Article title: Prostate cancer risk prediction using a polygenic risk score

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Supplementary table 1. Association of age and PSA at diagnosis, Gleason score and stage of prostate cancer with quartile of polygenic risk score

Quartile of polygenic risk	**Late onset (>55 years, n=2632 (%))**	**Early onset (≤55 years, n=106 (%))**	**χ2 (P value)**
Q1	349 (13)	9 (9)	3.15 (0.369)
Q2	492 (19)	20 (19)	
Q3	754 (29)	28 (26)	
Q4	1037 (39)	49 (46)	
	Low PSA at diagnosis (≤20 ng/mL, n=2099 (%))	**High PSA at diagnosis (>20 ng/mL, n=484 (%))**	3.58 (0.311)
Q1	284 (13)	52 (11)	
Q2	396 (19)	93 (19)	
Q3	604 (29)	135 (28)	
Q4	815 (39)	204 (42)	
	Non-aggressive (Gleason score ≤6, n=1320 (%))	**Aggressive (Gleason score ≥8, n=368 (%))**	5.37 (0.147)
Q1	168 (13)	64 (17)	
Q2	255 (19)	69 (19)	
Q3	377 (29)	97 (26)	
Q4	520 (39)	138 (38)	
	Localized stage[1] (n=1879 (%))	**Advanced stage[2] (n=602 (%))**	1.41 (0.703)
Q1	251 (13)	78 (13)	
Q2	356 (19)	106 (18)	
Q3	544 (29)	169 (28)	
Q4	728 (39)	249 (41)	

p value based on χ2 test

[1]localized disease is defined as T1-T2, not N1, not M1

[2]advanced disease stage is defined as T3-4, N1, M1

Supplementary table 2. Prostate cancer susceptibility loci (n=55) included in deriving polygenic risk score

Marker	Locus	Alleles[a]	EAF[b]	OR[c] (95% CI)	P_{adj}value[d]
rs16902147	8q24.21	GA	0.07	1.86 (1.56-2.23)	3.525E-8
rs79012498	8q24.21	GA	0.08	1.81 (1.53-2.15)	4.26E-8
rs7832031	8q24.21	AG	0.22	1.49 (1.35-1.65)	3.003E-11
rs2121630	8q24.21	AC	0.16	1.49 (1.33-1.67)	5.691E-8
rs10808558	8q24.21	AG	0.23	1.48 (1.34-1.63)	3.003E-11
rs4314621	8q24.21	GA	0.23	1.48 (1.34-1.63)	3.98E-11
rs7812894	8q24.21	TA	0.23	1.48 (1.34-1.63)	3.694E-11
rs13255059	8q24.21	AG	0.22	1.47 (1.34-1.63)	1.237E-10
rs9297759	8q24.21	AC	0.22	1.46 (1.32-1.61)	4.787E-10
rs11995378	8q24.21	AG	0.22	1.45 (1.32-1.60)	5.568E-10
rs7824868	8q24.21	AG	0.22	1.45 (1.32-1.60)	5.568E-10
rs4242382	8q24.21	AG	0.22	1.45 (1.31-1.60)	1.081E-9
rs4515512	8q24.21	AG	0.22	1.45 (1.31-1.60)	1.081E-9
rs7812429	8q24.21	AG	0.22	1.45 (1.31-1.60)	8.909E-10
rs7814837	8q24.21	AC	0.22	1.45 (1.31-1.60)	9.198E-10
rs10109700	8q24.21	AG	0.23	1.42 (1.29-1.56)	9.646E-9
rs4871801	8q24.21	AG	0.23	1.42 (1.29-1.56)	9.646E-9
rs4871802	8q24.21	CA	0.23	1.42 (1.29-1.56)	9.646E-9
rs6470519	8q24.21	AC	0.23	1.42 (1.29-1.56)	9.646E-9
rs7818556	8q24.21	GA	0.23	1.42 (1.29-1.56)	9.646E-9
rs1447295	8q24.21	AC	0.23	1.41 (1.28-1.55)	2.015E-8
rs4871813	8q24.21	AC	0.22	1.41 (1.28-1.55)	2.332E-8
rs6470529	8q24.21	CG	0.22	1.41 (1.28-1.55)	2.332E-8
rs9643226	8q24.21	GC	0.23	1.41 (1.28-1.55)	1.891E-8
rs1447296	8q24.21	AG	0.23	1.40 (1.27-1.55)	2.603E-8
rs1160267	8p21.2	GA	0.53	1.38 (1.28-1.50)	3.003E-11
rs1512268	8p21.2	AG	0.53	1.38 (1.28-1.50)	3.003E-11
rs995432	8p21.2	GA	0.53	1.38 (1.28-1.50)	3.003E-11
rs13256300	8p21.2	AG	0.51	1.37 (1.27-1.48)	3.003E-11
rs13256366	8p21.2	AG	0.51	1.37 (1.27-1.48)	3.003E-11
rs1398238	8p21.2	CG	0.51	1.37 (1.27-1.48)	3.003E-11
rs1398239	8p21.2	CA	0.51	1.37 (1.27-1.48)	3.003E-11
rs1398240	8p21.2	CA	0.51	1.37 (1.27-1.48)	3.003E-11
rs1512271	8p21.2	AT	0.51	1.37 (1.27-1.48)	3.003E-11
rs2315144	8p21.2	CG	0.51	1.37 (1.27-1.48)	3.003E-11
rs4872171	8p21.2	AG	0.51	1.37 (1.27-1.48)	3.003E-11
rs4872172	8p21.2	AC	0.51	1.37 (1.27-1.48)	3.003E-11
rs4872175	8p21.2	AG	0.53	1.37 (1.27-1.48)	3.003E-11
rs7830220	8p21.2	GA	0.51	1.37 (1.27-1.48)	3.172E-11
rs13265330	8p21.2	GA	0.53	1.37 (1.26-1.48)	4.39E-11
rs7013278	8q24.21	AG	0.38	1.32 (1.21-1.43)	9.387E-8
rs2005705	17q12	AG	0.31	0.76 (0.70-0.82)	8.503E-8
rs10505477	8q24.21	GA	0.46	0.74 (0.69-0.80)	4.785E-10
rs12682374	8q24.21	CG	0.45	0.74 (0.69-0.80)	5.568E-10
rs10486567	7p15.2	AG	0.23	0.74 (0.68-0.81)	6.43E-8
rs67152137	7p15.2	GC	0.23	0.74 (0.68-0.81)	6.43E-8
rs7808935	7p15.2	GA	0.23	0.74 (0.68- 0.81)	6.43E-8
rs6983267	8q24.21	AC	0.43	0.73 (0.68-0.79)	3.172E-11
rs1058205	19p13.33	GA	0.12	0.67 (0.60-0.75)	3.691E-9
rs2569735	19p13.33	AG	0.11	0.67 (0.60-0.75)	2.668E-8
rs2735839	19p13.33	AG	0.11	0.67 (0.60-0.75)	2.668E-8
rs174776	19p13.33	AG	0.07	0.63 (0.55-0.71)	2.307E-8
rs266878	19p13.33	CG	0.07	0.62 (0.54-0.71)	2.332E-8
rs17632542	19p13.33	GA	0.06	0.59 (0.51-0.68)	3.015E-9
rs62113212	19p13.33	AG	0.06	0.59 (0.51-0.68)	2.846E-9

[a]Effect allele/Other allele; [b]Effect allele frequency in cases; [c]Per-allele odds ratio for the effect allele
[d]Adjusted for false discovery rate (FDR) using Benjamini-Hochberg method;