



**Figure S1.** ExWAS results corrected for BMI or genotyping batch ( $y$ -axis) plotted against ExWAS  $p$ -values not corrected for BMI or genotyping batch ( $x$ -axis). (a)  $-\log_{10} p$ -values, corrected for BMI vs. not corrected for BMI. (b) like (a), restricted to range (0,20). (c) Beta, corrected for BMI vs. not corrected for BMI. (d)  $-\log_{10} p$ -values, corrected for genotyping batch vs. not corrected for genotyping batch. (e) like (d), restricted to range (0,20). (f) Beta, corrected for genotyping batch vs. not corrected for genotyping batch.