

SUPPLEMENTAL TABLES

Table S1. RalA staining class versus clinicopathologic features

	RalA Low	RalA High	P-Value*
pTa	4	0	0.97
pT1	3	2	
pT2	30	17	
pT3	44	19	
pT4	17	7	
pN0	71	28	0.22
pN+	18	12	
Female	23	16	0.13
Male	73	28	
LVSI-	57	26	0.80
LVSI+	38	19	
CIS-	77	33	0.38
CIS+	12	8	
Urothelial Carcinoma	79	30	0.028
Squamous Cell Carcinoma	14	7	
Adenocarcinoma	2	4	
Small Cell Carcinoma	0	3	
Sarcomatoid	3	1	

* Two-tailed P-value for Chi-Squared statistic against the assumption of independence

Abbreviations:

LVSI: lymphovascular space invasion

CIS: Carcinoma in situ

Table S2. RalB staining class versus clinicopathologic features

	RalB Low	RalB High	P-Value
pTa	2	1	0.64
pT1	1	4	
pT2	22	23	
pT3	44	17	
pT4	9	14	
pN0	51	46	0.24
pN+	17	9	
Female	22	17	0.94
Male	56	42	
LVSI-	40	40	0.056
LVSI+	36	18	
CIS-	61	43	0.91
CIS+	12	8	
Urothelial Carcinoma	62	42	0.018
Squamous Cell Carcinoma	8	12	
Adenocarcinoma	1	5	
Small Cell Carcinoma	3	0	
Sarcomatoid	4	0	

* Two-tailed P-value for Chi-Squared statistic against the assumption of independence

Abbreviations:

LVSI: lymphovascular space invasion

CIS: Carcinoma in situ

Table S3. Ral Activation in the BLA-40 Cell Line Panel

Cell Line*	Alias	%GTP:RalA	% GTP:RalB
1A6	PTA556, CRL-2742	1.3	0.2
253J B-V		3.2	1.6
253J-Laval		1.5	0.8
253J-P(Parent) (MDA)	253J-MDA	1.8	1.5
5637	HTB9	1.7	1.7
575A		3.2	1.8
BC16.1	BL16	2.5	0.8
CUBIII		2.3	0.2
FL3		2.6	1
Hs228.T	CRL-7193	9	2.7
HT1197		1.8	0.8
HT1376		2.8	2.6
HU456		1.5	0.2
J82		8.3	13.4
J82-Laval		5.1	3.9
JON	Jo'N	1.8	1.9
KK47		2.6	1.3
KU7		1.8	1.4
MGH-U3		0.9	0.7
MGH-U4		3	4.5
PSI		2.6	1.9
RT112	RT112/84	1.7	0.5
RT4		2.5	0.4
SCABER	HTB3	1	0.3
SL4	SLT4	5.8	3.1
SW1710		3	2
SW780	CRL-2169	4.2	1.3
T24		2.5	2.5
T24T		4.6	2.3
TCCSUP	HTB5	1.8	1
UMUC1		1.3	0.5
UMUC13D		2.4	2.3
UMUC14		3.8	4.1
UMUC2		1.1	0.5
UMUC3		2.1	1.1
UMUC3-English	1.5	1.4	
UMUC6		3.9	0.3
UMUC9		2.5	0.7
VMCUB1		1.7	0.8
VMCUB2		0.8	0.7

* These cell lines and their provenance have been detailed in a prior report (12)

Table S4. Ral Activation *versus* Mutation Status Across BLA-40

Gene Mutated	RalA P-value*	RalB P-value*
KRAS	0.90	0.90
PTEN	0.14	0.20
TP53	0.68	0.082
RB1	1	0.087
PIK3CA	0.62	0.46
CDKN2A	0.59	0.16
FGFR3	0.93	0.96

* Two-tailed P-value for nonparametric two-sample test of difference in distributions of percentage Ral activation in cell lines harboring wild type or mutated indicated gene. Our compendium of mutation data for the BLA-40, culled from several public databases, has been reported recently (12).

Table S5. 60 Probesets Regulated 2-Fold by RalA and RalB

Probeset*	Fold Change^	HUGO Symbol
210095_s_at	4.97	IGFBP3
222043_at	4.88	CLU
201565_s_at	4.63	ID2
212143_s_at	4.12	IGFBP3
203325_s_at	3.90	COL5A1
221530_s_at	3.83	BHLHE41
204396_s_at	3.73	GRK5
204584_at	3.73	L1CAM
212488_at	3.56	COL5A1
212489_at	3.41	COL5A1
213397_x_at	3.23	RNASE4
203845_at	3.13	KAT2B
202196_s_at	3.12	DKK3
211071_s_at	3.10	MLLT11
206924_at	3.09	IL11
219410_at	2.97	TMEM45A
205158_at	2.80	RNASE4
218625_at	2.76	NRN1
214247_s_at	2.68	DKK3
206117_at	2.65	TPM1
207469_s_at	2.55	PIR
212888_at	2.51	DICER1
203743_s_at	2.50	TDG
209135_at	2.49	ASPH
202952_s_at	2.42	ADAM12
202733_at	2.40	P4HA2
210896_s_at	2.39	ASPH
213790_at	2.38	ADAM12
202743_at	2.35	PIK3R3
205199_at	2.35	CA9
204341_at	2.33	TRIM16
213005_s_at	2.33	KANK1
201506_at	2.33	TGFBI
221541_at	2.30	CRISPLD2
208792_s_at	2.30	CLU
208791_at	2.28	CLU
206116_s_at	2.27	TPM1
212099_at	2.23	RHOB
222062_at	2.21	IL27RA
209822_s_at	2.19	VLDLR
210986_s_at	2.17	TPM1
201505_at	2.17	LAMB1
219888_at	2.12	SPAG4
203871_at	-2.12	SEN3

211935_at	-2.26	ARL6IP1
218190_s_at	-2.27	UQCR10
208756_at	-2.31	EIF3I
212150_at	-2.49	EFR3A
201087_at	-2.57	PXN
211823_s_at	-2.72	PXN
215113_s_at	-2.74	SENP3
213524_s_at	-2.76	G0S2
207850_at	-2.77	CXCL3
221263_s_at	-2.84	SF3B5
209774_x_at	-2.88	CXCL2
215171_s_at	-3.04	TIMM17A
212149_at	-3.19	EFR3A
201529_s_at	-3.32	RPA1
201528_at	-3.48	RPA1
204475_at	-5.05	MMP1

* Affymetrix HG-U133A

^ Fold change, on average across duplicate RalA and RalB-depleted replicates, relative to replicate siControl duplicates.