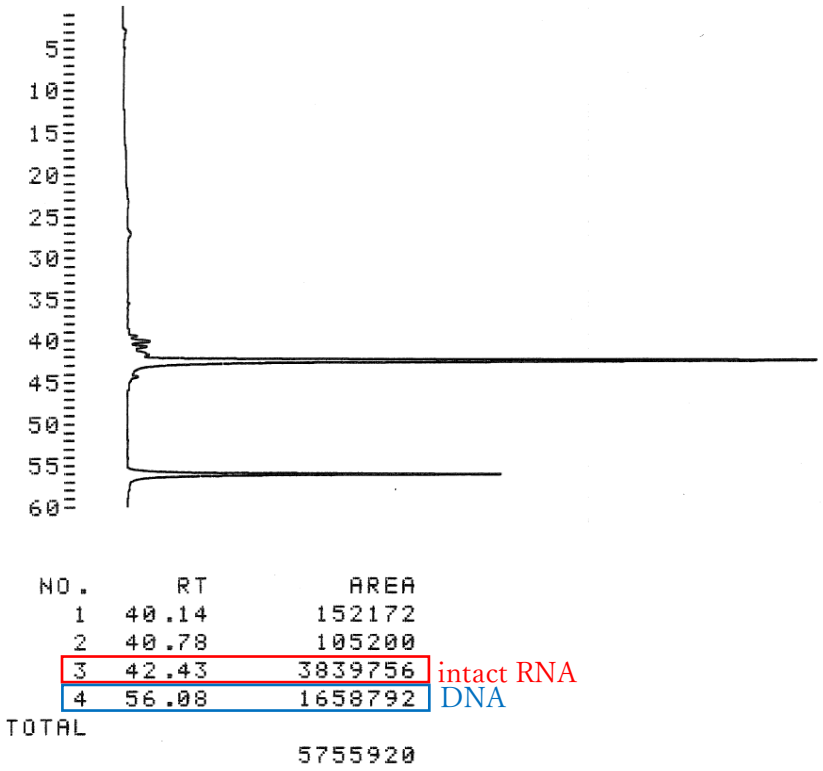
NO.	RT	AREA	
1	40.67	57274	
2	42.38	4039230	intact RNA
3	55.98	1616936	DNA
TOTAL		5713440	

Figure S60 RP-HPLC profile of the mixture of a 9mer DNA (D4) and a 27mer RNA (R14). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–9% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



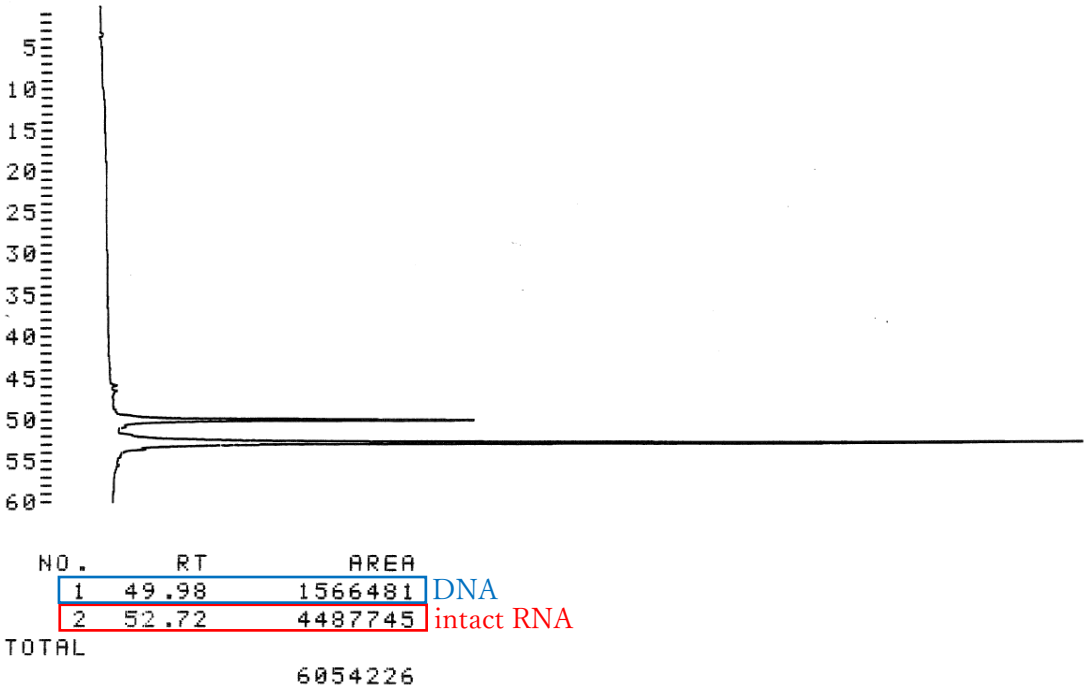
NO.	RT	AREA	
1	34.16	63227	
2	36.16	24832	
3	39.34	97924	
4	39.90	290744	
5	40.64	171948	
6	42.27	3215864	intact RNA
7	55.95	1618164	DNA
TOTAL		5482703	

Figure S61 RP-HPLC profile of the mixture of a 9mer DNA (D4) and a 27mer RNA (R14) in the absence of ODAGal4 after treatment with RNase H for 1 h (Figure 6). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–9% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



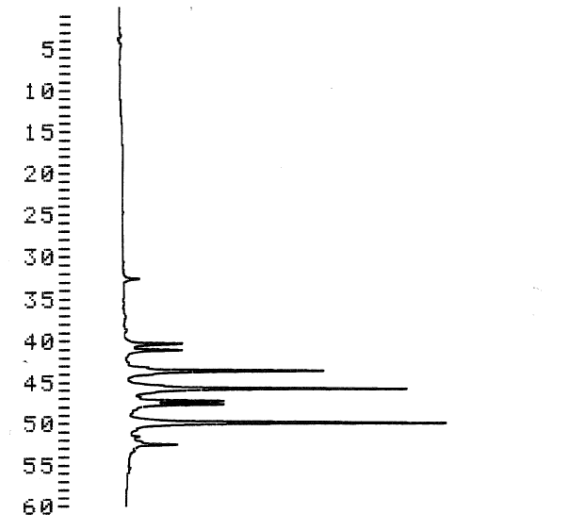
NO.	RT	AREA	
1	40.14	152172	
2	40.78	105200	
3	42.43	3839756	intact RNA
4	56.08	1658792	DNA
TOTAL		5755920	

Figure S62 RP-HPLC profile of the mixture of a 9mer DNA (D4) and a 27mer RNA (R14) in the presence of ODAGal4 after treatment with RNase H for 1 h (Figure 6). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–9% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



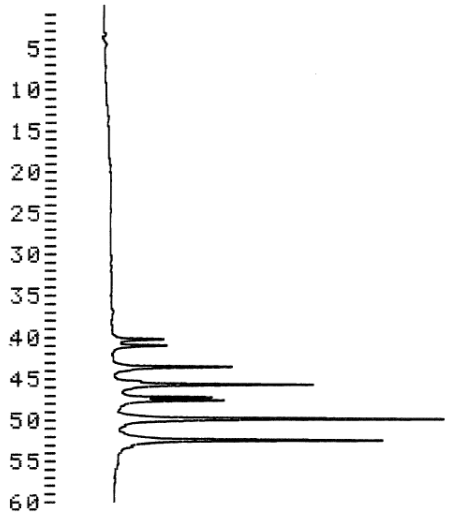
NO.	RT	AREA	
1	49.98	1566481	DNA
2	52.72	4487745	intact RNA
TOTAL		6054226	

Figure S63 RP-HPLC profile of the mixture of an 8mer DNA (D5) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	32.62	60174	
2	40.32	227515	
3	41.07	222552	
4	43.60	933334	
5	45.76	1360241	
6	47.31	376720	
7	47.68	408091	
8	49.87	1330736	DNA
9	52.54	248821	intact RNA
TOTAL		5168184	

Figure S64 RP-HPLC profile of the mixture of an 8mer DNA (D5) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	40.27	206881	
2	41.04	224267	
3	43.58	526150	
4	45.74	950907	
5	47.26	372907	
6	47.63	488122	
7	49.87	1454437	DNA
8	52.48	1350651	intact RNA
TOTAL		5574322	

Figure S65 RP-HPLC profile of the mixture of an 8mer DNA (D5) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

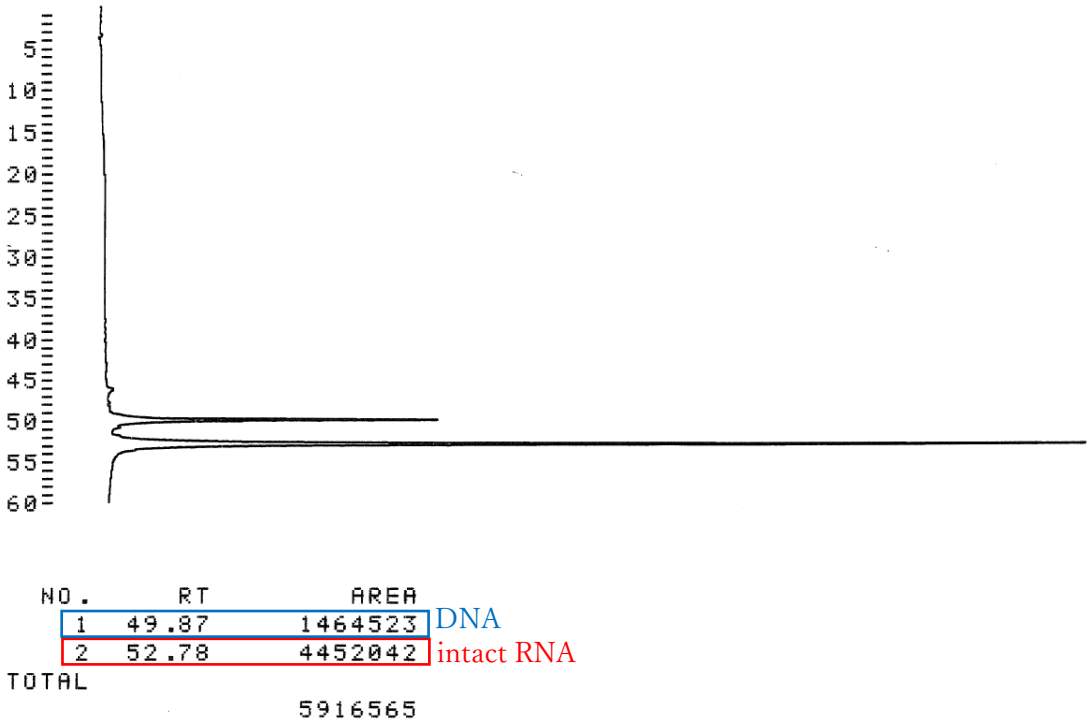
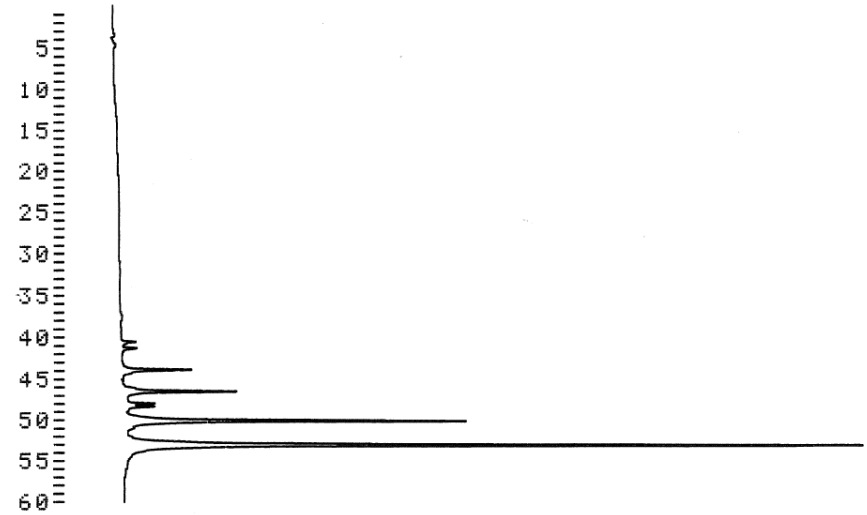


Figure S66 RP-HPLC profile of the mixture of an 8mer DNA (D5) and a 24mer RNA (R2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	40.51	52382	
2	41.28	59513	
3	43.87	303976	
4	46.48	435505	
5	47.98	86187	
6	48.32	92235	
7	50.06	1406841	DNA
8	53.02	3251962	intact RNA
TOTAL		5688601	

Figure S67 RP-HPLC profile of the mixture of an 8mer DNA (D5) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

NO.	RT	AREA	
1	43.82	44107	
2	46.46	128702	
3	47.95	73796	
4	49.98	1377028	DNA
5	52.94	3841993	intact RNA
TOTAL		5465626	

Figure S68 RP-HPLC profile of the mixture of an 8mer DNA (D5) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–12% CH_3CN in 0.1 M TEAA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

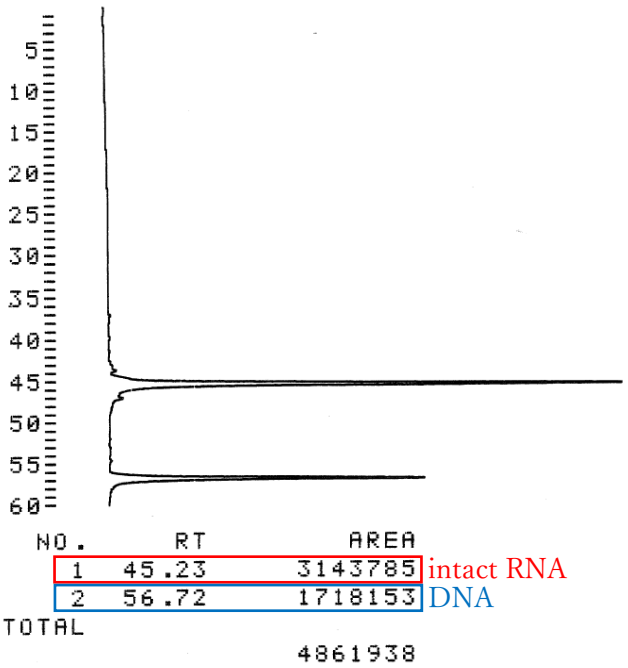
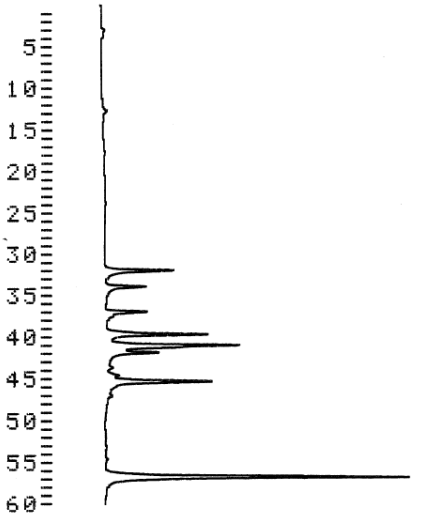
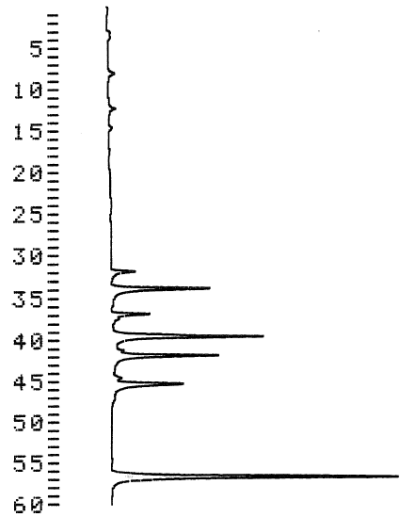


Figure S69 RP-HPLC profile of the mixture of a 10mer DNA (D6) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



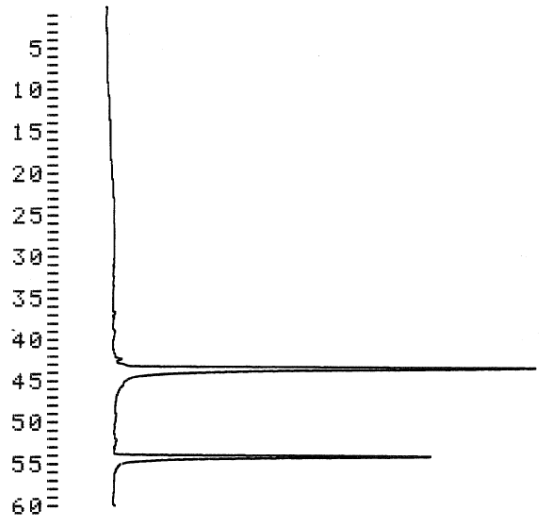
NO.	RT	AREA	
1	31.92	356211	
2	33.87	199755	
3	36.91	214945	
4	39.66	498547	
5	40.94	832787	
6	41.84	258028	
7	45.28	631576	intact RNA
8	56.70	1663136	DNA
TOTAL		4654985	

Figure S70 RP-HPLC profile of the mixture of a 10mer DNA (D6) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min. The peak at 46 min is the intact RNA and the peak at 57 min is the DNA.



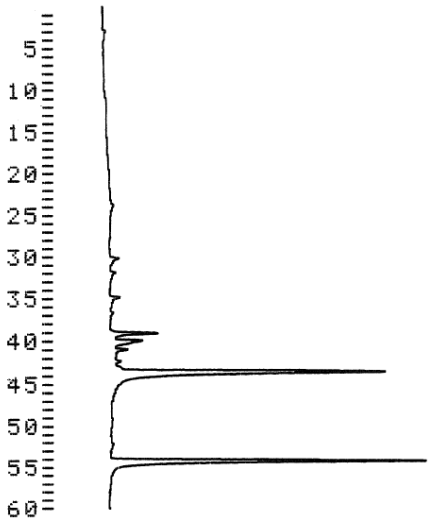
NO.	RT	AREA	
1	31.82	122383	
2	33.76	522726	
3	36.80	194348	
4	39.50	833081	
5	41.76	429628	
6	45.23	515577	intact RNA
7	56.64	1592351	DNA
TOTAL		4210094	

Figure S71 RP-HPLC profile of the mixture of a 10mer DNA (D6) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



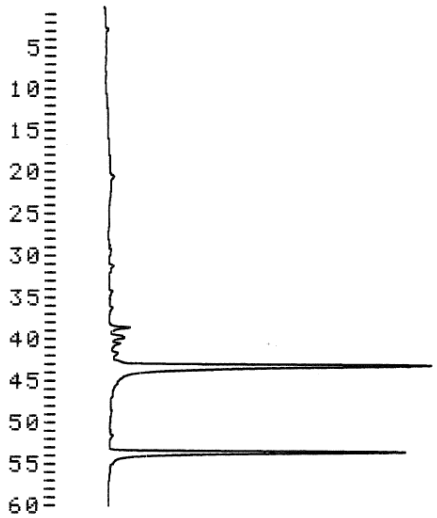
NO.	RT	AREA	
1	36.70	434066	
2	42.32	54615	
3	43.47	3124784	intact RNA
4	52.14	8496	
5	54.14	1710436	DNA
TOTAL		5332397	

Figure S72 RP-HPLC profile of the mixture of a 10mer DNA (D6) and a 24mer RNA (R2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



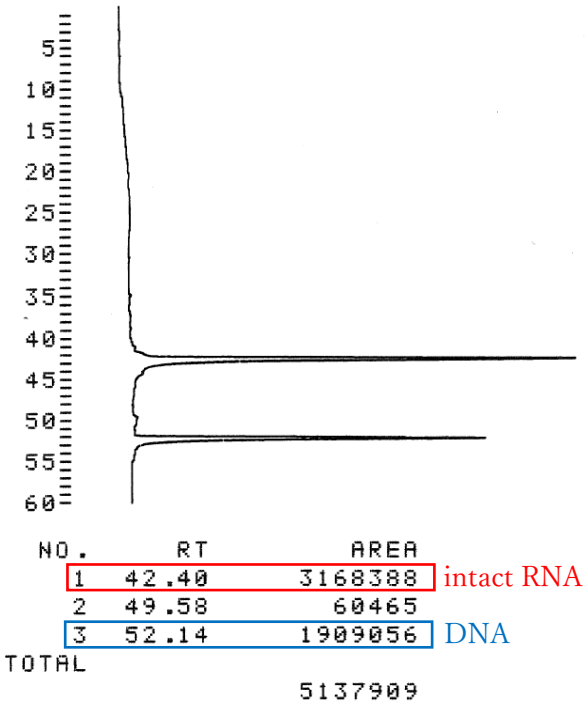
NO.	RT	AREA	
1	2.88	10518	
2	23.79	43382	
3	30.11	56031	
4	31.87	44153	
5	34.83	71907	
6	36.67	19307	
7	39.04	226803	
8	39.92	223319	
9	40.94	127603	
10	42.27	70663	
11	43.47	2101604	intact RNA
12	52.14	12542	
13	54.16	1681861	DNA
TOTAL		4689693	

Figure S73 RP-HPLC profile of the mixture of a 10mer DNA (D6) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



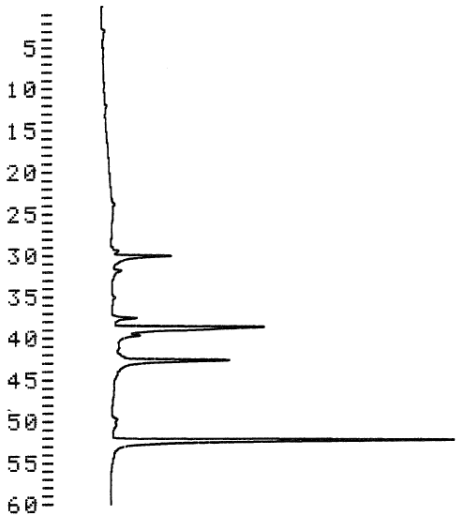
NO.	RT	AREA	
1	2.73	11258	
2	20.52	29470	
3	29.27	15802	
4	31.15	38884	
5	34.19	22452	
6	36.19	21047	
7	38.56	108684	
8	39.76	114972	
9	40.48	64734	
10	41.66	65100	
11	43.12	2699450	intact RNA
12	51.52	13267	
13	53.52	1710835	DNA
TOTAL		4915955	

Figure S74 RP-HPLC profile of the mixture of a 10mer DNA (D6) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



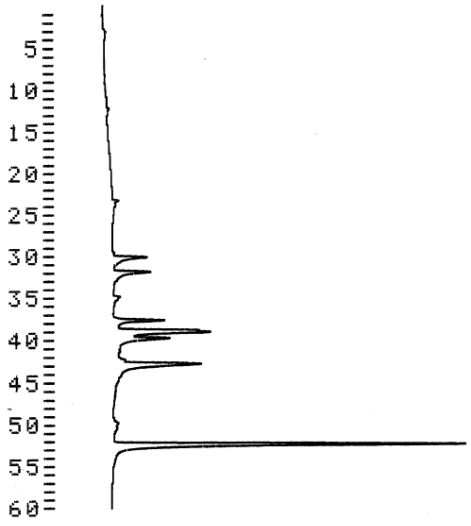
NO.	RT	AREA	
1	42.40	3168388	intact RNA
2	49.58	60465	
3	52.14	1909056	DNA
TOTAL		5137909	

Figure S75 RP-HPLC profile of the mixture of a 11mer DNA (D7) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



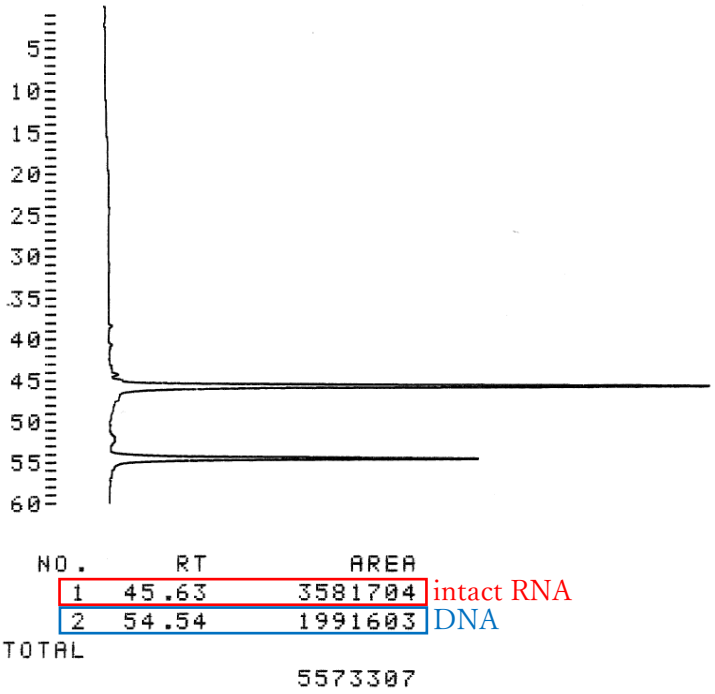
NO.	RT	AREA	
1	2.86	10489	
2	23.78	54612	
3	29.36	46867	
4	30.00	359950	
5	31.79	63758	
6	35.04	19816	
7	37.52	135590	
8	38.70	1035944	
9	39.66	290094	
10	42.64	902014	intact RNA
11	49.71	67520	
12	52.27	1861283	DNA
TOTAL		4847937	

Figure S76 RP-HPLC profile of the mixture of a 11mer DNA (D7) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min. The peak at 43 min is the intact RNA and the peak at 53 min is the DNA.



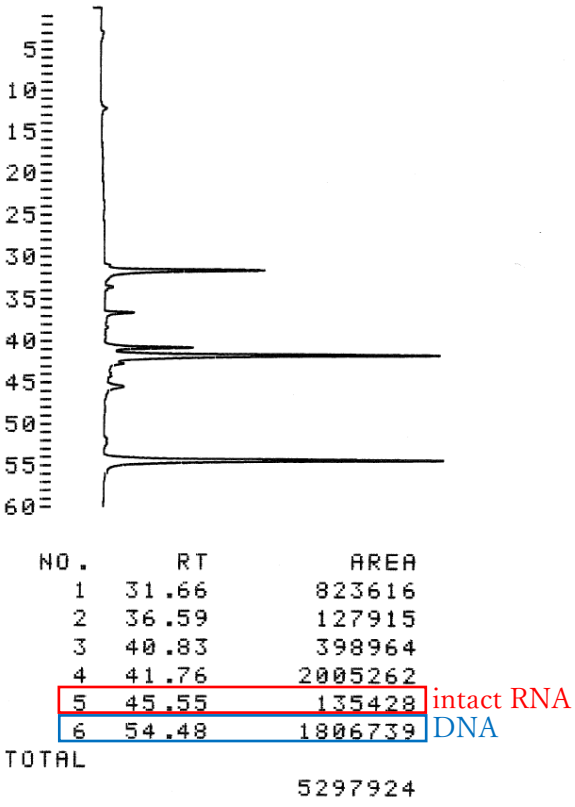
NO.	RT	AREA	
1	2.86	11340	
2	12.14	13860	
3	23.23	40996	
4	30.06	181796	
5	31.82	219312	
6	34.83	50642	
7	37.63	263856	
8	38.78	266568	
9	38.99	522908	
10	39.74	452596	
11	42.75	809969	intact RNA
12	49.74	58057	
13	52.30	1869348	DNA
TOTAL		4761248	

Figure S77 RP-HPLC profile of the mixture of a 11mer DNA (D7) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



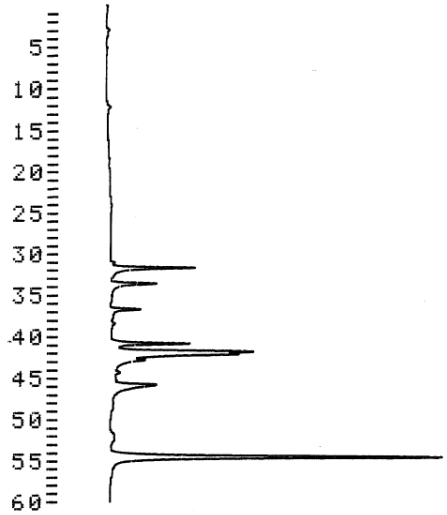
NO.	RT	AREA	
1	45.63	3581704	intact RNA
2	54.54	1991603	DNA
TOTAL		5573307	

Figure S78 RP-HPLC profile of the mixture of a 11mer DNA (D7) and a 24mer RNA (R2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



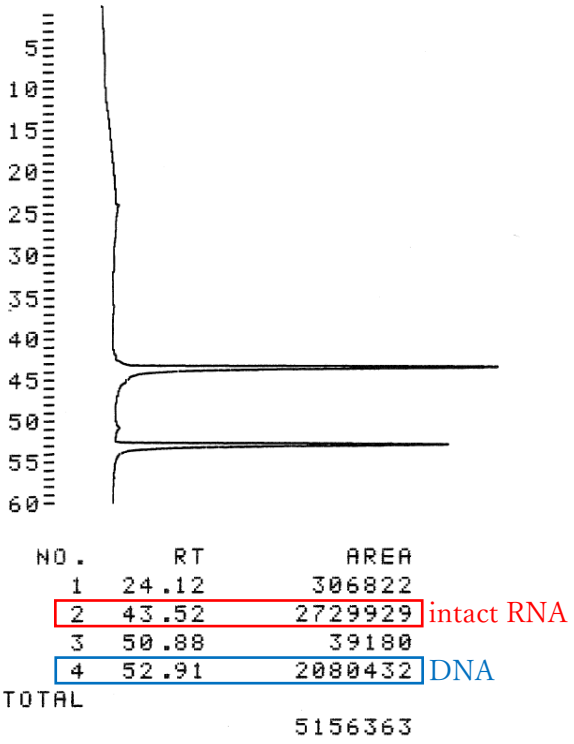
NO.	RT	AREA	
1	31.66	823616	
2	36.59	127915	
3	40.83	398964	
4	41.76	2005262	
5	45.55	135428	intact RNA
6	54.48	1806739	DNA
TOTAL		5297924	

Figure S79 RP-HPLC profile of the mixture of a 11mer DNA (D7) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



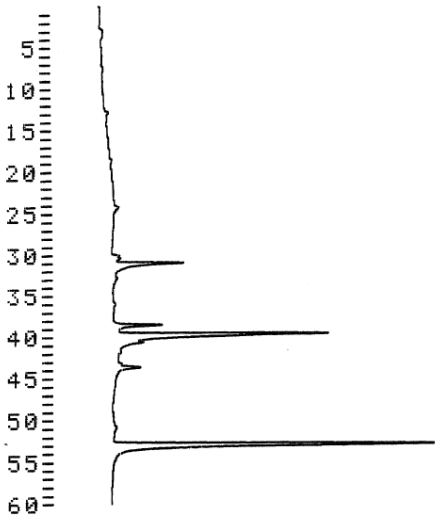
NO.	RT	AREA	
1	31.68	426833	
2	33.60	227011	
3	36.67	126785	
4	40.83	333742	
5	41.82	1292760	
6	42.80	263854	
7	45.82	340233	intact RNA
8	54.48	1835612	DNA
TOTAL		4846830	

Figure S80 RP-HPLC profile of the mixture of a 11mer DNA (D7) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



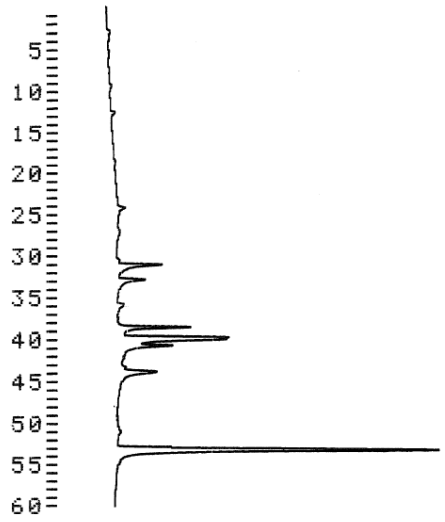
NO.	RT	AREA	
1	24.12	306822	
2	43.52	2729929	intact RNA
3	50.88	39180	
4	52.91	2080432	DNA
TOTAL		5156363	

Figure S81 RP-HPLC profile of the mixture of a 12mer DNA (D8) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



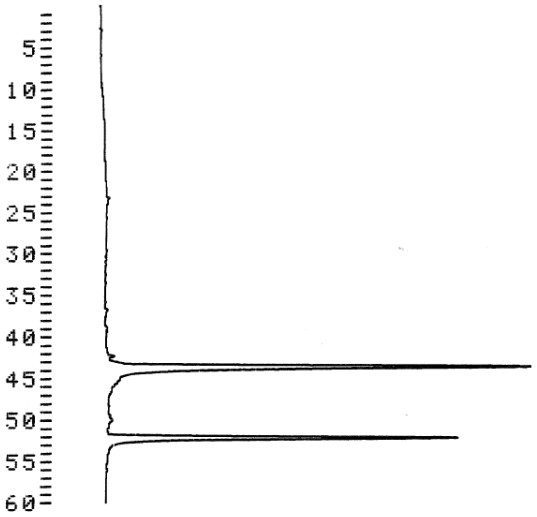
NO.	RT	AREA	
1	2.87	15653	
2	7.52	15192	
3	12.83	20664	
4	24.19	67157	
5	30.38	76708	
6	30.99	486106	
7	32.83	18119	
8	36.00	17257	
9	38.54	232156	
10	39.66	1648921	
11	40.64	26395	
12	43.66	239680	intact RNA
13	50.88	33084	
14	52.94	1953103	DNA
TOTAL		4850195	

Figure S82 RP-HPLC profile of the mixture of a 12mer DNA (D8) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



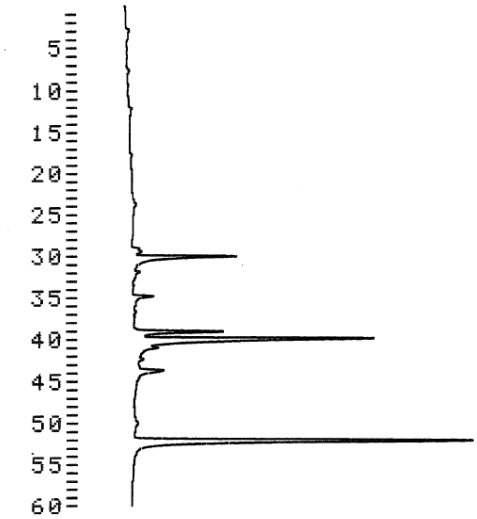
NO.	RT	AREA	
1	2.88	15192	
2	9.30	19889	
3	12.54	27902	
4	24.18	36785	
5	30.99	297418	
6	32.80	185340	
7	35.79	48793	
8	38.54	338164	
9	39.71	384272	
10	39.92	578072	
11	40.67	433958	
12	43.82	374265	intact RNA
13	51.02	29298	
14	53.07	1976799	DNA
TOTAL		4746147	

Figure S83 RP-HPLC profile of the mixture of a 12mer DNA (D8) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



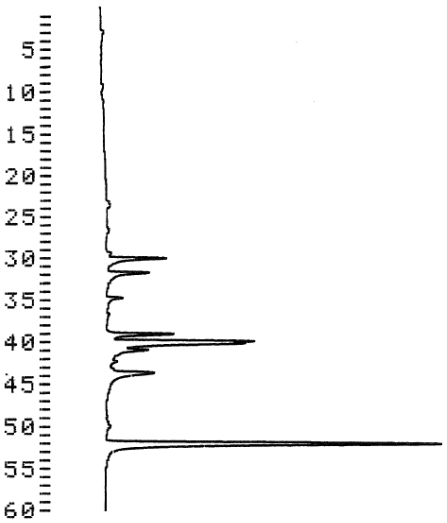
NO.	RT	AREA	
1	23.20	21620	
2	36.75	13532	
3	42.30	57732	
4	43.47	3350943	intact RNA
5	50.00	40824	
6	52.06	2103083	DNA
TOTAL		5587734	

Figure S84 RP-HPLC profile of the mixture of a 12mer DNA (D8) and a 24mer RNA (R2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	2.88	17700	
2	12.11	19174	
3	23.76	31663	
4	29.08	26260	
5	29.39	55478	
6	30.06	611968	
7	31.87	29795	
8	34.80	126398	
9	36.67	30132	
10	39.07	418705	
11	39.90	1708933	
12	40.96	32728	
13	42.32	22750	
14	43.68	263096	intact RNA
15	49.95	37964	
16	52.06	2045488	DNA
TOTAL		5478232	

Figure S85 RP-HPLC profile of the mixture of a 12mer DNA (D8) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	2.88	16661	
2	9.34	19517	
3	23.60	40189	
4	26.58	24015	
5	29.39	24518	
6	30.03	323520	
7	31.79	267321	
8	34.75	97441	
9	36.70	16260	
10	39.07	307347	
11	39.92	528419	
12	40.16	752494	
13	40.96	301687	
14	42.30	83811	
15	43.66	524352	intact RNA
16	49.95	31691	
17	52.03	2037123	DNA
TOTAL		5396366	

Figure S86 RP-HPLC profile of the mixture of a 12mer DNA (D8) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 5 min (Figure 7). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

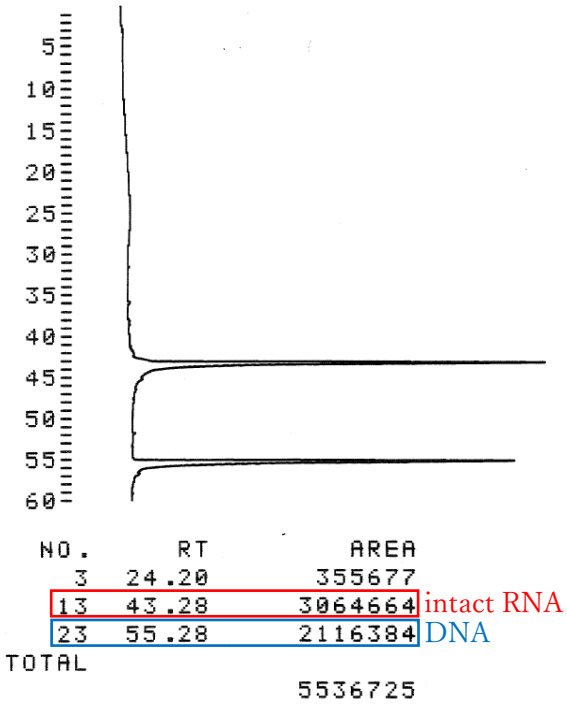


Figure S87 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1), which was used for the calculation of the amount of the cleaved RNA in Figure S88 and S89. The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

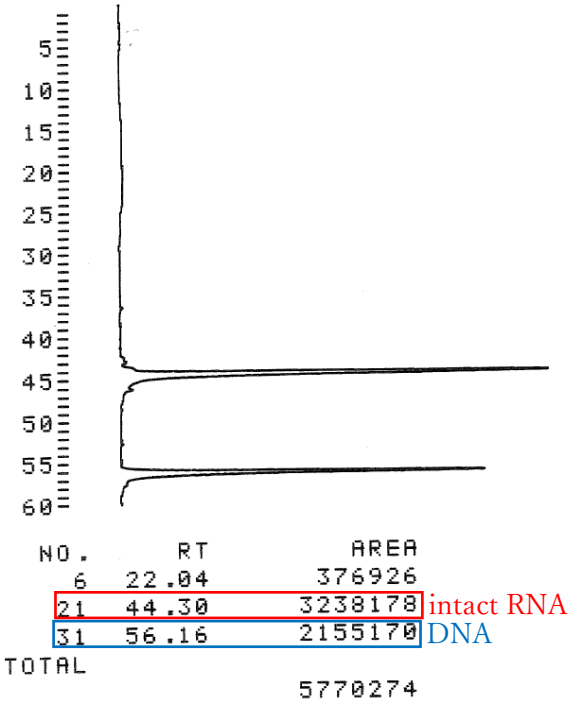
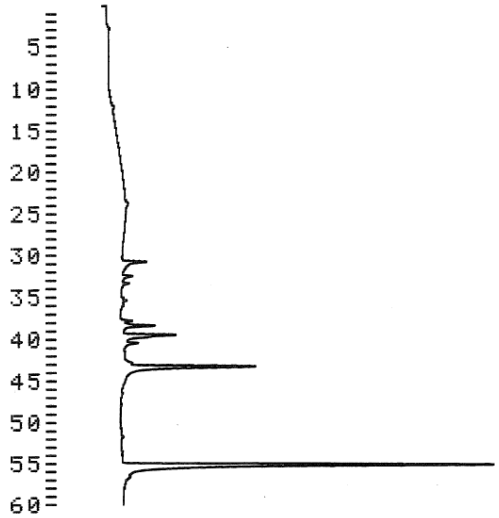
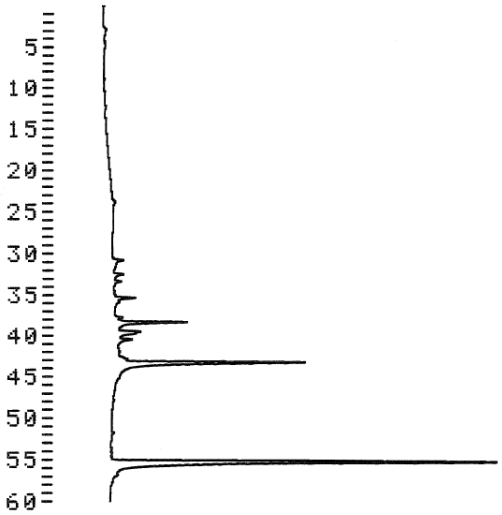


Figure S88 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1), which was used for the calculation of the amount of the cleaved RNA in Figure S90–93. The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



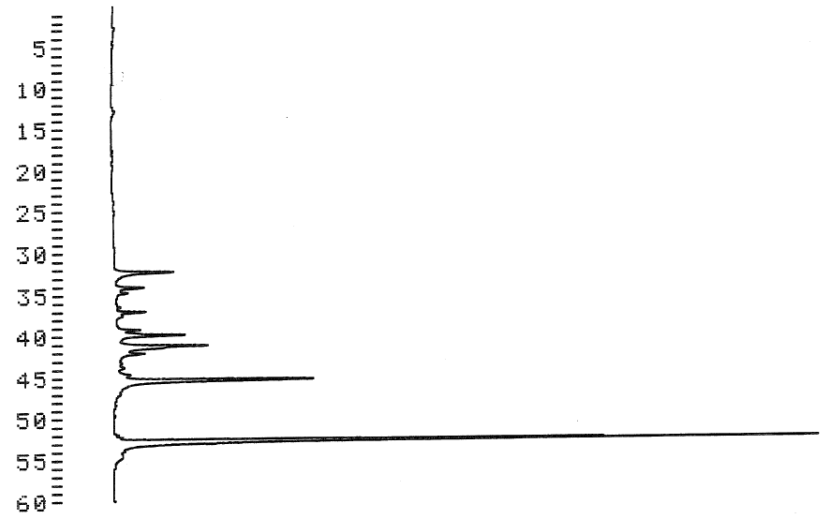
NO.	RT	AREA	
5	30.75	153316	
13	38.35	173854	
14	39.47	310545	
15	40.43	114048	
19	43.28	831970	intact RNA
25	55.15	2033896	DNA
TOTAL		3617629	

Figure S89 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
15	38.35	329926	
17	39.74	108184	
18	40.48	120098	
20	42.91	110060	
21	43.34	1274400	intact RNA
29	55.26	2110315	DNA
TOTAL		4052983	

Figure S90 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
10	32.35	349928	
11	34.14	145924	
12	34.78	103054	
15	37.07	198209	
17	39.28	164515	
18	39.95	398444	
19	41.23	635500	
20	42.14	226932	
23	44.70	128846	
24	45.36	1328707	intact RNA
30	52.67	2496018	DNA
TOTAL		6176077	

Figure S91 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) at 50 °C with a flow rate of 0.5 mL/min.

NO.	RT	AREA	
13	32.43	147817	
14	34.22	193380	
18	37.18	192734	
20	39.39	111175	
21	40.06	379075	
22	41.34	172380	
23	41.58	194222	
24	42.27	240948	
27	44.78	103856	
28	45.47	1258114	intact RNA
34	52.67	2396884	DNA
TOTAL		5390585	

Figure S92 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) at 50 °C with a flow rate of 0.5 mL/min.

NO.	RT	AREA	
12	32.51	314610	
13	34.35	106748	
17	37.34	151588	
20	40.19	372764	
21	41.42	567780	
22	42.32	160942	
26	45.60	1090356	intact RNA
32	52.67	2517351	DNA
TOTAL		5282139	

Figure S93 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) at 50 °C with a flow rate of 0.5 mL/min.

NO.	RT	AREA	
15	32.40	178984	
16	34.22	220056	
20	37.15	254503	
23	39.31	158212	
24	39.98	492822	
25	41.20	200132	
26	41.44	232587	
27	42.11	300846	
30	44.67	117093	
31	45.34	1168698	intact RNA
37	52.64	2474094	DNA
TOTAL		5798027	

Figure S94 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) at 50 °C with a flow rate of 0.5 mL/min.

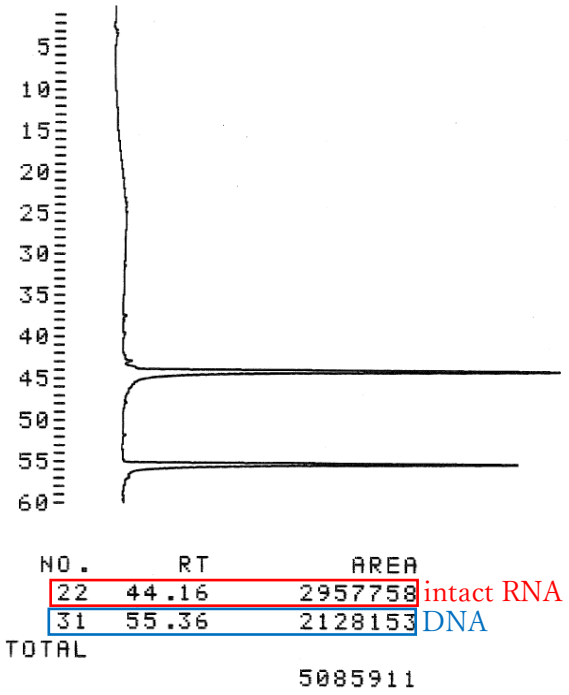


Figure S95 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2), which was used for the calculation of the amount of the cleaved RNA in Figure S97 and S98. The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.

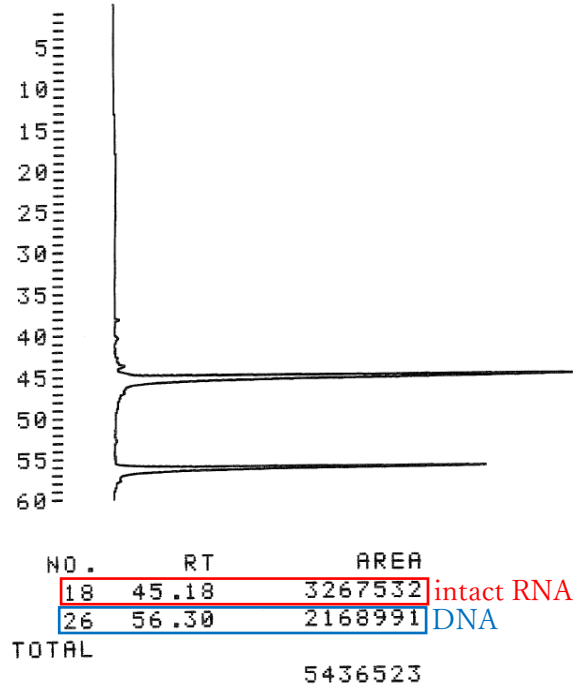
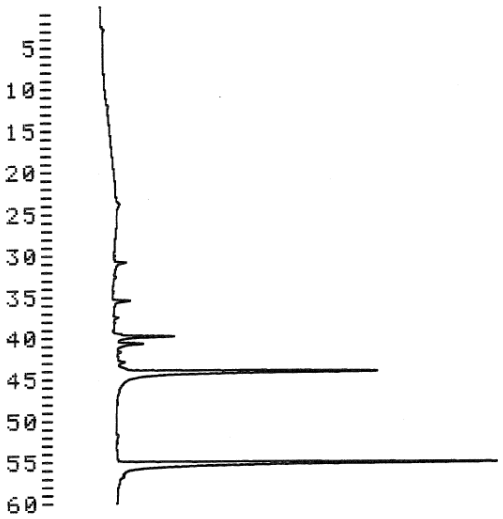
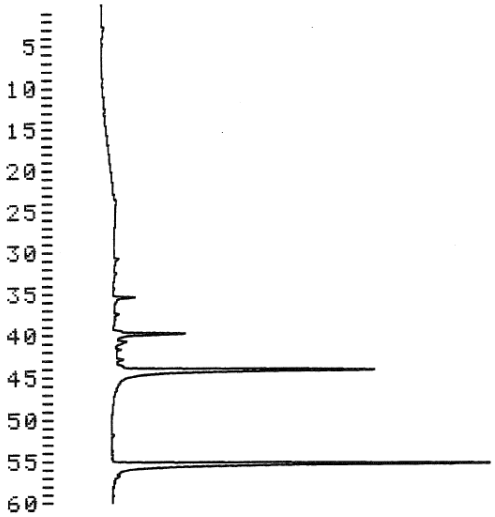


Figure S96 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2), which was used for the calculation of the amount of the cleaved RNA in Figure S99–102. The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



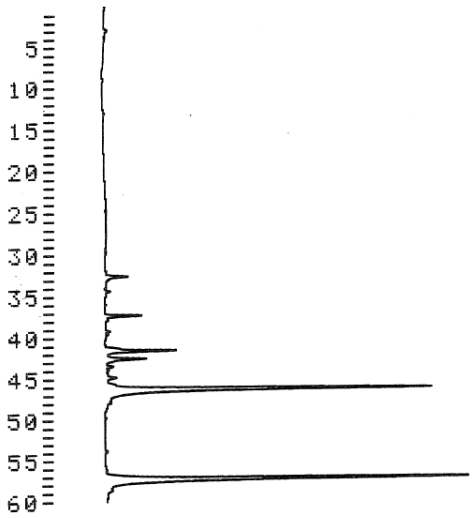
NO.	RT	AREA	
14	39.82	278458	
15	40.70	163916	
19	44.11	1759255	intact RNA
26	55.18	2092568	DNA
TOTAL		4294197	

Figure S97 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



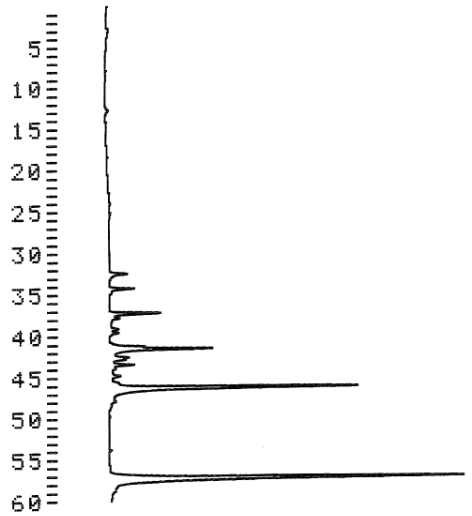
NO.	RT	AREA	
14	35.39	119417	
17	39.82	346024	
18	40.75	103650	
22	44.14	1834814	intact RNA
30	55.28	2030341	DNA
TOTAL		4434246	

Figure S98 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



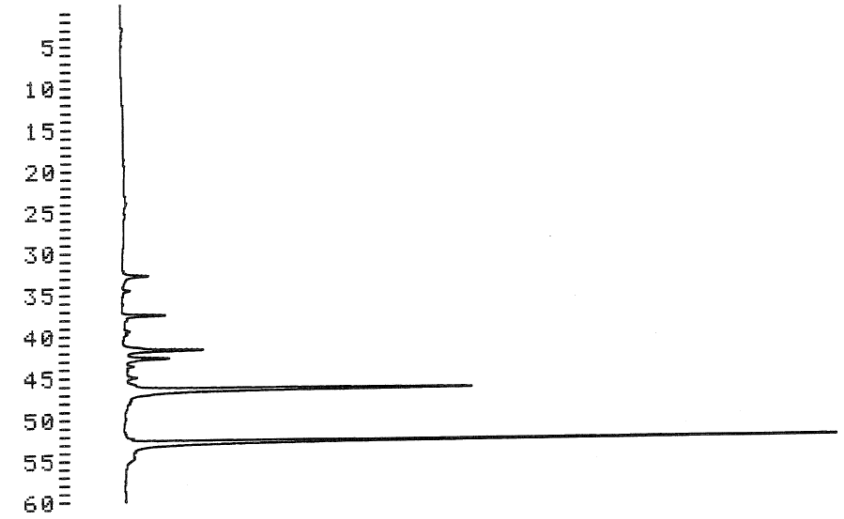
NO.	RT	AREA	
7	32.51	128055	
11	37.28	164457	
17	41.58	354662	
18	42.56	218123	
22	46.27	2079471	intact RNA
32	57.31	2054175	DNA
TOTAL		4998943	

Figure S99 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



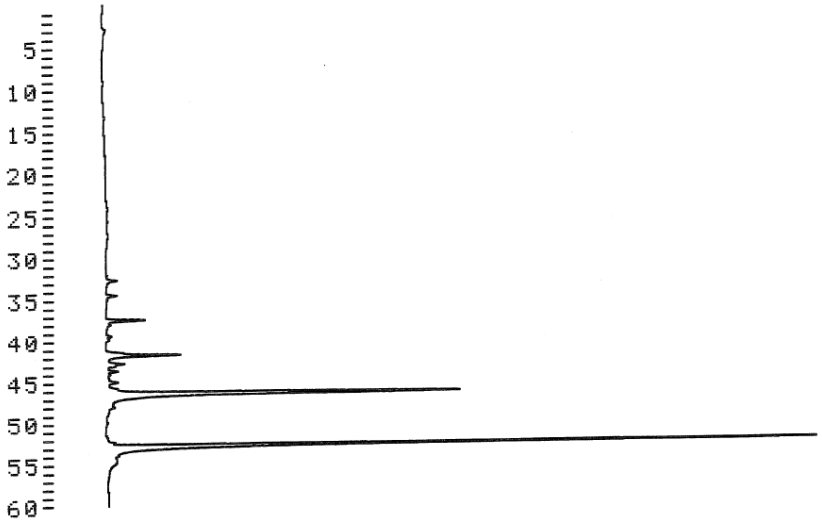
NO.	RT	AREA	
13	32.46	102235	
14	34.27	129900	
16	37.26	192493	
20	41.20	130068	
21	41.58	524303	
24	43.47	158119	
27	46.27	1534841	intact RNA
37	57.28	2004445	DNA
TOTAL		4776404	

Figure S100 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–8% CH_3CN in 0.1 M AA buffer (pH 7.0) at 50 °C for 60 min with a flow rate of 0.5 mL/min.



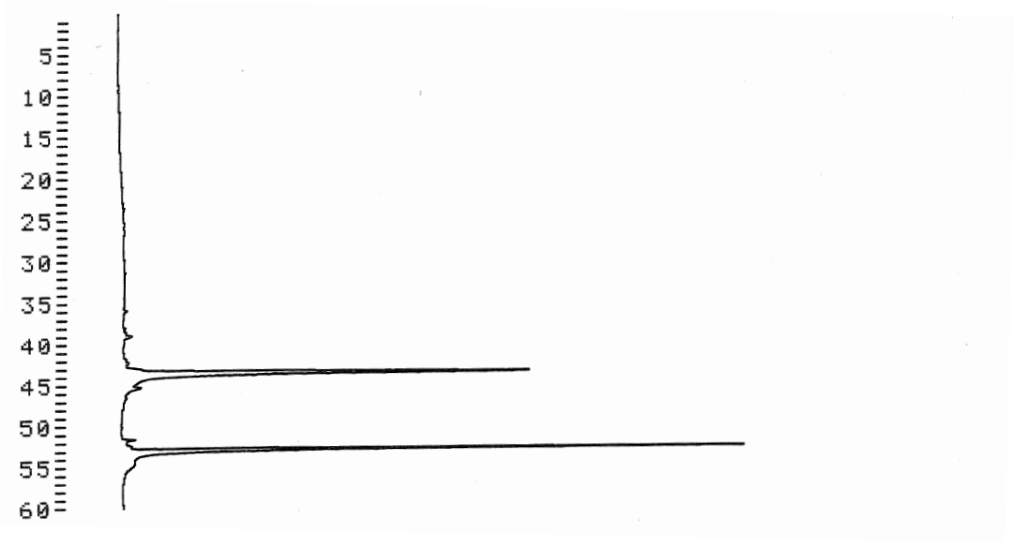
NO.	RT	AREA	
8	32.70	145532	
12	37.44	194284	
18	41.71	411233	
19	42.70	251329	
22	44.96	105896	
23	46.43	2146075	intact RNA
29	52.70	2560412	DNA
TOTAL		5814761	

Figure S101 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) at 50 °C with a flow rate of 0.5 mL/min.



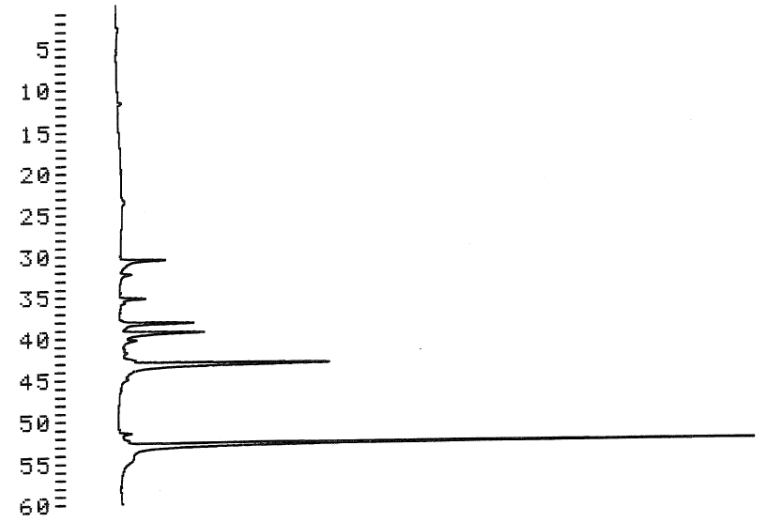
NO.	RT	AREA	
16	37.39	174423	
22	41.68	377600	
28	46.32	2141362	intact RNA
34	52.67	2459876	DNA
TOTAL		5153261	

Figure S102 RP-HPLC profile of the mixture of a 12mer DNA (D9) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed with a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) at 50 °C with a flow rate of 0.5 mL/min.



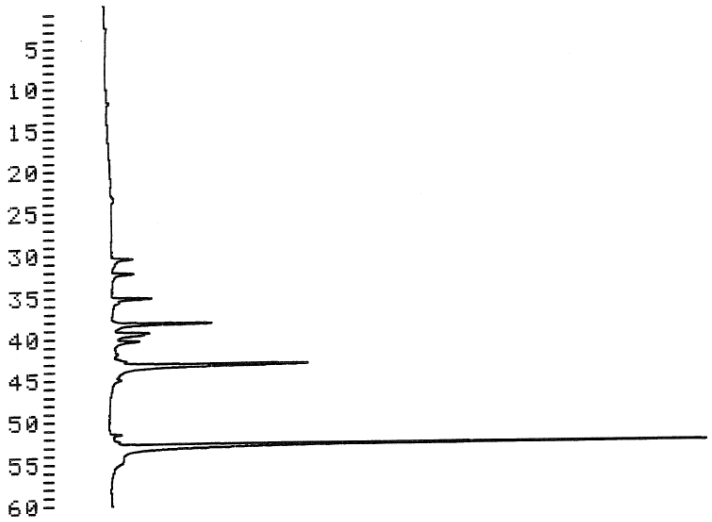
NO.	RT	AREA	
18	43.39	2861635	intact RNA
23	52.72	2343757	DNA
TOTAL		5205392	

Figure S103 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



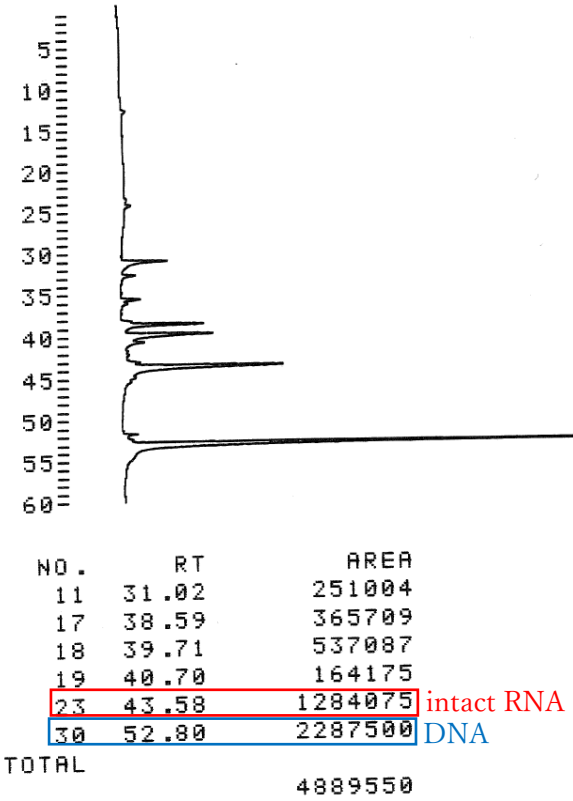
NO.	RT	AREA	
8	30.56	247008	
13	38.22	331202	
14	39.39	459739	
15	40.35	123785	
19	43.18	1467514	intact RNA
24	52.75	2369232	DNA
TOTAL		4998480	

Figure S104 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



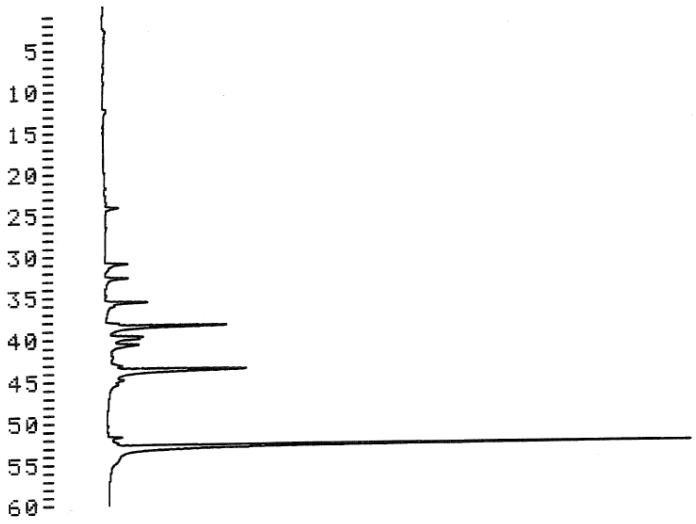
NO.	RT	AREA	
10	30.56	124218	
11	32.30	117905	
13	35.26	214199	
15	38.22	435673	
16	39.39	145894	
17	39.58	144918	
18	40.32	182312	
22	43.15	1350065	intact RNA
27	52.75	2326156	DNA
TOTAL		5041340	

Figure S105 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



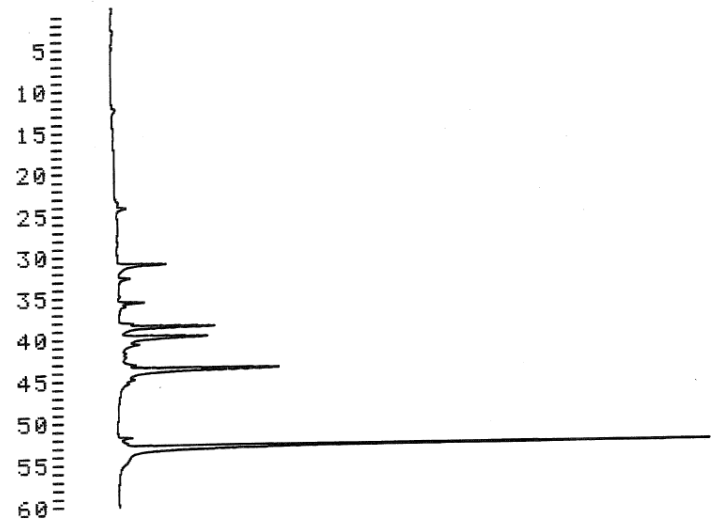
NO.	RT	AREA	
11	31.02	251004	
17	38.59	365709	
18	39.71	537087	
19	40.70	164175	
23	43.58	1284075	intact RNA
30	52.80	2287500	DNA
TOTAL		4889550	

Figure S106 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



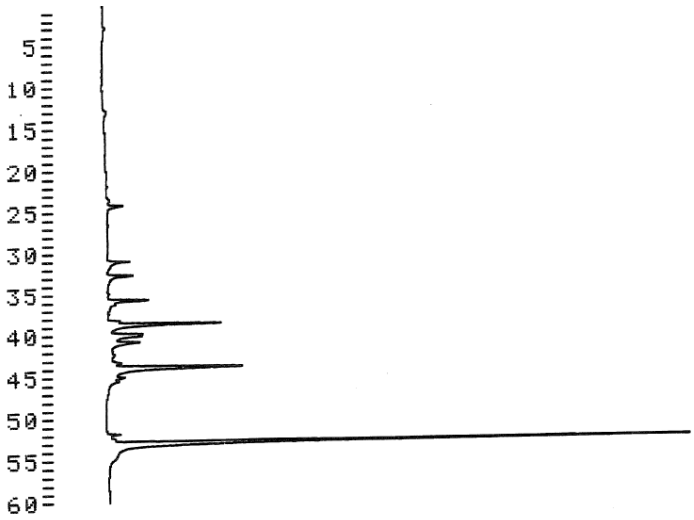
NO.	RT	AREA	
14	30.99	132244	
15	32.70	125017	
17	35.63	233082	
20	38.54	570881	
21	39.76	130955	
22	39.98	186307	
23	40.72	302026	
27	43.63	1075166	intact RNA
34	52.80	2217926	DNA
TOTAL		4973604	

Figure S107 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



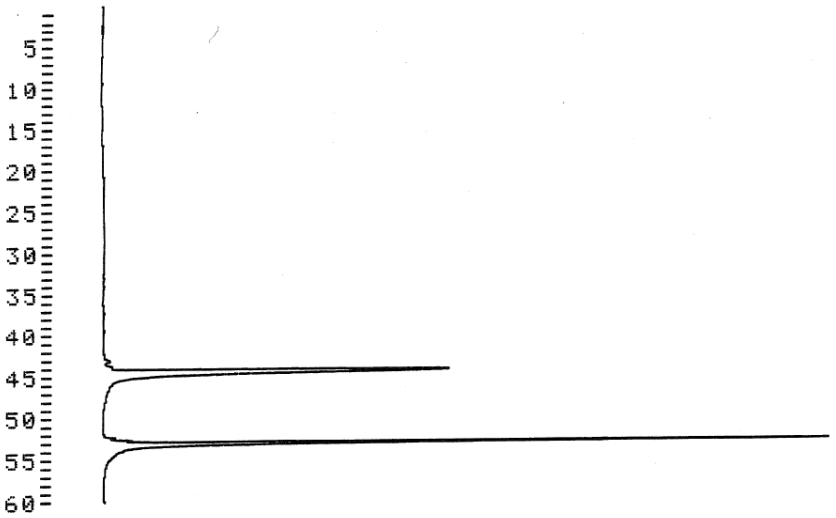
NO.	RT	AREA	
12	30.91	270832	
15	35.55	106048	
18	38.54	462257	
19	39.74	541510	
20	40.70	175947	
23	43.12	119804	
24	43.63	1281603	intact RNA
31	52.80	2203846	DNA
TOTAL		5161847	

Figure S108 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
13	30.96	141050	
14	32.70	157012	
16	35.66	255255	
19	38.67	548987	
20	39.87	127511	
21	40.08	193057	
22	40.83	235339	
26	43.79	1037108	intact RNA
33	52.83	2141321	DNA
TOTAL		4836640	

Figure S109 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R1) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
18	43.07	73260	
19	44.35	3051439	intact RNA
21	52.30	41918	
22	52.67	90176	
23	52.96	2531365	DNA
TOTAL		5788158	

Figure S110 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2), which was used for the calculation of the amount of the cleaved RNA in Figure S112–S115. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

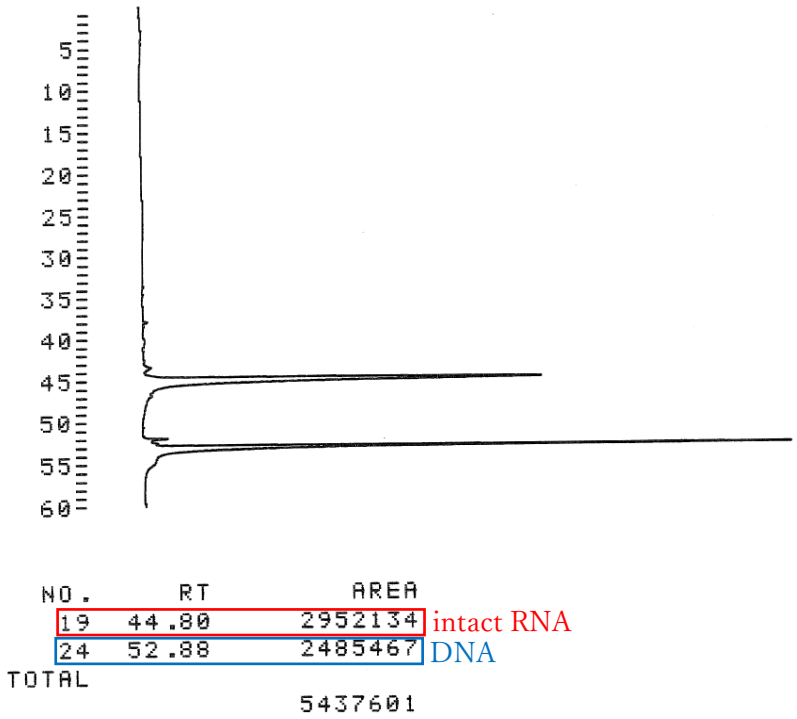
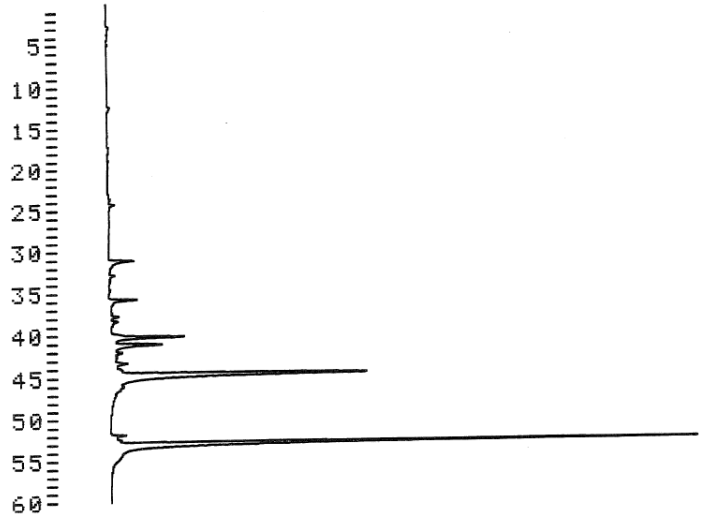
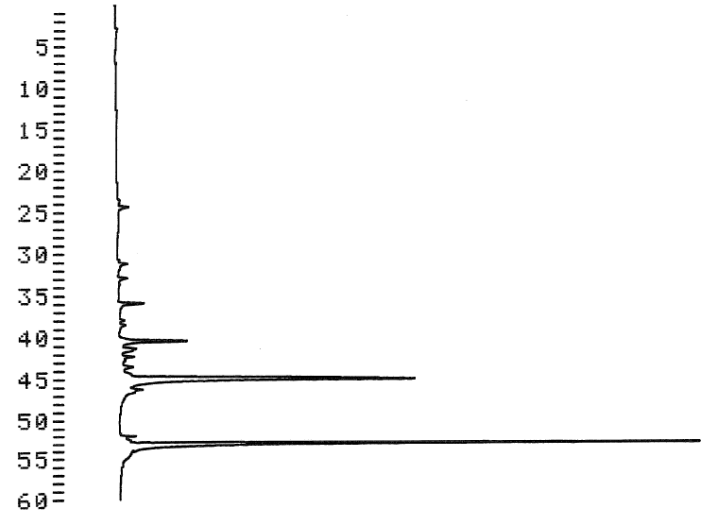


Figure S111 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2), which was used for the calculation of the amount of the cleaved RNA in Figure S116 and S117. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



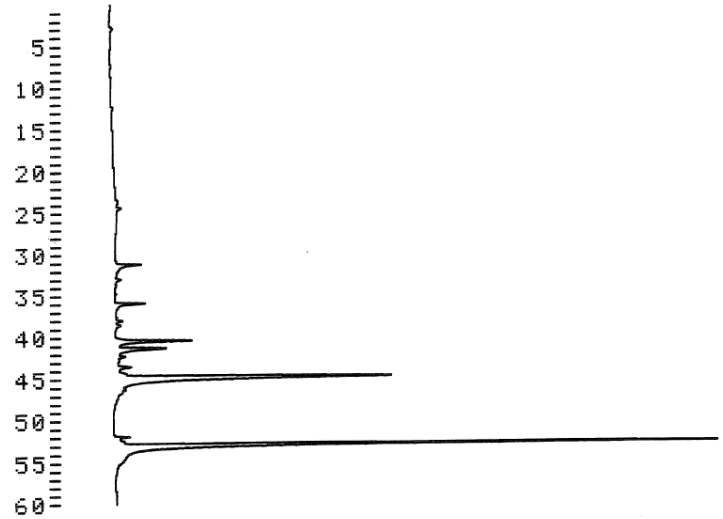
NO.	RT	AREA	
10	31.10	142215	
15	35.79	154234	
20	40.19	363820	
21	41.10	293222	
24	43.34	123169	
25	44.62	1957369	intact RNA
30	52.86	2199937	DNA
TOTAL		5233966	

Figure S112 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



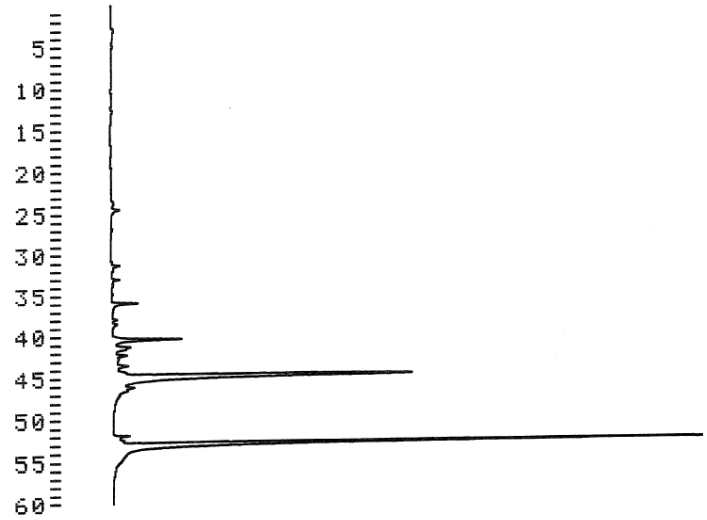
NO.	RT	AREA	
17	35.82	126602	
22	40.30	307693	
28	44.72	2150904	intact RNA
33	52.83	2243778	DNA
TOTAL		4828977	

Figure S113 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



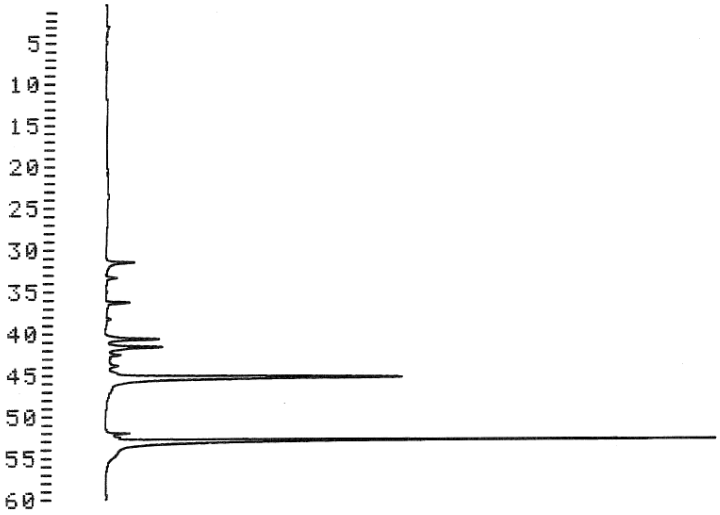
NO.	RT	AREA	
11	31.18	142181	
16	35.92	150686	
21	40.40	341585	
22	41.31	268216	
25	43.55	103499	
26	44.80	1998062	intact RNA
32	52.86	2240888	DNA
TOTAL		5245117	

Figure S114 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
19	35.90	140040	
24	40.38	321288	
29	43.50	109123	
30	44.78	2290536	intact RNA
35	52.86	2265877	DNA
TOTAL		5126864	

Figure S115 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
8	31.52	151780	
17	40.67	238939	
18	41.63	292660	
22	45.34	2010190	intact RNA
29	52.96	2414456	DNA
TOTAL			
		5108025	

Figure S116 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

NO.	RT	AREA	
14	36.00	182341	
19	40.35	414254	
22	42.24	115132	
24	43.52	114692	
25	44.88	2271940	intact RNA
32	52.88	2450244	DNA
TOTAL		5548603	

Figure S117 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R2) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

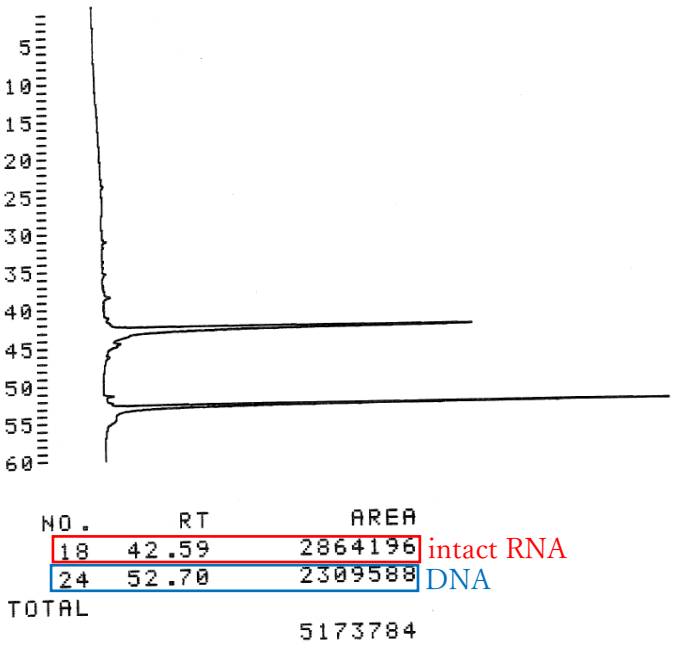


Figure S118 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3), which was used for the calculation of the amount of the cleaved RNA in Figure S120 and S121. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

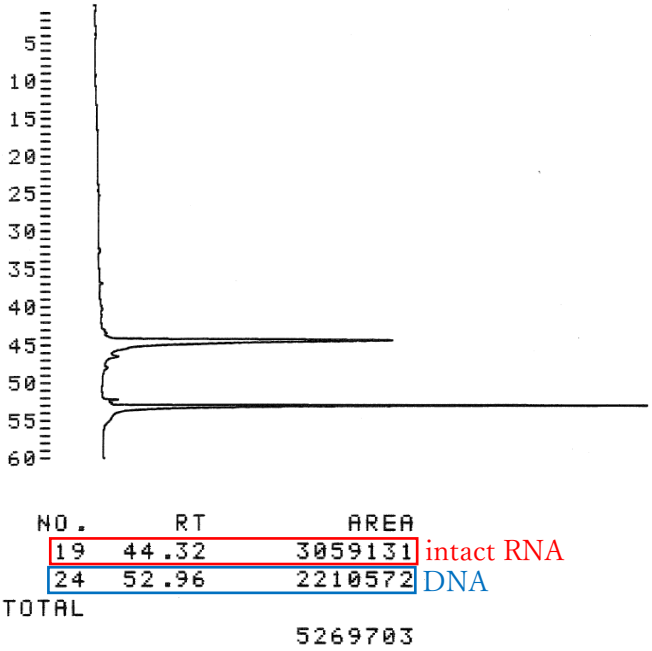
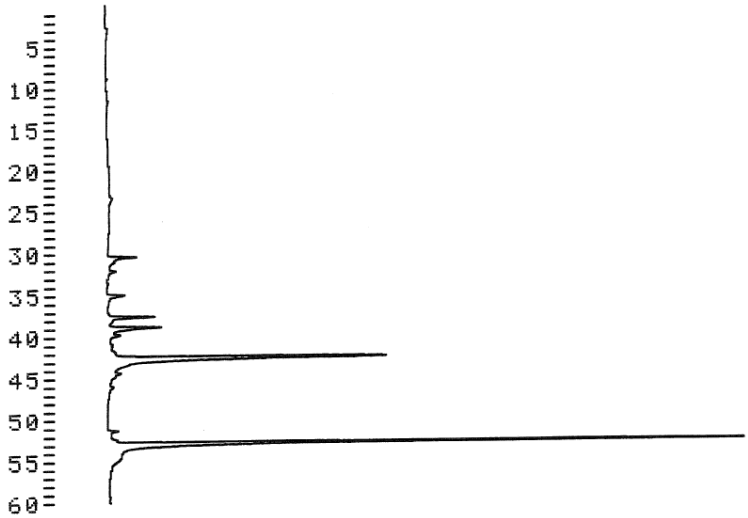
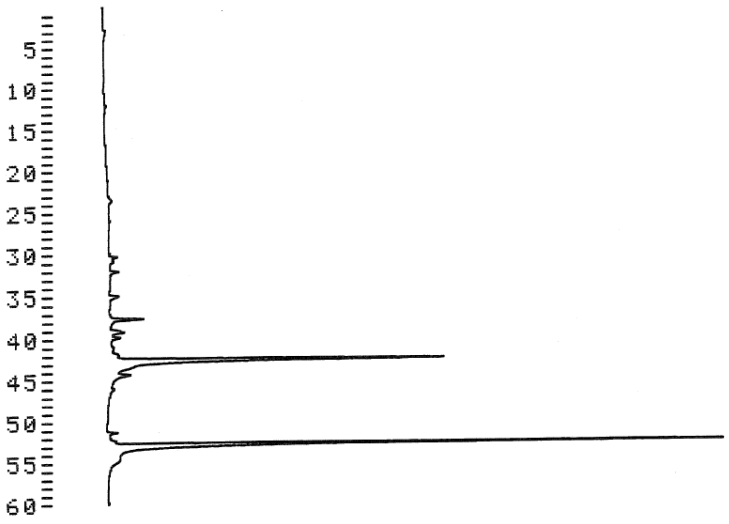


Figure S119 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3), which was used for the calculation of the amount of the cleaved RNA in Figure S122–S125. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



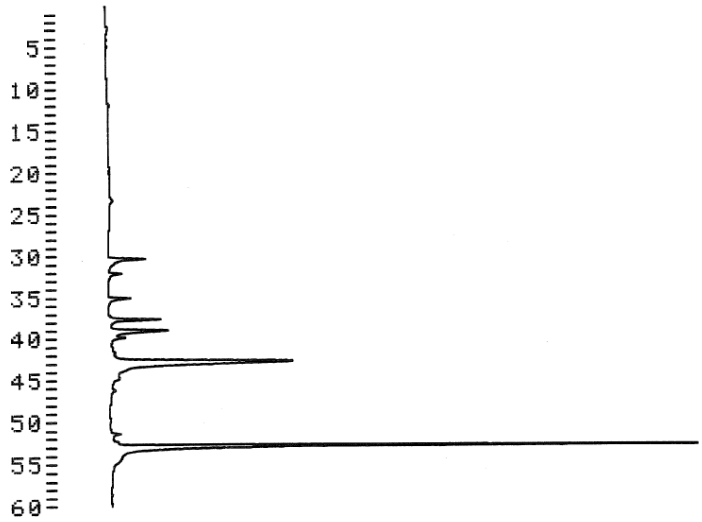
NO.	RT	AREA	
7	30.38	169682	
13	37.52	213083	
14	38.83	276484	
18	42.48	1968654	intact RNA
24	52.70	2323344	DNA
TOTAL		4951247	

Figure S120 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



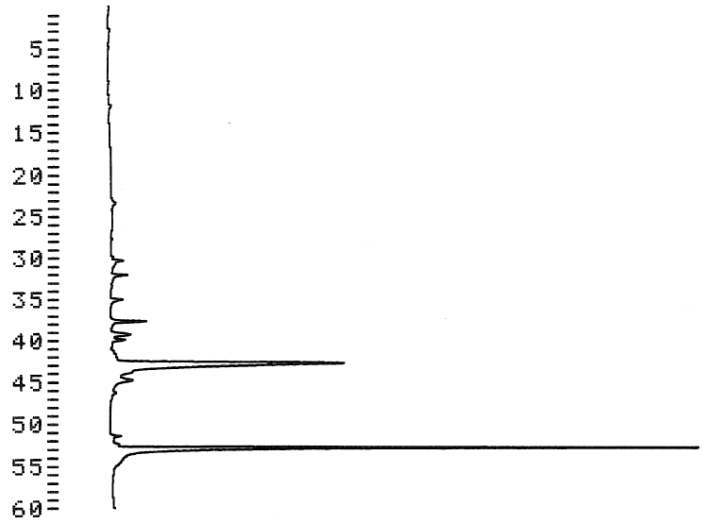
NO.	RT	AREA	
15	37.52	178160	
16	39.15	102828	
20	42.46	2372218	intact RNA
25	52.70	2295849	DNA
TOTAL		4949055	

Figure S121 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



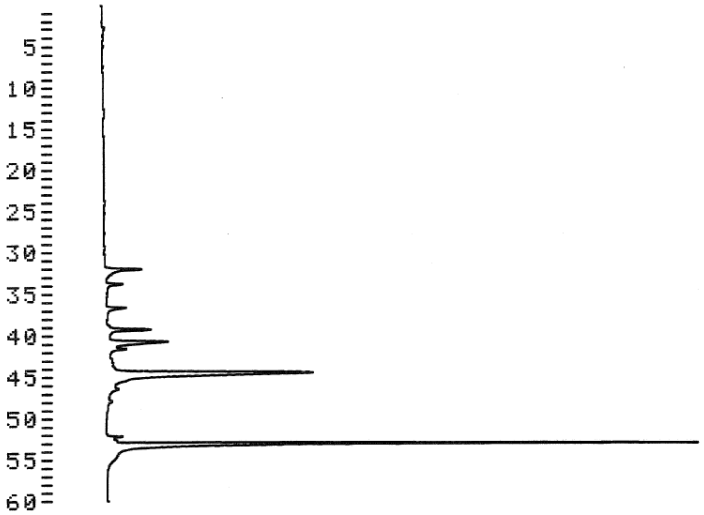
NO.	RT	AREA	
9	30.32	197037	
12	35.04	104541	
13	37.66	225254	
14	39.02	359867	
15	39.87	105421	
17	42.75	1822727	intact RNA
23	52.78	2088056	DNA
TOTAL		4902903	

Figure S122 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



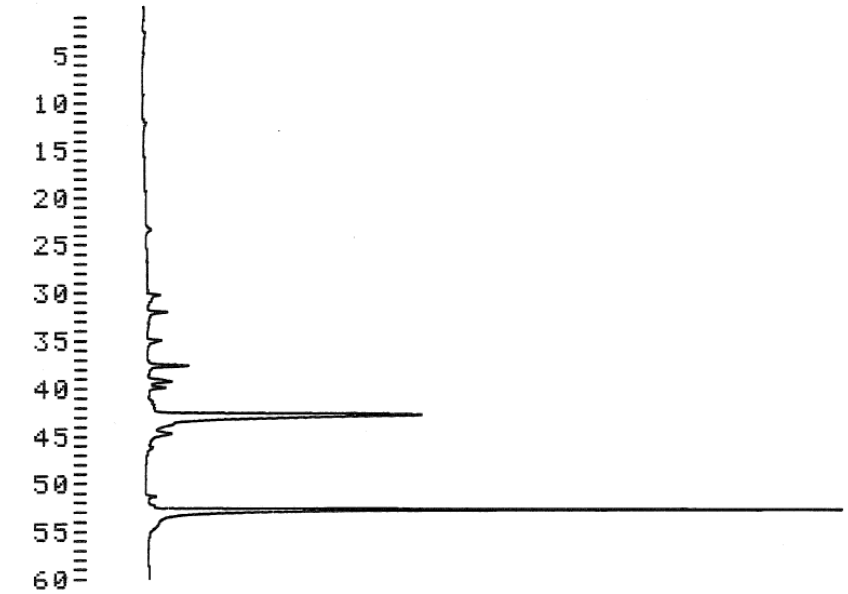
NO.	RT	AREA	
16	37.71	157085	
17	39.34	120939	
21	42.78	2218028	intact RNA
26	52.78	2087625	DNA
TOTAL		4583677	

Figure S123 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



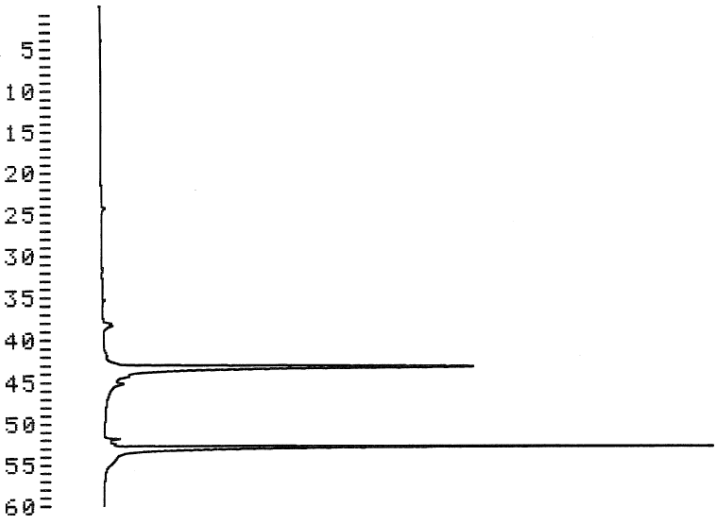
NO.	RT	AREA	
11	32.00	227300	
12	33.76	125644	
14	36.62	132254	
15	39.23	229800	
16	40.70	408491	
17	41.52	146728	
19	44.43	2012630	intact RNA
24	52.96	2210640	DNA
TOTAL		5493487	

Figure S124 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



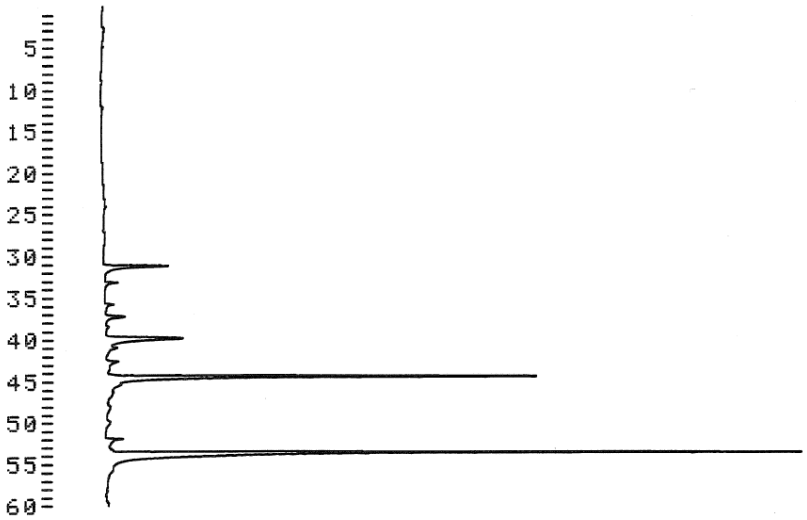
NO.	RT	AREA	
14	32.03	103012	
17	37.63	169352	
18	39.31	127444	
22	42.80	2241951	intact RNA
27	52.78	2054052	DNA
TOTAL		4695811	

Figure S125 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R3) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



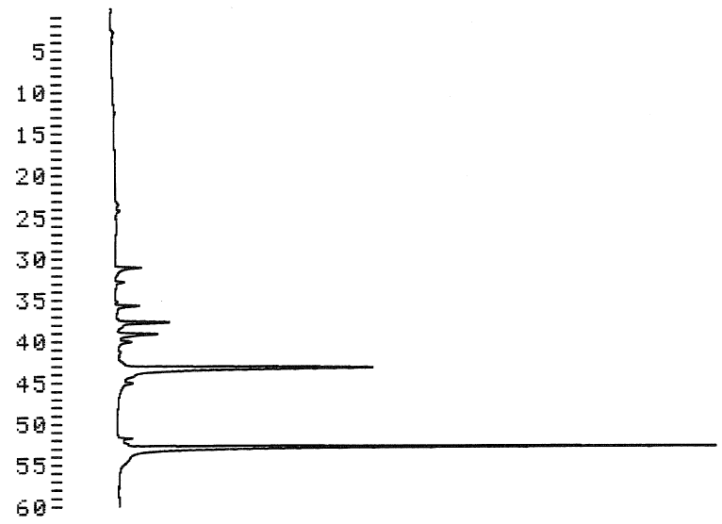
NO.	RT	AREA	
17	43.20	3041977	intact RNA
22	52.86	2252745	DNA
TOTAL		5294722	

Figure S126 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



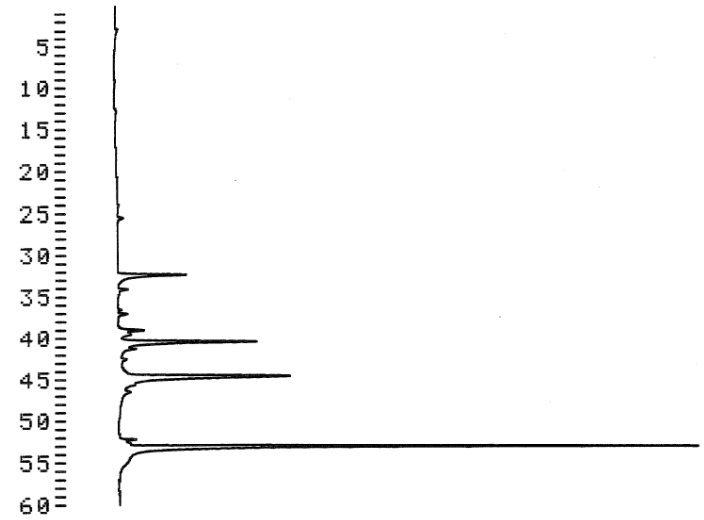
NO.	RT	AREA	
11	31.20	318617	
14	37.26	120171	
16	39.82	553598	
17	40.96	105617	
18	42.56	134000	
20	44.38	1900516	intact RNA
25	51.95	110692	
27	53.58	2835472	DNA
TOTAL		6078683	

Figure S127 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



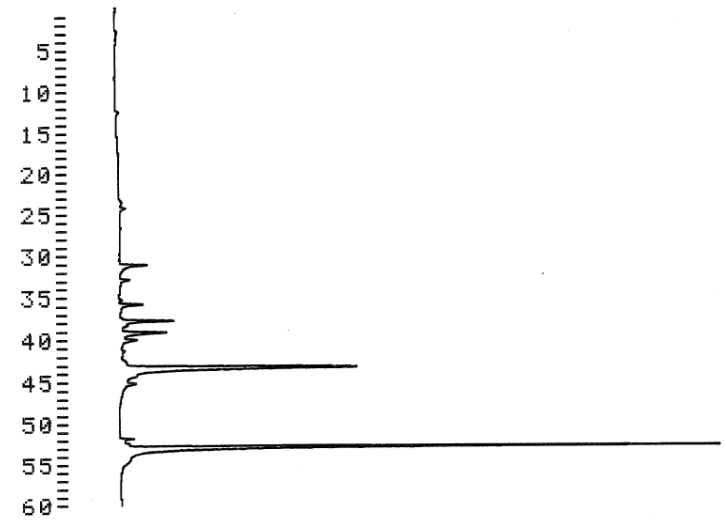
NO.	RT	AREA	
11	31.10	135958	
15	35.76	101751	
17	37.74	265640	
18	39.15	221794	
19	40.06	106329	
22	43.26	1918217	intact RNA
26	52.83	2219464	DNA
TOTAL		4969153	

Figure S128 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



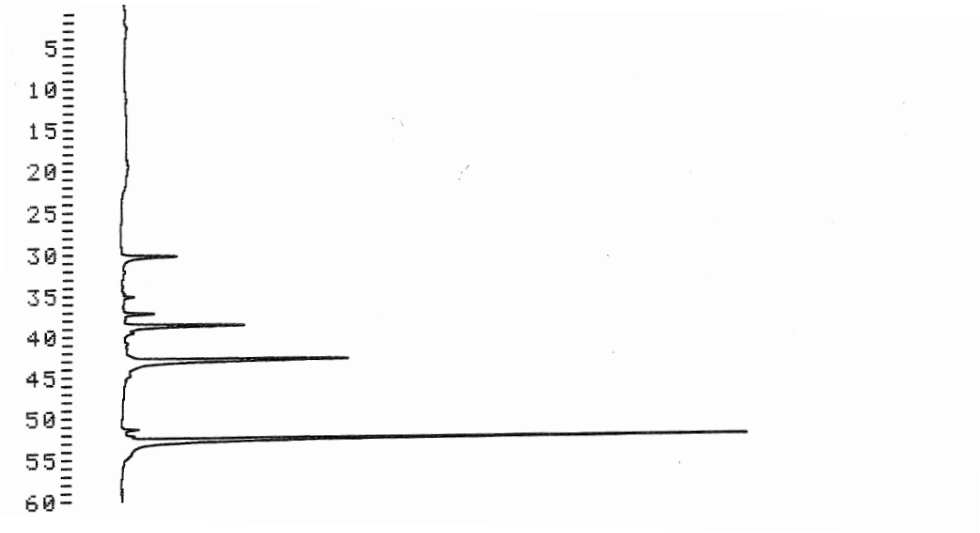
NO.	RT	AREA	
11	32.32	371425	
15	38.99	111286	
16	39.52	106099	
17	40.40	811178	
21	44.56	1591681	intact RNA
26	52.99	2244414	DNA
TOTAL		5236083	

Figure S129 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



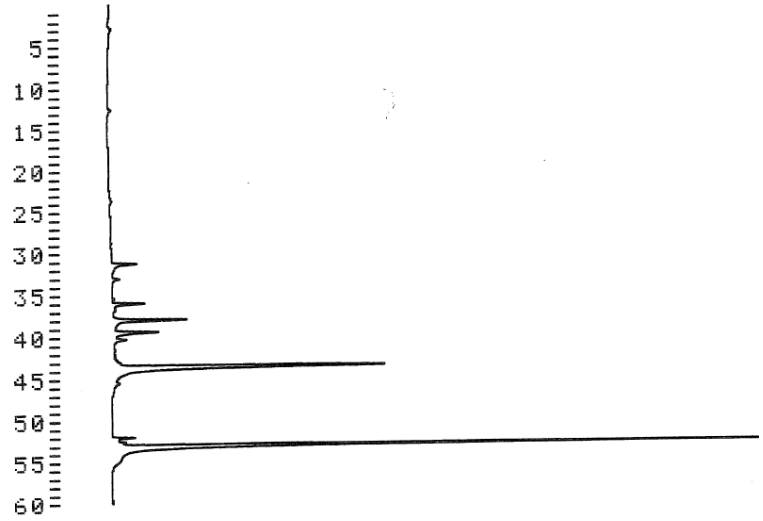
NO.	RT	AREA	
10	31.10	147742	
14	35.82	104816	
16	37.79	279707	
18	39.18	248643	
19	40.06	120930	
21	43.31	1788792	intact RNA
26	52.86	2156531	DNA
TOTAL		4847161	

Figure S130 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
6	30.24	324338	
12	37.20	141416	
14	38.72	605443	
18	42.99	1632186	intact RNA
23	52.62	2423712	DNA
TOTAL		5127095	
PEAK REJ :		100000	

Figure S131 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
5	31.26	140669	
9	36.00	167864	
11	37.95	357900	
12	39.39	245886	
13	40.27	121309	
16	43.55	1895415	intact RNA
22	52.91	2332050	DNA
TOTAL		5261093	

Figure S132 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R5) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

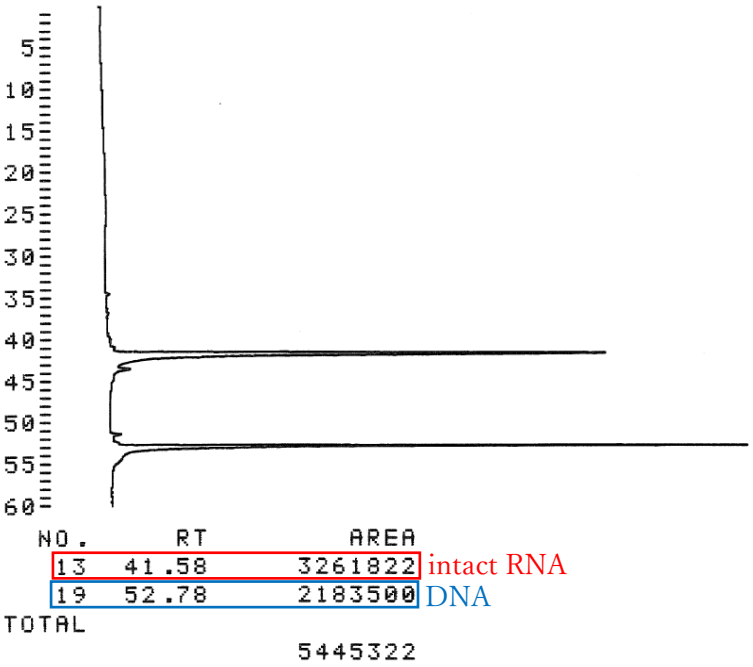
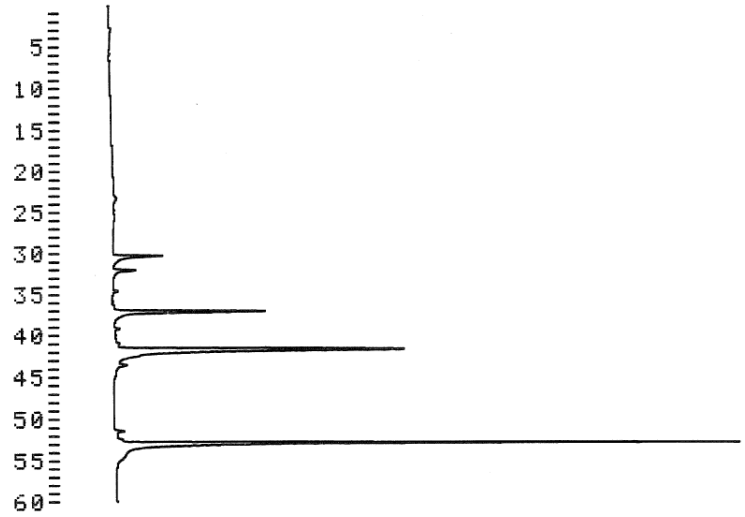
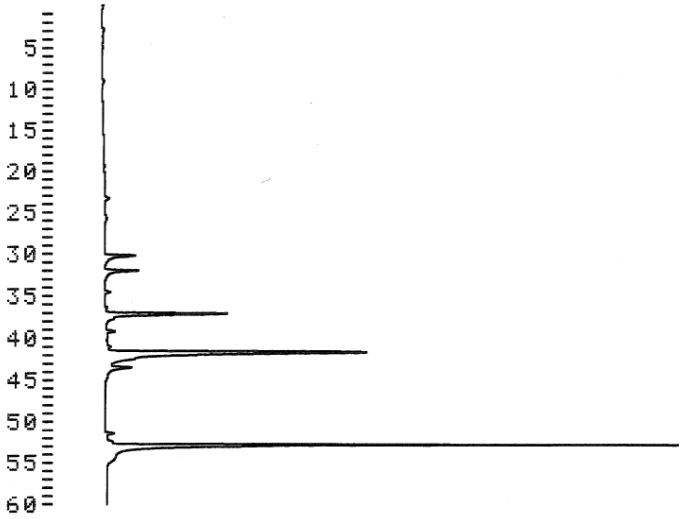


Figure S133 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



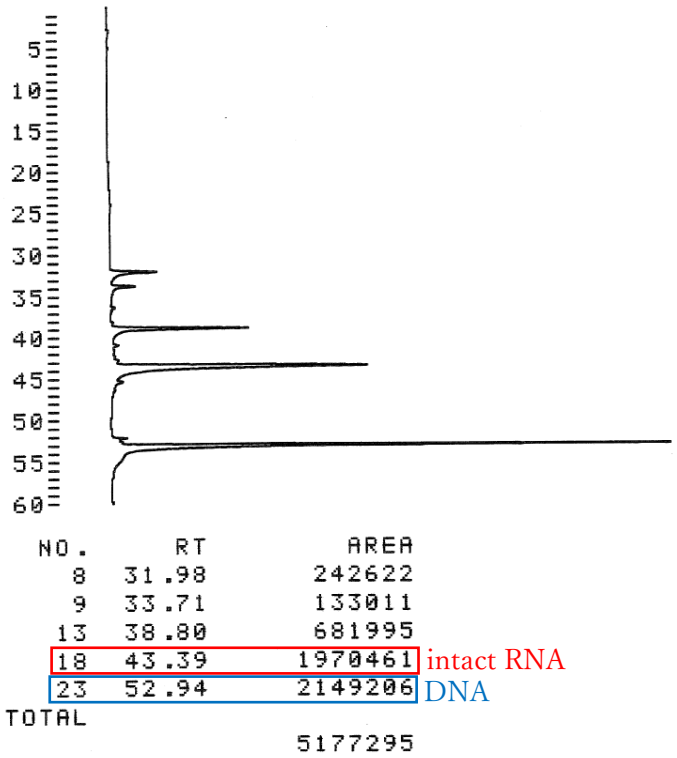
NO.	RT	AREA	
6	30.24	247378	
7	32.00	116508	
11	37.04	699234	
16	41.63	1974232	intact RNA
21	52.78	2148257	DNA
TOTAL		5185609	

Figure S134 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



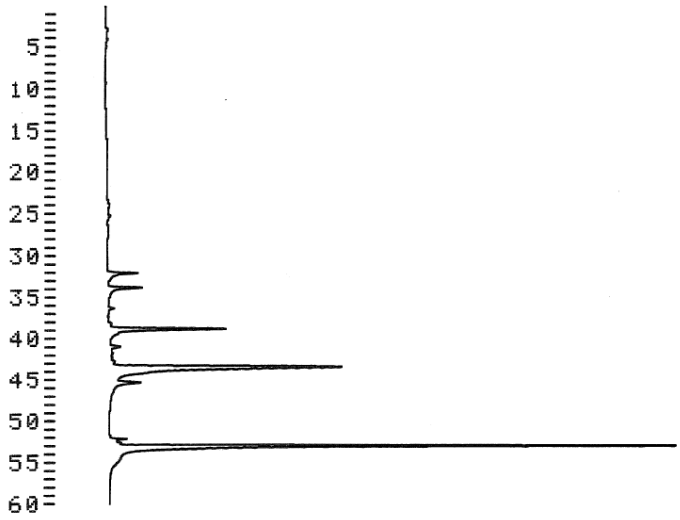
NO.	RT	AREA	
9	30.24	152211	
10	31.98	166984	
15	37.12	569569	
22	41.68	1675313	intact RNA
23	43.47	235510	
26	52.80	2011067	DNA
TOTAL		4810654	

Figure S135 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



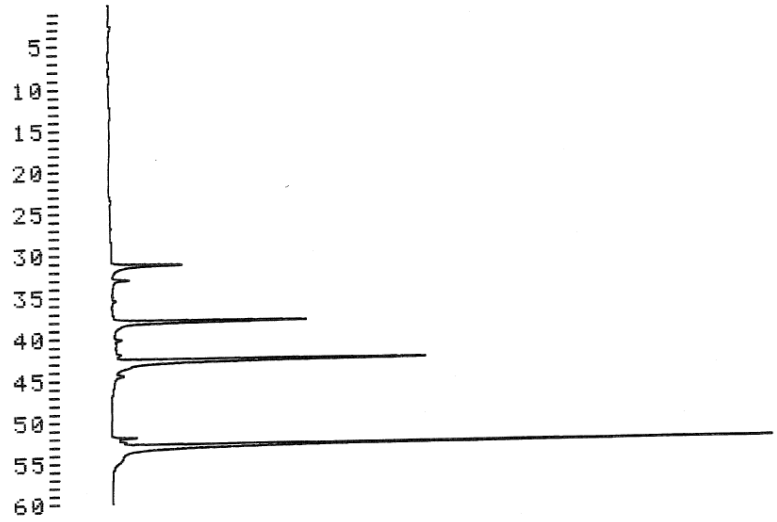
NO.	RT	AREA	
8	31.98	242622	
9	33.71	133011	
13	38.80	681995	
18	43.39	1970461	intact RNA
23	52.94	2149206	DNA
TOTAL		5177295	

Figure S136 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



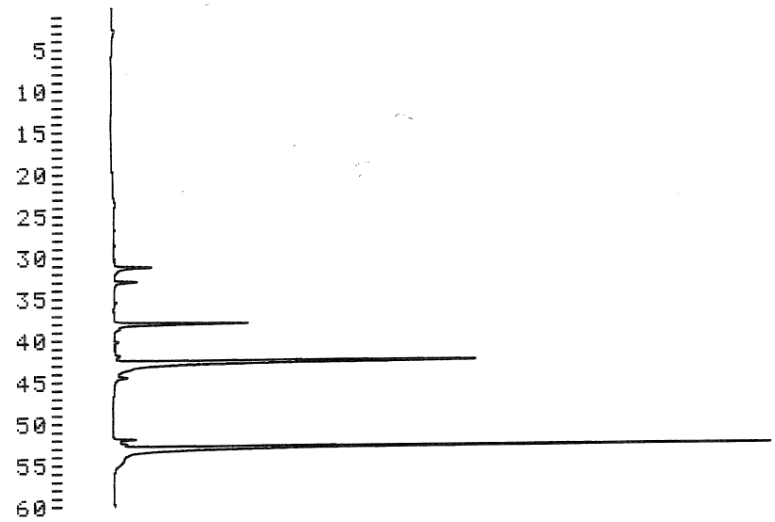
NO.	RT	AREA	
9	32.03	158368	
10	33.82	174168	
15	38.83	581687	
20	43.42	1810446	intact RNA
21	45.31	341696	
24	52.94	2175300	DNA
TOTAL		5241665	

Figure S137 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
10	31.28	362856	
11	33.04	117400	
15	38.08	926599	
21	42.75	1918227	intact RNA
28	52.91	2386792	DNA
TOTAL		5711874	

Figure S138 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
9	31.26	201737	
10	33.04	124374	
16	38.08	589849	
23	42.75	2107967	intact RNA
28	52.91	2369960	DNA
TOTAL		5393887	

Figure S139 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R7) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

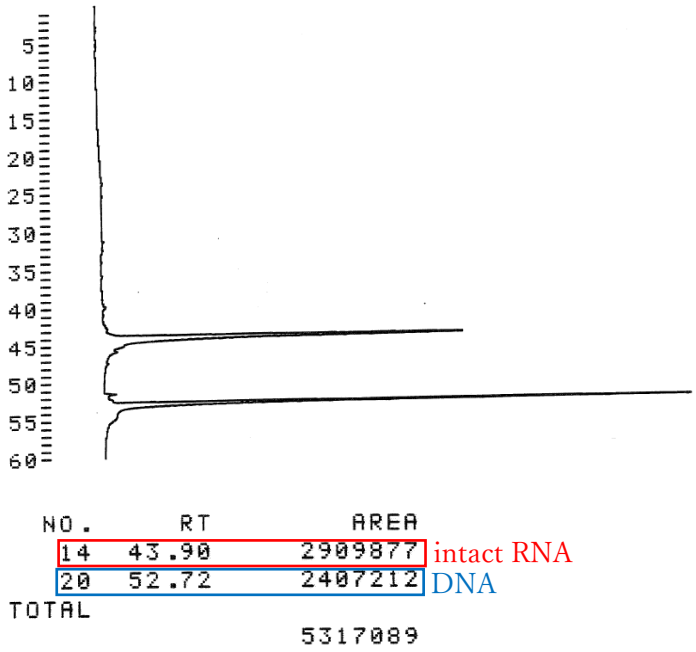


Figure S140 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9), which was used for the calculation of the amount of the cleaved RNA in Figure S142 and S143. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

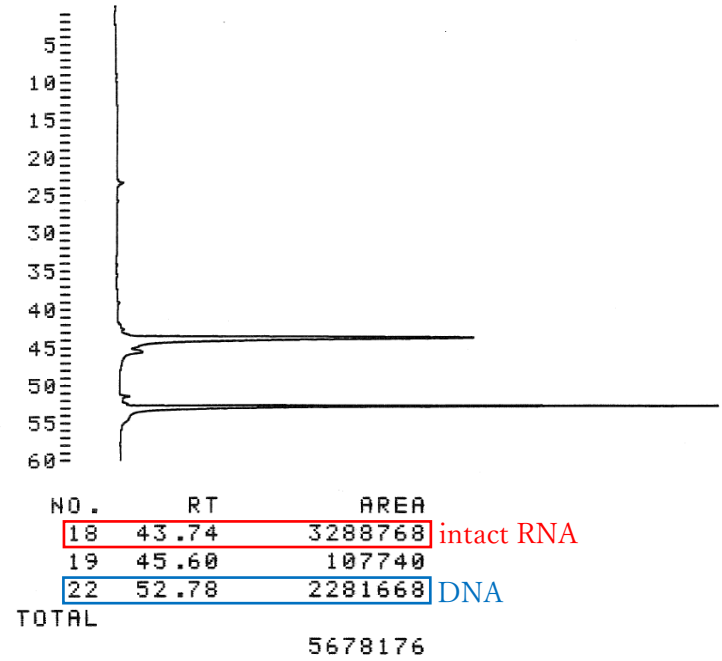
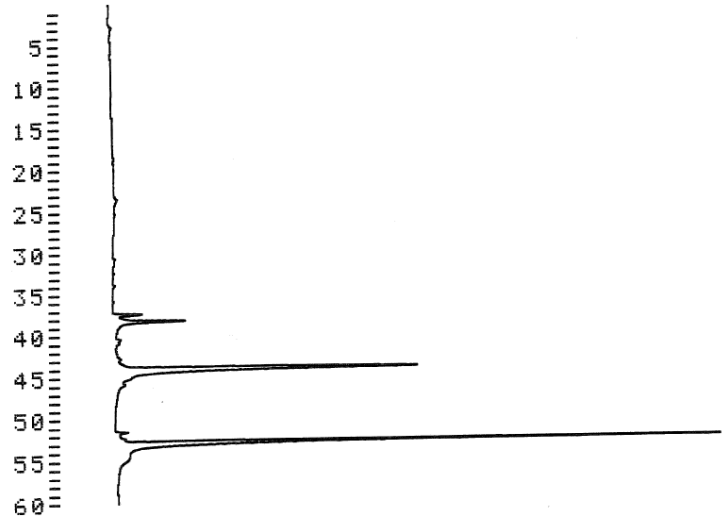
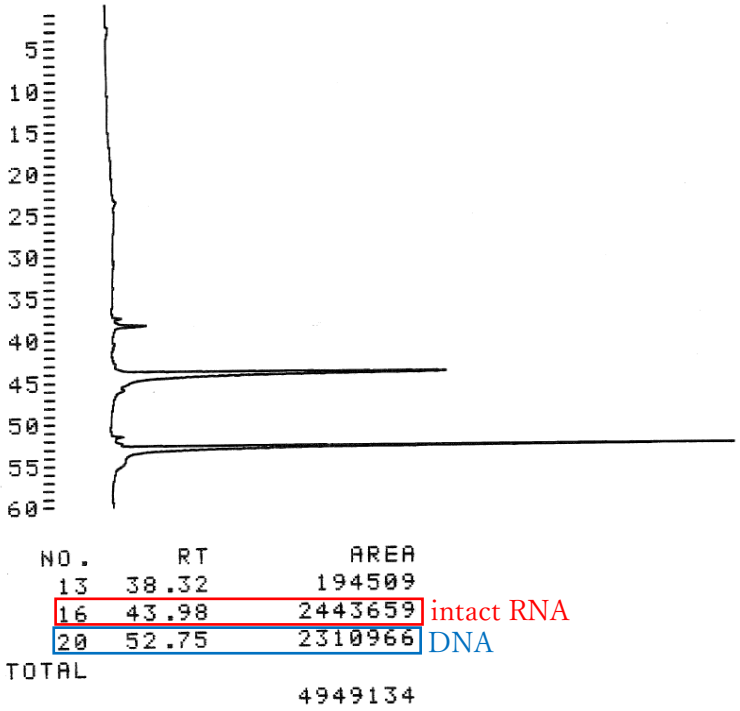


Figure S141 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9), which was used for the calculation of the amount of the cleaved RNA in Figure S144–S147. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



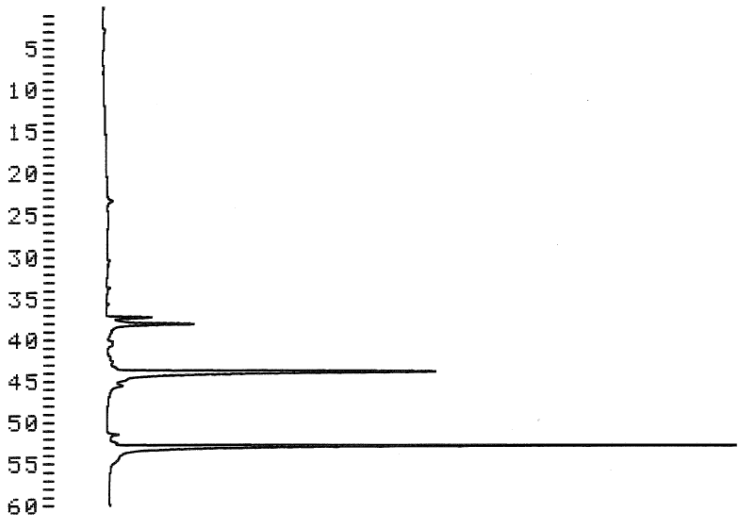
NO.	RT	AREA	
11	37.42	106713	
12	38.27	440431	
17	43.95	2192569	intact RNA
22	52.72	2330808	DNA
TOTAL		5070521	

Figure S142 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



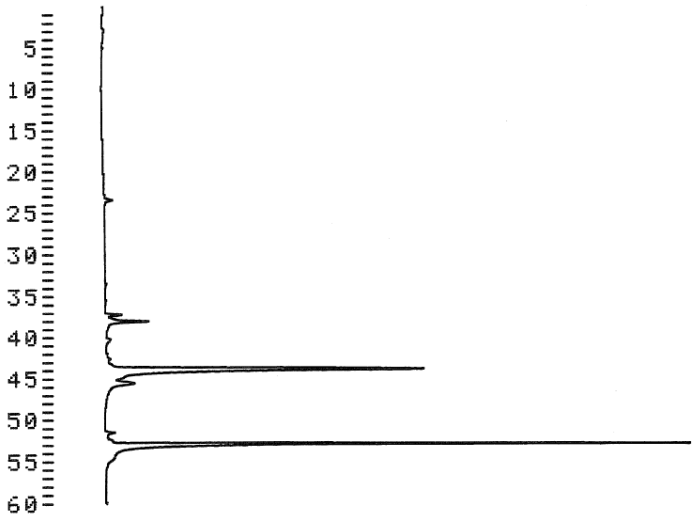
NO.	RT	AREA	
13	38.32	194509	
16	43.98	2443659	intact RNA
20	52.75	2310966	DNA
TOTAL		4949134	

Figure S143 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



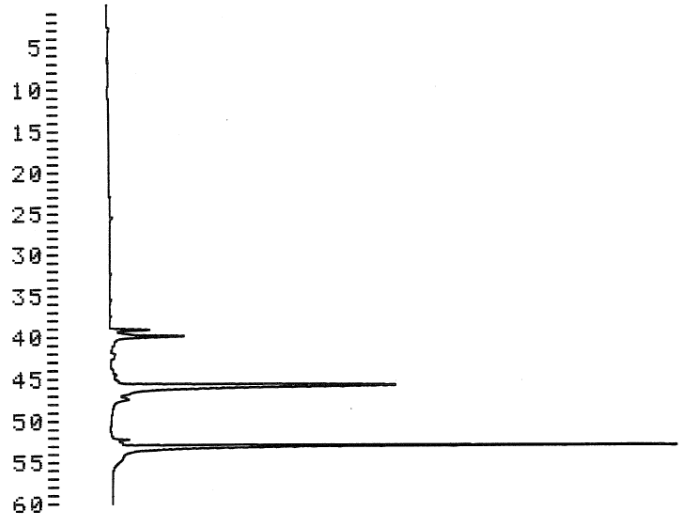
NO.	RT	AREA	
13	37.23	151684	
14	38.03	534664	
21	43.82	2330863	intact RNA
26	52.78	2195228	DNA
TOTAL		5212439	

Figure S144 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



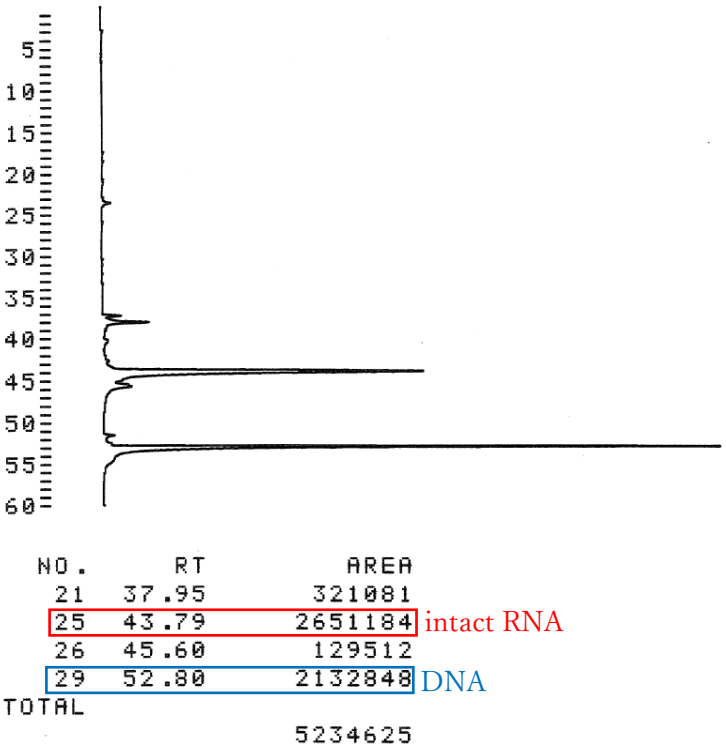
NO.	RT	AREA	
19	37.98	273309	
24	43.79	2359081	intact RNA
25	45.55	133092	
28	52.80	1977120	DNA
TOTAL		4742602	

Figure S145 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



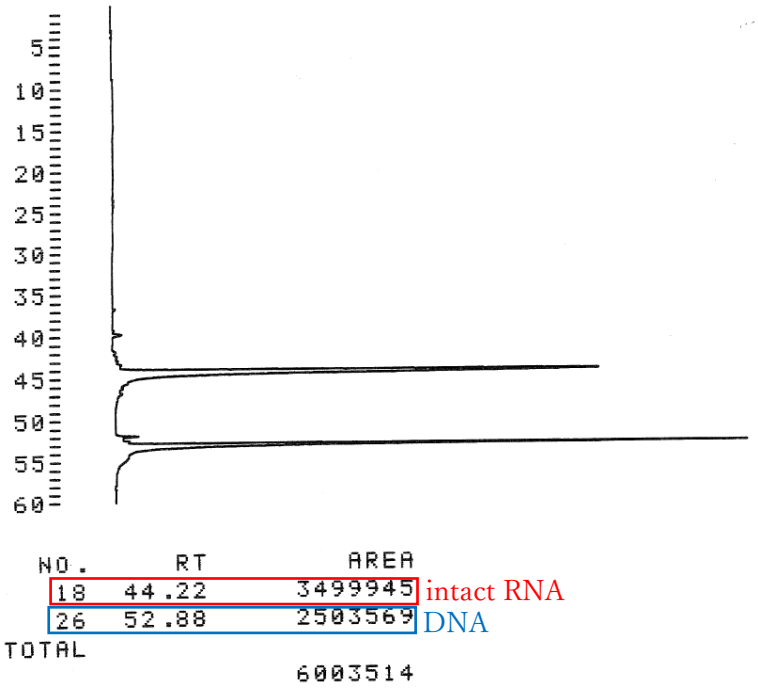
NO.	RT	AREA	
18	39.12	138772	
19	39.92	500067	
24	45.79	2265400	intact RNA
28	52.99	2169316	DNA
TOTAL		5073555	

Figure S146 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



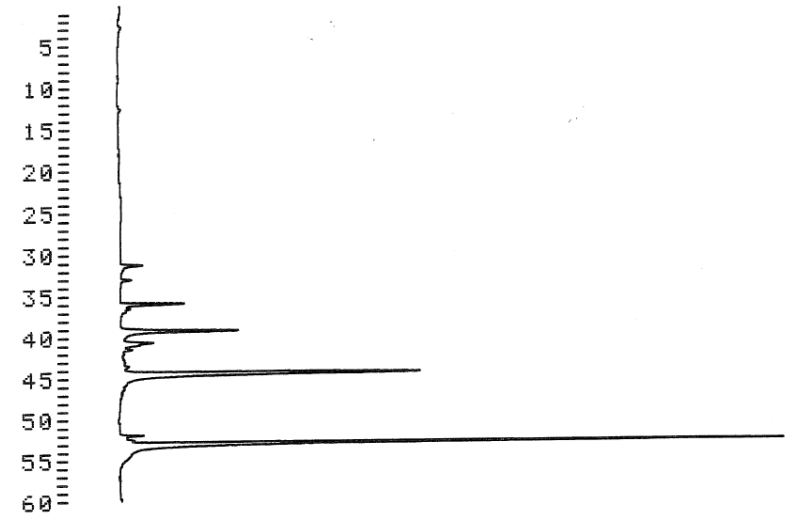
NO.	RT	AREA	
21	37.95	321081	
25	43.79	2651184	intact RNA
26	45.60	129512	
29	52.80	2132848	DNA
TOTAL		5234625	

Figure S147 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R9) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



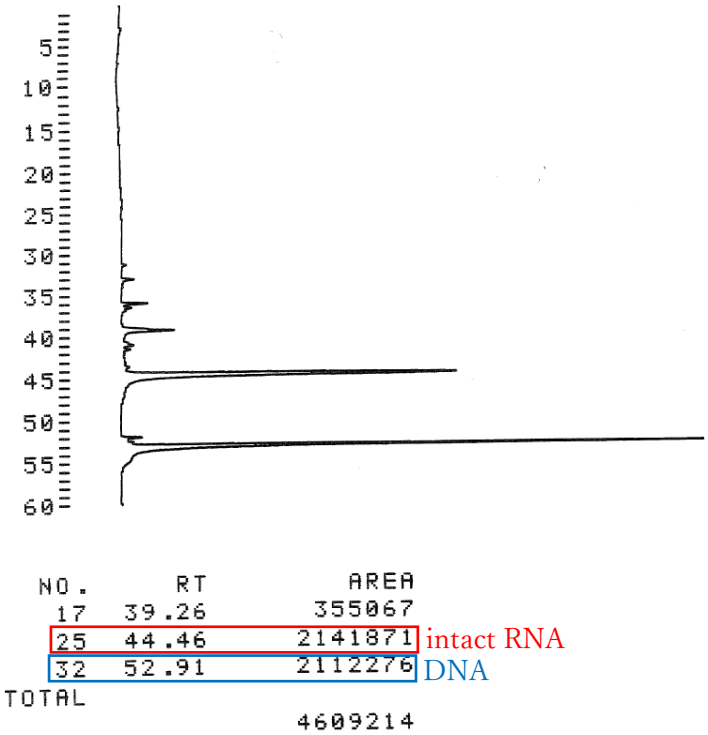
NO.	RT	AREA	
18	44.22	3499945	intact RNA
26	52.88	2503569	DNA
TOTAL		6003514	

Figure S148 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



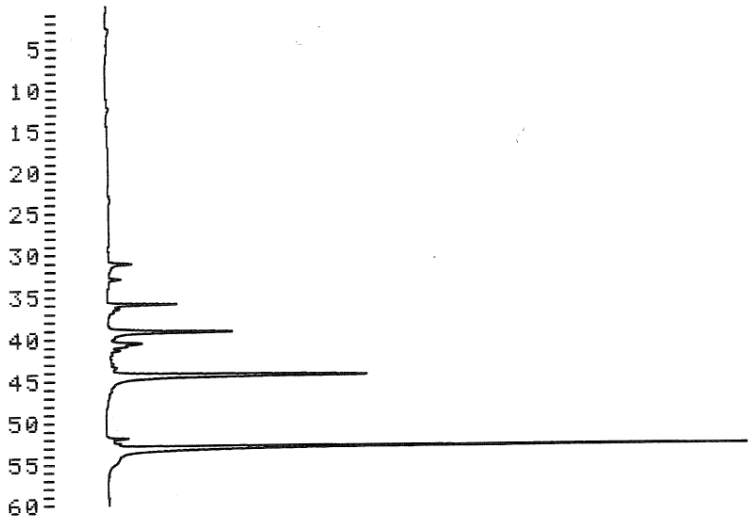
NO.	RT	AREA	
10	31.26	117561	
14	35.98	225734	
17	39.26	596460	
18	40.67	172124	
24	44.43	1912817	intact RNA
30	52.91	2392558	DNA
TOTAL		5417254	

Figure S149 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



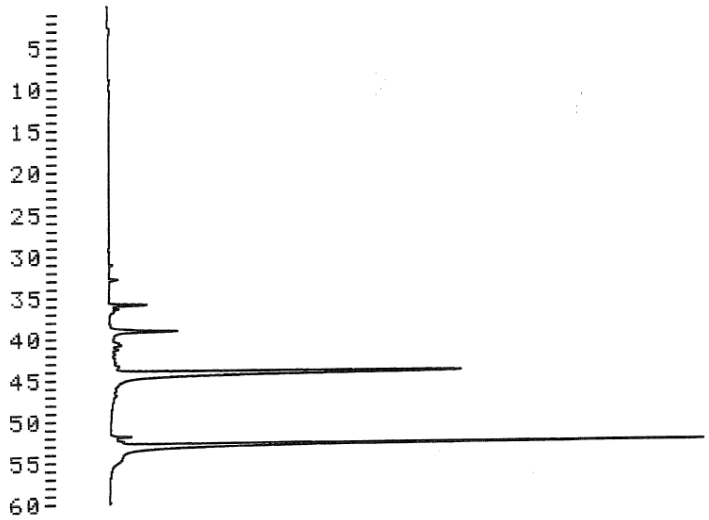
NO.	RT	AREA	
17	39.26	355067	
25	44.46	2141871	intact RNA
32	52.91	2112276	DNA
TOTAL		4609214	

Figure S150 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



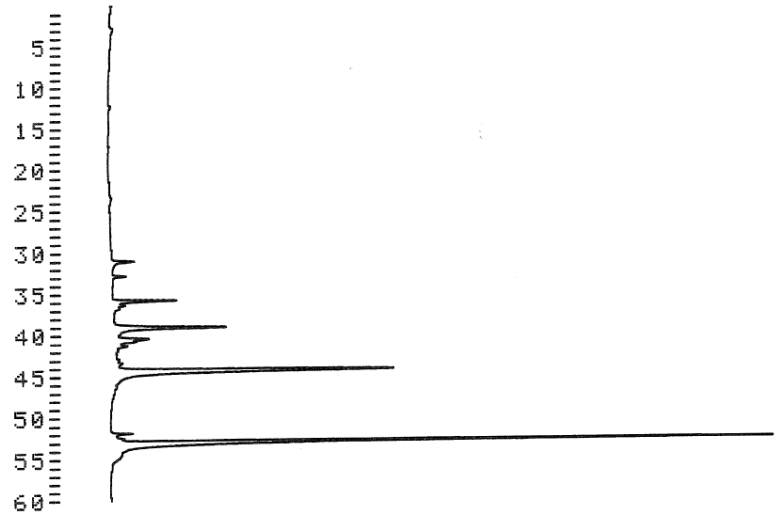
NO.	RT	AREA	
12	31.07	121404	
16	35.87	252884	
19	39.15	638772	
20	40.51	180696	
27	44.30	1782399	intact RNA
34	52.91	2409664	DNA
TOTAL		5385819	

Figure S151 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



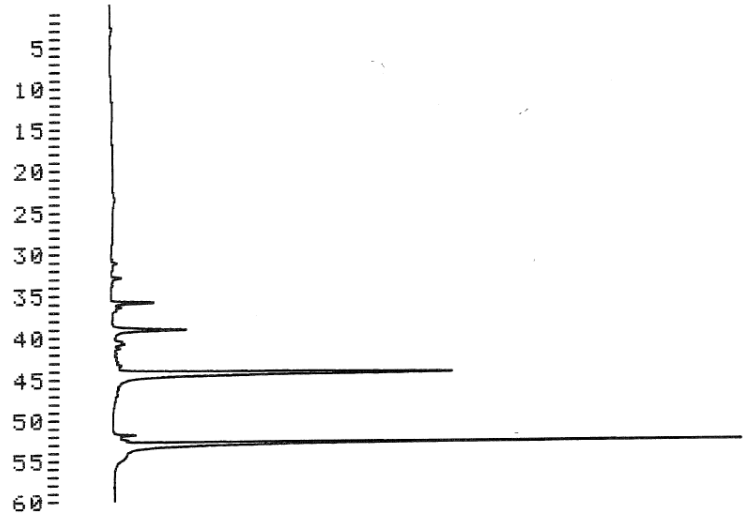
NO.	RT	AREA	
15	35.87	134128	
18	39.15	418259	
27	44.27	2659616	intact RNA
31	51.90	101624	
33	52.88	2413782	DNA
TOTAL		5727409	

Figure S152 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
9	31.04	135892	
10	32.83	119865	
13	35.84	256112	
15	36.78	106781	
16	39.12	661696	
17	40.46	199476	
18	40.78	113985	
19	41.28	146186	
24	44.32	2100427	intact RNA
31	52.91	2485680	DNA
TOTAL		6326100	

Figure S153 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
14	35.84	147020	
17	39.10	401293	
25	44.27	2411117	intact RNA
31	52.88	2412632	DNA
TOTAL		5372062	

Figure S154 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R11) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

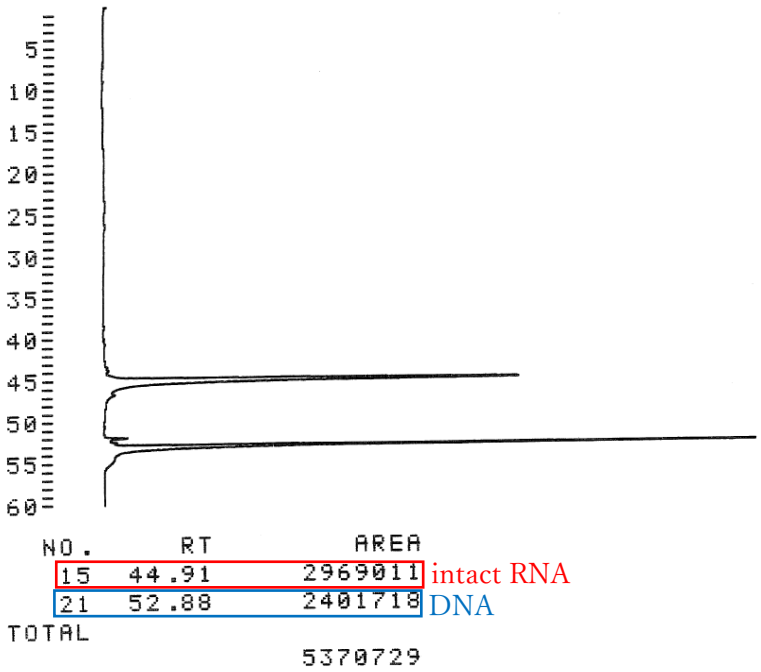
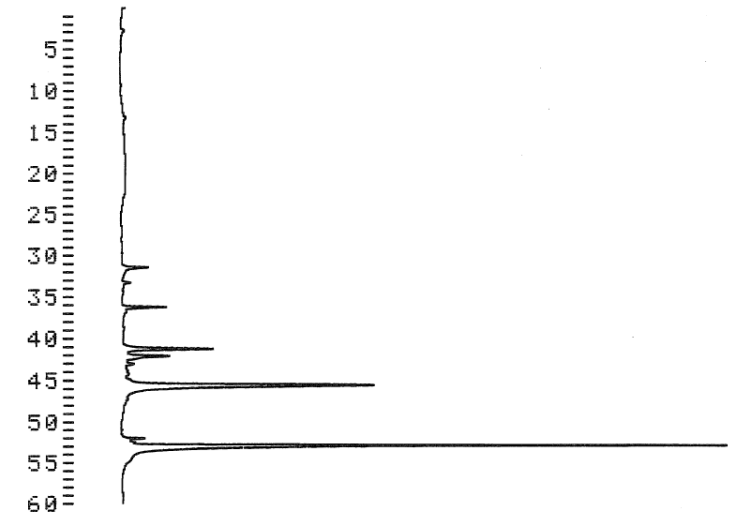
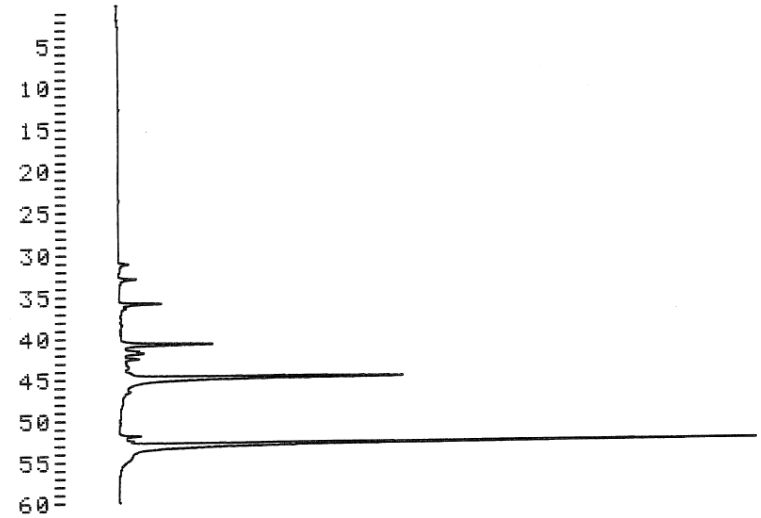


Figure S155 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



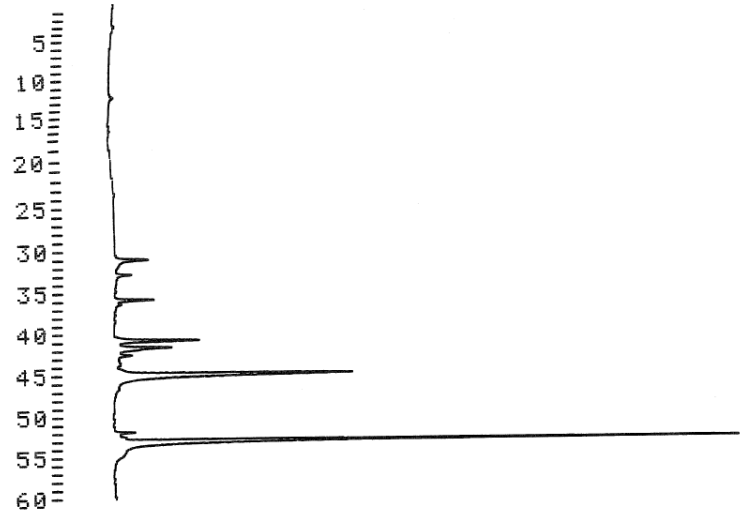
NO.	RT	AREA	
10	31.50	158041	
14	36.30	252657	
20	41.28	419256	
21	42.16	285408	
25	45.63	1845899	intact RNA
31	52.96	2375611	DNA
TOTAL		5336872	

Figure S156 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



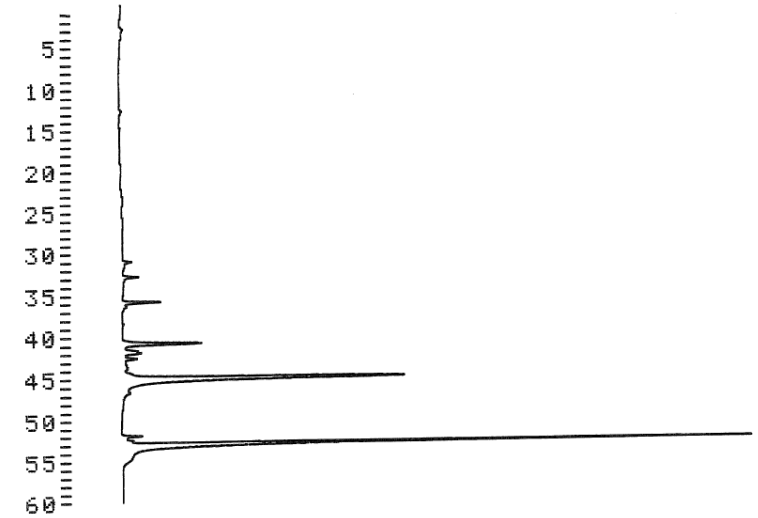
NO.	RT	AREA	
12	32.88	111595	
15	35.82	224503	
20	40.72	450990	
22	41.82	119504	
23	42.48	111172	
26	44.83	2169198	intact RNA
32	52.88	2446996	DNA
TOTAL		5633958	

Figure S157 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



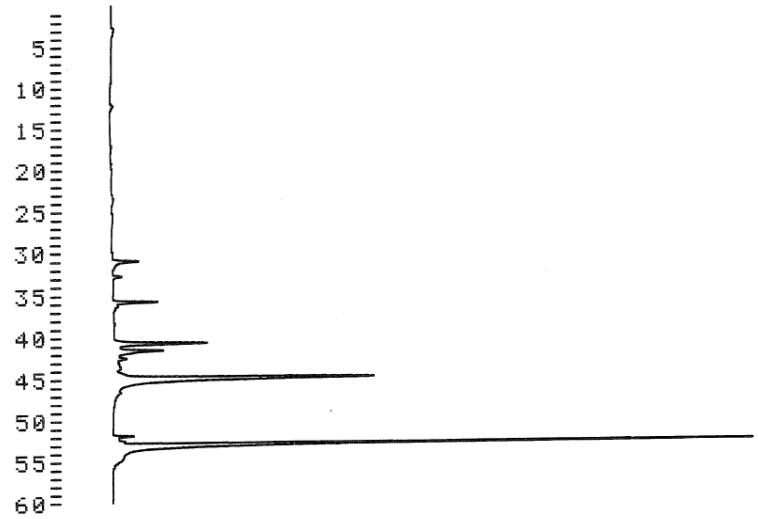
NO.	RT	AREA	
9	31.02	175768	
12	35.82	136061	
17	40.80	377300	
18	41.63	342035	
22	44.96	1759344	intact RNA
28	52.88	2413081	DNA
TOTAL		5203589	

Figure S158 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



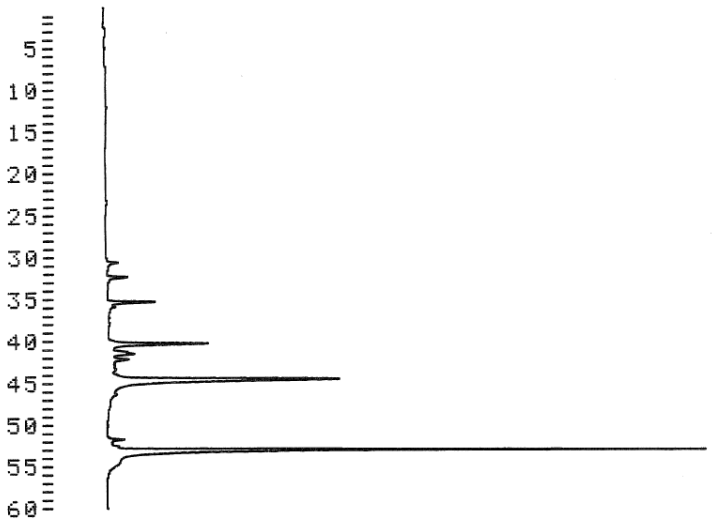
NO.	RT	AREA	
9	32.78	103097	
11	35.82	231273	
15	40.80	355676	
21	44.99	2114019	intact RNA
27	52.91	2391339	DNA
TOTAL		5195404	

Figure S159 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



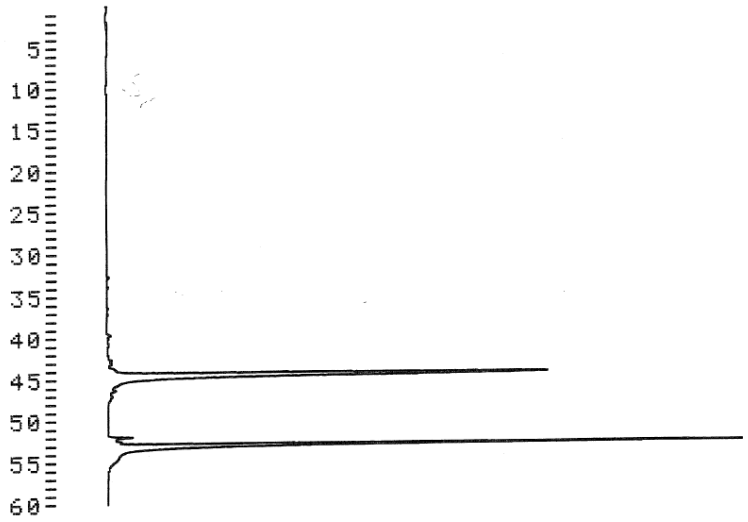
NO.	RT	AREA	
6	31.02	159177	
10	35.79	307442	
15	40.75	446451	
16	41.60	309183	
18	43.66	129859	
19	44.96	1994566	intact RNA
25	52.91	2416553	DNA
TOTAL		5763231	

Figure S160 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



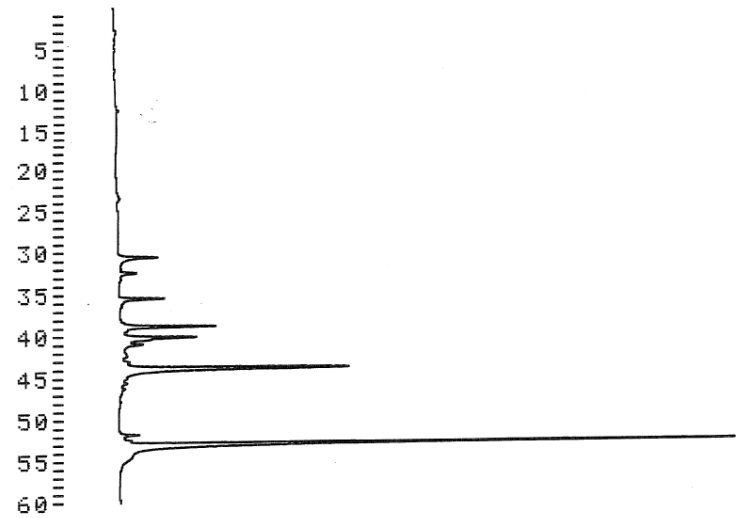
NO.	RT	AREA	
12	32.40	140439	
14	35.36	332204	
19	40.38	517020	
21	41.52	126830	
22	42.16	166187	
26	44.59	1921373	intact RNA
32	52.88	2380491	DNA
TOTAL		5584544	

Figure S161 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R12) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



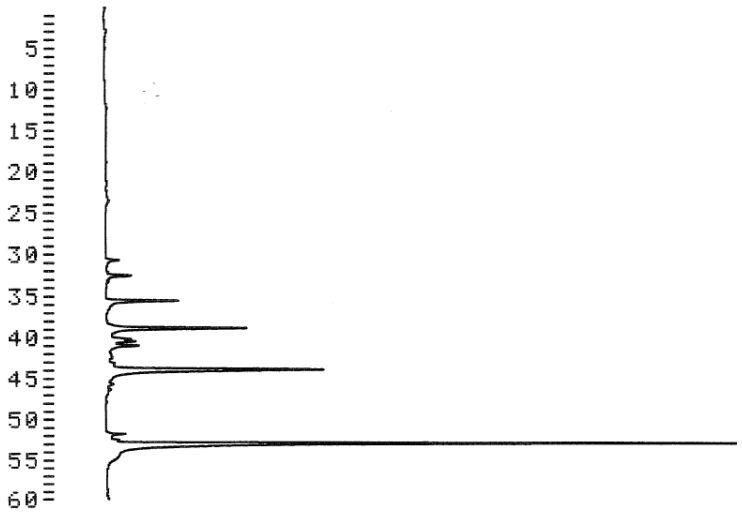
NO.	RT	AREA	
17	44.48	2994484	intact RNA
22	51.98	106260	
24	52.91	2486372	DNA
TOTAL		5587116	

Figure S162 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



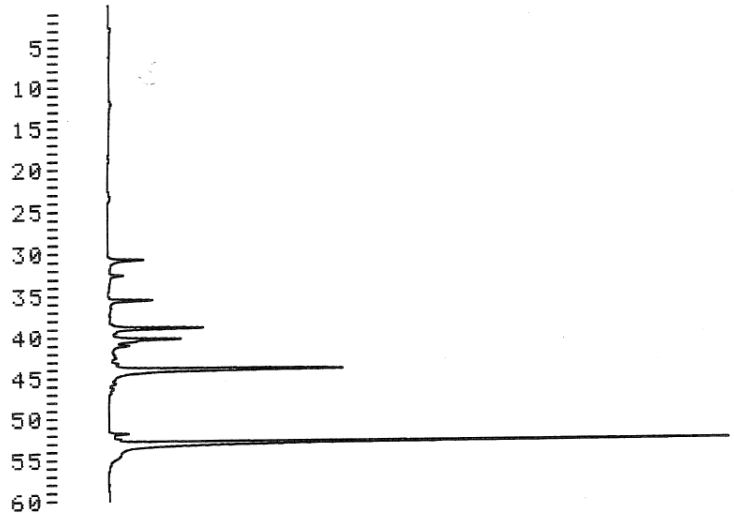
NO.	RT	AREA	
9	30.62	209632	
11	32.40	107579	
13	35.44	230977	
15	38.80	484434	
16	40.11	479212	
18	40.94	160148	
22	43.87	1543716	intact RNA
30	52.88	2458326	DNA
TOTAL		5674024	

Figure S163 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



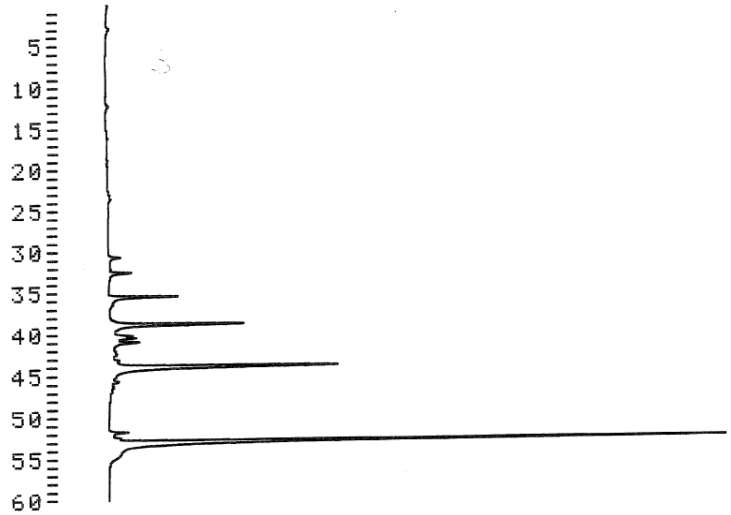
NO.	RT	AREA	
13	32.51	133092	
15	35.52	347514	
17	38.86	658542	
18	40.16	126479	
19	40.43	122974	
20	40.96	249856	
24	43.92	1365026	intact RNA
32	52.91	2418075	DNA
TOTAL		5421558	

Figure S164 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #1). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



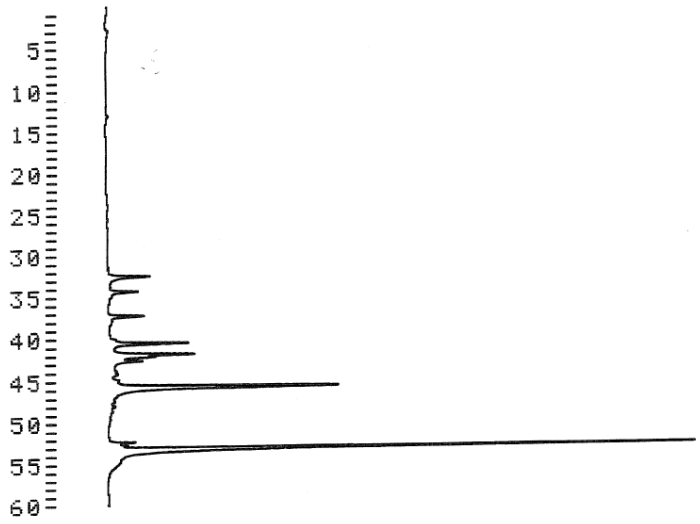
NO.	RT	AREA	
9	30.75	190529	
13	35.52	208667	
15	38.91	462880	
16	40.22	439207	
18	41.04	141588	
22	44.03	1511967	intact RNA
30	52.91	2411799	DNA
TOTAL		5366637	

Figure S165 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



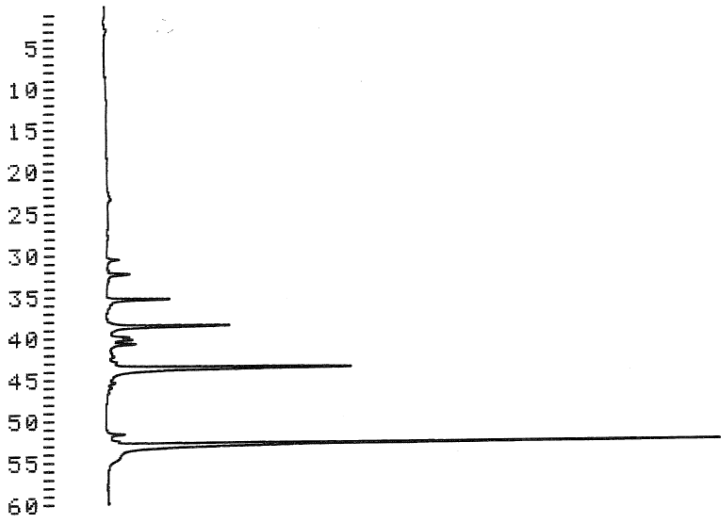
NO.	RT	AREA	
13	32.54	146257	
15	35.55	373520	
17	38.86	679030	
18	40.19	137161	
19	40.48	119452	
20	41.02	201075	
24	44.00	1591145	intact RNA
32	52.91	2442641	DNA
TOTAL		5690281	

Figure S166 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #2). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
10	32.48	250928	
12	34.30	217705	
14	37.28	228133	
17	40.54	433293	
18	41.84	399528	
19	42.14	202801	
20	42.64	337635	
24	45.71	1560595	intact RNA
31	53.07	2391142	DNA
TOTAL		6021760	

Figure S167 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15) in the absence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
13	32.32	116293	
15	35.36	300866	
17	38.64	566945	
18	39.95	108036	
19	40.24	107673	
20	40.75	164531	
23	43.68	1501329	intact RNA
31	52.88	2388366	DNA
TOTAL		5254039	

Figure S168 RP-HPLC profile of the mixture of a 12mer DNA (D10) and a 24mer RNA (R15) in the presence of ODAGal4 after treatment with RNase H for 2 min (Figure 9, Run #3). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–6% CH_3CN for 45 min, followed by a linear gradient of 6%–30% for 15 min in 0.1 M AA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

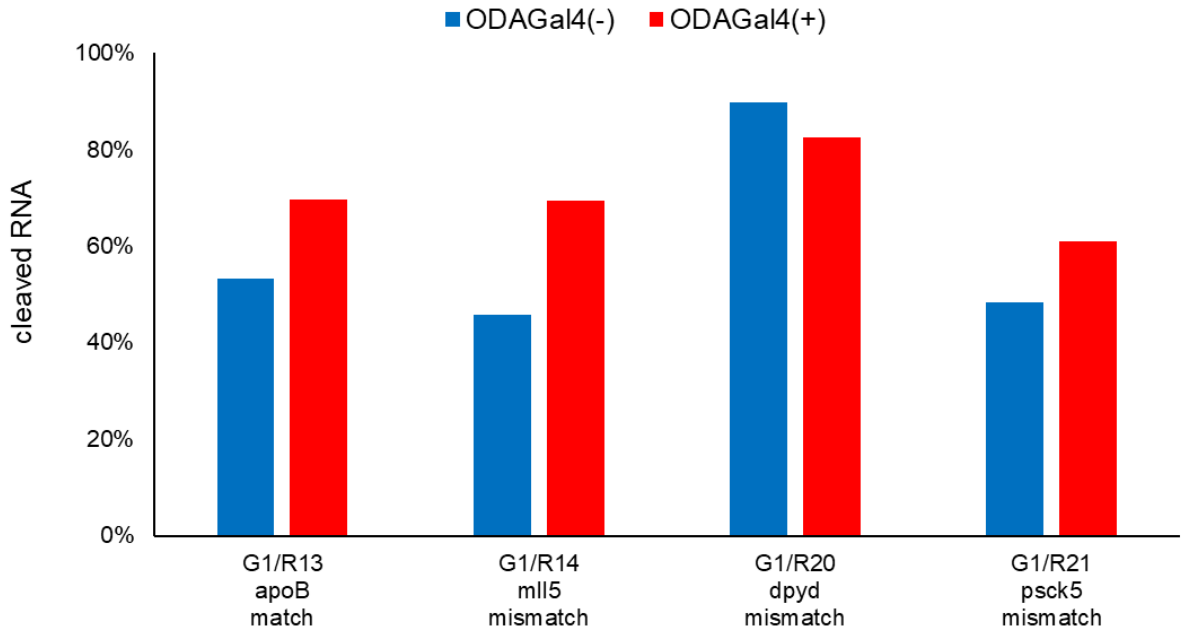


Figure S169 Amounts of cleaved RNA after RNase H treatment (1 U/200 µL for 10 min at 37 °C) of each 27mer RNA (1 µM) with 13mer gapmer (G1, 1 µM) in the absence or presence of ODAGal4 (n = 1). Sequences are follows;

G1: $G^{Lm}C^{L}attggtatT^{Lm}C^{L}A^{L}$ (all internucleotide linkages of G1 are phosphorothioated)

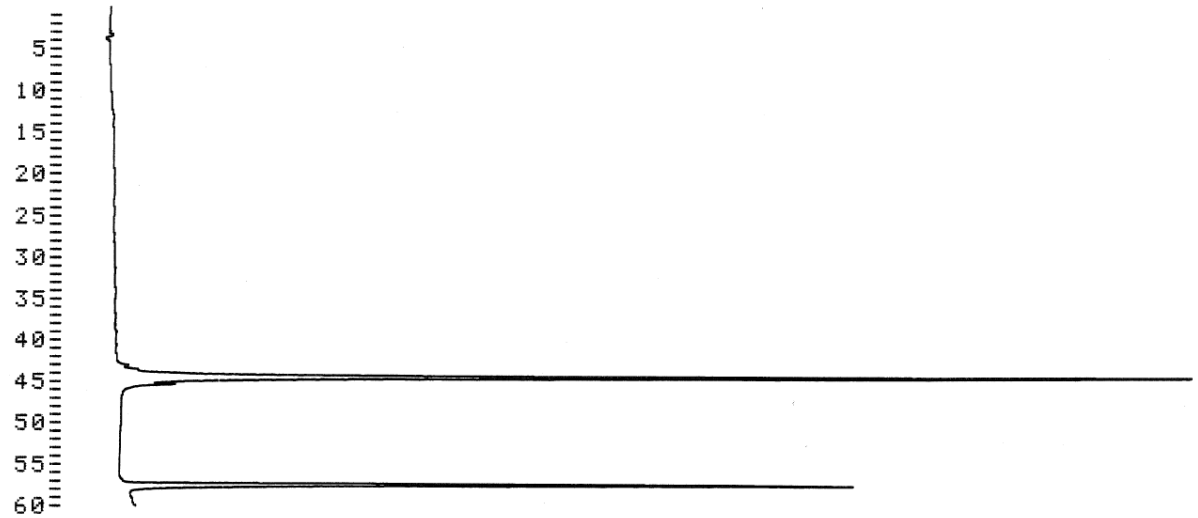
R13: CAUCACACUGAAUACCAAUGCUGGACU

R14: CAGUAUUUUG**G**AUACCAAUGCAUAGGA

R20: UUUUUAUUUGAAUACCAA**A**GCGGUGUU

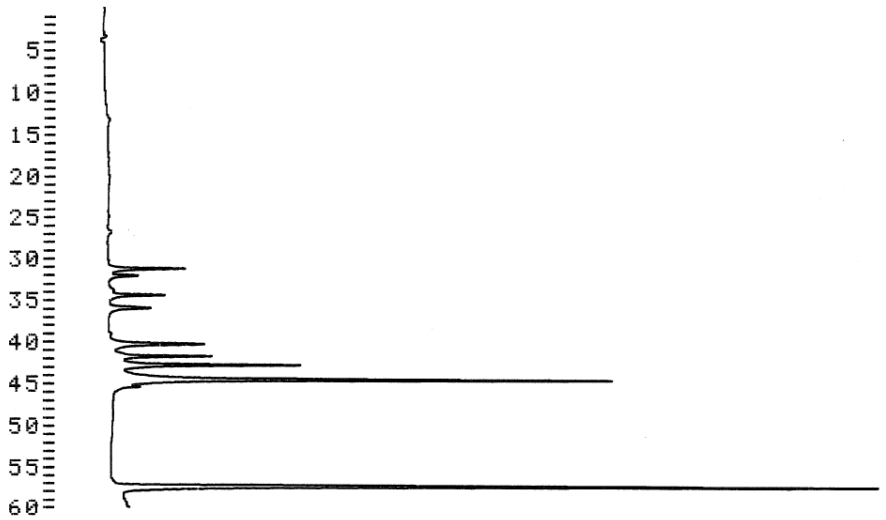
R21: UAAUGACU**G**GAAA**A**ACCAAUGCUGCUGG

x: DNA; X: RNA; X^{L}: LNA; $^{m}C^{L}$; LNA-5-methyl-C The underlined bases in the RNA sequence indicate the complementary region to D1; The characters in bold indicate mismatch bases. The sequence of R20 was based on the mouse dpyd mRNA (GenBank accession GenBank accession No.: NM_170778), and the sequence of R21 was based on the mouse pcsk5 mRNA (GenBank accession GenBank accession No.: NM_001190483).



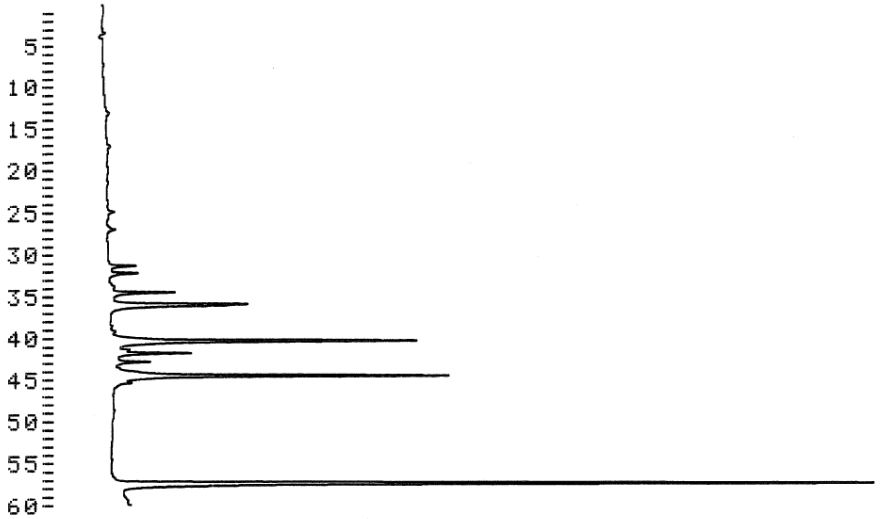
NO.	RT	AREA	
1	44.46	5409689	intact RNA
2	45.34	62875	
3	57.42	2923795	gapmer
TOTAL		8396359	

Figure S170 RP-HPLC profile of the mixture of a 13mer gapmer (G1) and 27mer RNA (R13). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



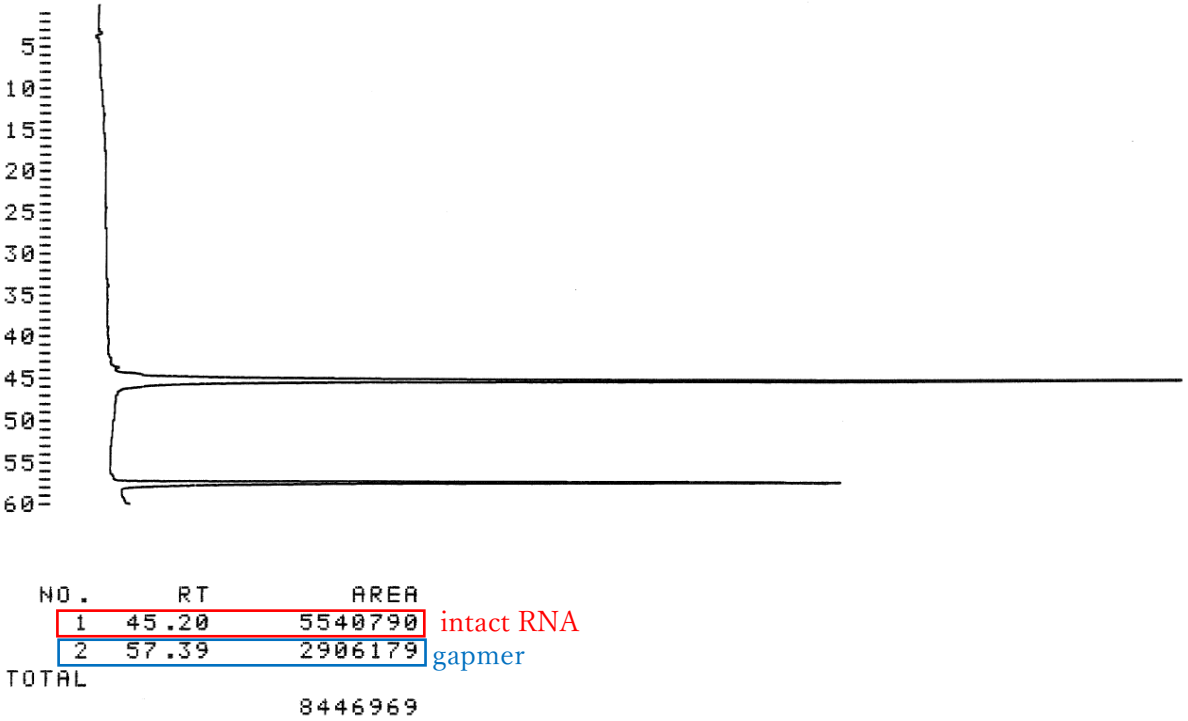
NO.	RT	AREA	
1	31.23	302433	
2	32.06	117084	
3	34.38	170582	
4	35.95	205392	
5	40.30	492953	
6	41.76	449592	
7	42.78	834905	
8	44.54	2589667	intact RNA
9	57.36	2992305	gapmer
TOTAL		8154913	

Figure S171 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R13) in the absence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



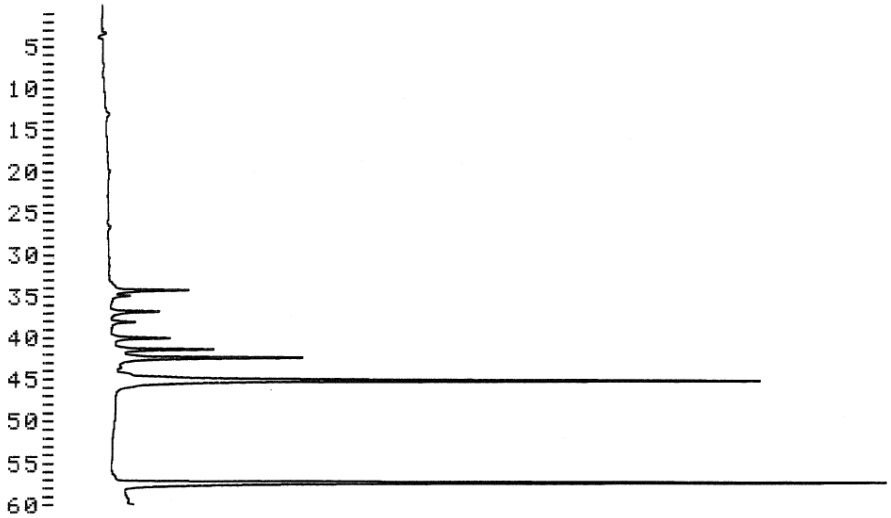
NO.	RT	AREA	
1	31.31	103105	
2	32.16	112580	
3	34.48	196205	
4	35.90	735061	
5	40.30	1601104	
6	41.82	390768	
7	42.83	189177	
8	44.54	1670825	intact RNA
9	57.39	2976256	gapmer
TOTAL		7975081	

Figure S172 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R13) in the presence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



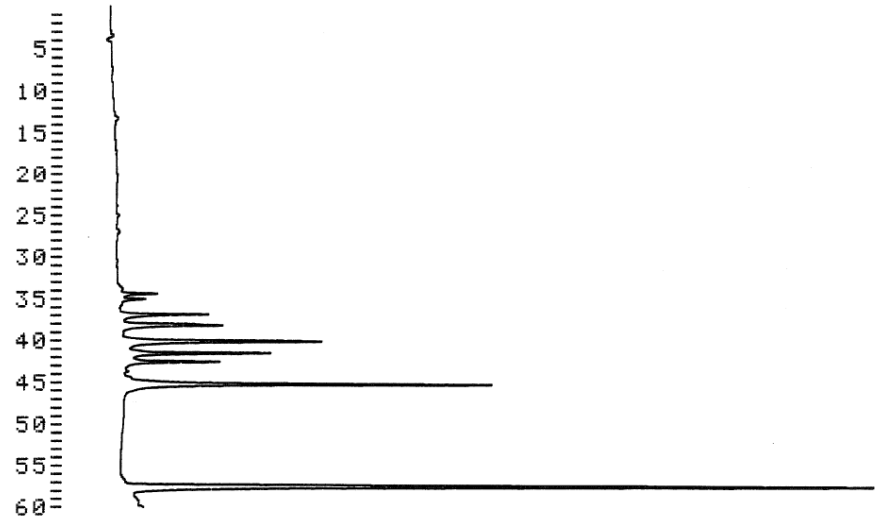
NO.	RT	AREA	
1	45.20	5540790	intact RNA
2	57.39	2906179	gapmer
TOTAL		8446969	

Figure S173 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R14). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



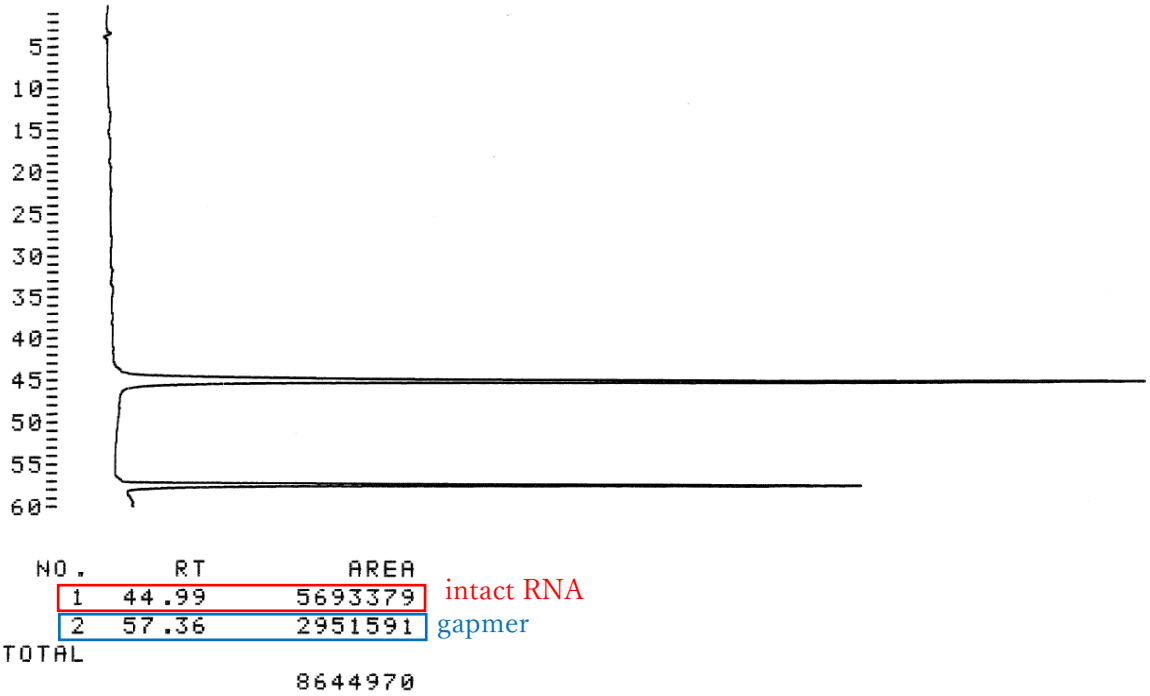
NO.	RT	AREA	
1	34.27	287080	
2	34.96	60862	
3	36.83	190604	
4	38.14	103798	
5	40.08	235201	
6	41.47	423595	
7	42.48	898825	
8	45.18	3095365	intact RNA
9	57.39	2991472	gapmer
TOTAL		8286802	

Figure S174 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R14) in the absence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



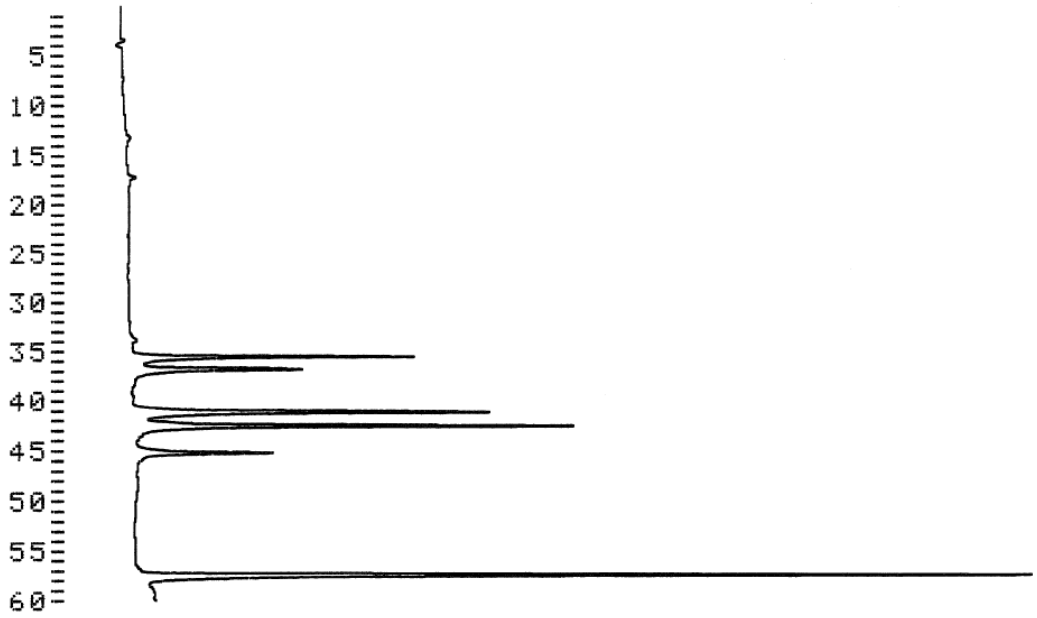
NO.	RT	AREA	
1	34.30	117157	
2	34.99	88811	
3	36.86	362018	
4	38.14	569729	
5	40.06	1044142	
6	41.47	620947	
7	42.48	459352	
8	45.18	1708419	intact RNA
9	57.39	2935961	gapmer
TOTAL		7906536	

Figure S175 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R14) in the presence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



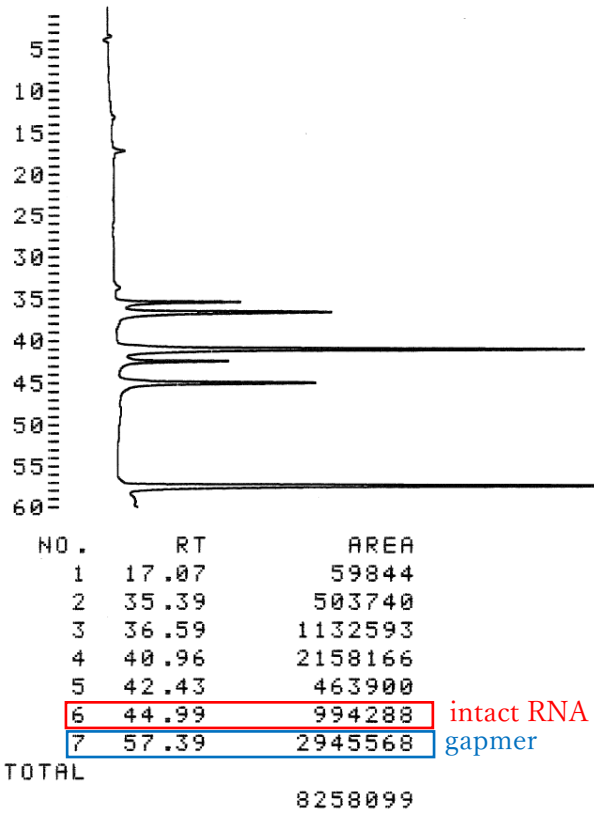
NO.	RT	AREA	
1	44.99	5693379	intact RNA
2	57.36	2951591	gapmer
TOTAL		8644970	

Figure S176 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R20). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	35.47	915750	
2	36.78	798291	
3	41.07	1469545	
4	42.46	1571985	
5	45.15	584346	intact RNA
6	57.36	2971111	gapmer
TOTAL		8311028	

Figure S177 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R20) in the absence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	17.07	59844	
2	35.39	503740	
3	36.59	1132593	
4	40.96	2158166	
5	42.43	463900	
6	44.99	994288	intact RNA
7	57.39	2945568	gapmer
TOTAL		8258099	

Figure S178 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R20) in the presence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

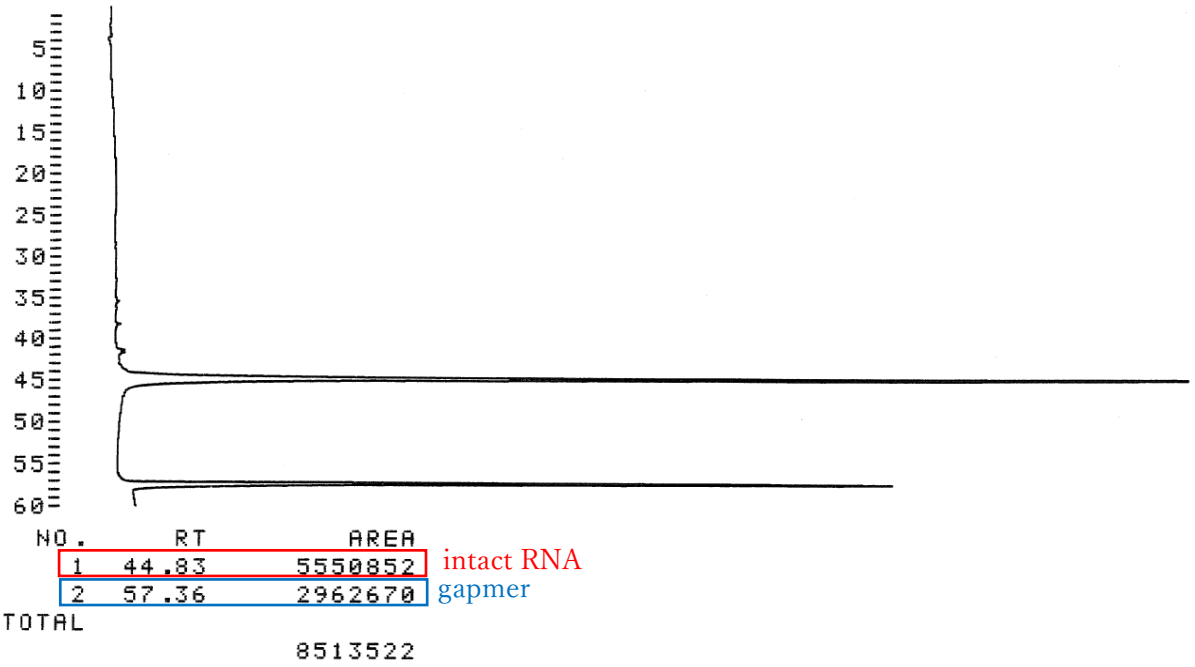
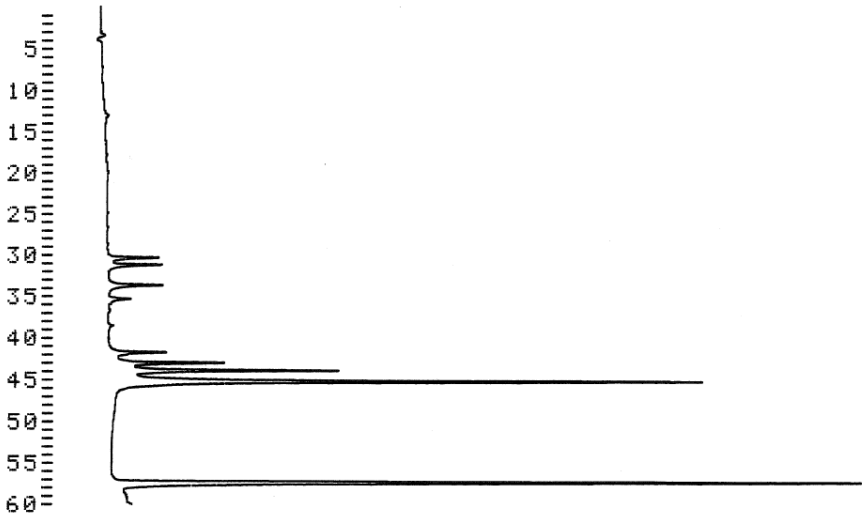
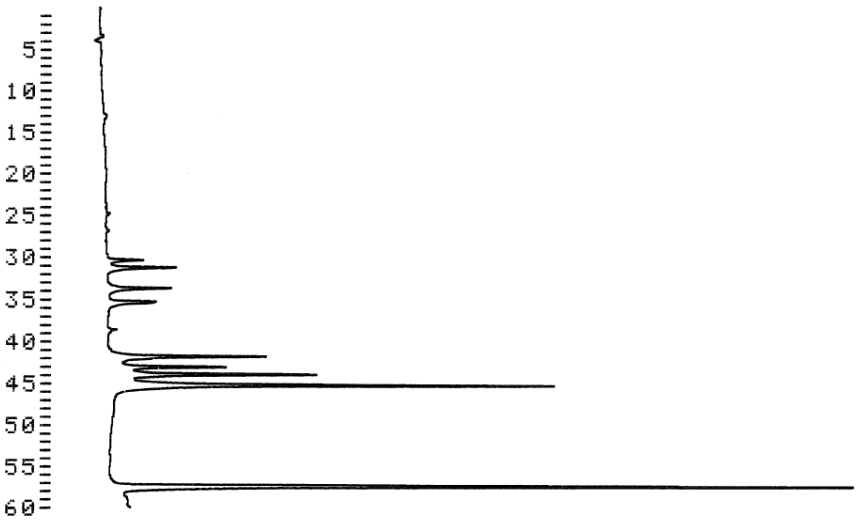


Figure S179 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R21, pcsk5). The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	30.30	196327	
2	31.18	218896	
3	33.66	234225	
4	35.34	101349	
5	41.76	255313	
6	43.02	509777	
7	43.90	1050641	
8	45.20	2897554	intact RNA
9	57.39	2992689	gapmer
TOTAL		8456771	

Figure S180 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R21) in the absence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.



NO.	RT	AREA	
1	30.32	136016	
2	31.20	285099	
3	33.68	269969	
4	35.26	271561	
5	41.76	784896	
6	43.04	509932	
7	43.92	951236	
8	45.20	2164651	intact RNA
9	57.36	2969989	gapmer
TOTAL		8343349	

Figure S181 RP-HPLC profile of the mixture of a 13mer gapmer(G1) and 27mer RNA (R21) in the presence of ODAGal4 after treatment with RNase H for 10 min. The RP-HPLC analysis (UV detection at 260 nm) was performed using a linear gradient of 0%–12.5% CH_3CN for 50 min, followed by a linear gradient of 12.5%–50% for 10 min in 0.1 M TEAA buffer (pH 7.0) for 60 min at 50 °C with a flow rate of 0.5 mL/min.

UV melting analysis

It should be noted that the melting temperatures (T_m values) of the DNA/RNA hybrids used in the manuscript were not correctly calculated in some cases because UV absorbance-versus-temperature curves of even single-stranded of 24mer RNAs have inflection points (Figure S182 and S183). Instead, we evaluated the effect of ODAGal4 on the thermal stability of fully-matched or mismatched DNA/RNA hybrids using 12mer DNA/12mer RNA hybrids (Figure S184 and Table S1).

General procedure

The absorbance versus temperature profile measurements were conducted with an eight-sample cell changer, in quarts cells of 1 cm pathlength. All the experiments were conducted in a 10 mM phosphate buffer containing 100 mM NaCl at pH = 7.0. The difference of the UV absorbances at 260 and 320 nm was monitored with the temperature. The samples containing oligonucleotides were first rapidly heated to 95 °C, left at this temperature for 10 min, and then cooled to room temperature at a rate of 0.5 °C/min. After annealing, an aqueous solution of ODAGal4 was added so that ODAGal4 concentration was equal to that of the hybrid or single strand in the case of adding ODAGal4. The final concentration of hybrid duplexes or single-stranded RNAs was 2 μM (for Figure S182 and Figure S183) or 5 μM (for Figure S184). These samples were additionally cooled to 0 °C at a rate of 0.5 °C/min, left at this temperature, and then the dissociation finally recorded by heating to 95 °C at a rate of 0.5 °C/min.

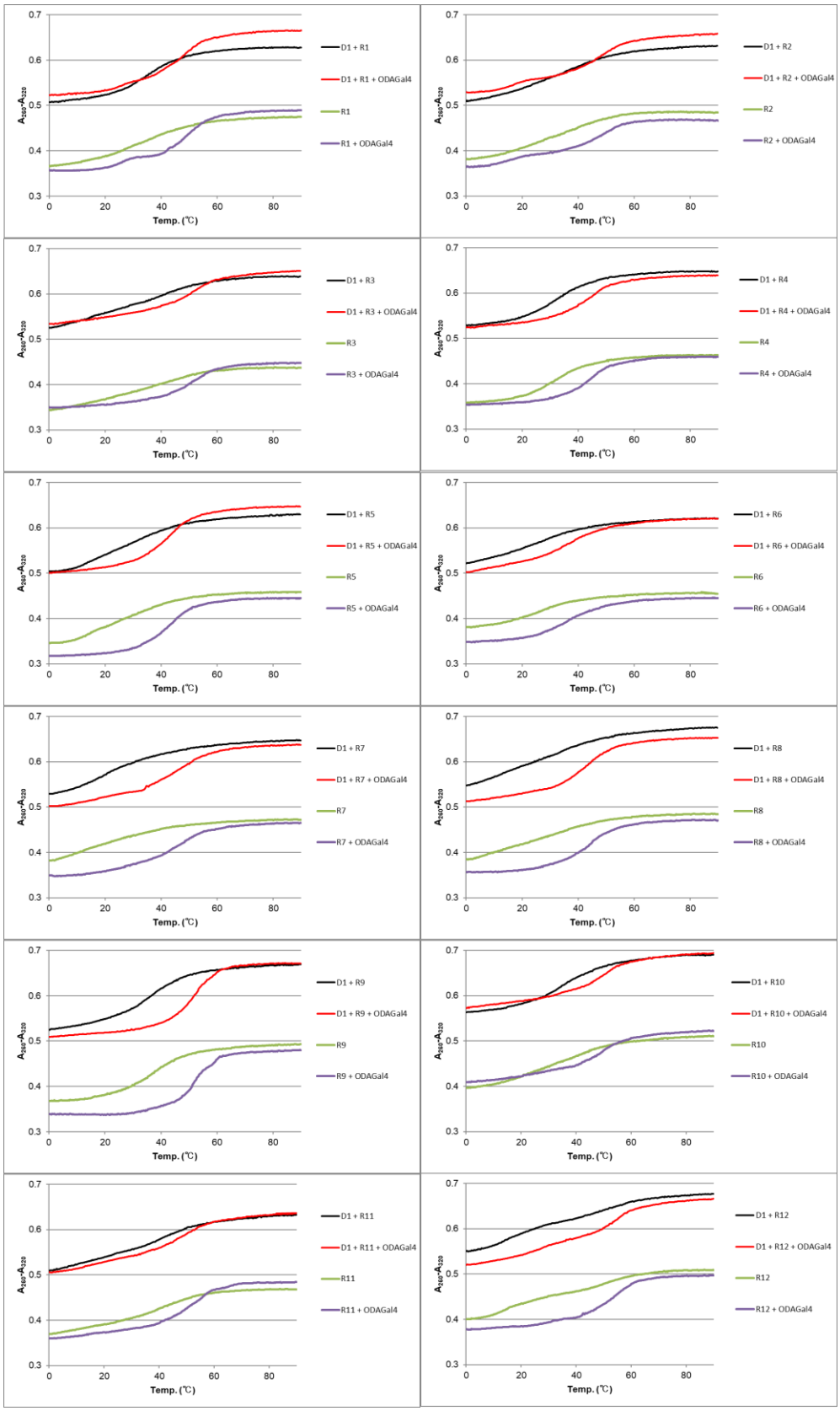


Figure S182 UV melting curves of the duplexes of a DNA (D1) and an RNA (R1–R12) or single-stranded RNAs (R1–R12) in the absence or presence of ODAGal4; black line: a DNA/RNA hybrid in the absence of ODAGal4; red line: a DNA/RNA hybrid in the presence of ODAGal4; green line: a single stranded RNA in the absence of ODAGal4; purple line: a single stranded RNA in the presence of ODAGal4.

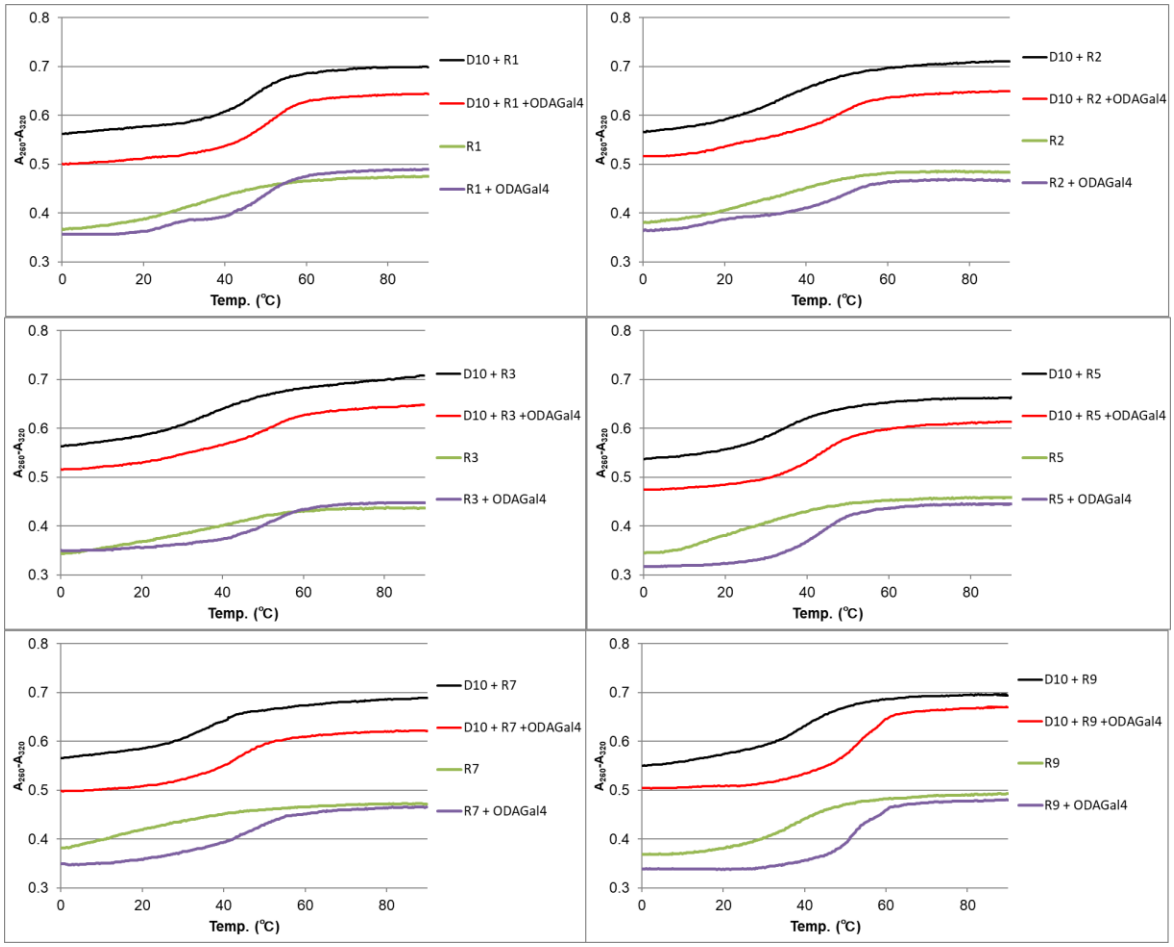


Figure S183 UV melting curves of the duplexes of a DNA (D10) and an RNA (R1, R2, R3, R5, R7, and R9) or single-stranded RNAs in the absence or presence of ODAGal4; black line: a DNA/RNA hybrid in the absence of ODAGal4; red line: a DNA/RNA hybrid in the presence of ODAGal4; green line: a single stranded RNA in the absence of ODAGal4; purple line: a single stranded RNA in the presence of ODAGal4. Data of single RNAs (green and purple lines) are same as those of Figure S182.

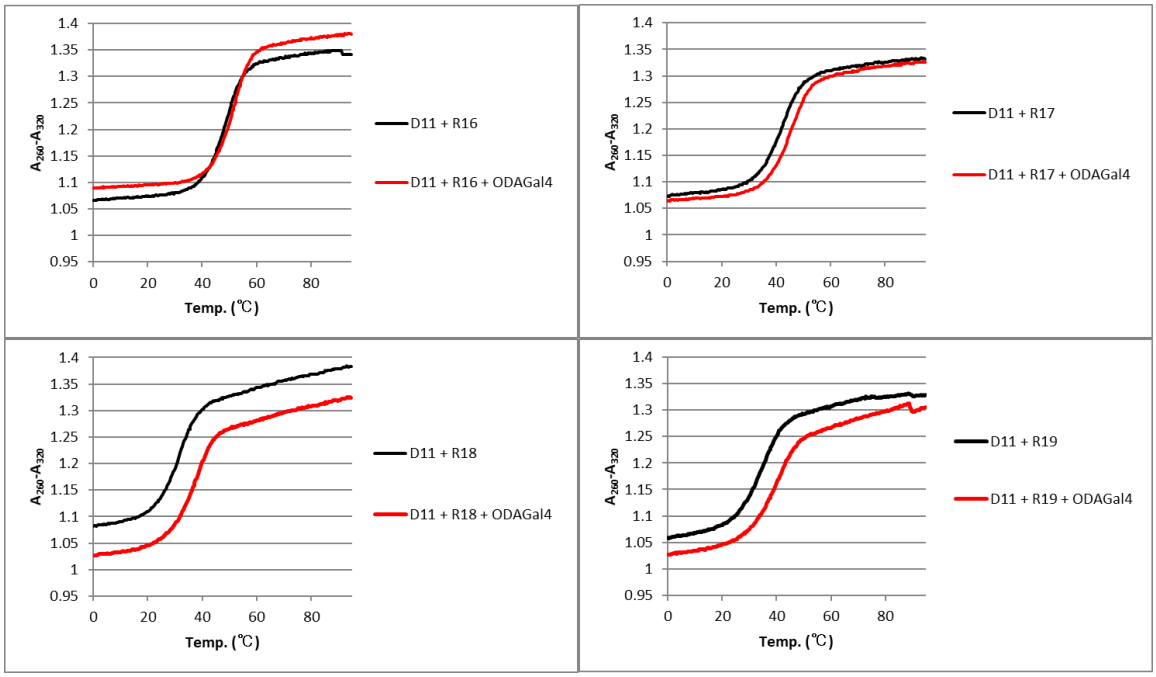


Figure S184 UV melting curves of the duplexes of DNA (D11: cagtcagtcagt) and an RNA (R16: ACUGACUGACUG, R17: A**A**UGACUGACUG, R18: ACUGA**A**UGACUG, R19: ACUGACUGA**A**UG, each bold character indicates a mismatch base) in the absence or presence of ODAGal4.

Table S1 T_m values of DNA/RNA hybrids in the absence or presence of ODAGal4

Entry	DNA	RNA	T_m value/°C (ΔT_m) ODAGal4	
			(-)	(+)
1	D11: cagtcagtcagt	R16: ACUGACUGACUG	48.0	50.9 (+ 2.9)
2	D12: cagtcagtcagt	R17: A**A**UGACUGACUG	41.7	45.1 (+ 3.4)
3	D13: cagtcagtcagt	R18: ACUGA**A**UGACUG	31.3	36.3 (+ 5.0)
4	D14: cagtcagtcagt	R19: ACUGACUGA**A**UG	34.3	38.5 (+ 4.2)