Figure titles and legends

Figure S1. Power comparison of all the methods when G and E are independent. The X-axis is the odds ratio for the interaction effect and the Y-axis is the power. The odds ratio for the main effect of E is 1.5 and for G is 1 under the synergistic model. Under the qualitative model, the odds ratio for the main effect of G is 1/1+OR(interaction). (a) Synergistic interaction model and no correlation between null markers and E; (b) Qualitative interaction model and no correlation between null markers and E; (c) Synergistic model and modest correlation between null markers and E; (d) Qualitative model and modest correlation between null markers and E. A flow chart of modules including analysis methods for genome-wide Gene x Environment interactions.

Figure S2. Power comparison of all the methods when G and E are positively correlated with odds ratio 1.2. The X-axis is the odds ratio for the interaction effect and the Y-axis is the power. The odds ratio for the main effect of E is 1.5 and for G is 1 under the synergistic model. Under the qualitative model, the odds ratio for the main effect of G is 1/1+OR(interaction). (a) Synergistic interaction model and no correlation between null markers and E; (b) Qualitative interaction model and no correlation between null markers and E; (c) Synergistic model and modest correlation between null markers and E; (d) Qualitative model and modest correlation between null markers and E. The results are based on a total of 2000 simulated data sets, each consisting of 1000 cases and 1000 controls.

Figure S3. Power comparison of the methods when G and E are negatively correlated with odds ratio 0.83. The X-axis is the odds ratio for the interaction effect and the Y-axis is the power. The odds ratio for the main effect of E is 1.5 and for G is 1 under the synergistic model. Under the qualitative model, the odds ratio for the main effect of G is 1/1+OR(interaction). (a) Synergistic interaction model and no correlation between null markers and E; (b) Qualitative interaction model and no correlation between null markers and E; (c) Synergistic model and modest correlation between null markers

and E; (d) Qualitative model and modest correlation between null markers and E. The results are based on a total of 2000 simulated data sets, each consisting of 1000 cases and 1000 controls.