

**Table S1** 49 SNPs were associated with omega-3 PUFA and kidney cancer

SNP	CHR	EA	OA	EAF	$\beta$	SE	P value	F-statistic
rs9987289	2	G	C	0.224	-0.036	0.005	5.60015E-15	55.192
rs964184	6	G	A	0.079	-0.063	0.008	2.80027E-17	69.824
rs9304381	5	T	G	0.479	0.024	0.004	2.39999E-09	35.025
rs7970695	8	A	G	0.392	-0.087	0.004	3.50026E-98	428.664
rs7924036	19	C	T	0.510	0.027	0.004	8.60003E-11	43.595
rs7819706	2	T	C	0.111	0.035	0.006	0.000000032	29.175
rs77960347	1	A	C	0.645	0.071	0.004	3.59998E-66	281.853
rs737338	2	T	C	0.716	-0.025	0.004	0.00000002	31.370
rs73109460	21	C	T	0.142	-0.037	0.006	2.19999E-10	40.253
rs72789541	6	G	A	0.019	-0.116	0.015	1.39991E-15	59.170
rs6882345	11	C	T	0.186	-0.051	0.005	1.10002E-22	92.979
rs673335	2	C	T	0.604	-0.082	0.004	8.4004E-88	390.344
rs6693447	2	T	G	0.450	0.022	0.004	2.19999E-08	29.326
rs6601924	15	C	T	0.026	0.118	0.013	2.29985E-21	84.867
rs633695	11	T	C	0.010	-0.154	0.020	9.3994E-14	57.049
rs629301	11	C	G	0.011	0.107	0.020	4.20001E-08	27.338
rs62466318	16	C	T	0.748	0.025	0.005	2.99999E-08	28.754
rs6129624	17	T	C	0.227	-0.036	0.005	3.90032E-14	53.066
rs58542926	11	G	A	0.347	-0.337	0.004	1E-200	6315.263
rs55891451	9	G	C	0.124	-0.037	0.006	5.19996E-09	36.341
rs4860987	6	T	G	0.162	-0.046	0.006	1.20005E-15	70.172
rs4000713	15	C	T	0.655	-0.114	0.004	3.8994E-161	713.595
rs35135293	11	G	A	0.718	-0.035	0.005	1.99986E-14	59.889
rs34663616	6	A	G	0.130	-0.039	0.006	1.79999E-09	42.162
rs3129962	6	A	G	0.130	-0.039	0.006	1.79999E-09	42.162
rs3018731	2	T	C	0.517	-0.021	0.004	3.89996E-08	26.163
rs261290	7	A	G	0.295	-0.029	0.004	1E-11	41.747
rs2394976	4	T	A	0.259	0.046	0.005	1.20005E-21	89.089
rs182611493	19	G	C	0.534	0.048	0.004	9.09913E-30	118.974
rs1800978	10	C	A	0.202	0.034	0.005	4.60045E-12	45.271
rs174564	19	T	C	0.074	-0.172	0.008	1.3996E-113	490.350
rs16940904	20	A	G	0.335	-0.026	0.004	5.1E-10	34.600
rs1672811	7	T	C	0.204	-0.072	0.005	1.20005E-45	202.922
rs144018203	1	T	G	0.778	0.038	0.005	1.29987E-14	61.463
rs143355652	15	G	A	0.292	0.084	0.004	9.09913E-80	351.170
rs139974673	10	C	T	0.846	0.035	0.006	8.50002E-10	38.661
rs13424225	1	G	T	0.462	0.023	0.004	4.79999E-09	31.673
rs1260326	11	C	T	0.160	-0.067	0.006	1.10002E-34	146.183
rs12226389	5	A	G	0.633	0.029	0.004	1.9002E-13	47.036
rs117733303	16	A	T	0.296	-0.081	0.004	5.60015E-75	330.551
rs117143374	7	A	G	0.124	-0.035	0.006	9.20005E-10	31.609
rs11681659	19	T	C	0.035	-0.073	0.011	3.50026E-11	43.356
rs1167998	18	G	A	0.013	0.162	0.018	7.19946E-22	82.971
rs11563251	8	G	A	0.118	-0.040	0.006	1.79999E-10	39.741
rs1132899	10	T	G	0.504	0.023	0.004	5.49997E-10	33.011
rs112875651	12	A	G	0.621	-0.025	0.004	1.2E-10	36.366
rs11242109	18	T	C	0.818	0.053	0.005	5.19996E-24	100.394
rs10455872	11	C	G	0.867	-0.117	0.006	8.9002E-87	382.338
rs10184054	8	G	A	0.909	0.057	0.007	3.19963E-16	64.281

**Table S2** 53 SNPs were associated with omega-6 PUFA and kidney cancer

SNP	CHR	EA	OA	EAF	$\beta$	SE	P value	F-statistic
rs964184	11	C	G	0.867	-0.139	0.006	1.099E-125	545.974
rs9616847	22	T	A	0.388	0.024	0.004	1.40001E-08	32.813
rs9304381	18	T	C	0.818	0.070	0.005	7.19946E-42	179.918
rs9295128	6	T	G	0.017	-0.196	0.016	3.40017E-36	151.501
rs870526	2	T	C	0.521	-0.032	0.004	7.70016E-16	62.328
rs79429216	19	A	G	0.013	0.151	0.018	1.29987E-17	70.509
rs77960347	18	G	A	0.013	0.276	0.018	2.80027E-56	244.633
rs7750288	6	G	A	0.285	0.025	0.004	1.29999E-08	31.188
rs7707394	5	A	G	0.357	0.030	0.004	1.20005E-12	49.309
rs75406471	10	A	G	0.155	-0.031	0.006	2.69998E-08	31.560
rs740516	17	G	C	0.151	-0.032	0.006	1.40001E-08	31.127
rs72997616	11	A	C	0.094	-0.052	0.007	1.59993E-13	55.159
rs7139079	12	A	G	0.593	-0.030	0.004	3.29989E-13	52.215
rs6938647	6	C	A	0.782	-0.048	0.005	1.9002E-23	94.738
rs6934962	6	T	C	0.400	0.023	0.004	2.19999E-08	30.808
rs6882345	5	A	G	0.633	0.045	0.004	1.20005E-27	115.324
rs672889	2	G	T	0.860	0.076	0.006	1.29987E-41	173.181
rs6602911	13	T	C	0.360	0.026	0.004	1.29999E-09	37.579
rs6547409	2	T	C	0.051	-0.081	0.009	2.39994E-20	77.380
rs6471717	8	A	G	0.663	-0.029	0.004	4.00037E-12	46.053
rs633695	15	G	A	0.292	0.073	0.004	1.29987E-59	265.507
rs58542926	19	T	C	0.074	-0.128	0.008	2.49977E-65	277.425
rs5754102	22	A	C	0.183	-0.032	0.005	9.90011E-10	35.894
rs56322906	19	A	G	0.035	-0.100	0.011	1.20005E-19	83.880
rs55747707	7	A	G	0.204	-0.049	0.005	1.69981E-22	97.031
rs534417	1	G	A	0.875	0.039	0.006	9.30037E-11	41.253
rs4860948	4	A	T	0.244	0.028	0.005	1.89998E-09	35.146
rs4439799	17	T	C	0.502	0.022	0.004	1.29999E-08	30.720
rs4299376	2	T	G	0.676	-0.035	0.004	1.10002E-16	67.120
rs4008004	9	A	C	0.222	0.033	0.005	8.4004E-12	45.702
rs3817335	11	A	T	0.351	-0.028	0.004	9.79941E-12	43.389
rs3770586	2	T	C	0.484	-0.023	0.004	7.10003E-09	32.135
rs3734854	6	A	G	0.065	0.048	0.008	5.90065E-11	33.745
rs28383314	6	C	T	0.623	0.039	0.004	1.69981E-18	87.240
rs2740488	9	C	A	0.265	-0.050	0.005	5.40008E-28	119.862
rs2737245	8	T	G	0.279	-0.027	0.005	1.40001E-09	37.150
rs261290	15	C	T	0.655	-0.097	0.004	1E-116	515.868
rs2378390	20	A	G	0.141	-0.033	0.006	3.2E-09	32.804
rs1883711	20	C	G	0.031	0.092	0.012	3.19963E-16	60.576
rs183130	16	T	C	0.324	0.062	0.004	1.39991E-48	203.580
rs1800961	20	T	C	0.030	-0.074	0.012	3.29997E-10	39.942
rs1461729	8	G	A	0.899	0.084	0.007	2.80027E-36	155.206
rs142158911	19	A	G	0.117	-0.094	0.006	5.19996E-52	223.269
rs141469619	11	G	A	0.010	0.111	0.021	1.40001E-08	26.909
rs13108218	4	G	A	0.615	-0.035	0.004	3.59998E-18	70.918
rs12740374	1	T	G	0.221	-0.057	0.005	1.50003E-32	139.195
rs1260326	2	C	T	0.604	-0.064	0.004	3.90032E-55	242.997
rs11789603	9	T	C	0.109	0.048	0.006	9.70063E-14	54.416
rs115478735	9	T	A	0.183	0.042	0.005	2.19989E-17	65.682
rs114863007	6	A	G	0.095	-0.046	0.007	7.29962E-12	43.540
rs112875651	8	A	G	0.392	-0.064	0.004	2.19989E-53	231.270
rs1081105	19	C	A	0.028	0.119	0.012	1.80011E-22	92.766
rs1002687	1	A	G	0.645	0.091	0.004	1E-107	466.283