

Table S1. List of RNA family groups and the number of sequences in the ncRNA training dataset. The families are grouped according the Rfam ID in the *Rfam* database 14.3.

RNA family group	Num. of sequences	RNA family group	Num. of sequences
5S_rRNA	12,000	Intron_gpII	1,588
5_8S_rRNA	1,053	IRES_HCV	1,226
Archaea_SRP	1,036	IRES_Picornia	1,433
Bacteria_large_SRP	1,588	K_chan_RES	1,468
Bacteria_small_SRP	4,506	Lysine	812
Cobalamin	7,407	Metazoa_SRP	915
Entero_5_CRE	2,642	mir_TAR	760
Entero_CRE	967	Plant_SRP	1,571
Entero_OriR	1,036	SAM	7,873
Glycine	760	SECIS_1	1,053
Hammerhead_1	483	SNORD113	1,019
Hammerhead_3	1,416	T-box	829
HCV_SLIV	1,882	THI	1,865
HCV_SLVII	1,899	tRNA	16,455
HepC_CRE	898	U1	1,727
Histone3	794	U2	3,557
HIV_FE	2,124	U6	3,229
HIV_GSL3	1,226	UnaL2	501
HIV_PBS	2,072	yybP-ykoY	501
HIV-1_DIS	1,174		