Supplemental Data

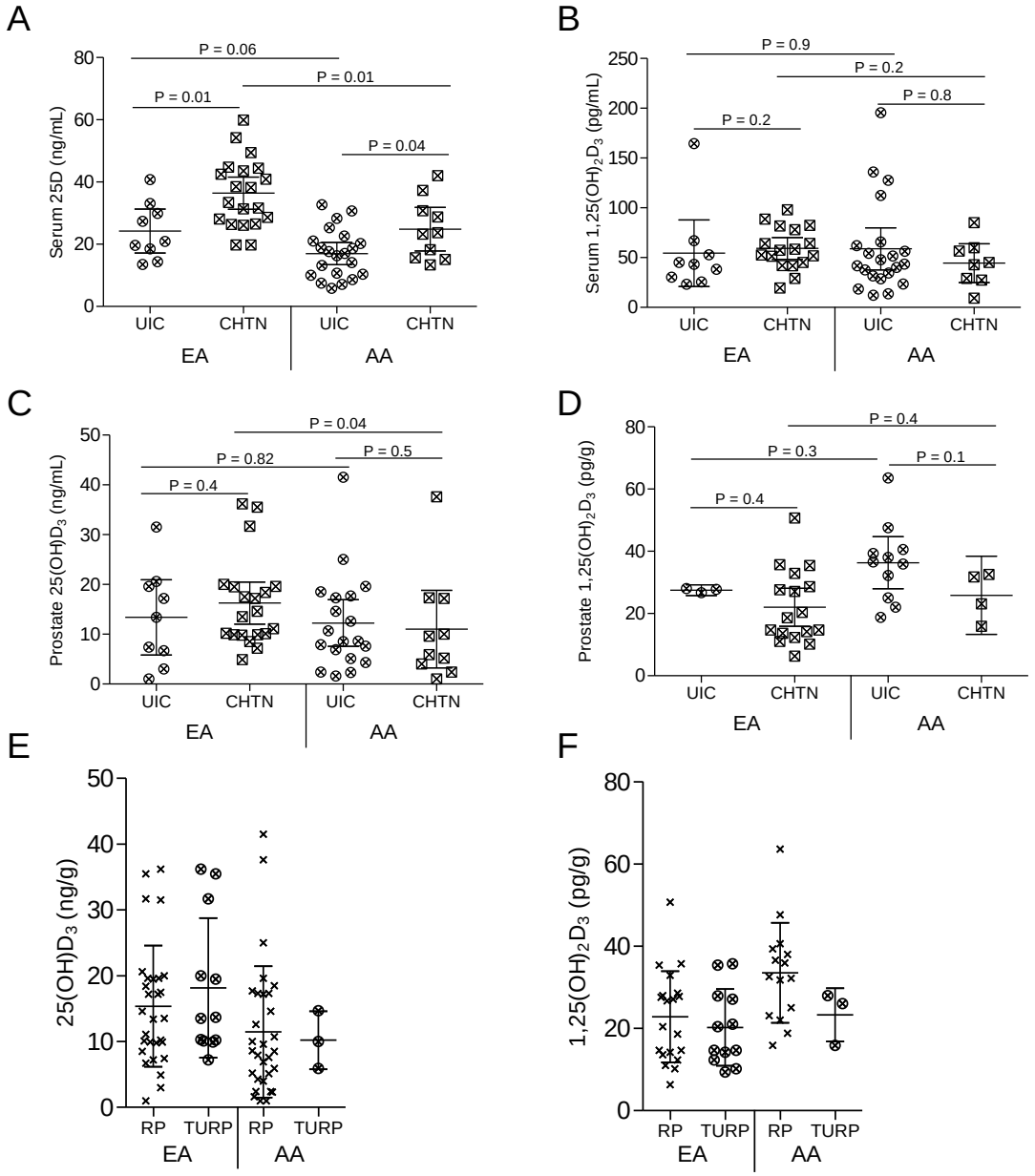

Figure S1. Quality control analyses for the vitamin D metabolite measurement. Comparison of vitamin D metabolite levels in serum and prostate by collection site **A-D.** Serum and prostate levels of 25(OH)D and 1,25$(OH)_2$D were measured by uHPLC-MS-MS in serum and prostate tissue specimens collected at the University of Illinois at Chicago (UIC) or the Cooperative Human Tissue Network (CHTN) Western Division in Nashville, TN. **A,** Serum 25(OH)D by collection site in African Americans (AA) and European Americans (EA\). **B,** Serum 1,25$(OH)_2$D, **C,** prostate tissue 25(OH)D and **D,** 1,25$(OH)_2$D did not differ by site of collection. **E-F**, comparison between radical prostatectomy (RP) and transurethral resection of the prostate (TURP) specimens. Comparison of RP and TURP 25(OH)D, **E**, and 1,25$(OH)_2$D, **F**, in EAs and AAs. All comparisons made by two sided Wilcoxon signed-rank test.

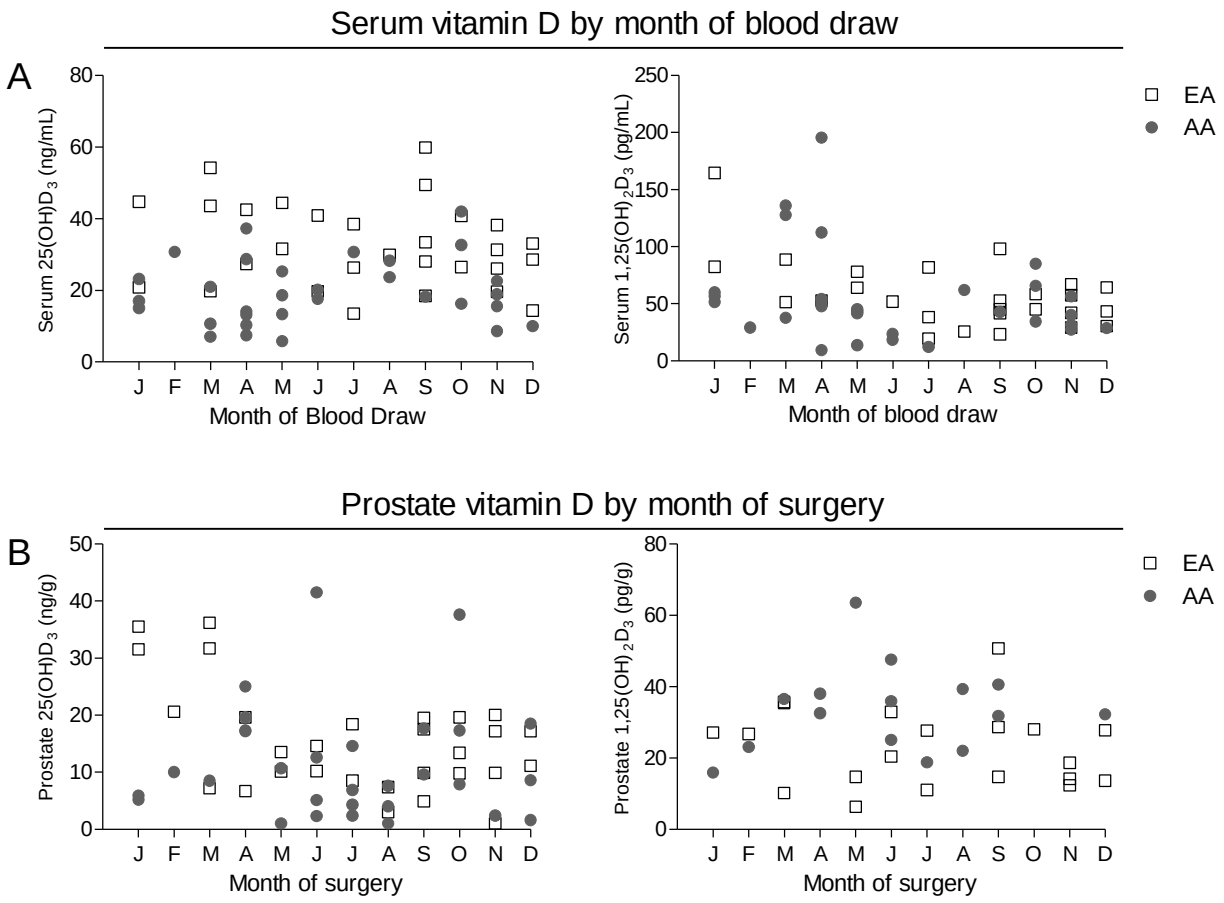

Figure S2. Serum and prostate vitamin D status stratified according to month of blood draw and surgery. Comparison of vitamin D metabolite levels between European American (EA) and African American (AA) populations in serum and prostate by collection month**. A,** Serum 25(OH)D and 1,25$(OH)_2$D, by collection month in AAs and EAs.**B,** prostate tissue 25(OH)D and 1,25$(OH)_2$D by collection month.

Table S1. SNP associations with vitamin D binding protein, vitamin D metabolite levels, and vitamin D pathway gene expression with p<0.05

Phenotype	SNP	Chromosome	Position (BP)	Gene	MA	MAF	n	Beta	P	p-value cuttoff	Number of SNPs
European Americans											
Serum 25D	None										
Serum 1,25D	rs1155563	4	72643488	*GC*	C	0.225	20	-0.152	0.01	0.001612903	31
	rs10877012	**12**	**58162085**	***CYP27B1***	**T**	**0.342**	**19**	**0.142**	**0.03**	**0.025**	**2 (CYP27B1)**
Serum 1,25D/25D Ratio	**rs10877012**	**12**	**58162085**	***CYP27B1***	**T**	**0.342**	**19**	**0.135**	**0.03**	**0.025**	**2 (CYP27B1)**
	rs2060793	11	14915310	*CYP2R1*	A	0.417	18	-0.133	0.04	0.001612903	31
Prostatic 25D	**rs3794060**	**11**	**71187679**	***DHCR7/NADSYN1***	**C**	**0.474**	**19**	**0.238**	**0.02**	**0.001612903**	**31**
Prostatic 1,25D	**rs11234027**	**11**	**71234107**	***DHCR7/NADSYN1***	**A**	**0.115**	**13**	**0.241**	**0.009**	**0.001724138**	**29**
	rs2740574	7	99382096	*CYP3A4*	G	0.083	12	0.146	0.07	0.001724138	29
Prostatic 1,25D/25D Ratio	None										
VDBD	rs1544410 (*Bsm*I)	12	48239835	*VDR*	A	0.324	17	-0.044	0.04	0.001612903	31
	rs10741657	11	14914878	*CYP2R1*	A	0.412	17	0.050	0.04	0.001612903	31
VDR	None	12	58157281								
CYP24A1	None	4	72605517								
CYP27A1	**rs2282679**	**4**	**72608383**	***GC***	**C**	**0.313**	**8**	**-1.096**	**0.003**	**0.001666667**	**30**
CYP27B1	None	12	48239835								
DHCR7	None	12	48239835								
CYP2R1	**rs731236 (*Taq*I)**	**12**	**48238757**	***VDR***	**C**	**0.313**	**8**	**0.236**	**0.03**	**0.01**	**5 (VDR); trans eQTL**
African Americans											37
Serum 25D	rs731236 (*Taq*I)	12	48238757	*VDR*	C	0.261	23	-0.194	0.009	0.001351351	37
Serum 1,25D	rs115316390	4	72651159	*GC*	A	0.022	23	-0.652	0.03	0.001351351	37
	rs1993116	11	14910234	*CYP2R1*	T	0.261	23	0.255	0.04	0.001351351	37
Serum 1,25D/25D Ratio	rs115316390	4	72651159	*GC*	A	0.022	23	-1.051	0.03	0.001351351	37
Prostatic 25D	**rs12800438**	**11**	**71171003**	***DHCR7/NADSYN1***	**A**	**0.476**	**21**	**-0.291**	**0.007**	**0.001351351**	**37**
Prostatic 1,25D	None	11	14913575								
Prostatic 1,25D/25D Ratio	**rs12800438**	**11**	**71171003**	***DHCR7/NADSYN1***	**A**	**0.417**	**12**	**0.283**	**0.03**	**0.001612903**	**31**
VDBP	**rs7041**	**4**	**72618334**	***GC***	**G**	**0.3**	**15**	**-0.068**	**0.006**	**0.00625**	**8 (GC); for DBP level association**
	rs12794714	11	14913575	*CYP2R1*	A	0.156	16	-0.063	0.04	0.00625	8 (GC); for DBP level association
VDR	**rs6022990**	**20**	**52775532**	***CYP24A1***	**G**	**0.1**	**10**	**0.587**	**0.005**	**0.001724138**	**29; trans eQTL**
	rs3829251	11	71194559	*DHCR7/NADSYN1*	A	0.3	10	0.679	0.02	0.001724138	29; trans eQTL
	rs17467825	4	72605517	*GC*	G	0.05	10	0.648	0.03	0.001724138	29; trans eQTL
	rs2282679	4	72608383	*GC*	C	0.05	10	0.648	0.03	0.001724138	29; trans eQTL
	rs2298850	4	72614267	*GC*	G	0.05	10	0.648	0.03	0.001724138	29; trans eQTL
CYP24A1	rs1993116	11	14910234	*CYP2R1*	T	0.3	10	-2.728	0.03		
	rs12800438	11	71171003	*DHCR7/NADSYN1*	A	0.45	10	-2.267	0.048		
CYP27A1	**rs731236 (*Taq*I)**	**12**	**48238757**	***VDR***	**C**	**0.4**	**10**	**0.221**	**0.011**	**0.01**	**5 (VDR); trans eQTL**
CYP27B1	**rs4646537**	**12**	**58157281**	***CYP27B1***	**C**	**0.2**	**10**	**0.359**	**0.027**	**0.025**	**2 (CYP27B1); cis eQTL**
DHCR7	**rs3829251**	**11**	**71194559**	***DHCR7/NADSYN1***	**A**	**0.3**	**10**	**-1.678**	**0.002**	**0.00625**	**8 (DHCR7/NADSYN1) cis eQTL**
CYP2R1	rs4646537	12	58157281	*CYP27B1*	C	0.2	10	-0.971	0.03		
	rs7041	4	72618334	*GC*	G	0.25	10	0.6987	0.04		

Bold: data also reported in table 2