Supplementary Information (SI) for Food & Function.
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SUPPLEMENTARY MATERIAL

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Table S1. Characteristics of dietary habits GWAS (exposure) and Alzheimer's disease GWAS (outcome) for the present study.

Trait	Authors	Year	Population	Gender	Case/ Control	Sample size	Build
Alcohol intake frequency	Ben Elsworth et al.	2018	European	Males and Females	/	462,346	HG19/GRCh37
Processed meat intake	Ben Elsworth et al.	2018	European	Males and Females	/	461,981	HG19/GRCh37
Poultry intake	Ben Elsworth et al.	2018	European	Males and Females	/	461,900	HG19/GRCh37
Beef intake	Ben Elsworth et al.	2018	European	Males and Females	/	461,053	HG19/GRCh37
Non-oily fish intake	Ben Elsworth et al.	2018	European	Males and Females	/	460,880	HG19/GRCh37
Oily fish intake	Ben Elsworth et al.	2018	European	Males and Females	/	460,443	HG19/GRCh37
Pork intake	Ben Elsworth et al.	2018	European	Males and Females	/	460,162	HG19/GRCh37
Lamb/mutton intake	Ben Elsworth et al.	2018	European	Males and Females	/	460,006	HG19/GRCh37
Bread intake	Ben Elsworth et al.	2018	European	Males and Females	/	452,236	HG19/GRCh37
Cheese intake	Ben Elsworth et al.	2018	European	Males and Females	/	451,486	HG19/GRCh37
Cooked vegetable intake	Ben Elsworth et al.	2018	European	Males and Females	/	448,651	HG19/GRCh37
Tea intake	Ben Elsworth et al.	2018	European	Males and Females	/	447,485	HG19/GRCh37
Fresh fruit intake	Ben Elsworth et al.	2018	European	Males and Females	/	446,462	HG19/GRCh37
Cereal intake	Ben Elsworth et al.	2018	European	Males and Females	/	441,640	HG19/GRCh37
Salad/raw vegetable intake	Ben Elsworth et al.	2018	European	Males and Females	/	435,435	HG19/GRCh37
Coffee intake	Ben Elsworth et al.	2018	European	Males and Females	/	428,860	HG19/GRCh37
Dried fruit intake	Ben Elsworth et al.	2018	European	Males and Females	/	421,764	HG19/GRCh37
Alzheimer's disease	Bellenguez C et al.	2022	European	NA	39,106/46,828	487,511	HG19/GRCh37

Abbreviation: GWAS, Genome-Wide Association Studies;

Table S2. Results of heterogeneity test and inverse-variance-weighted model used in mendelian randomization analysis.

ID	Exposure	Outcome	Q value	*P* value	Model
ukb-b-5779	Alcohol intake frequency	ebi-a-GCST90027158	388.064	4.37E-26	multiplicative random effects
ukb-b-6324	Processed meat intake	ebi-a-GCST90027159	37.435	0.14	fixed effects
ukb-b-8006	Poultry intake	ebi-a-GCST90027160	8.843	0.26	fixed effects
ukb-b-2862	Beef intake	ebi-a-GCST90027161	24.971	0.07	fixed effects
ukb-b-17627	Non-oily fish intake	ebi-a-GCST90027162	18.980	0.27	fixed effects
ukb-b-2209	Oily fish intake	ebi-a-GCST90027163	236.992	1.01E-13	multiplicative random effects
ukb-b-5640	Pork intake	ebi-a-GCST90027164	10.553	0.48	fixed effects
ukb-b-14179	Lamb/mutton intake	ebi-a-GCST90027165	36.062	0.24	fixed effects
ukb-b-11348	Bread intake	ebi-a-GCST90027166	73.878	1.35E-04	multiplicative random effects
ukb-b-1489	Cheese intake	ebi-a-GCST90027167	180.745	1.41E-09	multiplicative random effects
ukb-b-8089	Cooked vegetable intake	ebi-a-GCST90027168	29.119	0.03	multiplicative random effects
ukb-b-6066	Tea intake	ebi-a-GCST90027169	103.856	6.69E-03	multiplicative random effects
ukb-b-3881	Fresh fruit intake	ebi-a-GCST90027170	114.993	6.98E-05	multiplicative random effects
ukb-b-15926	Cereal intake	ebi-a-GCST90027171	70.148	0.01	multiplicative random effects
ukb-b-1996	Salad / raw vegetable intake	ebi-a-GCST90027172	64.099	1.65E-05	multiplicative random effects
ukb-b-5237	Coffee intake	ebi-a-GCST90027173	125.502	5.25E-04	multiplicative random effects
ukb-b-16576	Dried fruit intake	ebi-a-GCST90027174	103.489	8.35E-05	multiplicative random effects

Table S3. Characteristics of genetic variants for Processed meat intake.

SNP	Chr	Pos	EA	OA	Beta	SE	EAF	P value
rs10454812	5	52800358	C	A	-0.0200	0.0034	0.1030	6.70E-09
rs11032380	11	33800533	T	A	-0.0133	0.0022	0.3334	2.10E-09
rs11887120	2	25485735	T	C	0.0120	0.0022	0.3977	3.10E-08
rs11894162	2	107197420	T	C	0.0120	0.0021	0.5475	1.10E-08
rs12167368	22	42546304	A	G	-0.0211	0.0037	0.0884	1.20E-08
rs1422192	5	87959023	A	G	0.0170	0.0029	0.1581	3.40E-09
rs2029401	5	92891029	G	A	0.0146	0.0021	0.5862	6.30E-12
rs203319	22	41914593	T	C	-0.0164	0.0026	0.2046	2.80E-10
rs2873054	3	81888255	C	A	0.0140	0.0022	0.3533	1.60E-10
rs2975635	8	10143661	C	T	-0.0141	0.0024	0.7349	2.80E-09
rs34241936	17	74065908	G	A	0.0328	0.0058	0.0374	1.10E-08
rs34305371	1	72733610	A	G	-0.0213	0.0035	0.1013	8.10E-10
rs35797348	5	93284879	A	G	0.0146	0.0025	0.2342	3.20E-09
rs3729854	8	11614329	T	C	-0.0145	0.0022	0.3378	8.60E-11
rs3762621	2	173306140	T	C	-0.0150	0.0027	0.1835	3.60E-08
rs4077924	2	181991389	C	T	0.0125	0.0023	0.7019	4.50E-08
rs409997	8	8737464	G	T	-0.0142	0.0023	0.6465	1.00E-09
rs4240672	8	10767917	A	G	0.0171	0.0021	0.4940	3.00E-16
rs4778053	15	93424341	G	C	0.0165	0.0029	0.8438	1.30E-08
rs6010651	20	62418243	C	A	-0.0124	0.0022	0.3794	1.10E-08
rs6484504	11	31424823	C	T	0.0155	0.0023	0.7246	4.40E-11
rs6765179	3	25276416	A	G	-0.0128	0.0023	0.3100	1.80E-08
rs6786550	3	62560523	C	T	0.0122	0.0022	0.6350	2.10E-08
rs6961970	7	113901132	A	C	-0.0140	0.0024	0.2447	9.50E-09
rs7531118	1	72837239	C	T	-0.0141	0.0021	0.5311	2.80E-11
rs77165542	2	430975	T	C	0.0339	0.0057	0.0355	3.30E-09
rs8096167	18	34800257	C	T	-0.0146	0.0027	0.1926	4.70E-08

rs838133	19	49259529	G	A	0.0190	0.0022	0.5494	1.60E-18
rs9329185	8	9204425	G	A	0.0130	0.0024	0.7270	3.70E-08
rs9809856	3	18227421	G	A	0.0133	0.0021	0.4759	2.50E-10

Abbreviations: SNP, single-nucleotide polymorphism; Chr, chromosome; Pos, Position; EA, effect allele; OA, other allele; EAF, effect allele frequency.

Table S4. Characteristics of genetic variants for Poultry intake.

SNP	Chr	Pos	EA	OA	Beta	SE	EAF	*P* value
rs1051730	15	78894339	A	G	-0.0109	0.0019	0.3314	1.70E-08
rs1256436	15	83537042	T	C	-0.0100	0.0018	0.4724	3.40E-08
rs2426440	20	50999841	G	A	0.0112	0.0021	0.7326	4.70E-08
rs2565017	18	21070280	A	G	0.0110	0.0019	0.3727	5.90E-09
rs2965200	19	19476365	A	G	-0.0104	0.0019	0.6400	4.20E-08
rs7829800	8	144258705	G	A	0.0115	0.0019	0.6708	3.70E-09
rs9923768	16	6163838	A	G	0.0105	0.0019	0.5985	1.60E-08
rs9997448	4	140870515	T	C	-0.0105	0.0019	0.3692	2.70E-08

Abbreviations: SNP, single-nucleotide polymorphism; Chr, chromosome; Pos, Position; EA, effect allele; OA, other allele; EAF, effect allele frequency.

Table S5. Characteristics of genetic variants for Beef intake.

SNP	Chr	Pos	EA	OA	Beta	SE	EAF	*P* value
rs10789340	1	72940273	G	A	-0.0138	0.0018	0.6267	6.80E-15
rs10959890	9	11526198	C	T	-0.0127	0.0021	0.2123	1.50E-09
rs1105388	1	205308591	T	C	-0.0114	0.0019	0.3001	1.30E-09
rs11165829	1	97743702	G	C	-0.0102	0.0018	0.3600	9.80E-09
rs11878917	19	42588999	A	G	0.0150	0.0027	0.1097	4.60E-08
rs132901	22	41797547	T	C	0.0139	0.0021	0.7877	2.90E-11
rs1421085	16	53800954	C	T	-0.0121	0.0017	0.4034	3.50E-12
rs1470610	2	33866464	C	G	-0.0122	0.0022	0.1962	1.50E-08
rs16937	1	205035455	G	A	-0.0105	0.0018	0.6872	1.20E-08
rs2321500	3	71206669	G	T	0.0107	0.0018	0.6609	4.30E-09
rs4676964	3	71034748	T	C	0.0134	0.0017	0.5106	9.60E-15
rs62169335	2	147946069	T	C	-0.0097	0.0017	0.5432	2.40E-08
rs62396185	6	26180634	C	G	-0.0148	0.0020	0.2601	2.80E-14
rs6658413	1	73940292	C	G	-0.0132	0.0022	0.1868	2.00E-09
rs7791463	7	97819047	A	G	0.0095	0.0017	0.5348	2.40E-08
rs784251	18	53412903	T	C	-0.0103	0.0017	0.4776	1.70E-09
rs79809011	8	10126532	A	G	-0.0281	0.0051	0.0295	3.40E-08

Abbreviations: SNP, single-nucleotide polymorphism; Chr, chromosome; Pos, Position; EA, effect allele; OA, other allele; EAF, effect allele frequency.