

| Supplementary Table S4: Characteristics of significant SNPs with genome-wide associations (P<5×10-5) for LSL on IS |                                            |          |             |          |          |           |           |        |        |       |         |          |          |          |            |         |            |             |                |          |          |            |           |           |           |        |           |         |        |              |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------|-------------|----------|----------|-----------|-----------|--------|--------|-------|---------|----------|----------|----------|------------|---------|------------|-------------|----------------|----------|----------|------------|-----------|-----------|-----------|--------|-----------|---------|--------|--------------|
| SNP                                                                                                                | effect_aloter_alleffect_aloter_allbeta.exp | beta.out | caef.expose | caef.out | cremove  | palindron | ambiguous | id.out | compos | out   | ctcpval | out      | ctse     | out      | comoutcome | mr_keep | cpval_orig | data_source | exposupval.exp | exposure | mr_keep  | cpval_orig | id.exposu | data_sour | samplesiz | action | SNP_index | mr_keep | sample | size.outcome |
| rs1012556T                                                                                                         | G                                          | T        | G           | 0.073475 | -0.0133  | 0.513407  | 0.488725  | FALSE  | FALSE  | FALSE | 5SY6wc  | 1.1E+08  | 0.114336 | 0.008422 | outcome    | TRUE    | reported   | textfile    | 0.016006       | 4.42E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1042597A                                                                                                         | G                                          | A        | G           | 0.227308 | -0.01967 | 0.835107  | 0.820734  | FALSE  | FALSE  | FALSE | 5SY6wc  | 47881378 | 0.073728 | 0.011    | outcome    | TRUE    | reported   | textfile    | 0.021086       | 4.27E-27 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1049016T                                                                                                         | C                                          | T        | C           | 0.077418 | -0.0049  | 0.319769  | 0.357641  | FALSE  | FALSE  | FALSE | 5SY6wc  | 50908336 | 0.579369 | 0.008832 | outcome    | TRUE    | reported   | textfile    | 0.016713       | 3.62E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1104585G                                                                                                         | T                                          | G        | T           | -0.19021 | 0.022683 | 0.238262  | 0.172399  | FALSE  | FALSE  | FALSE | 5SY6wc  | 21197755 | 0.042185 | 0.011165 | outcome    | TRUE    | reported   | textfile    | 0.017978       | 3.67E-26 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1133911T                                                                                                         | A                                          | T        | A           | 0.144942 | -0.01875 | 0.075398  | 0.030784  | FALSE  | TRUE   | FALSE | 5SY6wc  | 6156417  | 0.448523 | 0.024746 | outcome    | TRUE    | reported   | textfile    | 0.029814       | 1.16E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1135137A                                                                                                         | G                                          | A        | G           | -0.16739 | 0.004129 | 0.057868  | 0.024742  | FALSE  | FALSE  | FALSE | 5SY6wc  | 99849162 | 0.877867 | 0.026867 | outcome    | TRUE    | reported   | textfile    | 0.033544       | 6.03E-07 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1156899T                                                                                                         | C                                          | T        | C           | 0.139496 | 0.02198  | 0.086227  | 0.061345  | FALSE  | FALSE  | FALSE | 5SY6wc  | 1.1E+08  | 0.214497 | 0.017707 | outcome    | TRUE    | reported   | textfile    | 0.027913       | 5.80E-07 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1174734T                                                                                                         | C                                          | T        | C           | 0.182396 | -0.00979 | 0.050633  | 0.029563  | FALSE  | FALSE  | FALSE | 5SY6wc  | 49241948 | 0.695793 | 0.025036 | outcome    | TRUE    | reported   | textfile    | 0.035245       | 2.28E-07 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1457603C                                                                                                         | T                                          | C        | T           | -0.22187 | -0.02992 | 0.025032  | 0.038779  | FALSE  | FALSE  | FALSE | 5SY6wc  | 2.21E+08 | 0.172017 | 0.021907 | outcome    | TRUE    | reported   | textfile    | 0.049906       | 8.76E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1483903T                                                                                                         | C                                          | T        | C           | -0.39893 | -0.01223 | 0.008349  | 0.003968  | FALSE  | FALSE  | FALSE | 5SY6wc  | 54881197 | 0.856514 | 0.067611 | outcome    | TRUE    | reported   | textfile    | 0.085749       | 3.28E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1490782G                                                                                                         | A                                          | G        | A           | -0.38355 | 0.041461 | 0.009615  | 0.011311  | FALSE  | FALSE  | FALSE | 5SY6wc  | 17443418 | 0.306214 | 0.040521 | outcome    | TRUE    | reported   | textfile    | 0.080585       | 1.94E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1705268C                                                                                                         | A                                          | C        | A           | -0.08552 | 0.006234 | 0.766937  | 0.711842  | FALSE  | FALSE  | FALSE | 5SY6wc  | 91179983 | 0.502661 | 0.009301 | outcome    | TRUE    | reported   | textfile    | 0.018602       | 4.28E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1892853G                                                                                                         | T                                          | G        | T           | 0.082388 | -0.00433 | 0.742532  | 0.743568  | FALSE  | FALSE  | FALSE | 5SY6wc  | 22309388 | 0.653695 | 0.009647 | outcome    | TRUE    | reported   | textfile    | 0.017847       | 3.91E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs1896696C                                                                                                         | T                                          | C        | T           | -0.32751 | -0.01307 | 0.011761  | 0.008391  | FALSE  | FALSE  | FALSE | 5SY6wc  | 97318627 | 0.78118  | 0.047036 | outcome    | TRUE    | reported   | textfile    | 0.072574       | 6.40E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs2348060C                                                                                                         | T                                          | C        | T           | 0.072586 | -0.01434 | 0.359435  | 0.306239  | FALSE  | FALSE  | FALSE | 5SY6wc  | 1.13E+08 | 0.116408 | 0.009133 | outcome    | TRUE    | reported   | textfile    | 0.016201       | 7.45E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs2417966G                                                                                                         | C                                          | G        | C           | 0.122852 | -0.02742 | 0.248883  | 0.33848   | FALSE  | TRUE   | FALSE | 5SY6wc  | 21190295 | 0.002133 | 0.00893  | outcome    | TRUE    | reported   | textfile    | 0.018008       | 8.97E-12 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs4530839C                                                                                                         | T                                          | C        | T           | -0.08747 | -0.00031 | 0.243705  | 0.21538   | FALSE  | FALSE  | FALSE | 5SY6wc  | 67781475 | 0.975764 | 0.010238 | outcome    | TRUE    | reported   | textfile    | 0.018271       | 1.69E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs6208649T                                                                                                         | A                                          | T        | A           | 0.159898 | 0.00581  | 0.055045  | 0.049353  | FALSE  | TRUE   | FALSE | 5SY6wc  | 4228261  | 0.77246  | 0.020094 | outcome    | TRUE    | reported   | textfile    | 0.03496        | 4.79E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs6227867G                                                                                                         | C                                          | G        | C           | -0.1547  | 0.013746 | 0.059893  | 0.057708  | FALSE  | TRUE   | FALSE | 5SY6wc  | 1.62E+08 | 0.448158 | 0.018123 | outcome    | TRUE    | reported   | textfile    | 0.032913       | 2.60E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs7316970A                                                                                                         | G                                          | A        | G           | -0.25193 | 0.022948 | 0.022644  | 0.022685  | FALSE  | FALSE  | FALSE | 5SY6wc  | 35253023 | 0.419627 | 0.028434 | outcome    | TRUE    | reported   | textfile    | 0.052355       | 1.49E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs7556391C                                                                                                         | A                                          | C        | A           | -0.24239 | -0.00924 | 0.028943  | 0.062073  | FALSE  | FALSE  | FALSE | 5SY6wc  | 66072134 | 0.599199 | 0.017579 | outcome    | TRUE    | reported   | textfile    | 0.046635       | 2.02E-07 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |
| rs7924462G                                                                                                         | A                                          | G        | A           | -0.14578 | -0.003   | 0.062841  | 0.045952  | FALSE  | FALSE  | FALSE | 5SY6wc  | 50044512 | 0.881133 | 0.020081 | outcome    | TRUE    | reported   | textfile    | 0.032594       | 7.73E-06 | exposure | TRUE       | reported  | GCST9020C | textfile  | 7891   | 2         | 1       | TRUE   | NA           |