**Supplementary table:**

**Supplementary table 1.** Summary of SNPs associated with fasting blood β-carotene concentration or vitamin A bioavailability.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SNP/mutation** | **Global MAF 1** | **Nearest Gene** | **Trait** | **Reference** | **Study Type** |
| rs6564851 | 0.476 | *BCO1* | FB-βC | (79-81, 236, 239) | GWAS & CGAS |
| rs12926540 | 0.493 | *BCO1* | FB-βC | (239) | GWAS |
| rs7501331 | 0.213 | *BCO1* | FB-βC | (80, 83) | CGAS |
| rs12934922 | 0.357 | *BCO1* | FB-βC | (80, 83) | CGAS |
| rs1800588 | 0.292 | *HL* | FB-βC | (96) | CGAS |
| S447X | - | *LPL* | FB-βC | (95) | CGAS |
| SR-BI intron 5 | - | *SCARB1* | FB-βC | (113) | CGAS |
| rs61932577 | 0.033 | *SCARB1* | FB-βC/αC | (62) | CGAS |
| rs10991408 | 0.116 | *ABCA1* | βC-B 2 | (25) | CGAS |
| rs2791952 | 0.140 | *ABCA1* | βC-B | (25) | CGAS |
| rs3887137 | 0.123 | *ABCA1* | βC-B | (25) | CGAS |
| rs2278357 | 0.247 | *ABCG5* | βC-B | (25) | CGAS |
| rs1042031 | 0.153 | *APOB* | βC-B | (25) | CGAS |
| rs35364714 | 0.115 | *APOB* | βC-B | (25) | CGAS |
| rs4643493 | 0.082 | *APOB* | βC-B | (25) | CGAS |
| rs7196470 | 0.278 | *BCO1* | βC-B | (25) | CGAS |
| rs1247620 | 0.137 | *CXCL8* | βC-B | (25) | CGAS |
| rs1358594 | 0.291 | *CXCL8* | βC-B | (25) | CGAS |
| rs6834586 | 0.221 | *CXCL8* | βC-B | (25) | CGAS |
| rs3798709 | 0.252 | *ELOVL2* | βC-B | (25) | CGAS |
| rs911196 | 0.252 | *ELOVL2* | βC-B | (25) | CGAS |
| rs9468304 | 0.302 | *ELOVL2* | βC-B | (25) | CGAS |
| rs16994824 | 0.206 | *ISX* | βC-B | (25) | CGAS |
| rs202313 | 0.113 | *ISX* | βC-B | (25) | CGAS |
| rs5755368 | 0.250 | *ISX* | βC-B | (25) | CGAS |
| rs11857380 | 0.157 | *LIPC* | βC-B | (25) | CGAS |
| rs12185072 | 0.198 | *LIPC* | βC-B | (25) | CGAS |
| rs1869138 | 0.117 | *LIPC* | βC-B | (25) | CGAS |
| rs8043708 | 0.237 | *PKD1L2* | βC-B | (25) | CGAS |
| rs12139131 | 0.096 | *RPE65* | βC-B | (25) | CGAS |
| rs4926340 | 0.093 | *RPE65* | βC-B | (25) | CGAS |
| rs2501175 | 0.327 | *SOD2* | βC-B | (25) | CGAS |
| rs946199 | 0.192 | *TCF7L2* | βC-B | (25) | CGAS |

1 Abbreviations: CGAS: candidate gene association study; GWAS: genome-wide association study; MAF: minor allele frequency (https://www.ncbi.nlm.nih.gov/projects/SNP/); The gene official symbols are those found in PubMed (available online: https://www.ncbi.nlm.nih.gov/gene/) and approved by the Hugo Gene Nomenclature Committee (available online: http://www.genenames.org/). FB-βC: fasting blood β-carotene concentration; βC-B: β-carotene bioavailability. For other abbreviations see list of abbreviations in the manuscript. 2 In this study, β-carotene bioavailability was estimated by measuring the postprandial chylomicron β-carotene response (0 to 8 h area under the curve) to a β-carotene containing test-meal. \* These SNPs were associated with the variability of β-carotene bioavailability, but this association was likely due to their involvement in the postprandial metabolism of chylomicrons, which are the lipoparticles that carry newly absorbed β-carotene from the intestine to the liver.