

Supplementary Table 1 Association between GATA2 staining results and prostate cancer phenotype in ERG-fusion negative cancers

Parameter	GATA2					p value
	n evaluable	negative (%)	weak (%)	moderate (%)	strong (%)	
All cancers	4,768	7.6	18.5	44.7	29.2	
Tumor stage						
pT2	3,144	8.3	20.3	45.8	25.5	<0.0001
pT3a	987	7.3	18.5	40.9	33.2	
pT3b-pT4	621	4.2	9	44.6	42.2	
Classical Gleason grade						
≤3+3	898	11.7	27.2	40.3	20.8	<0.0001
3+4	2,545	7.9	18.7	44.8	28.6	
3+4 Tert.5	211	6.2	16.1	47.4	30.3	
4+3	536	4.7	12.5	48.1	34.7	
4+3 Tert.5	295	2.0	11.9	46.4	39.7	
≥4+4	280	3.6	9.6	47.5	39.3	
Quantitative Gleason grade						
≤3+3	898	11.7	27.2	40.3	20.8	<0.0001
3+4 ≤5%	697	9.0	20.5	41.9	28.6	
3+4 6-10%	645	8.2	20.3	47.0	24.5	
3+4 11-20%	567	8.8	16.2	44.6	30.3	
3+4 21-30%	293	6.5	17.1	45.4	31.1	
3+4 31-49%	251	5.2	18.3	47.0	29.5	
3+4 Tert.5	211	6.2	16.1	47.4	30.3	
4+3 50-60%	223	5.8	14.8	48.4	30.9	
4+3 Tert.5	295	2.0	11.9	46.4	39.7	
4+3 61-100%	257	3.9	10.9	47.5	37.7	
≥4+4	248	3.2	9.7	49.2	37.9	
Lymph node metastasis						
N0	2,809	6.7	16.3	45.7	31.3	0.0004
N+	281	3.9	12.1	40.9	43.1	
Preop. PSA level (ng/ml)						
<4	502	6	13.7	46.6	33.7	0.0446
4-10	2,806	7.7	18.8	44.7	28.8	
10-20	1,046	7.6	20.2	44.6	27.6	
>20	374	8.8	16.8	42.8	31.6	
Surgical margin						
negative	3,799	7.7	18.9	45.2	28.2	0.0444
positive	883	7.1	17.1	42.7	33.1	

Supplementary Table 2 Association between GATA2 staining results

and prostate cancer phenotype in ERG-fusion positive cancers

Parameter	GATA2					p value
	n evaluable	negative (%)	weak (%)	moderate (%)	strong (%)	
All cancers	3,854	0.5	3.7	42.7	53	
Tumor stage						
pT2	2,284	0.3	4.6	43.6	51.6	0.0016
pT3a	1,023	0.7	2.6	41.4	55.2	
pT3b-pT4	531	1.1	2.3	41.2	55.4	
Classical Gleason grade						
≤3+3	748	0.4	4.9	48.5	46.1	0.0006
3+4	2,215	0.4	4.0	42.2	53.5	
3+4 Tert.5	120	0.0	3.3	41.7	55.0	
4+3	383	1.0	2.3	41.3	55.4	
4+3 Tert.5	226	0.9	0.9	35.8	62.4	
≥4+4	160	0.6	2.5	37.5	59.4	
Quantitative Gleason grade						
≤3+3	748	0.4	4.9	48.5	46.1	0.0051
3+4 ≤5%	563	0.9	4.8	42.1	52.2	
3+4 6-10%	587	0.5	3.4	42.9	53.2	
3+4 11-20%	465	0.2	3.0	38.9	57.8	
3+4 21-30%	274	0.0	5.5	40.1	54.4	
3+4 31-49%	206	0.0	3.4	46.6	50.0	
3+4 Tert.5	120	0.0	3.3	41.7	55.0	
4+3 50-60%	169	0.6	2.4	40.8	56.2	
4+3 Tert.5	226	0.9	0.9	35.8	62.4	
4+3 61-100%	172	1.2	2.3	39.5	57.0	
≥4+4	135	0.7	2.2	40.7	56.3	
Lymph node metastasis						
N0	2,232	0.4	2.6	41.6	55.5	0.0659
N+	258	1.9	2.7	40.7	54.7	
Preop. PSA level (ng/ml)						
<4	535	0	3.2	43.6	53.3	0.0089
4-10	2,322	0.4	4.2	41.6	53.8	
10-20	711	0.8	3.1	43	53	
>20	242	1.7	2.1	50	46.3	
Surgical margin						
negative	3,017	0.4	3.9	43.1	52.6	0.301
positive	766	0.9	3.3	42.3	53.5	

Supplementary Table 3 Association between GATA2 staining results and tumor cell proliferation measured by Ki67LI in ERG-fusion negative cancers

		GATA2	n	Ki67LI av	p-value
ERG negative cancers		negative	255	0.62+0.16	<0.0001
		weak	634	1.74+0.11	
		moderate	1,400	2.88+0.07	
		strong	800	3.62+0.09	
Gleason grade subgroups	≤3+3	negative	78	0.65+0.22	<0.0001
		weak	181	1.65+0.14	
		moderate	236	2.12+0.12	
		strong	103	2.82+0.19	
	3+4	negative	139	0.59+0.19	<0.0001
		weak	333	1.67+0.12	
		moderate	751	2.67+0.08	
		strong	428	3.16+0.11	
	3+4 Tert.5	negative	10	0.80+0.79	0.0006
		weak	30	2.13+0.46	
		moderate	74	3.46+0.29	
		strong	41	3.88+0.39	
	4+3	negative	15	0.67+0.86	<0.0001
		weak	49	1.83+0.47	
		moderate	166	3.36+0.26	
		strong	114	4.26+0.31	
	4+3 Tert.5	negative	5	1.00+1.73	0.0007
		weak	22	1.32+0.83	
		moderate	89	4.00+0.41	
		strong	57	5.07+0.51	
	≥4+4	negative	8	0.25+1.46	0.0043
		weak	19	3.42+0.95	
		moderate	82	4.33+0.45	
		strong	57	5.58+0.55	

Supplementary Table 4 Association between GATA2 staining results and tumor cell proliferation measured by Ki67LI in ERG-fusion positive cancers

		GATA2	n	Ki67LI av	p-value
ERG positive cancers		negative	12	1.58+0.75	<0.0001
		weak	106	2.16+0.25	
		moderate	1,149	2.73+0.07	
		strong	1,347	3.24+0.07	
Gleason grade subgroups	≤3+3	negative	2	0.50+1.35	0.0025
		weak	26	1.53+0.38	
		moderate	277	2.25+0.11	
		strong	255	2.68+0.12	
	3+4	negative	7	1.85+0.89	0.0004
		weak	66	2.10+0.29	
		moderate	658	2.77+0.09	
		strong	810	3.13+0.08	
	3+4 Tert.5	negative	-	-	0.9835
		weak	4	3.25+1.25	
		moderate	33	3.45+0.44	
		strong	45	3.38+0.37	
	4+3	negative	3	1.67+1.57	0.0529
		weak	8	3.50+0.96	
		moderate	99	2.72+0.27	
		strong	117	3.69+0.25	
	4+3 Tert.5	negative	-	-	0.5183
		weak	1	7.00+3.36	
		moderate	46	4.02+0.49	
		strong	73	3.61+0.39	
	≥4+4	negative	-	-	0.0791
		weak	1	2.00+5.88	
		moderate	35	3.43+0.99	
		strong	46	6.37+0.87	

Supplementary Table 5 Hazard ratios for PSA-recurrence after prostatectomy of established pre- and postoperative prognostic parameters and GATA2 expression in all cancers, the ERG negative and positive subset

Tumor subset	Preoperative scenario			Postoperative scenario		
	All	ERG negative	ERG positive	All	ERG negative	ERG positive
Analyzable (N)	8,662	4,262	3,386	5,730	2,854	2,290
Gleason grade biopsy						
3+4 vs. ≤3+3	1.86 ***	1.64 ***	2.07 ***			
4+3 vs. 3+4	1.67 ***	1.65 ***	1.66 ***			
≥4+4 vs. 4+3	1.33 ***	1.28 *	1.50 **			
cT-stage						
T2c vs. T1c	2.26 ***	2.48 ***	1.34 *			
T3a vs. T2c	0.73	0.63	0.85			
Preoperative PSA- level						
4-10 vs. <4	1.30 **	1.06	1.56 **			
10-20 vs. 4-10	1.52 ***	1.52 ***	1.41 ***			
>20 vs. 10-20	1.63 ***	1.58 ***	1.63 ***			
GATA2- expression						
High vs. low	1.33 ***	1.48 ***	1.21	1.13	1.26 *	1.26
Gleason- grade prostatectomy						
3+4 vs. ≤3+3				2.14 ***	1.66 **	2.80 ***
4+3 vs. 3+4				2.26 ***	2.16 ***	2.33 ***
≥4+4 vs. 4+3				1.08	1.03	1.28 *
pT- stage						
T3a vs. T2				1.91 ***	1.82 ***	2.08 ***
T3b-T4 vs. T3a				1.59 ***	1.47 ***	1.72 ***
R- stage						
R1 vs. R0				1.30 ***	1.20 *	1.36 **
N- stage						
N1 vs. N0				1.46 ***	1.51 ***	1.29 *

The preoperative scenario combines preoperatively available parameter (preoperative Gleason grade obtained on the original biopsy, clinical tumor (cT) stage, and preoperative PSA) with the postoperative GATA2 expression. The postoperative scenario includes all the postoperative parameters (postoperative GATA2 expression, Gleason grade obtained on radical prostatectomy (RPE), pathological tumor (pT) stage, surgical margin (R) status and the lymph node (pN) stage). ERG, ETS-related gene expression. Asterisk indicate significance level: * $p \leq 0.05$, ** $p \leq 0.001$, and *** $p \leq 0.0001$.