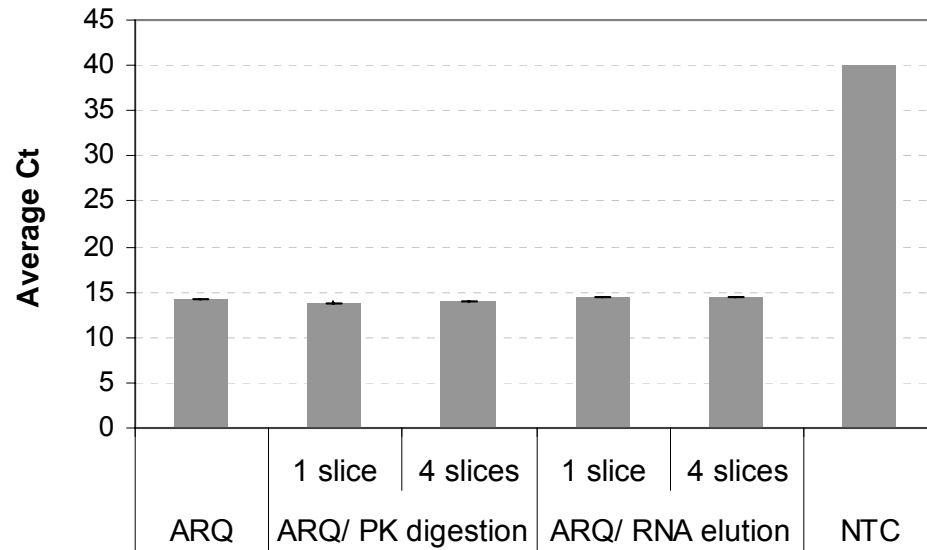


Supplemental Figure 1. Representative analysis of RNA isolated from matched frozen tissue and FFPE breast, cervix and gall bladder tissue using Agilent Bioanalyzer 2100 PicoChip.



Supplemental Figure 2. Recovery of Armored RNA® Quant™ (ARQ) spiked-in during the RecoverAll procedure. Recovery of ARQ spiked in at the proteinase K digestion step or at the elution step during RNA isolation from one or four 20µm slices of FFPE prostate NAT was assessed by duplicate qRT-PCR using 2 µl of purified RNA. ARQ: positive control ARQ heat-lysed in nuclease free water. NTC: no template negative control.

Tissue type	RNA isolation						Target amplification								
	Avg yield		A260/280		miR-24		miR-103		miR-191		18S		hGUSB		
	μg	CV,%	Avg ratio	CV,%	Avg Ct	CV,%	Avg Ct	CV,%	Avg Ct	CV,%	Avg Ct	CV,%	Avg Ct	CV,%	
Operator 1	Cervix	0.74	31.51	1.76	6.24	22.39	2.80	27.49	0.53	26.80	1.03	17.34	2.03	29.12	0.04
	Kidney	1.86	24.67	2.02	1.57	22.63	2.06	27.42	3.05	26.45	1.57	17.16	0.83	27.51	0.05
	Stomach cancer	2.53	29.55	1.83	5.04	23.25	3.94	26.20	0.89	26.28	1.19	17.80	1.92	26.14	0.00
	Testicular cancer	3.58	17.43	2.03	0.87	22.34	1.61	27.58	1.50	26.08	1.18	14.37	1.58	26.27	0.01
	Uterine cancer	2.24	20.31	1.89	0.37	23.71	0.44	26.01	0.47	24.81	0.88	17.95	0.17	26.35	0.00
	Avg CV,%		24.69		2.82		2.17		1.29		1.17		1.31		0.02
Operator 2	Cervix	0.65	25.17	3.02	18.16	23.42	7.06	29.01	6.74	27.85	7.27	18.22	8.29	31.40	0.07
	Kidney	2.09	10.98	2.21	1.28	22.27	0.61	26.53	0.06	25.93	0.45	16.94	1.25	26.61	0.00
	Stomach cancer	2.87	12.78	2.25	6.60	22.64	0.08	25.91	0.01	26.06	0.45	17.35	0.89	26.29	0.00
	Testicular cancer	3.60	20.86	2.17	7.49	22.51	1.50	27.66	0.87	25.88	0.50	14.66	0.54	26.62	0.01
	Uterine cancer	2.08	11.0209	2.12	0.67	23.52	0.17	26.09	0.38	24.58	0.16	18.24	0.08	26.37	0.00
	Avg CV,%		16.16		6.84		1.88		1.61		1.76		2.21		0.02
Overall Avg CV, %		20.82		4.83		2.03		1.45		1.47		1.76		0.02	

Supplemental Table 1. Summary of inter-day variability data. Duplicate RNA isolations using two 20 μm slices from five different FFPE tissue blocks were carried out by two different operators on two different days using the RecoverAll procedure. qRT-PCR reactions were performed at least in duplicate for each RNA target.

Sample ID	Embedding year	A260/280	Yield per 20µm slice, µg	miR-24 Avg Ct	miR-103 Avg Ct	miR-191 Avg Ct	hGUSB Avg Ct	18S Avg Ct	ARQ Avg Ct
TUM-1	1996	1.97	4.29	23.13	27.63	24.70	28.07	25.01	14.97
NAT-1	1996	1.77	2.33	20.71	26.48	23.54	27.69	20.53	14.19
TUM-2	1996	1.96	5.04	22.04	27.12	24.49	26.05	16.97	14.34
NAT-2	1996	1.83	1.45	21.27	26.33	23.82	27.02	15.86	14.05
TUM-3	1996	2.00	3.23	23.00	26.28	24.56	27.54	19.59	14.89
NAT-3	1996	1.83	1.96	21.75	27.14	23.96	27.53	21.95	14.31
TUM-4	1996	2.02	4.35	22.69	25.73	23.81	25.14	15.56	14.32
NAT-4	1996	1.94	1.18	21.73	26.56	24.30	27.45	18.99	14.01
TUM-5	1996	1.98	1.31	29.93	33.50	28.35	32.88	29.33	29.63
NAT-5	1996	1.93	0.88	21.85	26.98	23.91	26.13	15.66	14.03
TUM-6	2003	1.88	5.89	21.53	26.80	23.35	25.57	11.76	15.49
NAT-6	2003	1.90	1.47	23.19	28.10	23.85	27.29	14.02	15.63
TUM-7	2003	1.88	2.67	26.50	30.68	26.16	30.05	23.14	16.69
NAT-7	2003	1.85	2.15	22.55	27.55	23.78	28.08	20.14	14.39
TUM-8	2003	1.60	0.89	22.36	26.53	24.08	27.50	20.57	14.89
NAT-8	2003	1.55	1.11	20.71	25.31	22.30	26.50	18.34	14.31
TUM-9	2003	1.91	1.37	21.23	26.50	23.41	25.46	16.01	14.05
NAT-9	2003	1.78	0.36	20.60	26.50	22.67	24.98	15.37	14.01
TUM-10	2003	1.64	1.05	21.85	27.23	23.48	29.53	25.61	14.48
NAT-10	2003	1.55	0.76	22.53	27.71	24.27	32.13	23.37	14.74
TUM-11	2006	1.75	1.54	20.96	25.66	23.45	28.13	18.00	14.36
NAT-11	2006	1.54	0.75	28.11	33.33	30.64	39.01	27.93	14.53
TUM-12	2006	1.60	0.87	22.93	26.21	24.63	31.93	27.93	14.62
NAT-12	2006	1.59	0.64	23.16	29.63	25.87	30.76	24.11	14.29
TUM-13	2006	1.74	1.63	20.81	25.14	22.28	27.19	22.16	13.99
NAT-13	2006	1.63	0.41	22.77	28.45	24.22	28.86	22.37	14.04
TUM-14	2006	1.61	0.84	22.66	27.53	24.46	31.73	23.77	14.43
NAT-14	2006	1.54	0.63	23.08	27.54	25.08	31.47	24.78	14.33
TUM-15	2006	1.52	1.14	20.74	24.82	22.68	28.39	23.07	14.98
NAT-15	2006	1.74	1.23	20.17	26.70	22.84	25.42	20.33	14.28

Supplemental Table 2. Summary of RNA isolation and qRT-PCR data for selected miRNA, mRNA and rRNA species, as well as ARQ process control for 15 matched pairs of FFPE lung tumor and NAT isolated with the RecoverAll kit. For each block, sixteen 20mm FFPE slices were extracted in a single tube. Each target was interrogated at least in duplicate by qRT-PCR.

Sample ID	Tissue type/Kit	miR-24 Avg Ct	miR-103 Avg Ct	miR-191 Avg Ct	18S Avg Ct	hGUSB Avg Ct
Breast-1	Frozen mirVana	24.08	26.21	24.86	8.15	26.76
	FFPE RecoverAll	26.18	28.92	27.38	12.68	30.15
	FFPE RNeasy	28.23	30.13	27.36	17.54	32.06
Breast-2	Frozen mirVana	24.02	26.14	25.12	7.50	26.75
	FFPE RecoverAll	24.92	27.14	25.07	10.46	27.42
	FFPE RNeasy	25.30	27.82	24.94	14.33	29.51
Breast-3	Frozen mirVana	22.51	24.56	22.58	6.00	24.06
	FFPE RecoverAll	25.80	28.25	26.24	11.86	28.33
	FFPE RNeasy	26.87	29.34	25.77	15.90	30.06
Cervix-1	Frozen mirVana	20.27	23.43	21.93	6.54	26.04
	FFPE RecoverAll	24.53	29.13	24.41	11.35	28.25
	FFPE RNeasy	24.46	26.79	23.94	13.50	28.70
Cervix-2	Frozen mirVana	22.26	25.50	23.72	7.91	27.18
	FFPE RecoverAll	23.94	26.79	25.80	12.23	28.62
	FFPE RNeasy	21.93	25.35	22.69	14.43	32.39
Cervix-3	Frozen mirVana	20.39	23.62	22.71	6.22	26.35
	FFPE RecoverAll	23.73	26.37	24.43	10.78	27.97
	FFPE RNeasy	20.80	24.14	21.60	14.02	28.93
Gall bladder-1	Frozen mirVana	21.16	24.36	22.84	6.23	24.92
	FFPE RecoverAll	25.39	28.10	27.69	12.83	29.98
	FFPE RNeasy	26.97	29.54	26.88	17.63	31.18
Gall bladder-2	Frozen mirVana	20.61	23.92	22.08	5.70	24.29
	FFPE RecoverAll	24.00	26.69	24.83	11.82	28.28
	FFPE RNeasy	25.24	27.69	24.31	13.77	28.89
Liver NAT	FFPE RecoverAll	25.64	27.27	26.03	17.36	28.93
	FFPE RNeasy	26.83	27.19	25.41	18.26	28.45
Lung NAT-1	FFPE RecoverAll	23.28	25.42	23.98	16.07	28.15
	FFPE RNeasy	23.83	26.47	23.39	18.36	28.31
Lung NAT-2	FFPE RecoverAll	24.07	26.50	24.95	12.79	27.10
	FFPE RNeasy	24.18	26.85	23.90	14.37	26.51
Prostate NAT	FFPE RecoverAll	23.91	26.11	24.44	22.07	29.45
	FFPE RNeasy	26.54	27.90	26.57	21.85	30.88
Spleen	FFPE RecoverAll	24.04	25.00	23.83	13.82	26.10
	FFPE RNeasy	25.14	27.39	24.31	26.77	31.82

Supplemental Table 3. qRT-PCR amplification results of selected miRNA, mRNA and rRNA species from paired frozen and FFPE cervix, breast and gall bladder tissues isolated with the RecoverAll or RNeasy kit. Each target was interrogated at least in duplicate.