

Supplemental Material.

Lieberman-Cribbin et al. 2024. An epigenome-wide study of selenium status and DNA methylation in the Strong Heart Study

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Table S1. Top 200 differentially methylated positions for urinary selenium.

CpG	β value	95% CI Lower Limit	95% CI Upper Limit	P-Value	FDR P-Value	Chromosome	Position	UCSC Gene Name	UCSC Gene Group
cg00163554	0.388327177	0.258423081	0.518231273	5.68E-09	0.00448116	10	375799	DIP2C	Body
cg18212762	0.078606705	0.048466616	0.108746794	3.57E-07	0.07718274	11	64556654	MAP4K2	3'UTR
cg25194720	- 0.072004812	- 0.099634163	- 0.044375462	3.64E-07	0.07718274	11	128712417	KCNJ1; KCNJ1; KCNJ1; KCNJ1; KCNJ1	5'UTR;5'UTR;5'UTR;TS S200;5'UTR
cg11270656	0.075032896	0.04599852	0.104067272	4.55E-07	0.07718274	8	144295139	GPIHBP1;GPIHBP1	5'UTR;1stExon
cg00886293	- 0.063091566	- 0.087574295	- 0.038608836	4.90E-07	0.07718274	20	49956410		
cg03984344	- 0.079399449	- 0.11105117	- 0.047747729	9.68E-07	0.104810751	4	126232432		
cg26256630	0.096184448	0.057511779	0.134857117	1.19E-06	0.104810751	6	30070738	TRIM31	3'UTR
cg25775493	- 0.075638094	- 0.106254627	- 0.045021561	1.40E-06	0.104810751	12	51380625	SLC11A2;SLC11A2;SLC11A2;SLC11A2;SLC11A2;SLC11A2;SLC11A2;SLC11A2;SLC11A2	Body;Body;Body;3'UTR;3'UTR;3'UTR;3'UTR;Body
cg19541202	0.052330854	0.031012784	0.073648924	1.64E-06	0.104810751	3	72391048		
cg09458656	0.047684522	0.028194271	0.067174773	1.77E-06	0.104810751	16	15758832	NDE1;NDE1	Body;Body
cg09561365	0.062002043	0.036640764	0.087363323	1.80E-06	0.104810751	22	45676755		
cg08801971	- 0.129780743	- 0.182889187	- 0.0766723	1.82E-06	0.104810751	2	148531301		
cg24978361	- 0.069360991	- 0.09778248	- 0.040939503	1.88E-06	0.104810751	10	80547158		
cg25560831	- 0.064541429	- 0.091151494	- 0.037931364	2.17E-06	0.104810751	4	152666626	PET112L	Body
cg19305227	- 0.087081807	- 0.123023181	- 0.051140433	2.22E-06	0.104810751	15	45544335	SLC28A2	TSS200

cg24265997	- 0.088810808	- 0.125610457	- 0.05201116	2.43E-06	0.104810751	19	12400435	ZNF44; ZNF44	Body;Body
cg18434348	- 0.075967128	- 0.107468589	- 0.044465667	2.47E-06	0.104810751	6	1720088	GMDS	Body
cg12669037	0.083387056	0.048750991	0.118023121	2.57E-06	0.104810751	7	2346455	SNX8	Body
cg26635824	0.036889451	0.021510302	0.052268599	2.80E-06	0.104810751	20	61436007	OGFR	TSS200
cg26985354	0.086155438	0.050221455	0.122089421	2.82E-06	0.104810751	19	45567180	SFRS16	Body
cg19065773	0.068789088	0.040080347	0.097497828	2.86E-06	0.104810751	10	98469552	PIK3AP1	Body
cg17463476	0.046659398	0.027151058	0.066167738	2.98E-06	0.104810751	19	5614523	SAFB2	Body
cg18773851	0.088150873	0.05117538	0.125126366	3.21E-06	0.104810751	12	52605271	C12orf80;LINC00592	TSS1500;Body
cg00911593	- 0.075338061	- 0.107065752	- 0.043610371	3.51E-06	0.104810751	5	135238286		
cg15638366	- 0.076035407	- 0.108109926	- 0.043960887	3.64E-06	0.104810751	2	173313454	ITGA6;ITGA6	Body;Body
cg09115423	- 0.103457173	- 0.147142695	- 0.059771651	3.72E-06	0.104810751	7	131243075		
cg12792264	- 0.067976972	- 0.096689207	- 0.039264736	3.75E-06	0.104810751	1	183971636	GLT25D2	Body
cg14643399	- 0.050248019	- 0.071492457	- 0.02900358	3.83E-06	0.104810751	13	44706965		
cg12492496	0.068246923	0.03936478	0.097129066	3.91E-06	0.104810751	19	18271859	PIK3R2	Body
cg14172620	0.075323684	0.04338155	0.107265818	4.09E-06	0.104810751	17	45195667	CDC27; CDC27; CDC27; CDC27	3'UTR;3'UTR;3'UTR;3'UTR
cg13204432	0.140499495	0.080879336	0.200119654	4.15E-06	0.104810751	2	51074939	NRXN1; NRXN1	Body;Body
cg21150446	- 0.055792238	- 0.079521836	- 0.032062639	4.36E-06	0.104810751	14	99945299	SETD3; SETD3	5'UTR;5'UTR
cg12207151	- 0.069185295	- 0.09861825	- 0.039752339	4.39E-06	0.104810751	3	127511640	MGLL; MGLL; MGLL	Body;Body;Body
cg25841237	0.034674665	0.019866896	0.049482434	4.77E-06	0.108119862	17	9631542	USP43	Body
cg00644416	0.070606818	0.040444673	0.100768963	4.80E-06	0.108119862	13	114762257	RASA3	Body

cg08697 247	0.07617 4719	0.04330 2691	0.10904 6747	5.97E- 06	0.12858 2029	1	2645107 6	PDIK1L ;PDIK1 L;PDIK 1L	3'UTR;3 'UTR;3' UTR
cg26561 082	0.14531 6241	0.08257 3364	0.20805 9119	6.03E- 06	0.12858 2029	10	410363	DIP2C	Body
cg01188 466	- 0.07298 8819	- 0.10457 6229	- 0.04140 1408	6.34E- 06	0.13150 5009	8	9358136 4		
cg18609 028	0.06721 4352	0.03805 0404	0.09637 83	6.70E- 06	0.13268 311	1	4065645 3	RLF;RL F	ExonBn d;Body
cg21276 079	- 0.06123 2282	- 0.08789 6574	- 0.03456 799	7.22E- 06	0.13268 311	13	2118631 3	IFT88;I FT88	Body;B ody
cg12656 227	0.05435 9883	0.03067 3455	0.07804 6311	7.32E- 06	0.13268 311	7	1573341 62	PTPRN 2;PTPR N2;PTP RN2	Body;B ody;Bod y
cg05813 162	- 0.06349 614	- 0.09124 474	- 0.03574 754	7.78E- 06	0.13268 311	15	7526858 3		
cg14141 061	0.07311 1144	0.04115 0679	0.10507 1609	7.83E- 06	0.13268 311	11	1198816 16		
cg05826 295	- 0.10436 2489	- 0.14998 6906	- 0.05873 8073	7.83E- 06	0.13268 311	6	1138863 40		
cg18189 063	- 0.07365 6999	- 0.10586 8385	- 0.04144 5612	7.89E- 06	0.13268 311	19	4912291 6	RPL18; SPHK2	TSS150 0;5'UTR
cg02853 850	- 0.06316 0903	- 0.09078 3628	- 0.03553 8178	7.90E- 06	0.13268 311	16	1990051 1		
cg06784 602	- 0.06690 9541	- 0.09619 1482	- 0.03762 76	8.01E- 06	0.13268 311	3	3073427 4	TGFBR 2;TGFB R2	3'UTR;3 'UTR
cg21093 007	- 0.05094 5284	- 0.07325 0116	- 0.02864 0451	8.08E- 06	0.13268 311	14	1000670 91	CCDC8 5C	Body
cg09463 394	- 0.06278 3244	- 0.09034 4389	- 0.03522 2099	8.54E- 06	0.13732 8589	12	1264348 37		
cg13155 799	- 0.06215 2391	- 0.08971 3865	- 0.03459 0917	1.05E- 05	0.16118 6805	18	2276371 2	ZNF521 ;ZNF52 1	Body;B ody
cg09212 987	- 0.05819 7439	- 0.08401 9011	- 0.03237 5868	1.06E- 05	0.16118 6805	8	9792384 6	CPQ	Body
cg10376 710	- 0.05954 5554	- 0.08596 8731	- 0.03312 2378	1.06E- 05	0.16118 6805	16	6700002 3	CES3;C ES3;CE S3	Body;B ody;TSS 1500
cg26092 192	0.07871 601	0.04374 4765	0.11368 7256	1.09E- 05	0.16194 811	17	8075967 8	TBCD	Body
cg12840 178	- 0.06947 1207	- 0.10043 9785	- 0.03850 2628	1.17E- 05	0.16707 4773	15	3939469 9		

cg08158324	- 0.06307 9709	- 0.09119 9676	- 0.03495 9742	1.17E- 05	0.16707 4773	3	1881501 37	LPP;LP P;LPP	Body;B ody;Bod y
cg24974982	0.05068 4742	0.02783 9244	0.07353 0239	1.45E- 05	0.19467 1508	22	4640331 6	LOC730 668	Body
cg03448527	0.05028 1018	0.02758 5452	0.07297 6583	1.49E- 05	0.19467 1508	17	7811387 0	EIF4A3	Body
cg16896134	0.08767 5817	0.04808 5958	0.12726 5676	1.50E- 05	0.19467 1508	19	2130563 5	ZNF714	3'UTR
cg16332047	- 0.12642 5803	- 0.18351 3476	- 0.06933 8131	1.50E- 05	0.19467 1508	4	4535273 6		
cg10236857	0.04194 7845	0.02300 4957	0.06089 0733	1.50E- 05	0.19467 1508	17	7982568 1	ARHGD IA	3'UTR
cg17481109	- 0.07247 021	- 0.10519 8552	- 0.03974 1867	1.51E- 05	0.19467 1508	3	1500328 8	NR2C2; NR2C2	5'UTR;5 'UTR
cg03994248	- 0.05462 0385	- 0.07932 0458	- 0.02992 0313	1.55E- 05	0.19485 1825	8	2717503 8	PTK2B; PTK2B	5'UTR;5 'UTR
cg21042242	- 0.07624 7373	- 0.11074 0253	- 0.04175 4492	1.56E- 05	0.19485 1825	13	5320559 1	HNRNP A1L2;H NRNPA 1L2	5'UTR;5 'UTR
cg14693941	- 0.06099 4283	- 0.08864 7168	- 0.03334 1398	1.62E- 05	0.19842 7463	5	1691283 66	DOCK2	Body
cg17555508	0.08283 9629	0.04521 8246	0.12046 1013	1.68E- 05	0.19842 7463	4	1778853 93		
cg03490073	- 0.05903 9958	- 0.08586 9845	- 0.03221 0071	1.70E- 05	0.19842 7463	3	1768068 12	TBL1X R1	5'UTR
cg19985393	- 0.05720 3081	- 0.08320 9083	- 0.03119 708	1.71E- 05	0.19842 7463	2	1351468 70	MGAT5	Body
cg17632777	- 0.12313 158	- 0.17911 1325	- 0.06715 1834	1.71E- 05	0.19842 7463	17	7340276 7	GRB2;G RB2	TSS150 0;TSS15 00
cg15725890	0.07673 7699	0.04182 6519	0.11164 8879	1.74E- 05	0.19842 7463	15	8036639 5	ZFAND 6;ZFAN D6;ZFA ND6;ZF AND6;Z FAND6; ZFAND 6;ZFAN D6;ZFA ND6;ZF AND6	5'UTR;5 'UTR;5' UTR;5' UTR;5' UTR;5' UTR;5' UTR;5' UTR
cg21470503	0.13236 3838	0.07202 9784	0.19269 7892	1.80E- 05	0.20297 0454	15	2941024 5	APBA2; APBA2	3'UTR;3 'UTR
cg20852364	- 0.06738 7949	- 0.09817 3671	- 0.03660 2227	1.88E- 05	0.20888 2046	3	3030102 4		

cg16632593	- 0.07512 2387	- 0.10952 1624	- 0.04072 315	1.97E-05	0.21533 088	12	5744475 2	MYO1A; MYO1A	TSS150; TSS1500
cg00842161	- 0.05341 1137	- 0.07790 023	- 0.02892 2044	2.02E-05	0.21765 6753	14	2186038 4	CHD8; CHD8; SNORD9	Body; Body; Body
cg09052261	0.04882 334	0.02640 4728	0.07124 1951	2.07E-05	0.22008 5345	17	5759208 6	LINC01 476	Body
cg15965911	0.04611 5565	0.02492 8237	0.06730 2893	2.09E-05	0.22008 5345	1	1613709 08		
cg06697380	- 0.05588 3392	- 0.08157 5725	- 0.03019 1059	2.12E-05	0.22008 5345	5	1266348 03	MEGF1 0	5'UTR
cg08374552	0.05425 358	0.02925 8717	0.07924 8443	2.21E-05	0.22588 3271	5	1110063 69		
cg11527695	0.06442 7267	0.03470 1998	0.09415 2537	2.27E-05	0.22779 4557	6	1029429 62		
cg00114430	0.06246 7738	0.03362 6923	0.09130 8553	2.30E-05	0.22779 4557	2	2318346 59		
cg25044533	0.07740 822	0.04165 3626	0.11316 2815	2.32E-05	0.22779 4557	5	6841187 6	SLC30A 5	Body
cg09416860	0.05642 3476	0.03033 9999	0.08250 6952	2.35E-05	0.22779 4557	12	1103409 01	TCHP; TCHP	Body; Body
cg18403970	- 0.04701 1183	- 0.06875 2141	- 0.02527 0224	2.37E-05	0.22779 4557	19	5429105 0	MIR372; MIR373	TSS200; TSS1500
cg19589194	0.02766 435	0.01484 0024	0.04048 8677	2.48E-05	0.23527 1524	16	1543256	TELO2	TSS200
cg00029150	- 0.06376 6109	- 0.09343 8974	- 0.03409 3244	2.66E-05	0.24945 7715	3	1959463 48	SLC51A	Body
cg02980047	- 0.06307 0554	- 0.09245 9196	- 0.03368 1912	2.72E-05	0.25092 7849	11	7960829 1		
cg18808261	- 0.08852 7894	- 0.12980 5752	- 0.04725 0036	2.76E-05	0.25092 7849	3	1846493 5	SATB1; SATB1	5'UTR; 5'UTR
cg06494746	0.08103 7616	0.04324 3572	0.11883 166	2.77E-05	0.25092 7849	2	7045619 9	TIA1; TIA1; TIA1	ExonBnd; Body; Body
cg22081189	- 0.07149 5434	- 0.10494 0952	- 0.03804 9915	2.93E-05	0.25846 4617	21	3611084 7	LINC00 160	TSS1500
cg14445274	- 0.05542 4262	- 0.08136 5802	- 0.02948 2722	2.96E-05	0.25846 4617	10	1025776 67	PAX2; PAX2; PAX2; PAX2; PAX2	Body; Body; Body; Body; Body
cg22916646	0.08134 056	0.04325 4293	0.11942 6828	2.98E-05	0.25846 4617	5	1626725 83		
cg15084286	0.05603 6155	0.02979 546	0.08227 685	2.98E-05	0.25846 4617	11	1703614 2	PLEKH A7	TSS200
cg21167072	- 0.07268 5805	- 0.10681 1252	- 0.03856 0358	3.13E-05	0.26382 5461	6	9053945 5	CASP8 AP2; CASP8AP2	TSS200; TSS200; TSS200

								;CASP8 AP2	
cg04628 118	- 0.06403 2365	- 0.09410 3943	- 0.03396 0786	3.14E- 05	0.26382 5461	4	1599395 68	C4orf45	Body
cg02275 226	0.17905 4253	0.09493 8303	0.26317 0202	3.16E- 05	0.26382 5461	11	1346085 98		
cg08183 663	- 0.09069 6613	- 0.13331 7059	- 0.04807 6167	3.18E- 05	0.26382 5461	10	9278385 2		
cg16359 370	- 0.04864 5863	- 0.07153 8165	- 0.02575 3561	3.26E- 05	0.26628 0337	14	7037993 8	SMOC1 ;SMOC 1	Body;B ody
cg19471 613	0.07440 1779	0.03938 0372	0.10942 3186	3.28E- 05	0.26628 0337	5	6841114 1	SLC30A 5	Body
cg07405 083	0.06349 8261	0.03358 2286	0.09341 4236	3.33E- 05	0.26641 4367	16	119384	RHBDF 1	5'UTR
cg21668 551	0.04803 6218	0.02537 9056	0.07069 338	3.40E- 05	0.26641 4367	1	4664258 4	PIK3R3; TSPAN 1	TSS150 0;5'UTR
cg26462 319	- 0.05354 0374	- 0.07880 0132	- 0.02828 0616	3.41E- 05	0.26641 4367	2	3037958 2	YPEL5; YPEL5; YPEL5; YPEL5	Body;B ody;Bod y;Body
cg20987 267	- 0.07101 654	- 0.10455 4675	- 0.03747 8405	3.48E- 05	0.26641 4367	19	5427135 7		
cg01087 463	- 0.04949 2919	- 0.07286 9128	- 0.02611 6709	3.48E- 05	0.26641 4367	3	1567663 8	BTD	Body
cg06744 351	0.07035 2442	0.03711 8412	0.10358 6472	3.49E- 05	0.26641 4367	2	2246819 19	AP1S3; AP1S3; AP1S3	Body;B ody;Bod y
cg05008 366	- 0.05552 9838	- 0.08177 0355	- 0.02928 9321	3.51E- 05	0.26641 4367	5	1692259 81	DOCK2	Body
cg17774 418	- 0.05612 2675	- 0.08266 4251	- 0.02958 1099	3.56E- 05	0.26698 8599	6	6622864	LOC285 780;LY 86	Body;B ody
cg02819 828	0.08180 6533	0.04310 3173	0.12050 9894	3.59E- 05	0.26698 8599	13	3745385 5	SMAD9 ;SMAD 9	5'UTR;5 'UTR
cg01476 148	- 0.05748 2404	- 0.08473 0846	- 0.03023 3963	3.72E- 05	0.27314 511	5	8298034 4	HAPLN 1	5'UTR
cg17543 488	0.09060 489	0.04761 8612	0.13359 1169	3.77E- 05	0.27314 511	5	1726729 59		
cg10755 899	0.12113 1712	0.06365 3113	0.17861 0311	3.78E- 05	0.27314 511	4	1772151		
cg08405 910	- 0.06283 1792	- 0.09266 0057	- 0.03300 3526	3.82E- 05	0.27314 511	2	1065010 75	NCK2; NCK2; NCK2	Body;B ody;Bod y
cg26319 641	0.03831 7854	0.02011 4712	0.05652 0995	3.86E- 05	0.27314 511	19	1880794 1	CRTC1; CRTC1	Body;B ody

cg23872541	- 0.05686 986	- 0.08389 3441	- 0.02984 6278	3.88E- 05	0.27314 511	10	2939123 1		
cg00615172	- 0.06033 4434	- 0.08903 5193	- 0.03163 3674	3.96E- 05	0.27441 1349	22	2007323 3	MIR1306;MIR3618;DGC8;DGC8	TSS1500;TSS200;5'UTR;5'UTR
cg05239799	- 0.06640 0104	- 0.09799 2111	- 0.03480 8096	3.97E- 05	0.27441 1349	21	4608657 2	KRTAP12-2;TSPEAR;TSP EAR	1stExon;Body;5'UTR
cg04745997	- 0.05279 5676	- 0.07793 1489	- 0.02765 9863	4.01E- 05	0.27521 0213	7	8685173 8		
cg09150117	0.05364 9537	0.02807 5649	0.07922 3424	4.10E- 05	0.27667 8682	7	9665386 7	DLX5	1stExon
cg10059111	0.05651 8501	0.02957 582	0.08346 1183	4.11E- 05	0.27667 8682	12	4906152 0	SNORA2B;KANSL2	TSS200;Body
cg16203963	- 0.06242 1536	- 0.09220 4567	- 0.03263 8506	4.17E- 05	0.27863 9785	3	9768058 4	MINA;MINA;MINA;MINA	Body;Body;Body;Body
cg21302999	0.06813 1743	0.03556 991	0.10069 3575	4.29E- 05	0.28309 595	2	1789743 12	PDE11A	TSS1500
cg25467317	- 0.04986 4056	- 0.07369 9888	- 0.02602 8225	4.31E- 05	0.28309 595	2	1051479 64		
cg16496742	0.06340 0444	0.03303 7355	0.09376 3533	4.45E- 05	0.29007 942	1	1368387	LOC102724312;LOC102724312;LOC102724312	Body;Body;Body
cg08443527	- 0.04374 6799	- 0.06470 7507	- 0.02278 6091	4.49E- 05	0.29009 3878	16	8496758 5		
cg11813073	0.07908 9692	0.04117 3752	0.11700 5631	4.53E- 05	0.29054 833	19	6481540	DENND1C	Body
cg17996068	- 0.05567 7875	- 0.08241 8541	- 0.02893 7209	4.68E- 05	0.29744 504	19	3000175 7	LOC284395	Body
cg18684652	0.05338 6291	0.02770 7539	0.07906 5043	4.80E- 05	0.30061 4657	2	2030769 33	SUMO1;SUMO1;SUMO1	Body;Body;Body
cg27404193	0.05795 6097	0.03007 8541	0.08583 3654	4.80E- 05	0.30061 4657	3	5331788 3	DCP1A;DCP1A;DCP1A;DCP1A	3'UTR;3'UTR;3'UTR;3'UTR

cg23142730	0.060780588	0.031525375	0.090035802	4.86E-05	0.301628456	6	111651667	REV3L; REV3L; REV3L	Body;Body;Body
cg18176532	- 0.079580162	- 0.11795619	- 0.041204134	5.02E-05	0.304364938	17	66339916	ARSG; ARSG; ARSG; ARSG	ExonBnd;ExonBnd;Body;Body
cg13837145	- 0.063856882	- 0.094659678	- 0.033054086	5.04E-05	0.304364938	8	6622731		
cg06938133	0.071771484	0.037148714	0.106394254	5.05E-05	0.304364938	17	80584878	WDR45L	Body
cg27535305	0.137926368	0.071382329	0.204470408	5.06E-05	0.304364938	1	53392650	SCP2;SCP2	TSS1500;TSS1500
cg20931867	- 0.050201602	- 0.074434983	- 0.02596822	5.11E-05	0.304364938	4	152684351		
cg15277378	0.053964568	0.027906821	0.080022315	5.13E-05	0.304364938	7	5272208	WIPI2; WIPI2; WIPI2; WIPI2; WIPI2	3'UTR;3'UTR;3'UTR;3'UTR;3'UTR
cg05107618	- 0.058335705	- 0.086516537	- 0.030154872	5.17E-05	0.304388376	6	167470163		
cg26118756	0.067706173	0.034971701	0.100440645	5.25E-05	0.306273826	12	26471820		
cg05082312	- 0.074847691	- 0.111050087	- 0.038645295	5.29E-05	0.306273826	17	47783458	SLC35B1;SLC35B1	Body;Body
cg18433507	- 0.040180702	- 0.059623276	- 0.020738129	5.32E-05	0.306273826	7	137836679		
cg01504485	- 0.058021454	- 0.086139218	- 0.02990369	5.46E-05	0.306961699	4	47843915		
cg10064585	- 0.052103323	- 0.077358226	- 0.02684842	5.48E-05	0.306961699	8	142186995	DENND3	Body
cg20744362	0.246804946	0.127122911	0.36648698	5.52E-05	0.306961699	22	50050164	C22orf34	Body
cg25717844	- 0.093445682	- 0.138761083	- 0.048130282	5.53E-05	0.306961699	7	99765818	GAL3ST4	5'UTR
cg00887018	0.063911586	0.032913183	0.094909988	5.54E-05	0.306961699	1	201327830		
cg15457037	0.049665667	0.025569994	0.07376134	5.57E-05	0.306961699	20	62562848	DNAJC5	Body
cg07033086	- 0.065645401	- 0.097508557	- 0.033782245	5.61E-05	0.307251319	10	63136339		
cg11525548	- 0.046190706	- 0.06863658	- 0.023744833	5.72E-05	0.309324099	1	7611041	CAMTA1	Body

cg24947681	0.071674038	0.036823636	0.10652444	5.78E-05	0.309324099	15	39760933		
cg24900923	-0.07076503	-0.105180734	-0.036349326	5.80E-05	0.309324099	6	30434072		
cg26798213	0.072206778	0.037088407	0.107325148	5.81E-05	0.309324099	15	78786261	IREB2;IREB2	ExonBnd;Body
cg08100972	-0.050673509	-0.075350813	-0.025996205	5.94E-05	0.312323316	20	13972364	SEL1L2;SEL1L2;SEL1L2	TSS1500;TSS1500;Body
cg18311495	-0.089884563	-0.133676907	-0.04609222	5.98E-05	0.312323316	15	95719761		
cg13040600	0.053187323	0.02727302	0.079101626	5.99E-05	0.312323316	2	135037975	MGAT5	Body
cg01596648	-0.049863806	-0.074174334	-0.025553277	6.05E-05	0.312323316	6	107294563		
cg07873060	-0.052119956	-0.077533233	-0.026706679	6.06E-05	0.312323316	11	68474523		
cg17778350	-0.080773909	-0.120180995	-0.041366824	6.12E-05	0.313282607	16	89778117	VPS9D1-ASI;VPS9D1	TSS200;Body
cg08670035	-0.036611293	-0.054516465	-0.01870612	6.38E-05	0.32280966	19	38894407	FAM98C	Body
cg23024819	-0.081758648	-0.121787676	-0.04172962	6.50E-05	0.32280966	2	10677089		
cg00266715	0.030556567	0.015587971	0.045525163	6.55E-05	0.32280966	17	14204362	HS3ST3B1	TSS200
cg22617269	-0.078321722	-0.116714363	-0.03992908	6.63E-05	0.32280966	19	8315286	CERS4	5'UTR
cg09764980	-0.044633897	-0.06652	-0.022747794	6.66E-05	0.32280966	2	84742902	DNAH6	TSS1500
cg20962469	0.0589831	0.030046587	0.087919614	6.72E-05	0.32280966	12	52593748		
cg04610235	0.048002598	0.024447624	0.071557572	6.74E-05	0.32280966	17	56592440	MTMR4	Body
cg02878578	0.095867322	0.048823148	0.142911495	6.75E-05	0.32280966	4	104987904		
cg04050000	-0.071084211	-0.105975887	-0.036192535	6.78E-05	0.32280966	2	31361687	GALNT14	TSS200
cg21728119	-0.055639933	-0.082954977	-0.028324889	6.80E-05	0.32280966	13	24533184		
cg00365336	-0.065733571	-0.098007021	-0.033460122	6.81E-05	0.32280966	22	37378573		

cg24396540	- 0.04414 303	- 0.06582 112	- 0.02246 4941	6.83E-05	0.32280 966	14	7765340 4	TMEM6 3C	5'UTR
cg27360965	- 0.07194 0809	- 0.10729 1745	- 0.03658 9874	6.90E-05	0.32280 966	7	1384559 71	ATP6V 0A4;AT P6V0A4 ;ATP6V 0A4	Body;B ody;Bod y
cg11162411	- 0.05880 6755	- 0.08772 0558	- 0.02989 2952	6.97E-05	0.32280 966	19	5113599 7	SYT3;S YT3;SY T3	Body;B ody;Bod y
cg11195633	- 0.04260 8561	- 0.06356 0714	- 0.02165 6408	6.98E-05	0.32280 966	2	8592087 4	GNLY; GNLY; GNLY	TSS150 0;TSS15 00;TSS1 500
cg18625627	- 0.08583 1009	- 0.12807 3316	- 0.04358 8702	7.08E-05	0.32280 966	14	8142601 5	TSHR;T SHR;TS HR	Body;B ody;Bod y
cg15451585	0.07454 2182	0.03783 7246	0.11124 7118	7.14E-05	0.32280 966	14	7444400 8	ENTPD 5	Body
cg13564702	- 0.05536 9854	- 0.08264 3251	- 0.02809 6456	7.18E-05	0.32280 966	6	1602205 19	PNLDC 1	TSS150 0
cg21636168	0.04156 8349	0.02108 4624	0.06205 2074	7.23E-05	0.32280 966	11	6191423 2	INCEN P;INCE NP	Body;B ody
cg26326160	0.07752 4568	0.03931 2985	0.11573 6151	7.26E-05	0.32280 966	20	4192108 1		
cg23784160	0.04160 8578	0.02109 847	0.06211 8686	7.27E-05	0.32280 966	7	2260593	MAD1L 1;MAD 1L1;MA DIL1	Body;B ody;Bod y
cg04864309	0.06889 7284	0.03492 9261	0.10286 5307	7.29E-05	0.32280 966	3	1824631 4		
cg14665292	0.06214 8413	0.03150 6653	0.09279 0173	7.30E-05	0.32280 966	20	3297912 3	ITCH;IT CH;ITC H	5'UTR;5 'UTR;5' UTR
cg15514403	- 0.06210 3071	- 0.09272 2546	- 0.03148 3595	7.30E-05	0.32280 966	14	6984372 2		
cg12297820	0.06518 2899	0.03303 6393	0.09732 9405	7.33E-05	0.32280 966	17	5720863 2	SKA2;S KA2;SK A2;SKA 2	ExonBn d;ExonB nd;Body ;Body
cg02879453	0.07119 3707	0.03607 135	0.10631 6064	7.37E-05	0.32280 966	16	5032181 8	ADCY7	TSS200
cg15565575	0.07682 7184	0.03889 5642	0.11475 8725	7.47E-05	0.32482 3096	2	5887229 0	LINC01 122	Body
cg14562081	- 0.05010 9681	- 0.07485 8503	- 0.02536 0858	7.51E-05	0.32482 3096	10	1147099 17	TCF7L2 ;TCF7L 2;TCF7 L2;TCF 7L2;TC F7L2;T CF7L2	TSS200; TSS200; TSS200; TSS200; TSS200; TSS200

cg20643 832	0.06546 8359	0.03311 0555	0.09782 6163	7.60E- 05	0.32482 3096	16	1232414 3	SNX29	Body
cg18184 092	0.06895 6254	0.03485 873	0.10305 3778	7.66E- 05	0.32482 3096	1	8412759	RERE;R ERE;RE RE	3'UTR;3 'UTR;3' UTR
cg01939 664	0.03972 5036	0.02007 8416	0.05937 1656	7.68E- 05	0.32482 3096	1	3372213 5	ZNF362	TSS200
cg11018 313	- 0.03993 1206	- 0.05969 2423	- 0.02016 9989	7.76E- 05	0.32482 3096	15	8536005 2	ALPK3; ALPK3	1stExon; 5'UTR
cg06013 895	0.04816 3047	0.02432 6019	0.07200 0075	7.77E- 05	0.32482 3096	17	1233260 6		
cg13232 078	0.03895 7738	0.01967 4476	0.05824 1	7.79E- 05	0.32482 3096	17	7320530 2	NUP85; NUP85	5'UTR; Body
cg05282 030	0.05680 3558	0.02868 3508	0.08492 3608	7.80E- 05	0.32482 3096	20	3594783 2		
cg17868 815	0.05378 9692	0.02715 216	0.08042 7223	7.85E- 05	0.32482 3096	16	8147673 1		
cg15361 028	- 0.06668 5822	- 0.09971 5566	- 0.03365 6077	7.87E- 05	0.32482 3096	6	5365868 3	LRRC1	TSS150 0
cg25924 746	0.07528 868	0.03796 6726	0.11261 0634	7.98E- 05	0.32486 8875	13	1104329 35	IRS2	Body
cg22104 307	- 0.07152 1141	- 0.10698 7462	- 0.03605 482	8.02E- 05	0.32486 8875	8	1710321 3	CNOT7; CNOT7; VPS37A ;VPS37 A	5'UTR;5 'UTR;T SS1500; TSS150 0
cg21536 760	0.05548 1724	0.02795 7551	0.08300 5897	8.08E- 05	0.32486 8875	16	5822683 4	CSNK2 A2	Body
cg01027 932	0.04608 1017	0.02321 8745	0.06894 3289	8.09E- 05	0.32486 8875	3	5834414 8	PXK;PX K;PXK; PXK;PX K;PXK; PXK	5'UTR;5 'UTR;B ody;Bod y;Body; Body;B ody
cg22786 756	- 0.06532 9797	- 0.09776 1247	- 0.03289 8346	8.17E- 05	0.32486 8875	14	6072071 6	PPM1A; PPM1A; PPM1A	5'UTR; Body;5' UTR
cg07476 185	0.06021 6571	0.03030 6437	0.09012 6705	8.24E- 05	0.32486 8875	15	7897034 8		
cg19217 527	- 0.07113 3012	- 0.10646 7761	- 0.03579 8263	8.25E- 05	0.32486 8875	12	1123832 00	TMEM1 16;TME M116;T MEM11 6;TME M116;T MEM11 6	Body;B ody;Bod y;5'UTR ;5'UTR
cg01989 521	- 0.06700 4759	- 0.10030 6512	- 0.03370 3007	8.32E- 05	0.32486 8875	14	1035220 12	CDC42 BPB	Body
cg20715 606	0.06485 4999	0.03262 1001	0.09708 8996	8.33E- 05	0.32486 8875	6	5667924 8	DST;DS T;DST	Body;B ody;Bod y

Urinary selenium was log₂-transformed. Linear regressions were adjusted for sex, age, study center, smoking (never, former, current), body mass index (kg/m²), education status, study center of recruitment, estimated glomerular filtration rate (ml/min/1.73m²), houseman cell proportions (CD8, CD4, natural killer, B-cell, monocytes), five principle genetic components, and 12 surrogate variables that captured unmeasured confounding. CpG sites were annotated using the University of California Santa Cruz (UCSC) genome browser.

Table S2. Top 200 differentially methylated positions for urinary selenium, prior to surrogate variable adjustment.

CpG	M-value	95% CI Lower Limit	95% CI Upper Limit	P-Value	FDR P-Value	Chromosome	Position	UCSC Gene Name	UCSC Gene Group
cg12207151	- 0.157755 376	- 0.197285 056	- 0.118225 696	9.94E-15	7.83E-09	3	1275116 40	MGLL; MGLL; MGLL	Body;Bo dy;Body
cg08594651	0.124105 705	0.092228 232	0.155983 178	4.19E-14	1.21E-08	11	4741539 7		
cg11918450	0.208642 837	0.154963 844	0.262321 829	4.60E-14	1.21E-08	2	3335919 8	LTBP1;L TBP1;LT BP1;LTB P1;LTBP 1	Body;TS S1500;T SS1500; TSS1500 ;TSS150 0
cg10611016	0.215034 47	0.159060 566	0.271008 374	8.86E-14	1.75E-08	11	6225759	C11orf42	TSS1500
cg12488187	0.193648 969	0.142519 08	0.244778 858	1.93E-13	3.01E-08	12	6567166 4	MSRB3; MSRB3	TSS1500 ;TSS150 0
cg20033091	0.107725 609	0.079121 996	0.136329 222	2.61E-13	3.01E-08	22	3986024 1	MGAT3	5'UTR
cg26554353	0.163619 489	0.120153 911	0.207085 066	2.68E-13	3.01E-08	16	5579170 6		
cg00574580	0.118297 291	0.086628 707	0.149965 874	4.02E-13	3.89E-08	12	6451822	TNFRSF 1A	TSS1500
cg09209683	0.084049 15	0.061506 751	0.106591 549	4.44E-13	3.89E-08	2	9592611 5		
cg24974982	0.105429 157	0.077088 251	0.133770 063	5.00E-13	3.94E-08	22	4640331 6	LOC730 668	Body
cg20489909	0.095773 196	0.069928 043	0.121618 349	6.11E-13	4.38E-08	2	2427110 46		
cg21727359	0.194486 05	0.141718 53	0.247253 571	8.07E-13	4.88E-08	6	8245900 6	FAM46A	3'UTR
cg16574405	0.205291 503	0.149528 01	0.261054 997	8.56E-13	4.88E-08	2	1782567 31	AGPS;L OC10013 0691	TSS1500 ;Body
cg16205361	0.109267 056	0.079539 574	0.138994 538	9.28E-13	4.88E-08	2	2867154 7		
cg05919222	0.144117 062	0.104858 895	0.183375 229	9.90E-13	4.88E-08	22	4996845 1	C22orf34 ;C22orf3 4	Body;Bo dy
cg01279149	0.126717 11	0.092198 404	0.161235 815	9.90E-13	4.88E-08	20	4881111 7		
cg10236857	0.079460 527	0.057782 661	0.101138 392	1.07E-12	4.95E-08	17	7982568 1	ARHGDI A	3'UTR
cg27534520	0.123836 466	0.089870 499	0.157802 433	1.40E-12	6.13E-08	15	9934391 8	IGF1R	Body
cg03967798	0.165181 212	0.119803 499	0.210558 926	1.52E-12	6.29E-08	4	1452684 53		
cg10004949	0.160982 34	0.116494 81	0.205469 87	2.04E-12	8.03E-08	2	1286903 27		
cg14464245	0.106427 403	0.076912 661	0.135942 144	2.42E-12	8.50E-08	9	1395804 82	AGPAT2 ;AGPAT 2	Body;Bo dy
cg17657707	0.166585 598	0.120307 686	0.212863 511	2.64E-12	8.50E-08	20	4754136 2	ARFGEF 2	Body

cg012836 25	0.192430 862	0.138493 866	0.246367 858	4.07E-12	8.50E-08	10	1356809 9		
cg211672 01	0.120350 218	0.086605 705	0.154094 731	4.13E-12	8.50E-08	3	1242779 12	KALRN	Body
cg071796 63	0.181349 016	0.130492 033	0.232205 999	4.17E-12	8.50E-08	7	4355077 1	LOC100 506895; HECW1; HECW1	Body;Bo dy;Body
cg242659 97	- 0.185818 092	- 0.237941 642	- 0.133694 542	4.22E-12	8.50E-08	19	1240043 5	ZNF44;Z NF44	Body;Bo dy
cg189985 43	0.100911 201	0.072592 057	0.129230 344	4.31E-12	8.50E-08	7	2769865	GNA12	3'UTR
cg041851 97	0.194243 871	0.139691 584	0.248796 157	4.47E-12	8.59E-08	7	1569305 64	UBE3C	TSS1500
cg183778 57	0.191580 044	0.137706 823	0.245453 265	4.75E-12	8.92E-08	5	8114435 2		
cg059563 80	0.186658 445	0.134114 402	0.239202 488	5.00E-12	9.16E-08	8	4235001 6	SLC20A 2;SLC20 A2;SLC2 0A2	5'UTR;5' UTR;5'U TR
cg266273 49	0.099353 57	0.071295 161	0.127411 98	5.83E-12	1.04E-07	3	5027243 6	GNAI2; GNAI2; GNAI2; GNAI2; GNAI2	TSS1500 ;TSS150 0;5'UTR; Body;5'U TR
cg148862 55	0.088605 006	0.063566 279	0.113643 732	6.01E-12	1.05E-07	5	1792315 99	MGAT4 B	Body
cg030450 38	0.110589 111	0.079320 1	0.141858 122	6.17E-12	1.06E-07	11	6397319 9	FERMT3 ;FERMT 3	TSS1500 ;TSS150 0
cg257183 81	0.095842 668	0.068732 189	0.122953 147	6.29E-12	1.06E-07	10	4697495 3		
cg143451 54	0.206630 972	0.148104 705	0.265157 239	6.70E-12	1.10E-07	14	8929930 2	TTC8;TT C8;TTC8	Body;Bo dy;Body
cg036998 44	0.194743 532	0.139497 175	0.249989 888	7.22E-12	1.14E-07	1	1628463 1	ZBTB17; ZBTB17; ZBTB17; ZBTB17	5'UTR;5' UTR;5'U TR;5'UT R
cg215346 73	0.179799 626	0.128760 043	0.230839 208	7.44E-12	1.14E-07	3	1888025 79		
cg214876 31	0.124549 75	0.089184 754	0.159914 745	7.53E-12	1.14E-07	1	7800616 3	AK5;AK 5	Body;Bo dy
cg022223 61	0.142043 838	0.101691 236	0.182396 441	7.71E-12	1.14E-07	6	1513256 85	MTHFD 1L;MTH FD1L;M THFD1L	Body;Bo dy;Body
cg235474 29	0.097224 567	0.069588 622	0.124860 513	7.92E-12	1.14E-07	11	5719502 5	SLC43A 3;SLC43 A3;SLC4 3A3;SLC 43A3	TSS1500 ;1stExon; 5'UTR;T SS1500
cg005513 41	0.088816 123	0.063559 584	0.114072 662	8.08E-12	1.14E-07	20	3388700 5		
cg019505 11	0.156334 15	0.111870 162	0.200798 139	8.14E-12	1.14E-07	2	2392890 51	TRAF3IP 1;TRAF3 IP1	Body;Bo dy
cg037152 69	0.170440 253	0.121949 325	0.218931 181	8.26E-12	1.14E-07	13	9508545 2		
cg208825 51	0.136687 176	0.097797 681	0.175576 671	8.27E-12	1.14E-07	20	4753691 7	ARFGEF 2	TSS1500

cg14515199	0.10940643	0.078251677	0.140561183	8.62E-12	1.17E-07	8	102122136		
cg11502375	0.154672027	0.110537669	0.198806386	9.47E-12	1.27E-07	19	4540550	LRG1	TSS1500
cg02088996	0.156492595	0.111742722	0.201242469	1.05E-11	1.37E-07	7	41817771	LOC285954	Body
cg02624690	0.105887734	0.075601186	0.136174281	1.06E-11	1.37E-07	17	37323484	ARL5C	TSS1500
cg08675214	0.13007495	0.092837042	0.167312858	1.10E-11	1.39E-07	21	35967898	RCAN1; RCAN1; RCAN1	Body;Body; 5'UTR
cg24467614	0.165109159	0.11783489	0.212383427	1.11E-11	1.39E-07	18	53783062	LINC01539; LINC01539	Body;Body
cg05602945	0.13066588	0.093205183	0.168126577	1.18E-11	1.40E-07	3	49974641		
cg17416793	0.11945924	0.085192818	0.153725663	1.21E-11	1.40E-07	11	2846932	KCNQ1; KCNQ1	Body;Body
cg07409383	0.203382016	0.145033659	0.261730373	1.22E-11	1.40E-07	5	64071318	CWC27; CWC27; CWC27	Body;Body; Body
cg26326160	0.150678774	0.107449721	0.193907828	1.22E-11	1.40E-07	20	41921081		
cg15107418	0.184918331	0.131850541	0.237986122	1.24E-11	1.40E-07	10	5791876	FAM208B	Body
cg02153138	0.122146395	0.087089201	0.157203589	1.24E-11	1.40E-07	7	127998600	PRRT4; PRRT4	Body;Body
cg25634666	0.114100888	0.081337867	0.146863909	1.27E-11	1.40E-07	11	71846788	FOLR3; FOLR3	5'UTR;1st Exon
cg16565031	0.115214672	0.082128927	0.148300418	1.27E-11	1.40E-07	14	70186289		
cg07892374	0.104512791	0.074495038	0.134530544	1.28E-11	1.40E-07	3	130568122		
cg12079904	0.103621779	0.073851004	0.133392555	1.30E-11	1.40E-07	2	43195545		
cg09995104	0.154021158	0.109743097	0.198299219	1.34E-11	1.43E-07	21	18823803		
cg06808069	0.176199809	0.125488584	0.226911033	1.41E-11	1.48E-07	2	112763750	MERTK	Body
cg03881379	0.075160187	0.05351381	0.096806564	1.45E-11	1.50E-07	3	52223131		
cg15406789	0.106068033	0.075513744	0.136622323	1.47E-11	1.50E-07	15	70802033		
cg01366670	0.074070217	0.052706548	0.095433886	1.56E-11	1.53E-07	16	89004378	CBFA2T3; CBFA2T3	5'UTR;Body
cg12306086	0.205895822	0.146506841	0.265284803	1.56E-11	1.53E-07	4	106117747	TET2; TET2	5'UTR;5'UTR
cg08227615	0.100160796	0.071265813	0.12905578	1.57E-11	1.53E-07	15	52429715	GNB5; GNB5	Body;Body
cg04943129	0.137382942	0.097749722	0.177016162	1.57E-11	1.53E-07	6	6725495		
cg19772161	0.086607037	0.061612702	0.111601371	1.60E-11	1.54E-07	6	3746570	C6orf145	Body
cg10111352	0.135275815	0.096206401	0.174345229	1.65E-11	1.56E-07	16	16082095	ABCC1; ABCC1; ABCC1; ABCC1; ABCC1	Body;Body; Body;Body; Body
cg15448894	0.174931053	0.124391905	0.225470201	1.68E-11	1.56E-07	6	52840469		

cg204881 23	- 0.135367 029	- 0.174477 842	- 0.096256 217	1.68E-11	1.56E-07	6	2068906 1	CDKAL1	Body
cg188901 01	0.195523 713	0.139012 402	0.252035 024	1.71E-11	1.57E-07	16	5846110 9		
cg129039 48	0.191428 233	0.136068 941	0.246787 526	1.75E-11	1.58E-07	9	7520083 2	TMC1	5'UTR
cg202146 24	0.148038 353	0.105223 392	0.190853 315	1.76E-11	1.58E-07	5	7625437 5	CRHBP	Body
cg059040 13	0.114239 372	0.081177 385	0.147301 358	1.82E-11	1.58E-07	7	1285799 33	IRF5;IRF5;IRF5;IRF5;IRF5;IRF5	5'UTR;TSS1500;5'UTR;5'UTR;5'UTR;5'UTR
cg024320 22	0.198877 556	0.141320 222	0.256434 89	1.82E-11	1.58E-07	6	1396560 42		
cg048313 27	0.178676 669	0.126962 486	0.230390 853	1.82E-11	1.58E-07	12	1142990 76	RBM19;RBM19;RBM19	Body;Body;Body
cg162896 18	0.139641 732	0.099212 842	0.180070 623	1.85E-11	1.58E-07	6	2970593 9	LOC285830;LOC285830	Body;Body
cg159519 35	0.153905 664	0.109316 41	0.198494 919	1.91E-11	1.60E-07	10	8068573 8		
cg094558 45	0.076027 478	0.053998 068	0.098056 888	1.92E-11	1.60E-07	2	7406389 1	STAMP;STAMP;STAMP;STAMP	Body;Body;Body
cg102063 88	0.135737 654	0.096403 875	0.175071 432	1.92E-11	1.60E-07	22	4442169 4	PARVB;PARVB;PARVB	TSS1500;Body;Body
cg022233 51	0.097718 088	0.069392 265	0.126043 912	1.95E-11	1.60E-07	16	6640236 7	CDH5	5'UTR
cg210628 05	0.155415 023	0.110356 894	0.200473 152	1.97E-11	1.60E-07	3	1711065 11	TNIK;TNIK;TNIK;TNIK;TNIK;TNIK;TNIK;TNIK	Body;Body;Body;Body;Body;Body;Body
cg184479 34	0.111336 639	0.079048 27	0.143625 009	1.99E-11	1.60E-07	12	1133303 70	RPH3A;RPH3A	Body;Body
cg180360 81	0.101380 306	0.071945 508	0.130815 103	2.10E-11	1.67E-07	22	2960514 7	EMID1	Body
cg248806 65	0.180016 468	0.127716 449	0.232316 487	2.16E-11	1.70E-07	1	2027721 64	KDM5B	Body
cg025703 54	0.132368 209	0.093855 908	0.170880 51	2.31E-11	1.80E-07	3	3172874 9	OSBPL10	Body
cg049061 86	0.087688 603	0.062170 51	0.113206 695	2.33E-11	1.80E-07	22	3882018 9		
cg022559 86	0.169661 781	0.120272 955	0.219050 607	2.36E-11	1.81E-07	6	4376808 6		
cg169454 15	0.094511 73	0.066962 025	0.122061 434	2.51E-11	1.90E-07	3	1259800 95		
cg180655 99	0.127079 399	0.089985 079	0.164173 719	2.67E-11	2.00E-07	11	4796899 5		
cg060335 31	0.148804 325	0.105305 816	0.192302 833	2.85E-11	2.02E-07	5	1769801 53	FAM193B;FAM193B	5'UTR;Body

cg14611123	0.148165217	0.104848056	0.191482377	2.86E-11	2.02E-07	10	45554870		
cg10053235	0.200879687	0.142148318	0.259611056	2.87E-11	2.02E-07	14	68431183	RAD51B;RAD51B;RAD51B	Body;Body
cg02447446	0.098927582	0.070002928	0.127852235	2.87E-11	2.02E-07	9	137266652	RXRA	Body
cg14632793	0.159103033	0.112576124	0.205629943	2.90E-11	2.02E-07	2	75374207	TACR1;TACR1	Body;Body
cg12949760	0.106179241	0.075125089	0.137233393	2.91E-11	2.02E-07	11	2542862	KCNQ1;KCNQ1	Body;Body
cg24933919	0.170117817	0.120359932	0.219875702	2.92E-11	2.02E-07	13	77298665		
cg14393004	0.109864293	0.077726682	0.142001903	2.94E-11	2.02E-07	2	219222941	CATIP;CATIP-AS2	Body;TS S1500
cg11807649	0.083300094	0.058932333	0.107667854	2.94E-11	2.02E-07	22	43490246		
cg10275766	0.104580837	0.07398769	0.135173983	2.94E-11	2.02E-07	2	173591150	LOC91149	Body
cg15377871	0.107865954	0.076296147	0.139435762	3.01E-11	2.04E-07	14	23588325	CEBPE;CEBPE	5'UTR;1stExon
cg16275316	0.117966663	0.083435906	0.152497421	3.02E-11	2.04E-07	11	73116258	FAM168A;FAM168A;FAM168A	3'UTR;3'UTR;3'UTR
cg16839691	0.107770772	0.076207966	0.139333578	3.09E-11	2.05E-07	3	127396255	ABTB1;ABTB1;ABTB1	Body;Body
cg24405567	0.155994717	0.110302296	0.201687137	3.11E-11	2.05E-07	15	70787565		
cg01141721	0.125943291	0.089050036	0.162836546	3.13E-11	2.05E-07	20	36010619	SRC;SRC	5'UTR;5'UTR
cg24393424	0.074780528	0.05286626	0.096694795	3.18E-11	2.07E-07	19	19062585		
cg05432604	0.137113244	0.096922151	0.177304337	3.22E-11	2.08E-07	20	3633539		
cg05004855	0.094732518	0.066955195	0.12250984	3.26E-11	2.09E-07	5	149644009	CAMK2A;CAMK2A	Body;Body
cg09923354	0.180227477	0.127365163	0.233089792	3.31E-11	2.10E-07	10	65258614		
cg20964377	0.092343951	0.065236493	0.11945141	3.43E-11	2.15E-07	2	119731815	MARCO	Body
cg26773549	0.191537342	0.135307658	0.247767027	3.44E-11	2.15E-07	6	135647046	AHI1;AHI1;AHI1	Body;Body
cg03671048	0.095166655	0.067222762	0.123110547	3.47E-11	2.15E-07	4	38261703		
cg20265609	0.111460801	0.078717135	0.144204467	3.54E-11	2.18E-07	1	32309333		
cg13501632	0.199981571	0.141200756	0.258762386	3.63E-11	2.21E-07	5	61843962	IPO11;IPO11	Body;Body
cg09881857	0.128328891	0.090607138	0.166050643	3.64E-11	2.21E-07	17	60899289	MIR548W	Body
cg24504349	0.204176402	0.144133657	0.264219148	3.71E-11	2.23E-07	4	120974344		
cg20778731	- 0.138521876	- 0.179272077	- 0.097771674	3.77E-11	2.25E-07	2	37595280	QPCT	Body

cg221474 46	0.107634 909	0.075921 793	0.139348 024	4.03E-11	2.39E-07	20	4879261	SLC23A 2;SLC23 A2	Body;Bo dy
cg194212 14	0.150496 212	0.106130 477	0.194861 947	4.13E-11	2.43E-07	1	1820978 85		
cg161769 84	0.183006 865	0.129019 794	0.236993 937	4.26E-11	2.47E-07	15	7421240 4	LOXL1- AS1;LO XL1- AS1;LO XL1- AS1;LO XL1- AS1;LO XL1-AS1	Body;Bo dy;Body; Body;Bo dy
cg111230 45	0.090850 14	0.064043 019	0.117657 261	4.30E-11	2.47E-07	1	9447693 9	ABCA4; ABCA4	ExonBnd ;Body
cg041958 52	0.131601 218	0.092766 663	0.170435 772	4.32E-11	2.47E-07	1	2286702 9		
cg117159 91	0.104022 724	0.073318 554	0.134726 895	4.37E-11	2.47E-07	1	5501292 6	ACOT11 ;ACOT1 1	TSS1500 ;TSS150 0
cg238040 64	0.143128 07	0.100876 463	0.185379 677	4.39E-11	2.47E-07	14	7026474 1	SLC10A 1	TSS1500
cg070323 42	0.091845 541	0.064719 909	0.118971 172	4.48E-11	2.47E-07	17	4387045	SPNS3	Body
cg274859 21	0.114236 897	0.080495 062	0.147978 731	4.50E-11	2.47E-07	2	4674737 9	ATP6V1 E2	TSS1500
cg070019 95	0.118545 469	0.083528 036	0.153562 902	4.51E-11	2.47E-07	6	1194712 81	FAM184 A;FAM1 84A	TSS1500 ;TSS150 0
cg039812 69	0.119526 3	0.084212 635	0.154839 966	4.55E-11	2.47E-07	1	1579237 1	CELA2A	Body
cg139806 38	0.102031 945	0.071886 186	0.132177 704	4.55E-11	2.47E-07	1	1832492 36	NMNAT 2;NMNA T2	Body;Bo dy
cg176372 88	0.155962 647	0.109875 567	0.202049 726	4.59E-11	2.47E-07	18	9702232		
cg079875 21	0.095746 075	0.067449 799	0.124042 351	4.61E-11	2.47E-07	11	821890	PNPLA2	Body
cg110176 13	0.110027 742	0.077508 721	0.142546 764	4.62E-11	2.47E-07	22	3841372 8	POLR2F; POLR2F	Body;Bo dy
cg019229 18	0.115319 139	0.081233 156	0.149405 123	4.64E-11	2.47E-07	1	2166510 4	ECE1	Body
cg209773 12	0.145547 446	0.102499 578	0.188595 314	4.77E-11	2.51E-07	5	1727489 17	STC2	Body
cg166433 90	0.101796 678	0.071681 21	0.131912 146	4.82E-11	2.51E-07	13	4554859 0	NUFIP1	Body
cg049644 28	0.196622 266	0.138436 367	0.254808 164	4.88E-11	2.51E-07	4	5561874 6		
cg226603 43	0.084968 723	0.059818 51	0.110118 935	4.93E-11	2.51E-07	20	4832212 4	B4GALT 5	Body
cg098317 48	0.144738 532	0.101893 804	0.187583 26	4.95E-11	2.51E-07	12	1251110 63		
cg231667 73	0.097700 105	0.068775 608	0.126624 602	4.97E-11	2.51E-07	1	2436590 16	SDCCA G8;AKT 3	Body;3U TR
cg250787 87	0.104549 378	0.073592 221	0.135506 536	5.01E-11	2.51E-07	19	4230028 9	CEACA M3;CEA CAM3;C EACAM 3	TSS1500 ;TSS150 0;TSS15 00

cg272244 35	0.098100 724	0.069044 01	0.127157 438	5.08E-11	2.51E-07	8	1344161 92		
cg189546 33	0.170074 524	0.119697 324	0.220451 725	5.09E-11	2.51E-07	1	1162706 84	CASQ2	Body
cg238958 48	0.129759 058	0.091322 159	0.168195 958	5.09E-11	2.51E-07	15	4060156 9	PLCB2;P LCB2;PL CB2;PLC B2	TSS1500; TSS1500; TSS1500; TSS1500
cg207600 57	0.185158 482	0.130306 17	0.240010 795	5.12E-11	2.51E-07	6	1300175 22	ARHGA P18	Body
cg134106 14	0.124607 344	0.087686 398	0.161528 29	5.16E-11	2.51E-07	9	1363419 15	SLC2A6; SLC2A6	Body;Bo dy
cg020514 28	0.137207 914	0.096548 034	0.177867 794	5.19E-11	2.51E-07	11	6627641 4	DPP3;DP P3;DPP3	Body;Bo dy;Body
cg063608 41	0.176461 002	0.124160 675	0.228761 33	5.22E-11	2.51E-07	1	5340567 1	MIR1273 G;SCP2; SCP2;SC P2;SCP2; SCP2	TSS1500 ;5'UTR;B ody;Body ;Body;Bo dy
cg066371 70	0.118138 805	0.083116 029	0.153161 58	5.27E-11	2.51E-07	11	4483680 8	TSPAN1 8	5'UTR
cg013283 48	0.168383 274	0.118463 883	0.218302 665	5.28E-11	2.51E-07	1	1608392 99		
cg060827 09	0.135634 346	0.095421 539	0.175847 152	5.29E-11	2.51E-07	12	5612165 5	CD63;C D63;CD6 3;CD63; CD63;C D63;CD6 3;CD63; CD63	Body;Bo dy;Body; Body;Bo dy;Body; 5'UTR;T SS200;1s tExon
cg237265 25	0.110175 633	0.077510 642	0.142840 625	5.30E-11	2.51E-07	16	1616988 8	ABCC1	Body
cg041333 70	0.130745 051	0.091972 094	0.169518 009	5.35E-11	2.51E-07	11	5899231 7		
cg224989 85	0.079950 347	0.056240 34	0.103660 355	5.36E-11	2.51E-07	17	7327055 5	SLC25A 19;SLC2 5A19;SL C25A19	Body;Bo dy;Body
cg015302 92	0.134555 42	0.094644 253	0.174466 588	5.40E-11	2.51E-07	19	5669474		
cg141244 15	- 0.159309 698	- 0.206571 258	- 0.112048 138	5.44E-11	2.51E-07	21	2821280 3	ADAMT S1	Body
cg029131 40	0.170011 083	0.119570 094	0.220452 073	5.46E-11	2.51E-07	5	8811961 2	MEF2C; MEF2C; MEF2C; MEF2C; MEF2C; MEF2C; MEF2C; MEF2C; MEF2C; MEF2C	1stExon; 1stExon; 1stExon; 5'UTR;5' UTR;5'U TR;5'UT R;5'UTR; 5'UTR;5' UTR
cg194885 20	0.129034 904	0.090745 296	0.167324 512	5.50E-11	2.51E-07	1	1559600 40		
cg236482 39	0.170595 518	0.119971 487	0.221219 548	5.51E-11	2.51E-07	14	5270160 6		
cg093470 35	0.108136 17	0.076036 841	0.140235 5	5.58E-11	2.51E-07	14	9311700 2	RIN3	Body

cg08820841	0.184643628	0.129827418	0.239459838	5.61E-11	2.51E-07	3	46354481		
cg04214817	0.159561141	0.112190321	0.206931962	5.61E-11	2.51E-07	12	50482013	SMARCD1;SMARCD1	Body;Body
cg16227392	0.157452095	0.110696064	0.204208127	5.67E-11	2.53E-07	14	99501573		
cg16846069	0.116915004	0.082175952	0.151654056	5.82E-11	2.58E-07	12	6462681	SCNN1A;SCNN1A;SCNN1A	Body;Body;Body
cg12303312	0.101740904	0.071507372	0.131974435	5.85E-11	2.58E-07	11	8737012	ST5;ST5;ST5	Body;Body;Body
cg06947431	0.190643686	0.133983423	0.247303949	5.88E-11	2.58E-07	1	21231684	EIF4G3;EIF4G3;EIF4G3	Body;Body;Body
cg10641505	0.192951403	0.135591969	0.250310837	5.94E-11	2.59E-07	12	48463278	SEN1;SEN1;SEN1;SEN1	Body;Body;Body;Body
cg27593649	0.097387665	0.068425777	0.126349554	6.04E-11	2.62E-07	6	44186154	SLC29A1;SLC29A1;SLC29A1	TSS1500;TSS1500;TSS1500
cg10056280	0.183766803	0.129101063	0.238432543	6.12E-11	2.64E-07	3	93817648	NSUN3	Body
cg16971827	- 0.135638833	- 0.175995902	- 0.095281764	6.17E-11	2.64E-07	11	119177430	CBL	3'UTR
cg26685409	0.094425625	0.066328883	0.122522366	6.19E-11	2.64E-07	11	64976347	CAPN1;CAPN1;CAPN1;CAPN1	Body;Body;Body;Body
cg02697717	0.121272259	0.085166823	0.157377695	6.34E-11	2.67E-07	17	41172393	VAT1	Body
cg03720771	0.155916175	0.109496268	0.202336082	6.34E-11	2.67E-07	11	122080867		
cg15360831	0.096409657	0.067701309	0.125118006	6.39E-11	2.68E-07	5	176935733	DOK3;DOK3;DOK3;DOK3	Body;Body;Body;Body
cg02334092	0.140088891	0.098368287	0.181809496	6.43E-11	2.68E-07	3	186710762	ST6GAL1;ST6GAL1	5'UTR;5'UTR
cg16265731	0.106289634	0.074602487	0.137976781	6.72E-11	2.79E-07	11	64647129	EHD1;EHD1;EHD1;EHD1	5'UTR;TSS1500;1stExon;1stExon;5'UTR
cg04030580	0.098048652	0.068800892	0.127296412	6.89E-11	2.83E-07	19	8568648	PRAM1	TSS1500
cg14972478	0.190806081	0.133887915	0.247724246	6.89E-11	2.83E-07	3	72987896	GXYLT2	Body
cg10642618	0.09741114	0.068342283	0.126479997	7.00E-11	2.86E-07	22	24915679	UPB1	Body
cg17932662	0.125621551	0.088128705	0.163114398	7.05E-11	2.86E-07	1	202123442	PTPN7;PTPN7	Body;Body
cg07044770	0.103156186	0.072357783	0.133954589	7.15E-11	2.89E-07	6	5206209	LOC100129461;LYRM4;LYRM4;LYRM4	Body;Body;Body;Body

								YRM4;L YRM4;L YRM4	
cg007647 71	0.131487 465	0.092200 199	0.170774 73	7.39E-11	2.97E-07	7	1500860 34	ZNF775	Body
cg057123 30	0.118813 766	0.083302 478	0.154325 054	7.49E-11	2.99E-07	9	9160447 3	C9orf47; C9orf47	TSS1500 ;TSS1500
cg053841 39	0.095693 438	0.067091 17	0.124295 705	7.50E-11	2.99E-07	12	1235480 27	PITPNM 2	5'UTR
cg150332 22	0.185798 702	0.130249 76	0.241347 644	7.59E-11	3.01E-07	2	2092795 1	LDAH;L DAH;LD AH;LDA H;LDAH ;LDAH;L DAH;LD AH	Body;Bo dy;Body; Body;Bo dy;Body; Body;Bo dy
cg192067 05	0.112151 127	0.078614 923	0.145687 33	7.65E-11	3.01E-07	6	1578905 09	ZDHHC1 4;ZDHH C14	Body;Bo dy

Urinary selenium was log₂-transformed. Linear regressions were adjusted for sex, age, study center, smoking (never, former, current), body mass index (kg/m²), education status, study center of recruitment, estimated glomerular filtration rate (ml/min/1.73m²), houseman cell proportions (CD8, CD4, natural killer, B-cell, monocytes), five principle genetic components. CpG sites were annotated using the University of California Santa Cruz (UCSC) genome browser.

Table S3. Differentially methylated positions selected by elastic-net for urinary selenium (N=425).

CpG	Elastic Net Coefficient	chr	pos	UCSC Gene Name	UCSC Gene Group
cg11460509	0.016201	21	15445421		
cg19541202	0.015454	3	72391048		
cg21953146	0.015028	17	44061258	MAPT;MAPT; MAPT;MAPT; MAPT;MAPT	Body;Body;Body; Body;Body;Body; Body
cg18212762	0.014505	11	64556654	MAP4K2	3'UTR
cg19589194	0.01442	16	1543256	TELO2	TSS200
cg00266715	0.014021	17	14204362	HS3ST3B1	TSS200
cg26319641	0.011281	19	18807941	CRTC1;CRTC1	Body;Body
cg12564231	0.010972	3	1.96E+08	TFRC;TFRC	TSS200;TSS200
cg16911981	0.010648	7	70061135	AUTS2;AUTS2	Body;Body
cg12451436	0.009721	20	388650	RBCK1;RBCK1	TSS200;TSS200
cg19673881	0.009004	4	8477562	C4orf23	Body
cg18184092	0.008942	1	8412759	RERE;RERE;RERE	3'UTR;3'UTR;3'UTR
cg13033070	0.008833	5	3188312		
cg26256630	0.008786	6	30070738	TRIM31	3'UTR
cg20491446	0.008735	17	80656612	RAB40B	TSS200
cg06623390	0.008678	22	37262766	NCF4;NCF4	Body;Body
cg02364855	0.008564	8	53361893		
cg15336438	0.008531	10	76993893	COMTD1	Body
cg15084286	0.008266	11	17036142	PLEKHA7	TSS200
cg12656227	0.008138	7	1.57E+08	PTPRN2;PTPRN2; PTPRN2;PTPRN2	Body;Body;Body; Body
cg14458315	0.008126	9	1.01E+08	GABBR2	Body
cg14025978	0.008039	8	10786150	XKR6	Body

cg00644416	0.007525	13	1.15E+08	RASA3	Body
cg14180581	0.007484	11	82746478	RAB30;RAB30; RAB30;RAB30	TSS1500;5'UTR; 5'UTR;5'UTR
cg08207707	0.00745	11	1.25E+08	ESAM	Body
cg25946681	0.007415	12	1.21E+08	PXN;PXN;PXN	Body;Body;Body
cg13500354	0.007402	6	1.69E+08		
cg16223190	0.007366	17	56380051	BZRAP1;BZRAP1	3'UTR;3'UTR;3'UTR
cg09381003	0.007208	19	41082314	SHKBP1;SPTBN4	TSS1500;3'UTR
cg00474031	0.007147	8	1.33E+08	KCNQ3	TSS1500
cg07405083	0.007129	16	119384	RHBDF1	5'UTR
cg11270656	0.007116	8	1.44E+08	GPIHBP1;GPIHBP1	5'UTR;1stExon
cg04124316	0.007011	13	42615242		
cg01592389	0.006923	17	7308154	TMEM256;TMEM256-PLSCR3	TSS1500;TSS1500
cg03979539	0.006849	2	28113445	BRE;RBKS;BRE;BRE;LO C100302650;BRE	TSS200;TSS1500; TSS200;TSS200;Body; TSS200
cg16645473	0.006673	6	28226567	ZKSCAN4;NKAPL	5'UTR;TSS1500
cg00882235	0.00659	1	1.8E+08	LHX4	Body
cg26679958	0.006486	4	1.09E+08	LEF1;LEF1;LOC641518; LEF1;LEF1	TSS1500;Body; TSS200;Body;Body
cg23193320	0.006347	3	11608514	VGLL4;VGLL4; VGLL4;VGLL4	Body;Body;Body; Body
cg07762054	0.006302	11	75273187	SERPINH1;SERPINH1	5'UTR;1stExon

cg22913462	0.006287	3	1.23E+08	ADCY5;ADCY5	TSS1500;Body
cg18773851	0.006283	12	52605271	C12orf80;LINC00592	TSS1500;Body
cg13727629	0.005779	1	2232469	SKI	Body
cg11813073	0.005738	19	6481540	DENND1C	Body
cg00163554	0.005731	10	375799	DIP2C	Body
cg04439776	0.00573	10	71907412	TYSND1;TYSND1	TSS1500;TSS1500
cg02726585	0.005616	9	1.25E+08	LHX6;LHX6;LHX6;LHX6;LHX6	TSS200;Body;Body;Body;Body;Body
cg07972191	0.00561	8	99960580	OSR2;OSR2	5'UTR;5'UTR
cg19530883	0.005518	19	5903870	NDUFA11;VMAC;NDUFA11	1stExon;TSS1500;5'UTR
cg13687313	0.005392	1	1.61E+08	PPOX;PPOX	Body;Body
cg27535305	0.005379	1	53392650	SCP2;SCP2	TSS1500;TSS1500
cg14141061	0.005326	11	1.2E+08		
cg22117062	0.005267	4	2794231	SH3BP2	TSS1500
cg24330522	0.005165	13	36788462	SOHLH2	Body
cg00577375	0.004882	7	1.51E+08	PRKAG2;PRKAG2	Body;Body
cg23490090	0.004862	17	78081364	GAA;GAA;GAA	Body;Body;Body
cg22623967	0.004751	3	16554910	RFTN1	5'UTR
cg10231675	0.004657	12	2944493	NRIP2	TSS1500
cg12031809	0.004631	5	1.32E+08	KIF3A;KIF3A;KIF3A	TSS1500;TSS1500;TSS1500
cg01247891	0.00451	19	10713543	SLC44A2	Body
cg05634428	0.004476	5	531052		
cg08597832	0.004459	8	1.44E+08	TOP1MT	Body
cg26635824	0.004457	20	61436007	OGFR	TSS200
cg23121615	0.004421	8	1.44E+08		
cg14746884	0.004353	13	28537233	CDX2	3'UTR
cg01378515	0.004273	3	1.25E+08	HEG1	Body

cg00634187	0.004185	19	51412739	KLK4;KLK4;KLK4	Body;Body;5'UTR
cg24576945	0.004156	3	42743203	HHATL;HHATL	5'UTR;TSS200
cg05067377	0.004136	16	88330953		
cg08246447	0.004091	20	49232374	MIR1302-5;FAM65C;FAM65C;FAM65C	TSS1500;Body;Body;Body
cg17095647	0.003954	3	1.49E+08	HPS3;HPS3;HPS3;HPS3	ExonBnd;ExonBnd;Body;Body
cg08527195	0.003919	1	1.61E+08		
cg10821722	0.003912	11	64571899	MEN1;MEN1;MEN1;MEN1;MEN1;MAP4K2;MEN1	Body;Body;Body;Body;Body;TSS1500;Body
cg17543488	0.003846	5	1.73E+08		
cg04130952	0.003814	3	51998051	PCBP4;PCBP4	5'UTR;TSS1500
cg14650344	0.003655	3	87276155	CHMP2B	TSS1500
cg20739510	0.003638	1	10534809	PEX14	TSS200
cg23784160	0.003538	7	2260593	MAD1L1;MAD1L1;MAD1L1	Body;Body;Body
cg24403959	0.003489	11	46260412		
cg20755820	0.003487	2	2.31E+08	DNER	Body
cg15677916	0.00348	9	3181007		
cg25755191	0.003479	1	1.67E+08		
cg22412649	0.003379	13	24736569	SPATA13;MIR2276;SPATA13	5'UTR;Body;5'UTR
cg15277378	0.003348	7	5272208	WIPI2;WIPI2;WIPI2;WIPI2;WIPI2	3'UTR;3'UTR;3'UTR;3'UTR;3'UTR
cg05654925	0.003311	1	10752632	CASZ1;CASZ1	Body;Body

cg09810078	0.003171	6	30860265	DDR1;DDR1;DDR1	Body;Body;Body
cg06647001	0.003165	20	23077908		
cg04332818	0.003149	4	1.24E+08	FGF2	TSS200
cg01544075	0.003094	14	94580560	IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27;IFI27	5'UTR;5'UTR;Body;Body;Body;Body;Body;Body;Body;Body;Body
cg17584196	0.003047	11	82445114	FAM181B	TSS1500
cg04008954	0.003024	9	86154173	FRMD3;FRMD3	TSS1500;TSS1500
cg11793977	0.002919	6	1.68E+08		
cg09860665	0.002855	14	62002351	PRKCH	Body
cg22163856	0.00285	3	1.27E+08		
cg11680758	0.002709	6	28832063		
cg20665157	0.002677	7	1.22E+08	CADPS2;CADPS2;CADPS2	Body;Body;Body
cg05274172	0.002672	2	1.21E+08	TMEM185B;TMEM185B	5'UTR;1stExon
cg14238081	0.002658	14	65438743	RAB15	1stExon
cg13092527	0.002633	3	1.86E+08		
cg07371589	0.002526	1	1.51E+08	SEMA6C	3'UTR
cg02879453	0.002501	16	50321818	ADCY7	TSS200
cg23436746	0.002492	7	49815938	VWC2	Body
cg13204432	0.002487	2	51074939	NRXN1;NRXN1	Body;Body
cg21136104	0.002457	3	1.43E+08		
cg00989069	0.002436	21	47777635	PCNT	Body
cg15496985	0.002411	2	99771231	LIPT1;LIPT1;TSGA10;LIPT1;LIPT1;LIPT1;LIPT1;LIPT1	TSS1500;TSS1500;TSS200;TSS200;TSS200;TSS200;TSS200;TSS200

cg27244524	0.002385	3	38494523	LOC100128640 ;ACVR2B	Body;TSS1500
cg20424530	0.002384	12	44152509	PUS7L;PUS7L; PUS7L;IRAK4; IRAK4;PUS7L; PUS7L;IRAK4; IRAK4;IRAK4	1stExon;5'UTR; 1stExon;TSS1500;TSS1500;5'UTR;TSS1500;TSS1500; TSS1500
cg12450149	0.002366	7	1.06E+08		
cg02139293	0.0023	2	1.19E+08		
cg02791338	0.00229	16	1414422	UNKL	3'UTR
cg23053921	0.002262	20	55563274		
cg03997643	0.00222	9	1.37E+08	RNU6ATAC	TSS1500
cg17353846	0.002216	17	17724021	SREBF1;SREBF1	Body;Body
cg27107194	0.002206	10	1.32E+08		
cg08170140	0.002196	22	31090747	OSBP2	TSS200
cg19078878	0.002081	6	12324504		
cg09351859	0.002055	5	49962613	PARP8	TSS200
cg09929819	0.00204	22	42311321		
cg15414638	0.002017	6	28956731		
cg05062676	0.002015	2	38304725	CYP1B1	TSS1500
cg24945657	0.002014	17	43044484	C1QL1	Body
cg23639565	0.002011	1	40507857	CAP1;CAP1	5'UTR;5'UTR
cg04421151	0.001999	10	1.21E+08	GRK5	Body
cg21113900	0.001996	5	1.26E+08	FLJ44606;FLJ44606	TSS200;TSS200
cg20067471	0.00198	6	32765281		
cg17488353	0.001976	2	2.41E+08		
cg06408912	0.001906	10	1.32E+08		
cg04945652	0.001902	7	1.57E+08	MNX1	TSS1500
cg12780863	0.001868	2	2.37E+08	AGAP1;AGAP1	Body;Body
cg09150117	0.001866	7	96653867	DLX5	1stExon
cg12426612	0.001831	17	25905125	KSR1	Body
cg04864309	0.001828	3	18246314		

cg24372299	0.001827	1	1.45E+08		
cg24151926	0.001807	1	6240455	CHD5	TSS1500
cg16060664	0.001793	8	42010866	AP3M2;AP3M2	5'UTR;5'UTR
cg00758961	0.001758	4	9929384	SLC2A9;SLC2A9	Body;Body
cg01461254	0.001756	12	2944306	NRIP2	TSS200
cg06660976	0.001712	16	86767566		
cg22025859	0.001666	11	1.21E+08	GRIK4;GRIK4;GRIK4	Body;Body;Body
cg19513207	0.001612	3	1.43E+08		
cg04068313	0.00153	7	73304732		
cg24299074	0.00151	11	15133087	INSC	TSS1500
cg26944080	0.001483	9	5321358		
cg09495717	0.001482	16	1115209	SSTR5-AS1	Body
cg13505691	0.001481	21	43665609	ABCG1;ABCG1;ABCG1;ABCG1;ABCG1	Body;Body;Body;Body;Body
cg09077340	0.001476	5	1.53E+08	MFAP3;MFAP3;MFAP3;MFAP3;FAM114A2;MFAP3	1stExon;1stExon;5'UTR;5'UTR;TSS200;Body
cg01265281	0.001468	3	53881270	CHDH;IL17RB	TSS1500;Body
cg11782250	0.001456	8	3429382	CSMD1	Body
cg12462101	0.001452	5	1.41E+08	LOC100505658;DIAPH1;DIAPH1	TSS1500;Body;Body
cg00114430	0.00145	2	2.32E+08		
cg26471020	0.001399	7	1E+08	MOSPD3;MOSPD3;MOSPD3;MOSPD3	TSS200;TSS1500;TSS1500;5'UTR
cg12725240	0.001358	19	56825874		
cg07525299	0.001346	11	2293171	ASCL2	TSS1500
cg13456960	0.001319	19	5139479	KDM4B	Body
cg10755899	0.001309	4	1772151		

cg20744362	0.0013	22	50050164	C22orf34	Body
cg12495559	0.001285	17	78415034		
cg19645861	0.001278	2	16501343		
cg04290586	0.001272	12	1.08E+08	ASCL4;ASCL4	1stExon;5'UTR
cg01832662	0.001215	14	86086389	FLRT2	5'UTR
cg16538682	0.001214	7	1.22E+08	CADPS2;CADPS2;CADPS2	Body;Body;Body
cg05194726	0.001193	12	2944480	NRIP2	TSS1500
cg20094736	0.001192	1	1.11E+08	STRIP1;STRIP1;STRIP1;STRIP1;STRIP1	ExonBnd;ExonBnd;ExonBnd;Body;Body;Body
cg08468913	0.00118	3	1.23E+08	SEMA5B	Body
cg05254922	0.001167	10	76860057	DUSP13;DUSP13;DUSP13;DUSP13	TSS1500;3'UTR;Body;Body
cg10443421	0.00115	16	56644991		
cg17629264	0.001145	22	51043395	MAPK8IP2;MAPK8IP2	Body;Body
cg05275468	0.001144	3	20082916	KAT2B	Body
cg18117367	0.001142	5	1.4E+08	PCDHA6;PCDHA2;PCDHA1;PCDHA7;PCDHA1;PCDHA6;PCDHA5;PCDHA7;PCDHA3;PCDHA4	Body;Body;Body;TSS200;Body;Body;Body;TSS200;Body;Body
cg02819828	0.001135	13	37453855	SMAD9;SMAD9	5'UTR;5'UTR
cg03996020	0.001134	7	1.57E+08	DNAJB6	Body
cg27304020	0.001129	6	28956327		
cg05212706	0.001111	14	1E+08		
cg18710053	0.001103	5	1.26E+08	FLJ44606;FLJ44606	5'UTR;5'UTR
cg02071825	0.001082	17	56833096	PPM1E	TSS200

cg18788741	0.001079	8	53476943	FAM150A	Body
cg01283201	0.001066	5	77806169	LHFPL2	5'UTR
cg26266429	0.001039	12	49174651	ADCY6;ADCY6	Body;Body
cg13410002	0.001037	20	20353861		
cg27588974	0.001033	10	1.35E+08	PRAP1;PRAP1	Body;Body
cg01631182	0.001031	11	82905022	ANKRD42;	5'UTR;5'UTR;5'UTR;5'UTR;5'UTR;1stExon;1stExon;1stExon;1stExon;1stExon;1stExon;Body
cg14176966	0.001024	12	2944286	NRIP2	TSS200
cg17594004	0.001012	4	1.83E+08	ODZ3	Body
cg10497897	0.001009	16	81875718	PLCG2	Body
cg19870743	0.001005	1	2097158	PRKCZ;PRKCZ;PRKCZ	Body;Body;Body
cg14497869	0.001001	2	73297631	SFXN5	Body
cg01846723	0.000999	14	77924136	AHSA1;VIPAS39;VIPAS39;VIPAS39;VIPAS39;VIPAS39	TSS1500;TSS200;TSS200;TSS200;TSS200;TSS200
cg03175975	0.000983	2	1.21E+08	INHBB	Body
cg01646718	0.000976	8	1.46E+08	FBXL6;GPR172A;FBXL6	Body;TSS1500;Body
cg17939797	0.000963	17	47922778	FLJ45513;TAC4;TAC4;TAC4;TAC4;TAC4	TSS1500;Body;Body;Body;Body;Body
cg00986762	0.00096	1	36107072	PSMB2;PSMB2	1stExon;5'UTR
cg01414567	0.000941	12	82204306		
cg10890277	0.000937	14	24950825	LOC101927045	Body

cg10451401	0.000931	7	6414196	RAC1;RAC1;RAC1;RAC1	5'UTR;5'UTR;1stExon;1stExon
cg17998013	0.000926	3	15643079	HACL1;HACL1;BTB	1stExon;5'UTR;TSS200
cg12156287	0.000915	11	1.33E+08	OPCML;OPCML	Body;Body
cg27227029	0.000914	1	17215834		
cg26796341	0.000914	6	1.01E+08	SIM1	Body
cg03870329	0.000901	7	1.55E+08		
cg17319891	0.000886	1	38226240	EPHA10;EPHA10	3'UTR;Body
cg18454120	0.000834	3	16460497	RFTN1	Body
cg24630826	0.000829	16	8755076		
cg05068202	0.000808	11	2293074	ASCL2	TSS1500
cg04368076	0.000795	2	3776067		
cg21191514	0.000793	11	2187921	TH;TH;TH	Body;Body;Body
cg06744351	0.000781	2	2.25E+08	AP1S3;AP1S3;AP1S3	Body;Body;Body
cg01540595	0.000773	1	75590960		
cg15833579	0.000756	16	67679164	RLTPR	1stExon
cg12934079	0.000712	1	15527599	TMEM51;TMEM51;TMEM51;TMEM51	5'UTR;5'UTR;5'UTR;5'UTR
cg11445191	0.000682	5	1.4E+08	PCDHA6;PCDHA2;PCDHA1;PCDHA7;PCDHA1;PCDHA6;PCDHA5;PCDHA9;PCDHA9;PCDHA9;PCDHA3;PCDHA9;PCDHA4;PCDHA8	Body;Body;Body;Body;Body;Body;1stExon;5'UTR;1stExon;Body;5'UTR;Body;Body

cg01993818	0.000675	14	34270437	NPAS3;NPAS3; NPAS3;NPAS3	3'UTR;3'UTR;3' UTR;3'UTR
cg15251779	0.000672	7	1.51E+08	CHPF2	TSS1500
cg01913188	0.000636	2	44223249	LRPPRC	TSS200
cg26201213	0.00061	10	1.31E+08	MGMT	Body
cg18165248	0.000596	1	1.61E+08	PFDN2;NIT1	Body;TSS1500
cg22390660	0.00059	3	1.9E+08	P3H2;P3H2- AS1;P3H2	TSS200;Body;5' UTR
cg12998151	0.000589	19	42776766	CIC	Body
cg19998012	0.000571	10	1.19E+08		
cg03107102	0.000568	9	3181014	LINC01231	TSS1500
cg02603284	0.000562	2	1492017	TPO;TPO;TPO; TPO;TPO;TPO	Body;Body;Bod y;Body;Body;B ody
cg06203079	0.000538	20	17633823	RRBP1;RRBP1	Body;Body
cg26785823	0.000536	1	2482001	LOC115110	Body
cg04058169	0.000535	10	1.25E+08	BUB3;BUB3	TSS1500;TSS1 500
cg00491963	0.000494	11	57335356	UBE2L6;UBE2 L6;UBE2L6	1stExon;TSS20 0;5'UTR
cg27200949	0.000451	1	65312353	JAK1	Body
cg26326160	0.000442	20	41921081		
cg11120684	0.00043	6	90897267	BACH2;BACH 2	5'UTR;5'UTR
cg20274430	0.000414	22	41075992	MCHR1	Body
cg10250355	0.000403	22	43045158	CYB5R3	Body
cg19620758	0.000384	11	1.03E+08	MMP13	TSS200
cg18262852	0.000344	11	1.19E+08	USP2;USP2	TSS1500;Body
cg01335658	0.000337	10	1.32E+08		
cg21352959	0.000328	17	62340143	TEX2	5'UTR
cg18638998	0.000326	15	47656820	SEMA6D	5'UTR
cg08905567	0.000319	14	76777176		
cg11413657	0.000316	1	29138434	OPRD1	TSS1500

cg16133088	0.000309	12	3862428	EFCAB4B;EFCAB4B;EFCAB4B	TSS200;TSS200;TSS200
cg01294194	0.000304	17	26715208	SARM1	Body
cg21422742	0.000298	20	18005014	OVOL2	3'UTR
cg02010152	0.000296	6	32782617	HLA-DOB	Body
cg06708789	0.000293	16	86333959		
cg27088038	0.00027	14	92959927	SLC24A4;SLC24A4;SLC24A4	Body;Body;Body
cg24947106	0.000234	5	525233	SLC9A3;SLC9A3	TSS1500;TSS1500
cg10580056	0.000234	15	35086928	ACTC1	Body
cg02493167	0.000231	5	76935719	OTP	TSS1500
cg06329606	0.000199	10	1.03E+08		
cg01068691	0.000198	16	31420927	ITGAD	Body
cg21470503	0.000195	15	29410245	APBA2;APBA2	3'UTR;3'UTR
cg12688215	0.000153	1	52499228	TXNDC12;KTI12	Body;1stExon
cg16829244	0.000134	10	1.34E+08	INPP5A	Body
cg12492496	0.000125	19	18271859	PIK3R2	Body
cg18348318	0.00012	4	7736837	SORCS2	Body
cg01027932	0.000116	3	58344148	PXK;PXK;PXK;PXK;PXK;PXK;PXK	5'UTR;5'UTR;Body;Body;Body;Body;Body
cg24550644	0.000103	17	30846204	MYO1D	Body
cg04084597	0.0001	11	75479652	DGAT2	TSS200
cg14584292	9.81E-05	11	1.22E+08	MIR100HG	Body
cg20134781	9.44E-05	19	10628821	S1PR5;S1PR5	TSS1500;TSS200
cg03439559	8.34E-05	2	2.41E+08		
cg26373171	7.47E-05	1	2.1E+08	C1orf107	Body
cg22778145	7.03E-05	5	1.78E+08	CLK4	TSS1500
cg12267016	5.91E-05	5	1.81E+08		
cg05643503	4.09E-05	1	3713094	LRRC47	TSS200
cg22446784	2.34E-05	15	89613560		

cg22370005	5.71E-06	7	89749098	DPY19L2P4	Body
cg19937979	2.96E-06	14	70039915		
cg07985116	-1.17E-05	11	68204497	LRP5	Body
cg02002551	-1.33E-05	8	24772878	NEFM;NEFM	5'UTR;Body
cg14489205	-1.64E-05	1	1.65E+08	RXRG;RXRG; RXRG	TSS200;TSS200; TSS200
cg27220932	-1.65E-05	6	1.36E+08		
cg08167638	-2.46E-05	7	79281930		
cg16991886	-3.52E-05	6	11832079		
cg22325186	-3.98E-05	12	1.33E+08	FBRSL1	Body
cg04377324	-5.58E-05	6	46655795	TDRD6;TDRD6; TDRD6;TDRD6	1stExon;5'UTR; 5'UTR;1stExon
cg00829753	-5.73E-05	4	6303534	WFS1;WFS1	Body;Body
cg27152128	-8.74E-05	7	5269245	WIPI2;WIPI2; WIPI2;WIPI2; WIPI2	Body;Body;Body; Body;Body;Body
cg15599795	-8.99E-05	7	55545188	VOPP1	Body
cg03211864	-9.99E-05	10	1.24E+08	BTBD16	Body
cg15842366	-0.0001	6	74364533	SLC17A5	TSS1500
cg06470943	-0.00011	1	40839093	SMAP2	TSS1500
cg23735405	-0.00014	9	1.38E+08		
cg26586027	-0.00015	18	12068363		
cg12466556	-0.00018	22	30443509	HORMAD2- AS1	Body
cg05141217	-0.0002	8	28491378		
cg08791563	-0.00021	2	66736054	MEIS1	Body
cg17370981	-0.00021	13	1.14E+08	ATP4B	Body
cg00816083	-0.00021	14	52642761		
cg16967065	-0.00022	2	88742161		
cg04074153	-0.00023	12	29568207		
cg10270037	-0.00025	19	50789951	MYH14;MYH14; MYH14	Body;Body;Body
cg02569718	-0.00028	16	85540731		

cg08119252	-0.00028	5	64482825	ADAMTS6	Body
cg00328720	-0.00029	8	28562890	EXTL3	5'UTR
cg20236484	-0.00029	8	95487561	RAD54B;RAD54B	TSS1500;TSS1500
cg17819168	-0.0003	15	23807180		
cg12609498	-0.00031	1	1.58E+08		
cg10212045	-0.00031	17	9976506	GAS7	Body
cg20094201	-0.00032	20	44520771	CTSA;CTSA;NEURL2;NEURL2;CTSA	Body;Body;TSS1500;TSS1500;Body
cg02053188	-0.00034	5	1.4E+08	VTRNA1-3	TSS200
cg02629603	-0.00035	2	2.41E+08		
cg17266581	-0.00038	18	74799572	MBP;MBP	Body;Body
cg00907200	-0.00039	2	2.39E+08	ESPNL	Body
cg20249511	-0.00045	1	58148920	DAB1	5'UTR
cg13054419	-0.0005	13	31438929		
cg01149154	-0.00055	11	70858899	SHANK2	5'UTR
cg08518348	-0.00059	2	2.41E+08		
cg00764210	-0.0006	1	2.02E+08	PPP1R12B;PPP1R12B;PPP1R12B;PPP1R12B	TSS200;TSS200;TSS200;TSS200
cg25717844	-0.00061	7	99765818	GAL3ST4	5'UTR
cg22438640	-0.00065	6	29759543	HCG4;LOC554223;LOC554223	Body;TSS200;TSS200
cg10651600	-0.00071	8	57906543	IMPAD1	TSS200

cg26117104	-0.00074	20	31975140	CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1;CDK5RAP1	ExonBnd;ExonBnd;ExonBnd;ExonBnd;ExonBnd;Body;Body;Body;Body;Body
cg15375596	-0.0008	15	99434736	IGF1R	Body
cg06770067	-0.00082	6	37611948	MDGA1	Body
cg10321146	-0.00083	19	6822469	VAV1	Body
cg02822958	-0.00085	2	46747628	ATP6V1E2	TSS1500
cg26312463	-0.00086	14	91224003	TTC7B	Body
cg12957817	-0.00091	2	69253198	ANTXR1;ANTXR1;ANTXR1	Body;Body;Body
cg26656672	-0.00094	6	1.64E+08		
cg20355257	-0.00096	20	34818105	EPB41L1;EPB41L1;EPB41L1;EPB41L1;EPB41L1	3'UTR;3'UTR;3'UTR;3'UTR;3'UTR
cg02794434	-0.00097	4	2341196	ZFYVE28	Body
cg10064585	-0.001	8	1.42E+08	DENND3	Body
cg09196863	-0.00103	4	1.87E+08		
cg15772506	-0.00106	11	72466200	STARD10	Body
cg20137415	-0.00107	10	1.34E+08	JAKMIP3	Body
cg08801971	-0.00113	2	1.49E+08		
cg10227024	-0.00119	17	11234662	SHISA6	Body
cg01588379	-0.00119	7	1.51E+08	PRKAG2;PRKAG2	Body;Body
cg15045292	-0.00124	17	5403149	LOC728392	3'UTR

cg01995986	-0.00164	6	1.47E+08	STXBP5-AS1	Body
cg07603045	-0.00164	7	98088550		
cg02512212	-0.00168	19	10464100	TYK2	Body
cg17223645	-0.00169	10	465844	DIP2C	Body
cg21190361	-0.00173	9	34459060	DNAI1;C9orf25	Body;TSS1500
cg16056087	-0.00175	4	1.2E+08		
cg24900923	-0.00176	6	30434072		
cg11687306	-0.00177	17	75863921		
cg25956223	-0.00185	11	1.3E+08		
cg16386036	-0.00185	3	1.96E+08	CEP19;PIGX;PIGX	5'UTR;TSS1500;TSS1500
cg03122840	-0.00189	7	84154512		
cg18663670	-0.00191	14	1.06E+08	MTA1;MTA1;MTA1;MTA1	3'UTR;ExonBnd;ExonBnd;Body
cg20076126	-0.00196	14	69784107	GALNTL1;GALNTL1	Body;Body
cg00615172	-0.00202	22	20073233	MIR1306;MIR3618;DGCR8;DGCR8	TSS1500;TSS200;5'UTR;5'UTR
cg19045731	-0.00207	2	2.39E+08	ESPNL	Body
cg18557149	-0.00215	7	56515666	LOC650226	Body
cg11730930	-0.00216	14	75770279		
cg19600682	-0.00218	6	69344117		
cg13578160	-0.00219	7	72813978		
cg12742190	-0.00222	8	1.35E+08	ST3GAL1;ST3GAL1	5'UTR;5'UTR
cg23802768	-0.00225	20	3741520	C20orf27;C20orf27;C20orf27;C20orf27	5'UTR;5'UTR;5'UTR;Body
cg01999708	-0.00226	8	1.4E+08		
cg04044936	-0.00228	10	731292	DIP2C	Body
cg25010500	-0.00229	5	1.41E+08	PCDHB19P	TSS200

cg22614759	-0.00235	12	15113093	ARHGDIB	5'UTR
cg06020352	-0.00241	16	85931840	IRF8	TSS1500
cg09115423	-0.00246	7	1.31E+08		
cg06030290	-0.00247	16	66747163		
cg13039251	-0.00248	5	32018601	PDZD2	Body
cg10334976	-0.00252	10	1.35E+08	ECHS1	Body
cg01000953	-0.00257	4	1.22E+08		
cg25663770	-0.00261	6	41302149	NCR2	TSS1500
cg05151824	-0.00268	10	43047371	ZNF37B	Body
cg10276834	-0.00269	7	1.37E+08	CHRM2;CHRM2;CHRM2;CHRM2;CHRM2;CHRM2;CHRM2;CHRM2	5'UTR;5'UTR;5'UTR;5'UTR;5'UTR;5'UTR;5'UTR;5'UTR
cg17682316	-0.00278	17	18760333	PRPSAP2;PRPSAP2;PRPSAP2;PRPSAP2	TSS1500;TSS1500;5'UTR;5'UTR
cg10501758	-0.00287	2	1.28E+08		
cg24172054	-0.00293	12	1.3E+08		
cg20548935	-0.00294	18	47230704		
cg16497828	-0.00298	22	39053541	FAM227A;FAM227A;CBY1;CBY1	TSS1500;TSS1500;5'UTR;5'UTR
cg18249108	-0.00302	16	21222939	ZP2	TSS200
cg24225455	-0.00307	2	1.28E+08	MYO7B	Body
cg24342500	-0.00309	7	73302472		
cg04492769	-0.00317	7	1.57E+08		
cg04041654	-0.00326	1	1.84E+08		
cg05082312	-0.00329	17	47783458	SLC35B1;SLC35B1	Body;Body
cg23957084	-0.00334	22	19418954	MRPL40;HIRA	TSS1500;Body
cg20674725	-0.00355	3	47020919	NBEAL2	TSS1500
cg14943796	-0.00359	17	79377272	BAHCC1	Body

cg24967495	-0.00372	8	48801970	PRKDC;PRKDC	Body;Body
cg00607797	-0.00375	15	25418880	SNORD115-3	TSS1500
cg11750725	-0.00381	19	21203337	ZNF430;ZNF430	TSS200;TSS200
cg23368159	-0.00382	6	1.71E+08		
cg05548190	-0.00386	5	1.76E+08	UIMC1	5'UTR
cg03896661	-0.00387	2	1.97E+08	STK17B	TSS1500
cg25507767	-0.00404	7	1.38E+08	TMEM213;ATP6V0A4;ATP6V0A4	Body;TSS1500;TSS1500
cg24194912	-0.00404	17	3493176	TRPV1;TRPV1;TRPV1;TRPV1	Body;Body;Body;Body
cg08195842	-0.0041	13	21278118	IL17D	5'UTR
cg20719607	-0.00435	7	946806	ADAP1;	Body;Body;Body;Body;Body
cg23149300	-0.00447	10	36958940		
cg13574883	-0.00448	7	1705861		
cg26942952	-0.00448	12	1.33E+08		
cg03843031	-0.00461	20	44440947	UBE2C;UBE2C;UBE2C;UBE2C;UBE2C	TSS1500;TSS1500;TSS1500;TSS1500;TSS1500
cg05813162	-0.00462	15	75268583		
cg14141741	-0.0047	7	947428	ADAP1	Body
cg00708603	-0.00528	2	16463534		
cg18189063	-0.00536	19	49122916	RPL18;SPHK2	TSS1500;5'UTR
cg16332047	-0.00551	4	45352736		
cg12627844	-0.00559	2	64245000	VPS54;VPS54	5'UTR;5'UTR
cg25368591	-0.00572	1	2.47E+08	ZNF670;ZNF670;ZNF670-ZNF695	TSS1500;TSS1500;TSS1500
cg09205236	-0.00572	19	23882562		
cg15361028	-0.00577	6	53658683	LRRRC1	TSS1500

cg24315855	-0.00607	10	1.26E+08		
cg17632777	-0.00691	17	73402767	GRB2;GRB2	TSS1500;TSS1500
cg14684375	-0.00725	19	45540895	SFRS16;RELB	TSS1500;Body
cg22375826	-0.00779	15	1.02E+08	LRRK1	Body
cg08785007	-0.00856	19	56196667	EPN1;EPN1;EPN1	Body;Body;Body
cg18505959	-0.00949	6	31670195	BAT5	Body
cg20805367	-0.0099	17	6918952	C17orf49;C17orf49;C17orf49	Body;Body;Body
cg05984092	-0.01033	4	8007014	ABLIM2;ABLIM2;ABLIM2;ABLIM2;ABLIM2	Body;Body;Body;Body;Body
cg17075888	-0.01055	7	95225339	PDK4	Body
cg13354523	-0.01237	12	10251574	CLEC1A;CLEC1A	5'UTR;1stExon
cg11018313	-0.01606	15	85360052	ALPK3;ALPK3	1stExon;5'UTR
cg14643399	-0.0165	13	44706965		

Table S4. CpGs present in selenoprotein genes (N=662).

CpG						
cg04787675	cg26973714	cg18398505	cg02609127	cg25497959	cg11051022	cg01228352
cg13394083	cg10548272	cg05057777	cg06564500	cg16229180	cg13303186	cg26918679
cg16349585	cg06224613	cg04125099	cg19168575	cg07352544	cg07726808	cg16473116
cg26749361	cg13750850	cg25867694	cg22221330	cg20454517	cg15341124	cg07022554
cg08192891	cg01371233	cg15274047	cg02262247	cg06458732	cg06846055	ch.12.2061504F
cg21582973	cg21039410	cg12457376	cg14947787	cg17517002	cg15065877	cg22799420
cg05316612	cg14933812	cg25274376	cg20013563	cg10881887	cg00886598	cg22177364
cg01633693	cg07953015	cg14975009	cg09060914	cg02459648	cg10572274	cg12397981
cg24070636	cg23196538	cg22005145	cg01995821	cg14237894	cg09594698	cg01848457
cg25713558	cg10781048	cg27564043	cg21071670	cg00584995	cg15079869	cg23876599
cg16781205	cg24545927	cg17072503	cg04486485	cg09087777	cg06801544	cg10880599
cg03132679	cg09418354	cg18050233	cg08355316	cg12598554	cg01952742	cg01810763
cg20055940	cg06812356	cg12175949	cg10173182	cg10732871	cg03922340	cg06351425
cg03750909	cg01355753	cg14201782	cg16336056	cg07798595	cg17832450	cg21504918
cg06530725	cg15994744	cg27322371	cg09268480	cg17784863	cg25948075	cg23105185
cg11581417	cg23931558	cg01664864	cg09841361	cg00905101	cg00946245	cg10621017
cg17395064	cg11032634	cg20725915	cg15945047	cg25273343	cg01800262	cg23970189
cg02403412	cg10775141	cg25081135	cg07981822	cg15900980	cg00217795	cg07366553
cg08388882	cg03275274	cg22917209	cg01084722	cg09884423	cg05343289	cg04482075
cg15364335	cg07955370	cg07227926	cg17810098	cg23354716	cg03196381	cg07274523
cg04201367	cg19964470	cg04623955	cg02040083	cg13335813	cg27194081	cg16814023
cg07790947	cg04779597	cg20635595	cg04972384	cg08212821	cg07031794	cg18105279
cg08575697	cg12603582	cg20485042	cg13081720	cg21007213	cg11133495	cg26155983
cg24164157	cg17820459	cg14802400	cg08825848	cg25540845	cg00401233	cg20711382
cg19722698	cg27205904	cg17465939	cg21187265	cg21736108	cg13652556	cg25380400
cg10253022	cg25504086	cg05546013	cg15459780	cg10202693	cg18506744	cg02991995
cg18642234	cg17476193	cg09255748	cg02576601	cg12684668	cg20294640	cg10472244
cg05125558	cg21234561	cg19401969	cg12427404	cg02759005	cg14894245	cg18097850
cg02793507	cg22522875	cg13704930	cg05055782	cg21226225	cg21536925	cg15886728
cg21704228	cg10131972	cg00107488	cg04736260	cg09633209	cg09790614	cg24860215
cg21361322	cg00529946	cg13458720	cg13470658	cg26638444	cg15238382	cg15102118
cg13285934	cg03010761	cg03101178	cg23766094	cg08065092	cg20245822	cg18890830
cg16674006	cg09477407	cg01414357	cg01169008	cg22039275	cg06673170	cg04045549
cg16254394	cg24011261	cg03205258	cg25229856	cg20764656	cg22688428	cg04446470
cg20928447	cg01693026	cg25684105	cg07793095	cg21985120	cg26410840	cg22272956
cg21081852	cg08620606	cg16372648	cg06446550	cg01315323	cg01160309	cg17603758
cg18234441	cg12225910	cg04928147	cg27255659	cg12452539	cg23127183	cg21604347

cg13033972	cg12166806	cg25026091	cg21342437	cg18633684	cg16461485	cg26448962
cg07827280	cg09005221	cg01840860	cg25278660	cg16715692	cg15899461	cg15489541
cg04792949	cg02996602	cg11168694	cg04284661	cg08306602	cg19526600	cg15584435
cg25561409	cg07450086	cg16456252	cg02536588	cg03721993	cg17813801	cg09973852
cg08721513	cg02287710	cg18301891	cg11855061	cg01459453	cg24535312	cg18263852
cg10025908	cg12742294	cg15415160	cg00196810	cg16919420	cg21314813	cg21174533
cg11388006	cg02840615	cg20036405	cg10242862	cg17453374	cg09914675	cg20932440
cg18586919	cg23211275	cg07388468	cg01914785	cg08712129	cg06648156	cg14058998
cg22325330	cg20791839	cg06761303	cg16745967	cg20971927	cg23268677	cg14704270
cg25149023	cg07193553	cg17455591	cg03166323	cg11854392	cg13844922	cg00328051
cg17600680	cg20204634	cg08592897	cg21839284	cg11597332	cg13728275	cg14351034
cg26697065	cg06942979	cg11712482	cg05045161	cg19671026	cg21661138	cg25102759
cg18849169	cg25355226	cg20748537	cg27181554	cg01613691	cg01044961	cg18303019
cg05921260	cg05176667	cg19976011	cg02269049	cg23384886	cg06860277	cg05154833
cg20560169	cg16238523	cg02966415	cg03993166	cg02758552	cg00741900	cg04806177
cg08310728	cg22653982	cg14389081	cg07650554	cg21402062	cg17024526	cg24557301
cg09704223	cg26823989	cg08869857	cg14471244	cg24088042	cg03504384	cg25237118
cg02340615	cg27399558	cg07574241	cg02751228	cg13126530	cg01012273	cg24601055
cg17167832	cg03135598	cg07294774	cg01366958	cg06010923	cg15156836	cg11988308
cg13473117	cg21874862	cg14665147	cg26394781	cg05704833	cg20112040	cg19638406
cg19401643	cg01453732	cg14826516	cg25934700	cg09043524	cg25310824	cg21651356
cg08314408	cg02010047	cg02141631	cg21488132	cg19516235	cg20837278	cg05887270
cg06807055	cg00745520	cg27306787	cg10330576	cg13419700	cg21516478	cg05551922
cg26241404	cg10372721	cg14142965	cg10325694	cg02580969	cg00832928	cg09063111
cg24613794	cg24997442	cg13745182	cg21858255	cg01588546	cg06290817	cg25245684
cg11109721	cg03442372	cg10008137	cg24599709	cg24402755	cg25162473	cg22709144
cg27614432	cg06876878	cg09163259	cg09643186	cg15153049	cg23732836	
cg23765201	cg15926585	cg23122901	cg25118511	cg20145573	cg09091206	
cg08129848	cg02011912	cg24754507	cg17734802	cg26547124	cg02714710	
cg11659394	cg18580327	cg00397585	cg01016546	cg13784611	cg02304377	
cg04753786	cg15834517	cg23036171	cg19217571	cg13218224	cg21844881	
cg07019740	cg09017242	cg17327217	cg19677550	cg06587806	cg25653103	
cg24899205	cg07073234	cg20215900	cg01035107	cg22820354	cg20923245	
cg27026942	cg01857475	cg03886898	cg05555633	cg09441348	cg17544838	
cg01057705	cg18221786	cg06441533	cg04818710	cg11182965	cg14573826	
cg19500056	cg06429434	cg27106726	cg10485410	cg18804615	cg04825044	
cg01794929	cg13082349	cg22689737	cg27106191	cg19830534	cg08571743	
cg08183125	cg24361256	cg16627309	cg26129759	cg11162637	cg12282846	
cg01555151	cg27045871	cg14073390	cg12042711	cg07725185	cg17812013	
cg20786367	cg02014799	cg25494814	cg10822718	cg08881178	cg04857037	

cg12214972	cg25605195	cg19252424	cg14249212	cg10373676	cg02490185
cg06832042	cg09191574	cg05474605	cg18053954	cg05569280	cg18697348
cg02205072	cg01085461	cg22595719	cg13777902	cg19577984	cg07401063
cg12749636	cg08539067	cg00588621	cg06352924	cg09392819	cg08875078
cg16724196	cg14784293	cg13612480	cg08910793	cg17002133	cg14029940
cg01256865	cg14752429	cg24677278	cg02476533	cg01427641	cg10590512
cg19512730	cg05192898	cg05578030	cg05247426	cg09180629	cg12562967
cg27090284	cg24783234	cg10201084	cg19502457	cg11577646	cg10092241
cg14198560	cg14682345	cg15156712	cg08429214	cg01334665	cg13229026
cg03448193	cg00465975	cg03649834	cg11936313	cg13402594	cg12160147
cg03331715	cg16360659	cg04400940	cg05292016	cg01378878	cg22296244
cg10646189	cg00762185	cg23525358	cg10802379	cg25451937	cg13454225
cg12362726	cg11138005	cg00502555	cg06605958	cg08626131	cg21581267
cg07052524	cg08711118	cg10514751	cg07842593	cg22961275	cg26610681
cg18061485	cg04903600	cg25497850	cg02840823	cg08667244	cg03817911
cg24547396	cg19235994	cg19216490	cg01086389	cg03972213	cg20401162
cg15184308	cg04502814	cg00349736	cg00963029	cg14284699	cg09615017
cg15647029	cg21787567	cg07023226	cg05000987	cg00232044	cg27124296
cg27616378	cg15581906	cg11614212	cg17557552	cg03138242	cg09149541
cg10877524	cg14290287	cg09439497	cg03096705	cg11740027	cg11396791
cg26614816	cg23201817	cg23331664	cg07699362	cg19873631	cg04124697
cg24993400	cg12238441	cg00452257	cg05065230	cg16956840	cg26395285
	cg14821083	cg01933276	cg21368484	cg08891071	cg16826960

Table S5. Top differentially methylated positions of selenium according to 60 µg /g creatine

CpG	M-value	95% CI Lower Limit	95% CI Upper Limit	P-Value	FDR P-Value	Chromosome	Position	UCSC Gene Name	UCSC Gene Group
cg00163554	0.471303	0.302594	0.640011	5.07E-08	0.040005	8.063939	10	375799	DIP2C
cg00644416	0.098896	0.059839	0.137954	7.67E-07	0.206308	5.528932	13	1.15E+08	RASA3
cg17715243	0.191255	0.11564	0.26687	7.88E-07	0.206308	5.503756	10	1156212	WDR37
cg27240849	-0.09324	-0.13057	-0.05591	1.08E-06	0.206308	5.21542	12	77064762	
cg00167158	-0.09852	-0.13828	-0.05876	1.31E-06	0.206308	5.03282	2	1.58E+08	
cg23996692	0.100254	0.059152	0.141355	1.90E-06	0.228323	4.686299	5	1.42E+08	ARHGAP26
cg19371916	-0.12072	-0.17036	-0.07109	2.03E-06	0.228323	4.626326	1	8874984	RERE; RERE
cg21020871	-0.15166	-0.21531	-0.088	3.26E-06	0.320869	4.187086	13	43457994	
cg01188466	-0.09641	-0.13736	-0.05547	4.23E-06	0.326591	3.945485	8	93581364	
cg01995986	-0.53144	-0.75783	-0.30506	4.51E-06	0.326591	3.884674	6	1.47E+08	STXBP5-AS1
cg05594860	0.092017	0.052802	0.131231	4.56E-06	0.326591	3.875894	6	44033611	LOC101929705
cg25683967	0.056999	0.032399	0.0816	5.98E-06	0.393112	3.623972	13	31506479	TEX26-AS1;TEX26;TEX26-AS1
cg23185657	0.093263	0.052656	0.13387	7.20E-06	0.433564	3.452843	11	57298081	TIMM10
cg25946605	-0.08178	-0.11773	-0.04583	8.78E-06	0.433564	3.269362	2	10221185	CYS1
cg16896134	0.115949	0.06463	0.167268	1.01E-05	0.433564	3.141592	19	21305635	ZNF714
cg12340546	-0.06671	-0.09626	-0.03716	1.03E-05	0.433564	3.126286	6	30296689	TRIM39;TRIM39
cg17374034	-0.07826	-0.11298	-0.04354	1.06E-05	0.433564	3.097794	15	39000613	
cg24271234	-0.06471	-0.09348	-0.03594	1.11E-05	0.433564	3.056594	15	1.01E+08	LINS

cg2737 1329	0.09315 2	0.05167 9	0.13462 6	1.14E- 05	0.43356 4	3.03169 5	15	1.01E+0 8	ADAM TS17
cg2654 3347	- 0.09043	- 0.13079	- 0.05007	1.19E- 05	0.43356 4	2.98724 3	1	680012 78	

Urinary selenium was dichotomized into $\geq 60 \mu\text{g/g}$ creatinine and $<60 \mu\text{g/g}$ creatinine. Linear regressions were adjusted for sex, age, study center, smoking (never, former, current), body mass index (kg/m^2), education status, study center of recruitment, estimated glomerular filtration rate (ml/min/1.73m^2), houseman cell proportions (CD8, CD4, natural killer, B-cell, monocytes), five principle genetic components, and and 12 surrogate variables that captured unmeasured confounding. CpG sites were annotated using the University of California Santa Cruz (UCSC) genome browser.

Table S6. Top differentially methylated positions for the interaction of urinary selenium and urinary cadmium

CpG	Interacti on Term M- value	Interacti on Term 95% CI Lower Limit	Interacti on Term 95% CI Upper Limit	Interacti on Term P-Value	Interacti on Term FDR P- Value	Chromo some	Position	UCSC Gene Name	UCSC Gene Group
cg11270 656	0.007	-0.018	0.032	0.566	0.807	8	1.44E+0 8	GPIHB P1;GPI HBP1	5'UTR;1 stExon
cg00163 554	-0.02	-0.137	0.089	0.674	0.807	10	375799	DIP2C	Body
cg18212 762	0.005	-0.021	0.032	0.688	0.807	11	645566 54	MAP4K 2	3'UTR
cg25194 720	-0.004	-0.028	0.020	0.726	0.807	11	1.29E+0 8	KCNJ1; KCNJ1; KCNJ1; KCNJ1; KCNJ1	5'UTR;5 'UTR;5' UTR;TS S200;5' UTR
cg00886 293	0.003	-0.019	0.024	0.807	0.807	20	499564 10	-	-

Urinary selenium and urinary cadmium were \log_2 -transformed. Linear regressions were adjusted for sex, age, study center, smoking (never, former, current), body mass index (kg/m^2), education status, study center of recruitment, estimated glomerular filtration rate ($\text{ml}/\text{min}/1.73\text{m}^2$), houseman cell proportions (CD8, CD4, natural killer, B-cell, monocytes), five principle genetic components, 12 surrogate variables that captured unmeasured confounding, and an interaction term for \log_2 -transformed urinary selenium* \log_2 -transformed urinary cadmium, adjusted for creatinine. CpG sites were annotated using the University of California Santa Cruz (UCSC) genome browser. Effects sizes and p values are from limma models of M-values and \log_2 -transformed urinary selenium* \log_2 -transformed urinary cadmium.

Table S7. Top differentially methylated positions for the interaction of urinary selenium and urinary arsenic.

CpG	Interacti on Term M- value	Interacti on Term 95% CI Lower Limit	Interacti on Term 95% CI Upper Limit	Interacti on Term P-Value	Interacti on Term FDR P- Value	Chromos ome	Position	UCSC Gene Name	UCSC Gene Group
cg11270 656	0.007	-0.018	0.032	0.566	0.807	8	1.44E+0 8	GPIHBP 1;GPIH BP1	5'UTR;1 stExon
cg00163 554	-0.02	-0.137	0.089	0.674	0.807	10	375799	DIP2C	Body
cg18212 762	0.005	-0.021	0.032	0.688	0.807	11	6455665 4	MAP4K 2	3'UTR
cg25194 720	-0.004	-0.028	0.020	0.726	0.807	11	1.29E+0 8	KCNJ1; KCNJ1; KCNJ1; KCNJ1; KCNJ1	5'UTR;5 'UTR;5' UTR;TS S200;5' UTR
cg00886 293	0.003	-0.019	0.024	0.807	0.807	20	4995641 0	-	-

Urinary selenium and urinary arsenic were \log_2 -transformed. Linear regressions were adjusted for sex, age, study center, smoking (never, former, current), body mass index (kg/m^2), education status, study center of recruitment, estimated glomerular filtration rate ($\text{ml}/\text{min}/1.73\text{m}^2$), houseman cell proportions (CD8, CD4, natural killer, B-cell, monocytes), five principle genetic components, 12 surrogate variables that captured unmeasured confounding, and an interaction term for \log_2 -transformed urinary selenium* \log_2 -transformed urinary arsenic, adjusted for creatinine. CpG sites were annotated using the University of California Santa Cruz (UCSC) genome browser. Effects sizes and p values are from limma models of M-values and \log_2 -transformed urinary selenium* \log_2 -transformed urinary arsenic.

Figure S1. Distribution of urinary Selenium concentrations ($\mu\text{g/g}$ creatinine).

