|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Study** | **N** | **Coded allele frequency** | **Imputation quality metric** | **Ever-Smoking** | **Pack-years** |
| **βSNP** | ***P*SNP** | **βINT** | ***P*INT** | **Joint *P*1** | **βSNP** | ***P*SNP** | **βINT** | ***P*INT** | **Joint *P*1** |
| AGES | 1,696 | 0.35 | 1.00 | -0.013 | 0.80 | 0.096 | 0.17 | 0.21 | -0.029 | 0.47 | 0.014 | 0.0011 | 0.0023 |
| ARIC | 8,934 | 0.35 | 1.00 | 0.056 | 0.0081 | -0.017 | 0.57 | 0.0042 | 0.049 | 0.0069 | -0.00013 | 0.86 | 0.0055 |
| B58C | 4,605 | 0.35 | 1.00 | 0.088 | 0.010 | -0.095 | 0.030 | 0.036 | 0.076 | 0.0042 | -0.00024 | 0.0059 | 0.0071 |
| CARDIA | 1,605 | 0.35 | 1.00 | 0.074 | 0.12 | -0.048 | 0.49 | 0.26 | 0.056 | 0.16 | 0.0015 | 0.84 | 0.22 |
| CHS | 3,140 | 0.35 | 0.99 | 0.029 | 0.42 | 0.013 | 0.80 | 0.39 | 0.037 | 0.22 | -0.00010 | 0.93 | 0.39 |
| ECHRS | 1,594 | 0.35 | 1.00 | -0.090 | 0.12 | 0.13 | 0.094 | 0.23 | -0.036 | 0.43 | 0.0027 | 0.41 | 0.65 |
| EPIC obese cases | 1,084 | 0.35 | 1.00 | 0.062 | 0.33 | 0.0061 | 0.95 | 0.36 | 0.10 | 0.061 | -0.0035 | 0.35 | 0.17 |
| EPIC population-based | 2,294 | 0.34 | 1.00 | 0.027 | 0.53 | -0.027 | 0.66 | 0.82 | 0.016 | 0.66 | -0.00039 | 0.89 | 0.90 |
| FHS | 7,694 | 0.36 | 1.00 | 0.069 | 0.0035 | -0.027 | 0.42 | 0.0030 | 0.073 | 0.00023 | -0.0015 | 0.12 | 0.0010 |
| Health ABC | 1,472 | 0.35 | 1.00 | -0.0069 | 0.89 | 0.054 | 0.46 | 0.68 | 0.017 | 0.69 | 0.00031 | 0.83 | 0.82 |
| LifeLines | 2,616 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| MESA | 1,403 | 0.35 | 0.98 | 0.13 | 0.012 | -0.11 | 0.15 | 0.039 | 0.12 | 0.0039 | -0.0034 | 0.048 | 0.013 |
| NFBC1966 | 3,564 | 0.32 | 1.00 | 0.025 | 0.52 | 0.010 | 0.85 | 0.48 | 0.023 | 0.45 | 0.0013 | 0.67 | 0.44 |
| RS-I | 1,196 | 0.36 | 1.00 | -0.040 | 0.56 | 0.093 | 0.28 | 0.51 | 0.026 | 0.63 | -0.00027 | 0.92 | 0.86 |
| RS-II | 840 | 0.35 | 1.00 | -0.049 | 0.51 | 0.036 | 0.72 | 0.79 | -0.066 | 0.26 | 0.0027 | 0.26 | 0.45 |
| RS-III | 1,224 | 0.35 | 1.00 | 0.037 | 0.60 | 0.0014 | 0.99 | 0.66 | 0.069 | 0.16 | -0.0028 | 0.39 | 0.37 |
| SAPALDIA | 1,333 | 0.37 | 1.00 | -0.088 | 0.16 | -0.087 | 0.31 | 0.36 | 0.037 | 0.45 | 0.00038 | 0.91 | 0.64 |
| SHIP | 1,768 | 0.36 | 1.00 | 0.061 | 0.24 | 0.020 | 0.77 | 0.10 | 0.075 | 0.066 | -0.00035 | 0.92 | 0.10 |
| TwinsUK | 2,006 | 0.35 | 1.00 | 0.10 | 0.014 | -0.057 | 0.40 | 0.033 | 0.089 | 0.014 | -0.0024 | 0.48 | 0.045 |

AGES, Age, Gene/Environment Susceptibility; ARIC, Atherosclerosis Risk in Communities; B58C, British 1958 Cohort; CARDIA, Coronary Artery Risk Development in Young Adults; CHS, Cardiovascular Health Study; ECRHS, European Community Respiratory Health Survey; EPIC, European Prospective Investigation into Cancer and Nutrition; FEV1, forced expiratory volume in the first second; FVC, forced vital capacity; FHS, Framingham Heart Study; Health ABC, Health,Aging, and Body Composition Study; INT, interaction; MESA, Multi-Ethnic Study of Atherosclerosis; NA, not available; NFBC1966, Northern Finland Birth Cohort of 1966; RS, Rotterdam Study (cohorts I-III); SAPALDIA, Swiss Study on Air Pollution and Lung Diseases in Adults; SHIP, Study of Health in Pomerania; SNP, single nucleotide polymorphism.

1The joint *P* value corresponds to the 2 degrees-of-freedom joint test of the SNP main and interactive effect by Kraft et al. [[1](#_ENREF_1)]. The comparable 2 degrees-of-freedom joint test by Manning et al. [[2](#_ENREF_2)] is only applicable in the meta-analysis setting, as presented in the manuscript when combining results from all 19 studies.

**References**

1. Kraft P, Yen YC, Stram DO, Morrison J, Gauderman WJ (2007) Exploiting gene-environment interaction to detect genetic associations. Hum Hered 63: 111-119.

2. Manning AK, LaValley M, Liu C-T, Rice K, An P, et al. (2011) Meta-analysis of gene-environment interaction: joint estimation of SNP and SNPxEnvironment regression coefficients. Genet Epidemiol 35: 11-18.