Association study stats of RON SNPs and Gastric Cancer

Three analyses were performed on each SNP for each population.

They are chi-square test for group by genotype (2 by 3 table) association, group by allele (2 by 2 table) association, and trend test of propoOnly the European population shows significant (p<0.05) association fall three tests for Exon 20 SNP g16131 and Intron 19 SNP g14694. Europeanpopulation also shows marginally significant (p<0.10) association for althree test for Exon 4 SNP g5205.

Below are details of individual tests arranged by population

(As ian, European, African American) and gene

(g16131 = rs1062633, g5205 = rs2230590, g14694 = rs7627864):

/*Asian Population, Gene g16131 -AA, AG, GG*/

1. Chi-square test of group by genotype association

Key
frequency
row percentage
column percentage

Group	Genotype Frequency AA	AG	GG	Total
Normal	86	31	3	120
	71.67	25.83	2.50	100.00
	91.49	96.88	60.00	91.60
Cancer	8	1	2	11
	72.73	9.09	18.18	100.00
	8.51	3.13	40.00	8.40
Total	94	32	5	131
	71.76	24.43	3.82	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 7.6501 Pr = 0.022

2. Chi-square test of group by allele distribution
(The sample size has doubled since each individual contributes
a pair of alleles)

Key
frequency
row percentage
column percentage

Group	Allele Frequency A	G	Total
Normal	203	37	240
	84.58	15.42	100.00
	92.27	88.10	91.60
- Cancer	17	5	22
	77.27	22.73	100.00
	7.73	11.90	8.40
- Total	220	42	262
	83.97	16.03	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 0.8001 Pr = 0.371

3. Trend analysis for proportions

Column legend:
r=# patients cancer population
nr=# patients normal population
_prop=proportion of cancer patients
x=score assigned to genotype group

	r	nr	_prop	x
AA	8	86	0.085	1.00
AG	1	31	0.031	2.00
GG	2	3	0.400	3.00

Chi2(1) for trend = 0.732, pr>chi2 = 0.3921

/*Asian Population, Gene g5205 -AA, AG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency AA	AG	GG	Total
Normal	86	31	3	120
	71.67	25.83	2.50	100.00
	90.53	96.88	75.00	91.60
Cancer	9	1	1	11
	81.82	9.09	9.09	100.00
	9.47	3.13	25.00	8.40
Total	95	32	4	131
	72.52	24.43	3.05	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 2.7330 Pr = 0.255

2. Chi-square test of group by allele distribution

Group	Allele Frequency A	G	Total
- Normal	203	37	240
	84.58	15.42	100.00
	91.44	92.50	91.60
Cancer	19	3	22
	86.36	13.64	100.00
	8.56	7.50	8.40
- Total	222	40	262
	84.73	15.27	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 0.0494 Pr = 0.824

3. Trend analysis for proportions

	r	nr	_prop	x
AA	9	86	0.095	1.00
AG	1	31	0.031	2.00
GG	1	3	0.250	3.00

Chi2(1) for trend = 0.047, pr>chi2 = 0.8288

/*Asian Population, Gene g14694 -CC, CG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency CC	CG	GG	Total
Normal	90	29	1	120
	75.00	24.17	0.83	100.00
	89.11	100.00	100.00	91.60
Cancer	11	0	0	11
	100.00	0.00	0.00	100.00
	10.89	0.00	0.00	8.40
Total	101	29	1	131
	77.10	22.14	0.76	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 3.5668 Pr = 0.168

2. Chi-square test of group by allele distribution

Group	Allele Frequency C	G	Total
- Normal	209	31	240
	87.08	12.92	100.00
	90.48	100.00	91.60
Cancer	22	0	22
	100.00	0.00	100.00
	9.52	0.00	8.40
- Total	231	31	262
	88.17	11.83	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 3.2230 Pr = 0.073

3. Trend analysis for proportions

	r	nr	_prop	x
CC	11	90	0.109	1.00
CG	0	29	0.000	2.00
GG	0	1	0.000	3.00

Chi2(1) for trend = 3.432, pr>chi2 = 0.0639

/*European population, Gene g16131-AA, AG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency AA	AG	GG	Total
Normal	13	38	39	90
	14.44	42.22	43.33	100.00
	61.90	84.44	88.64	81.82
Cancer	8	7	5	20
	40.00	35.00	25.00	100.00
	38.10	15.56	11.36	18.18
Total	21	45	44	110
	19.09	40.91	40.00	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 7.1815 Pr = **0.028**

2. Chi-square test of group by allele distribution

Group	Allele Frequency A	G	Total
- Normal	64	116	180
	35.56	64.44	100.00
	73.56	87.22	81.82
Cancer	23	17	40
	57.50	42.50	100.00
	26.44	12.78	18.18
- Total	87	133	220
	39.55	60.45	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 6.5922 Pr = **0.010**

3. Trend analysis for proportions

	r	nr	_prop	x
AA	8	13	0.381	1.00
AG	7	38	0.156	2.00
GG	5	39	0.114	3.00

Chi2(1) for trend = 5.760, pr>chi2 = **0.0164**

/*European population, Gene g5205 -AA, AG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency AA	AG	GG	Total
Normal	15	51	24	90
	16.67	56.67	26.67	100.00
	65.22	86.44	85.71	81.82
Cancer	8	8	4	20
	40.00	40.00	20.00	100.00
	34.78	13.56	14.29	18.18
Total	23	59	28	110
	20.91	53.64	25.45	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 5.3940 Pr = 0.067

2. Chi-square test of group by allele distribution

Group	Allele Frequency A	G	Total
- Normal	81	99	180
	45.00	55.00	100.00
	77.14	86.09	81.82
Cancer	24	16	40
	60.00	40.00	100.00
	22.86	13.91	18.18
- Total	105	115	220
	47.73	52.27	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 2.9516 Pr = 0.086

3. Trend analysis for proportions

	r	nr	_prop	x
AA	8	15	0.348	1.00
AG	8	51	0.136	2.00
GG	4	24	0.143	3.00

Chi2(1) for trend = 3.191, pr>chi2 = 0.0741

/*European population, Gene g14694 -CC, CG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency CC	CG	GG	Total
Normal	14	60	16	90
	15.56	66.67	17.78	100.00
	60.87	86.96	88.89	81.82
Cancer	9	9	2	20
	45.00	45.00	10.00	100.00
	39.13	13.04	11.11	18.18
Total	23	69	18	110
	20.91	62.73	16.36	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 8.6146 Pr = **0.013**

2. Chi-square test of group by allele distribution

Group	Allele Frequency C	G	Total
- Normal	88	92	180
	48.89	51.11	100.00
	76.52	87.62	81.82
Cancer	27	13	40
	67.50	32.50	100.00
	23.48	12.38	18.18
- Total	115	105	220
	52.27	47.73	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 4.5437 Pr = **0.033**

3. Trend analysis for proportions

	r	nr	_prop	x
CC	9	14	0.391	1.00
CG	9	60	0.130	2.00
GG	2	12	0.143	3.00

Chi2(1) for trend = 5.068, pr>chi2 = **0.0244**

/*African American, Gene g16131 -AA, AG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency AA	AG	GG	Total
Normal	15	47	28	90
	16.67	52.22	31.11	100.00
	88.24	88.68	87.50	88.24
Cancer	2	6	4	12
	16.67	50.00	33.33	100.00
	11.76	11.32	12.50	11.76
Total	17	53	32	102
	16.67	51.96	31.37	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 0.0267 Pr = 0.987

2. Chi-square test of group by allele distribution

Group	Allele Frequency A	G	Total
- Normal	77	103	180
	42.78	57.22	100.00
	88.51	88.03	88.24
Cancer	10	14	24
	41.67	58.33	100.00
	11.49	11.97	11.76
- Total	87	117	204
	42.65	57.35	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 0.0107 Pr = 0.918

3. Trend analysis for proportions

	r	nr	_prop	x
1.	2	15	0.118	1.00
2.	6	47	0.113	2.00
3.	4	28	0.125	3.00

Chi2(1) for trend = 0.011, pr>chi2 = 0.9150

/*African American, Gene g5205 -AA, AG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency AA	AG	GG	Total
Normal	11	42	37	90
	12.22	46.67	41.11	100.00
	91.67	84.00	92.50	88.24
Cancer	1	8	3	12
	8.33	66.67	25.00	100.00
	8.33	16.00	7.50	11.76
Total	12	50	40	102
	11.76	49.02	39.22	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 1.7009 Pr = 0.427

2. Chi-square test of group by allele distribution

Group	Allele Frequency A	G	Total
Normal	64	116	180
	35.56	64.44	100.00
	86.49	89.23	88.24
- Cancer	10	14	24
	41.67	58.33	100.00
	13.51	10.77	11.76
- Total	74	130	204
	36.27	63.73	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 0.3421 Pr = 0.559

3. Trend analysis for proportions

	r	nr	_prop	x
AA	1	11	0.083	1.00
AG	8	42	0.160	2.00
GG	3	37	0.075	3.00

Chi2(1) for departure = 1.337, pr>chi2 = 0.2476

/*African American, Gene g14694 -CC, CG, GG*/

1. Chi-square test of group by genotype association

Group	Genotype Frequency CC	CG	GG	Total
Normal	58	32	0	90
	64.44	35.56	0.00	100.00
	89.23	88.89	0.00	88.24
Cancer	7	4	1	12
	58.33	33.33	8.33	100.00
	10.77	11.11	100.00	11.76
Total	65	36	1	102
	63.73	35.29	0.98	100.00
	100.00	100.00	100.00	100.00

Pearson chi2(2) = 7.5769 Pr = 0.023

2. Chi-square test of group by allele distribution

Group	Allele Frequency C	G	Total
Normal	148	32	180
	82.22	17.78	100.00
	89.16	84.21	88.24
- Cancer	18	6	24
	75.00	25.00	100.00
	10.84	15.79	11.76
- Total	166	38	204
	81.37	18.63	100.00
	100.00	100.00	100.00

Pearson chi2(1) = 0.7287 Pr = 0.393

3. Trend analysis for proportions

	r	nr	_prop	x
1.	7	58	0.108	1.00
2.	4	32	0.111	2.00
3.	0	1	0.000	3.00

Chi2(1) for trend = 0.004, pr>chi2 = 0.9504