

Supplemental Materials

Supplementary Table 1: Xenobiotic Metabolic and DNA Repair Genes and Variances Related to Cancer Susceptibility

PROSTATE CANCER							
SNP	Gene	Pathway	Ref.	SNP	Gene	Pathway	Ref.
rs34680	AMACR	Oxidative Stress	[37]	rs7659526	GSTCD	Oxidative Stress	[33]
rs34688	AMACR	Oxidative Stress	[37]	rs11079344	MPO	Oxidative Stress	[33]
rs250412	AMACR	Oxidative Stress	[37]	rs8178406	MPO	Oxidative Stress	[33]
rs2278008	AMACR	Oxidative Stress	[37]	rs7874112	MTAP	Oxidative Stress	[33]
rs2287939	AMACR	Oxidative Stress	[37]	rs854555	PON1	Oxidative Stress	[33]
rs2652130	AMACR	Oxidative Stress	[37]	rs854550	PON1	Oxidative Stress	[33]
rs3195676	AMACR	Oxidative Stress	[37]	rs933271	TXNRD2	Oxidative Stress	[33]
rs6863657	AMACR	Oxidative Stress	[37]	rs5993882	TXNRD2	Oxidative Stress	[33]
rs7721230	AMACR	Oxidative Stress	[37]	rs5746847	TXNRD2	Oxidative Stress	[33]
rs10941112	AMACR	Oxidative Stress	[37]	rs4485648	TXNRD2	Oxidative Stress	[33]
rs12979328	DHDH	Oxidative Stress	[33]	rs9606186	TXNRD2	Oxidative Stress	[33]
rs2287833	DHDH	Oxidative Stress	[33]	rs6518591	TXNRD2	Oxidative Stress	[33]
rs8102683	CYP2A6	Phase I, Phase II	[33]	rs2740168	EPHX1	Phase I, Phase II	[33]
rs2281891	CYP2C18	Phase I, Phase II	[33]	rs2292566	EPHX1	Phase I, Phase II	[33]
rs2296680	CYP2C18	Phase I, Phase II	[33]	rs2547238	SULT2A1	Phase I, Phase II	[33]
rs1322179	CYP2C19	Phase I, Phase II	[33]	rs3760808	SULT2B1	Phase I, Phase II	[33]
rs12768009	CYP2C19	Phase I, Phase II	[33]	rs10424237	SULT2B1	Phase I, Phase II	[33]
BLADDER CANCER							
SNP	Gene	Pathway	Ref.	SNP	Gene	Pathway	Ref.
rs10175368	CYP1B1	Phase I, Phase II	[36]	rs1062935	RAPTOR	mTOR	[38]
rs9341266	CYP1B1	Phase I, Phase II	[36]	rs11653499	RAPTOR	mTOR	[38]
rs7254343	CYP2A13	Phase I, Phase II	[36]	rs2589143	RAPTOR	mTOR	[38]
rs1934983	CYP2C8	Phase I, Phase II	[36]	rs2672890	RAPTOR	mTOR	[38]
rs1058932	CYP2C8	Phase I, Phase II	[36]	rs4889875	RAPTOR	mTOR	[38]
rs1934952	CYP2C8	Phase I, Phase II	[36]	rs4969230	RAPTOR	mTOR	[38]
rs11188149	CYP2C8	Phase I, Phase II	[36]	rs4969444	RAPTOR	mTOR	[38]
rs5758589	CYP2D6	Phase I, Phase II	[36]	rs7208536	RAPTOR	mTOR	[38]
rs1709112	CYP2F1	Phase I, Phase II	[36]	rs7211818	RAPTOR	mTOR	[38]
rs2548792	CYP2F1	Phase I, Phase II	[36]	rs7212142	RAPTOR	mTOR	[38]
rs9986458	GSTA1	Phase I, Phase II	[36]	rs7219896	RAPTOR	mTOR	[38]
rs6577	GSTA2	Phase I, Phase II	[36]	rs8071015	RAPTOR	mTOR	[38]
rs11101992	GSTM5	Phase I, Phase II	[36]	rs9674559	RAPTOR	mTOR	[38]
rs11227844	GSTP1	Phase I, Phase II	[36]	rs9890502	RAPTOR	mTOR	[38]
rs7829368	NAT1	Phase I, Phase II	[36]	rs9894401	RAPTOR	mTOR	[38]
rs12045585	AKT3	PI3K-Akt	[38]	rs9897968	RAPTOR	mTOR	[38]
rs2994329	AKT3	PI3K-Akt	[38]	rs9915378	RAPTOR	mTOR	[38]
rs717775	RHEB	PI3K-Akt	[38]	rs8063461	TSC2	PI3K-Akt	[38]
rs8018757	RPS6KA5	PI3K-Akt	[38]	rs9515120	IRS2	PI3K-Akt	[38]
rs2073636	TSC2	PI3K-Akt	[38]				

COLORECTAL CANCER							
SNP	Gene	Pathway	Ref.	SNP	Gene	Pathway	Ref.
rs2066853	ARH	Phase I, Phase II	[30]	rs2234922	EPHX1	Phase I, Phase II	[34]
rs4646903	CYP1A1	Phase I, Phase II	[30]	rs1051740	EPHX1	Phase I, Phase II	[32]
rs1048943	CYP1A1	Phase I, Phase II	[30]	rs1799735	GSTM3	Phase I, Phase II	[30]
rs762551	CYP1A2	Phase I, Phase II	[30]	rs1695	GSTP1	Phase I, Phase II	[32]
rs2470890	CYP1A2	Phase I, Phase II	[31]	rs4986990	NAT1	Phase I, Phase II	[30]
rs1800440	CYP1B1	Phase I, Phase II	[30]	rs8190861	NAT1	Phase I, Phase II	[30]
rs10012	CYP1B1	Phase I, Phase II	[30]	rs1799931	NAT2	Phase I, Phase II	[32]
rs1056836	CYP1B1	Phase I, Phase II	[31]	rs1801280	NAT2	Phase I, Phase II	[32]
rs1057910	CYP2C9	Phase I, Phase II	[30]	rs1799930	NAT2	Phase I, Phase II	[32]
rs6413432	CYP2E1	Phase I, Phase II	[30]	rs9282861	SULT1A1	Phase I, Phase II	[30]
rs3813867	CYP2E1	Phase I, Phase II	[30]	rs17868323	UGT1A7	Phase I, Phase II	[30]
rs2031920	CYP2E1	Phase I, Phase II	[31]	rs11692021	UGT1A7	Phase I, Phase II	[30]
rs1048945	APEX1	DNA Repair	[48]	rs25489	XRCC1	DNA Repair	[48]
rs1130409	APEX1	DNA Repair	[48]	rs25487	XRCC1	DNA Repair	[48]
rs1799782	XRCC1	DNA Repair	[48]	rs20417	PTGS2	VEGF Pathway	[32]
COLORECTAL ADENOMA							
SNP	Gene	Pathway	Ref.	SNP	Gene	Pathway	Ref.
rs1056836	CYP1B1	Phase I, Phase II	[18]	rs1208	NAT2	Phase I, Phase II	[18]
rs1801272	CYP2A6	Phase I, Phase II	[18]	rs1041983	NAT2	Phase I, Phase II	[18]
rs2070673	CYP2E1	Phase I, Phase II	[18]	rs1799929	NAT2	Phase I, Phase II	[18]
rs6413421	CYP2E1	Phase I, Phase II	[18]	rs1799931	NAT2	Phase I, Phase II	[35]
rs2242480	CYP3A4	Phase I, Phase II	[18]	rs1801280	NAT2	Phase I, Phase II	[35]
rs2234922	EPHX1	Phase I, Phase II	[18]	rs1799930	NAT2	Phase I, Phase II	[18]
rs3957357	GSTA1	Phase I, Phase II	[35]	rs6839	SULT1A1	Phase I, Phase II	[18]
rs1065411	GSTM1	Phase I, Phase II	[18]	rs9282861	SULT1A1	Phase I, Phase II	[35]
rs1799817	GSTP1	Phase I, Phase II	[18]	rs3194168	SULT1A2	Phase I, Phase II	[18]
rs1695	GSTP1	Phase I, Phase II	[35]	rs17868324	UGT1A7	Phase I, Phase II	[35]
rs4630	GSTT1	Phase I, Phase II	[18]	rs17868323	UGT1A7	Phase I, Phase II	[35]
rs4986782	NAT1	Phase I, Phase II	[35]	rs11692021	UGT1A7	Phase I, Phase II	[35]
rs15561	NAT1	Phase I, Phase II	[35]	rs3832043	UGT1A9	Phase I, Phase II	[35]
rs4986988	NAT1	Phase I, Phase II	[18]	rs1800566	NQO1	Oxidative Stress	[18]
rs4986989	NAT1	Phase I, Phase II	[18]	rs4986998	NQO1	Oxidative Stress	[18]
rs1057126	NAT1	Phase I, Phase II	[35]				

Supplementary Table 2: Dietary Factor and Cancer Association

Cancer	Factor	HR, RR or OR (95% CI) for highest vs. lowest exposure ¹	Ref.
Bladder cancer	Red meat	(OR) 2.11 (1.20-3.72)	[41]
Bladder cancer	Red meat	(OR) 1.8 (1.1-3.0)	[67]
Bladder cancer	Processed meat	(OR) 1.28 (1.00-1.65)	[68]
Bladder cancer	Red meat	(OR) 1.95 (1.41-2.68)	[36]
Bladder cancer	HCA	(OR) 3.32 (1.37-8.01)	[36]
Breast cancer	Red meat	(OR) 1.97 (1.04-3.75)	[41]
Breast cancer	Dietary iron	(HR) 1.25 (1.02-1.52)	[50]
Breast cancer	Well done red meat	(OR) 1.5 (1.3-1.9)	[51]
Breast cancer	Red meat	(OR) 4.30 (1.74-10.67)	[52]
Breast cancer (premenopausal)	Red meat	(OR) 2.20 (1.35-3.62)	[53]
Colorectal cancer	Red meat	(OR) 3.83 (2.37-6.20)	[41]
Colorectal cancer	Processed meat	(OR) 2.15 (1.49-3.11)	[41]
Colorectal cancer	Red meat	(HR) 1.24 (1.09-1.42)	[40]
Colorectal cancer	Processed meat	(HR) 1.16 (1.01-1.32)	[40]
Colorectal cancer	Nitrate (processed meat)	(HR) 1.16 (1.02-1.32)	[40]
Colorectal cancer	Heterocyclic amine	(HR) 1.19 (1.05-1.34)	[40]
Colorectal cancer	MeIQx	(HR) 1.19 (1.05-1.34)	[40]
Colorectal cancer	DiMeIQx	(HR) 1.17 (1.05-1.29)	[40]
Colorectal cancer	Meat based pattern ²	(OR) 1.63 (1.22-2.18)	[42]
Endometrial cancer	Animal-derived iron	(OR) 1.9 (1.4-2.7)	[72]
Esophageal cancer	Red meat	(OR) 3.36 (1.97-5.72)	[41]
Esophageal cancer	Processed meat	(OR) 1.63 (1.08-2.47)	[41]
Esophageal squamous cell carcinoma (men)	Processed meat	(HR) 3.47 (1.21-9.94)	[58]
Esophageal squamous cell carcinoma	Red meat	(HR) 1.79 (1.07-3.01)	[59]
Esophageal adenocarcinoma	Red meat	(OR) 3.15 (1.38-7.20)	[60]
Gastric cancer	Red meat	(OR) 2.19 (1.31-3.65)	[41]
Gastric cancer	Processed meat	(OR) 1.62 (1.07-2.44)	[41]
Head and neck cancer	Processed meat	(OR) 1.37 (1.14-1.65)	[70]
Larynx cancer	Red meat	(OR) 2.91 (1.80-4.68)	[41]
Larynx cancer	Processed meat	(OR) 1.84 (1.21-2.78)	[41]
Lung cancer	Red meat	(OR) 2.17 (1.52-3.10)	[41]
Lung cancer	Processed meat	(OR) 1.70 (1.28-2.25)	[41]
Lung cancer	Fried meat, barbecued meat, and salted meat	(OR) 2.90 (1.99-4.25)	[61]
Lung cancer	Red meat	(OR) 1.8 (1.5-2.2)	[62]
Lung cancer	Processed meat	(OR) 1.7 (1.4-2.1)	[62]
Lung cancer	Red meat + never smoker	(OR) 2.4 (1.4-4.0)	[62]
Lung cancer	Processed meat + never smoker	(OR) 2.5 (1.5-4.2)	[62]
Lung carcinoma (men)	Red meat	(HR) 1.22 (1.09-1.38)	[63]
Lung carcinoma (men)	Processed meat	(HR) 1.23 (1.10-1.37)	[63]

Oral & Pharynx cancer	Red meat	(OR) 3.65 (2.21-6.01)	[41]
Pancreatic cancer	Western diet ³	(OR) 2.4 (1.3-4.2)	[69]
Prostate cancer	Red meat	(OR) 1.87 (1.08-3.21)	[41]
Prostate cancer	Ground beef	(OR) 2.30 (1.39-3.81)	[54]
Prostate cancer	MelQx	(OR) 1.69 (1.08-2.64)	[54]
Prostate cancer	DiMelQx	(OR) 1.53 (1.00-2.35)	[54]
Prostate cancer (Advanced)	Hamburgers	(OR) 1.79 (1.10-2.92)	[55]
Prostate cancer	Meat diet (e.g., red meat, ham, sausages)	(OR) 2.91 (1.55-4.87)	[56]
Prostate cancer	Heme-iron	(OR) 1.09 (1.02-1.17)	[57]
Prostate cancer	BBQ/grilled meat	(OR) 1.11 (1.03-1.19)	[57]
Prostate cancer (Advanced)	Heme-iron	(OR) 1.28 (1.03-1.58)	[57]
Prostate cancer (Advanced)	BBQ/grilled meat	(OR) 1.36 (1.10-1.69)	[57]
Prostate cancer (Advanced)	Nitrite	(OR) 1.24 (1.02-1.51)	[57]
Prostate cancer (Advanced)	Nitrate	(OR) 1.31 (1.07-1.61)	[57]
Upper-aerodigestive tract cancer	Red meat	(OR) 1.14 (1.05-1.25)	[71]

¹P < 0.05 for trend test.²Meat-based pattern: Food rich in saturated fat, animal protein, cholesterol, and phosphorus, nutrients originated in red meat.³Western diet: higher intake of red and processed meats, potato chips, sugary beverages, sweets, high fat dairy, eggs, and refined grains.