Supplementary Table 1. Association analysis of rs10975514 with RA in the discovery population

Characteristic (n)	Allele frequency(%)		Genotype frequency(%)			A vs. G	AA vs. AG+GG	AA+AG vs. GG
	A	G	AA	AG	GG	OR(95%CI) P-value	OR(95%CI) P-value	OR(95%CI) P-value
CON (598)	693 (57.9)	503 (42.1)	192(32.1)	309 (51.7)	97 (16.2)			
RA (700)	818 (58.4)	582 (41.6)	235 (33.6)	348 (49.7)	117(16.7)	1.020 (0.872-1.193) 0.811	1.069 (0.847-1.348) 0.576	0.965 (0.719-1.295) 0.811
RF+ (418)	490 (58.6)	346 (41.4)	143 (34.2)	204 (48.8)	71 (17.0)	1. 028 (0.859-1.230) 0.763	1.100 (0.843-1.433) 0.483	0.946 (0.677-1. 323) 0.747
RF– (84)	95 (56.5)	73 (43.5)	23 (27.4)	49 (58.3)	12 (14.3)	0.945 (0.682-1. 309) 0.732	0.797 (0.479-1.327) 0.383	1.162 (0.607-2.222) 0.651
ACPA+ (246)	282 (57.3)	210 (42.7)	75 (30.5)	132 (53.7)	39 (15.9)	0.975 (0.788-1.205) 0.813	0.927 (0.673-1.279) 0.646	1.028 (0.685-1.541) 0.895
ACPA– (84)	101 (60.1)	67 (39.9)	29 (34.5)	43 (51.2)	12 (14.3)	1.094 (0.787-1.521) 0.592	1.115 (0.689-1.804) 0.658	1.162 (0.607-2.222) 0.651
Female CON (412)	472 (57.3)	352 (42.7)	131 (31.8)	210 (51.0)	71(17.2)			
Female RA (511)	596 (58.3)	426 (41.7)	169 (33.1)	258 (50.5)	84 (16.4)	1.043 (0.866-1.256) 0.654	1.060 (0.803-1.399) 0.681	1.058 (0.748-1.497) 0.748
Female RF+ (338)	396 (58.6)	280 (41.4)	113 (33.4)	170 (50.3)	55 (16.3)	1.055 (0.858-1.296) 0.612	1.077 (0.793-1.464) 0.634	1.071 (0.728-1.576) 0.726
Female RF– (71)	80 (56.3)	62 (43.7)	20 (28.2)	40 (56.3)	11 (15.5)	0.962 (0.672-1.378) 0.834	0.841 (0.482-1.468) 0.543	1.136 (0.569-2.268) 0.718
Female ACPA+	234(5	174	62 (30.4)	110 (53.9)	32 (15.7)	1.003	0.937	1.119

(204)	7.4)	(42.6)				(0.789-1.275) 0.981	(0.651-1.347) 0.724	(0.709-1.765) 0.628
Female ACPA– (67)	82 (61.2)	52 (38.8)	24 (35.8)	34 (50.7)	9 (13.4)	1.176 (0.809-1.709) 0.395	1.197 (0.697-2.056) 0.514	1.342 (0.636-2.833) 0.441
Male CON (123)	136 (55.3)	110 (44.7)	35 (28.5)	66(53.7)	22 (17.9)			
Male RA (115)	130 (56.5)	100 (43.5)	37 (32.2)	56 (48.7)	22 (19.1)	1.051 (0.732-1.510) 0.786	1.193 (0.686-2.075) 0.533	0.921 (0.478-1.772) 0.805
Male RF+ (79)	93 (58.9)	65 (41.1)	30 (38.0)	33 (41.8)	16 (20.3)	1.157 (0.772-1.734) 0.479	1.539 (0.845-2.805) 0.159	0.858 (0.419-1.756) 0.675
Male RF– (12)	13 (54.2)	11 (45.8)	2 (16.7)	9(75.0)	1 (8.3)	0.956 (0.412-2.217) 0.916	0.503 (0.105-2.412) 0.390	2.396 (0.294-19.535) 0.414
Male ACPA+ (42)	48 (57.1)	36 (42.9)	13(31.0)	22(52.4)	7 (16.7)	1.078 (0.654-1.778) 0.767	1.127 (0.526-2.416) 0.758	1.089 (0.428-2.770) 0.858
Male ACPA– (14)	17 (60.7)	11 (39.3)	5 (35.7)	7 (50.0)	2 (14.3)	1.250 (0.562-2.779) 0.584	1.397 (0.437-4.461) 0.573	1.307 (0.273-6.259) 0.738

*$P<0.05$ *vs* controls; RA, rheumatoid arthritis; CON, healthy controls; RF, rheumatoid factor; ACPA, anti-citrullinated proteins antibodies; OR, Odds ratio; CI, confidence interval.

Supplementary Table 2. Association analysis of rs10975514 with RA in the validation population

Characteristic (n)	Allele frequency(%)		Genotype frequency(%)			A vs. G	AA vs. AG+GG	AA+AG vs. GG
	A	G	AA	AG	GG	OR(95%CI) P-value	OR(95%CI) P-value	OR(95%CI) P-value
CON (456)	524 (57.5)	388 (42.5)	149(32.7)	226 (49.6)	81 (17.8)			
RA (586)	687 (58.6)	485 (41.4)	200 (34.1)	287(49.0)	99(16.9)	1.049 (0.880-1.250) 0.594	1.068 (0.823-1.384) 0.622	1.063 (0.769-1.468) 0.713
RF+ (357)	426 (59.7)	288 (40.3)	125 (35.0)	176 (49.3)	56 (15.7)	1. 095 (0.898-1.336) 0.370	1.110 (0.829-1.487) 0.484	1.161 (0.800-1. 686) 0.433
RF– (104)	118 (56.7)	90 (43.3)	35 (33.7)	48 (46.2)	21 (20.2)	0.971 (0.716-1. 316) 0.849	1.045 (0.666-1.641) 0.848	0.854 (0.500-1.459) 0.563
ACPA+ (312)	379 (60.7)	245 (39.3)	113 (36.2)	153 (49.0)	46 (14.7)	1.145 (0.931-1.410) 0.199	1.170 (0.864-1.583) 0.309	1.249 (0.842-1.853) 0.269
ACPA– (60)	63 (52.5)	57 (47.5)	17 (28.3)	29 (48.3)	14 (23.3)	0.818 (0.559-1.199) 0.303	0.815 (0.449-1.476) 0.499	0.710 (0.372-1.352) 0.297
Female CON (415)	482 (58.1)	348 (41.9)	140 (33.7)	202 (48.7)	73(17.6)			
Female RA (411)	477 (58.0)	345 (42.0)	136 (33.1)	205(49.9)	70 (17.0)	0.998 (0.821-1.214) 0.986	0.971 (0.727-1.297) 0.844	1.040 (0.725-1.491) 0.832
Female RF+ (286)	340 (59.4)	232 (40.6)	98(34.3)	144 (50.3)	44 (15.4)	1.058 (0.852-1.314) 0.609	1.024 (0.745-1.407) 0.884	1.174 (0.780-1.767) 0.442

Female RF– (86)	100 (58.1)	72 (41.9)	30 (34.9)	40 (46.5)	16 (18.6)	1.003 (0.719-1.399) 0.987	1.052 (0.646-1.714) 0.838	0.934 (0.513-1.700) 0.823
Female ACPA+ (252)	302 (59.9)	202 (40.1)	86 (34.1)	130 (51.6)	36 (14.3)	1.079 (0.862-1.352) 0.506	1.018 (0.731-1.416) 0.917	1.281 (0.830-1.977) 0.264
Female ACPA– (47)	53 (56.4)	34 (43.6)	15 (31.9)	23 (48.9)	9(19.1)	1.125 (0.716-1.769) 0.608	0.921 (0.483-1.757) 0.802	0.901 (0.418-1.945) 0.791
Male CON (41)	42 (51.2)	40 (48.8)	9(22.0)	24(58.5)	8 (19.5)			
Male RA (51)	52 (51.0)	50 (49.0)	12 (23.5)	28 (54.9)	11 (21.6)	0.990 (0.554-1.772) 0.974	1.094 (0.410-2.923) 0.858	0.882 (0.318-2.446) 0.809
Male RF+ (36)	39 (54.2)	33 (45.8)	9 (25.0)	21 (58.3)	6 (16.7)	1.126 (0.597-2.123) 0.715	1.185 (0.412-3.409) 0.753	1.212 (0.377-3.899) 0.747
Male RF– (13)	11 (42.3)	15 (57.7)	2 (15.4)	7(53.8)	4 (30.8)	0.698 (0.287-1.701) 0.428	0.646 (0.121-3.463) 0.610	0.545 (0.133-2.231) 0.399
Male ACPA+ (25)	27 (54.0)	23 (46.0)	8(32.0)	11(44.0)	6 (24.0)	1.118 (0.553-2.262) 0.756	1.673 (0.546-5.125) 0.367	0.768 (0.231-2.548) 0.666
Male ACPA– (9)	6 (33.3)	12 (66.7)	0 (0)	6 (66.7)	3 (33.3)	0.476 (0.163-1.390) 0.169	0.000 (0.000-) 0.999	0.485 (0.099-2.370) 0.371

*P<0.05 *vs* controls; RA, rheumatoid arthritis; CON, healthy controls; RF, rheumatoid factor; ACPA, anti-citrullinated proteins antibodies; OR, Odds ratio; CI, confidence interval.

Supplementary Table 3. Association analysis of rs10975514 with RA in the replication population

Characteristic (n)	Allele frequency(%)		Genotype frequency(%)			A vs. G	AA vs. AG+GG	AA+AG vs. GG
	A	G	AA	AG	GG	OR(95%CI) P-value	OR(95%CI) P-value	OR(95%CI) P-value
CON (701)	830 (59.2)	572 (40.8)	266(37.9)	298(42.5)	137 (19.5)			
RA (666)	804 (60.4)	528 (39.6)	248(37.2)	308(46.2)	110(16.5)	1.049 (0.901-1.223) 0.537	0.970 (0.779-1.208) 0.787	1.228 (0.931-1.620) 0.146
RF+ (327)	393 (60.1)	261 (39.9)	123 (37.6)	147 (45.0)	57 (17.4)	1.038 (0.859-1.254) 0.702	0.986 (0.752-1.293) 0.919	1.151 (0.818-1. 619) 0.420
RF– (61)	72 (59.0)	50 (41.0)	20 (32.8)	32 (52.5)	9 (14.8)	0.992 (0.681-1. 446) 0.968	0.798 (0.458-1.391) 0.426	1.403 (0.675-2.918) 0.364
ACPA+ (221)	269 (60.9)	173 (39.1)	82 (37.1)	105 (47.5)	34 (15.4)	1.072 (0.861-1.334) 0.536	0.965 (0.706-1.319) 0.822	1.336 (0.886-2.014) 0.166
ACPA– (41)	48 (58.5)	34 (41.5)	15 (36.6)	18 (43.9)	8 (19.5)	0.973 (0.619-1.529) 0.905	0.943 (0.491-1.814) 0.861	1.002 (0.453-2.218) 0.996
Female CON (507)	614 (60.6)	400 (39.4)	203 (40.0)	208 (41.0)	96(18.9)			
Female RA (461)	541 (58.7)	381 (41.3)	162 (35.1)	217(47.1)	82 (17.8)	0.925 (0.771-1.109) 0.401	0.811 (0.625-1.053) 0.116	1.080 (0.779-1.496) 0.645
Female RF+ (263)	311 (59.1)	215 (40.9)	95(36.1)	121(46.0)	47 (17.9)	0.942 (0.760-1.168) 0.588	0.847 (0.622-1.152) 0.290	1.073 (0.730-1.579) 0.719
Female RF– (52)	61 (58.7)	43 (41.3)	17 (32.7)	27 (51.9)	8 (15.4)	0.924 (0.613-1.393) 0.706	0.727 (0.397-1.333) 0.303	1.285 (0.586-2.818) 0.532
Female ACPA+	205	147	58 (33.0)	89 (50.6)	29 (16.5)	0.909	0.736	1.184

(176)	(58.2)	(41.8)				(0.710-1.162) 0.445	(0.513-1.056) 0.096	(0.750-1.868) 0.468
Female ACPA– (35)	42 (60.0)	28 (40.0)	13 (37.1)	16 (45.7)	6(17.1)	0.977 (0.596-1.602) 0.927	0.885 (0.436-1.797) 0.735	1.129 (0.456-2.795) 0.793
Male CON (120)	136 (56.7)	104 (43.3)	42(35.0)	52(43.3)	26 (21.7)			
Male RA (96)	127 (66.1)	65 (33.9)	45 (46.9)	37 (38.5)	14 (14.6)	1.494 (1.008-2.214) 0.045	1.639 (0.946-2.837) 0.078	1.620 (0.793-3.309) 0.185
Male RF+ (54)	73 (67.6)	35 (32.4)	27 (50.0)	19 (35.2)	8 (14.8)	1.595 (0.990-2.570) 0.054	1.857 (0.967-3.565) 0.063	1.590 (0.668-3.786) 0.294
Male RF– (9)	11 (61.1)	7 (38.9)	3 (33.3)	5(55.6)	1 (11.1)	1.202 (0.450-3.206) 0.713	0.929 (0.221-3.903) 0.919	2.213 (0.265-18.504) 0.464
Male ACPA+ (44)	64 (72.7)	24 (27.3)	24(54.5)	16(36.4)	4 (9.1)	2.039 (1.195-3.479) 0.008	2.229 (1.104-4.497) 0.025	2.766 (0.906-8.442) 0.074
Male ACPA– (6)	6 (50.0)	6 (50.0)	2 (33.3)	2 (33.3)	2 (33.3)	0.765 (0.240-2.439) 0.650	0.929 (0.163-5.282) 0.933	0.553 (0.096-3.190) 0.508

*P<0.05 *vs* controls; RA, rheumatoid arthritis; CON, healthy controls; RF, rheumatoid factor; ACPA, anti-citrullinated proteins antibodies; OR, Odds ratio; CI, confidence interval.