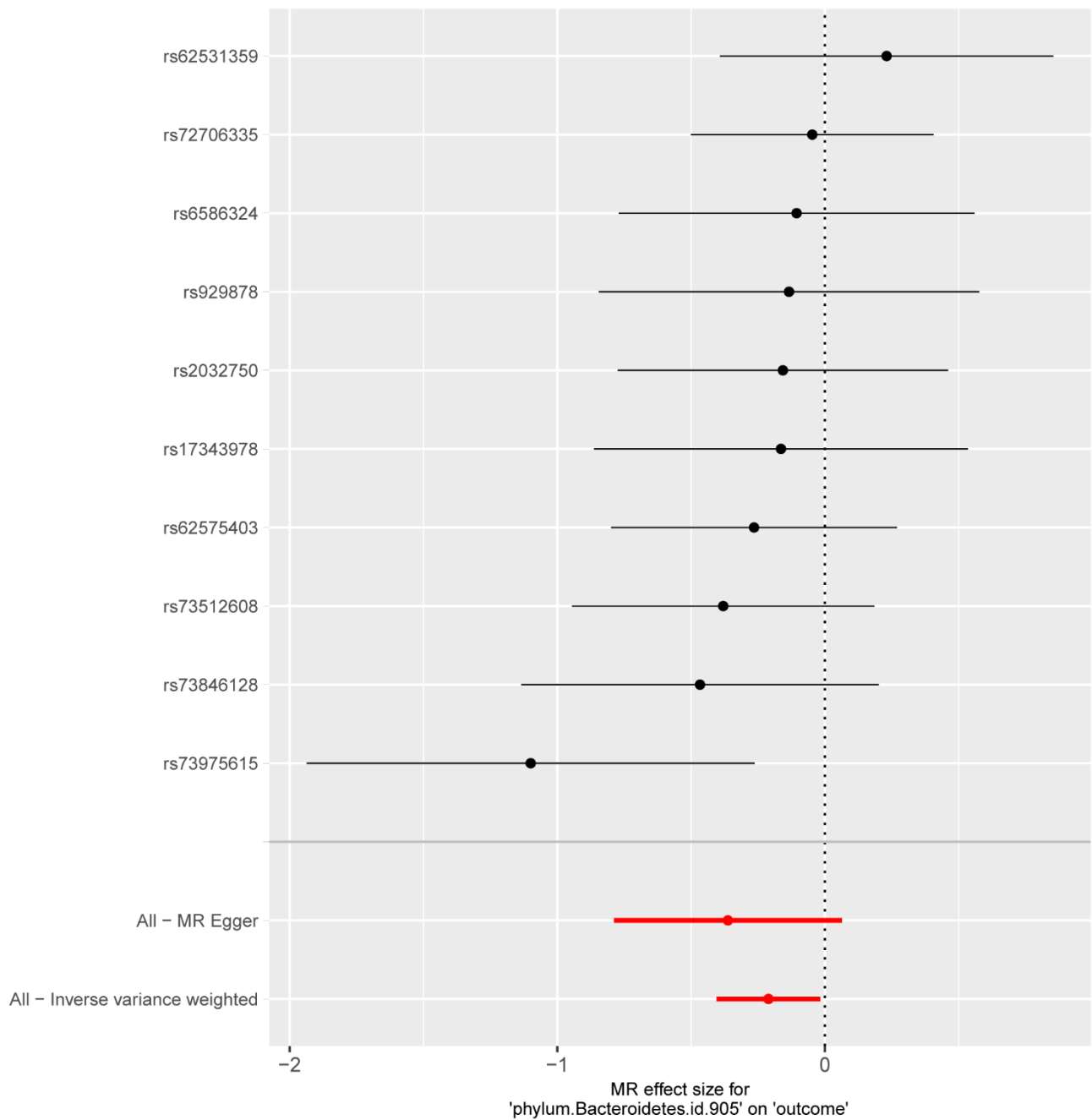


Causal Associations between Gut Microbiota and Psoriasis: A Mendelian Randomization Study

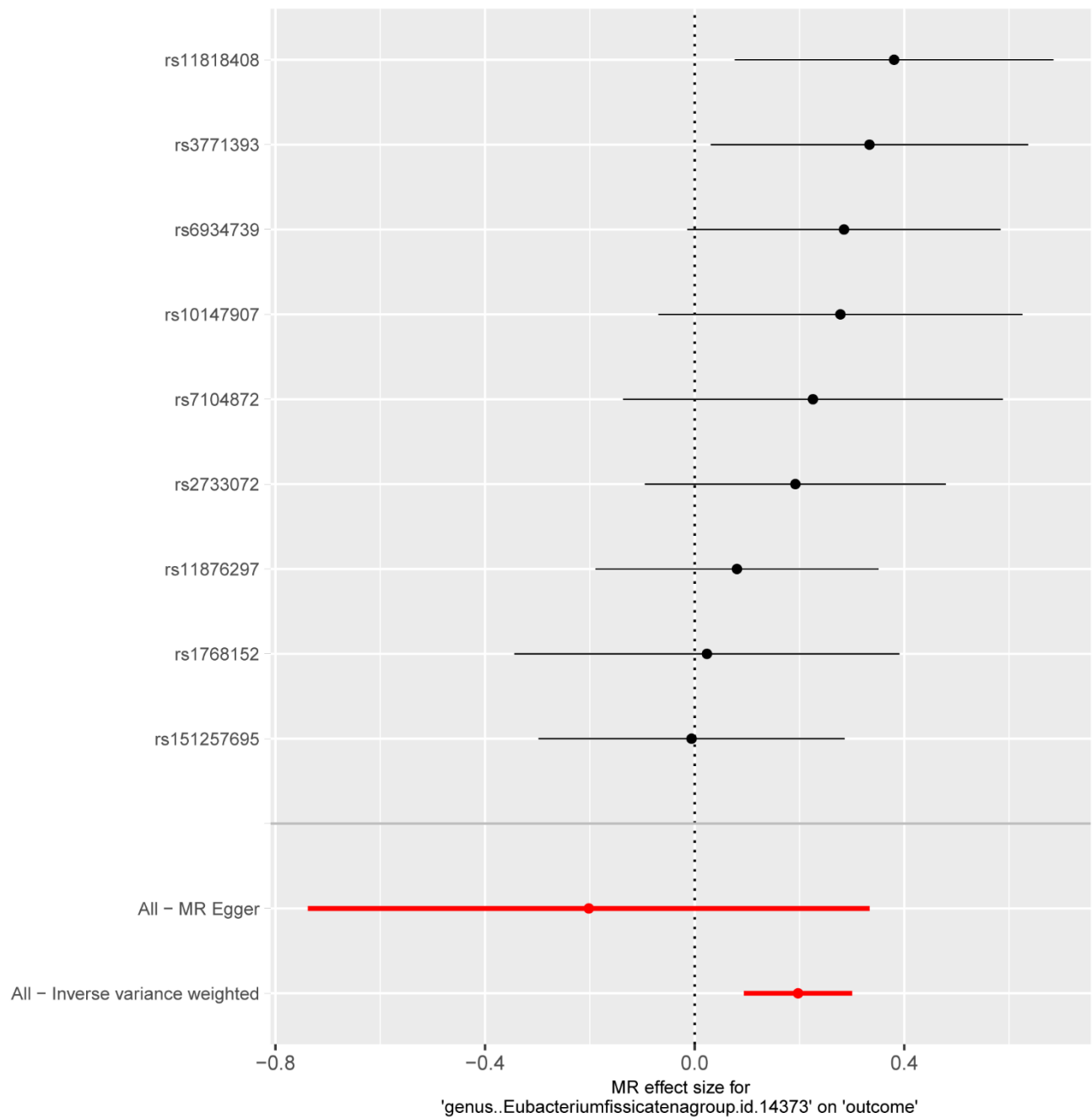
Chenyang Zang^{1, 3, 4, 5, 6}, Jie Liu⁶, Manyun Mao^{1, 3, 4, 5}, Wu Zhu^{1, 3, 4, 5 *}, Wangqing Chen^{1, 3, 4, 5 *}, Baojian Wei^{2*}

1. The Department of Dermatology, Xiangya Hospital, Central South University, Changsha, China.
2. School of Nursing, Shandong First Medical University & Shandong Academy of Medical Sciences, Taian, Shandong, China
3. National Engineering Research Center of Personalized Diagnostic and Therapeutic Technology Furong Laboratory, Changsha, China
4. Hunan Key Laboratory of Skin Cancer and Psoriasis, Hunan Engineering Research Center of Skin Health and Disease, Xiangya Hospital, Changsha, China.
5. National Clinical Research Center for Geriatric Disorders, Xiangya Hospital, Changsha, China.
6. Xiangya School of Medicine, Central South University, Changsha, China.

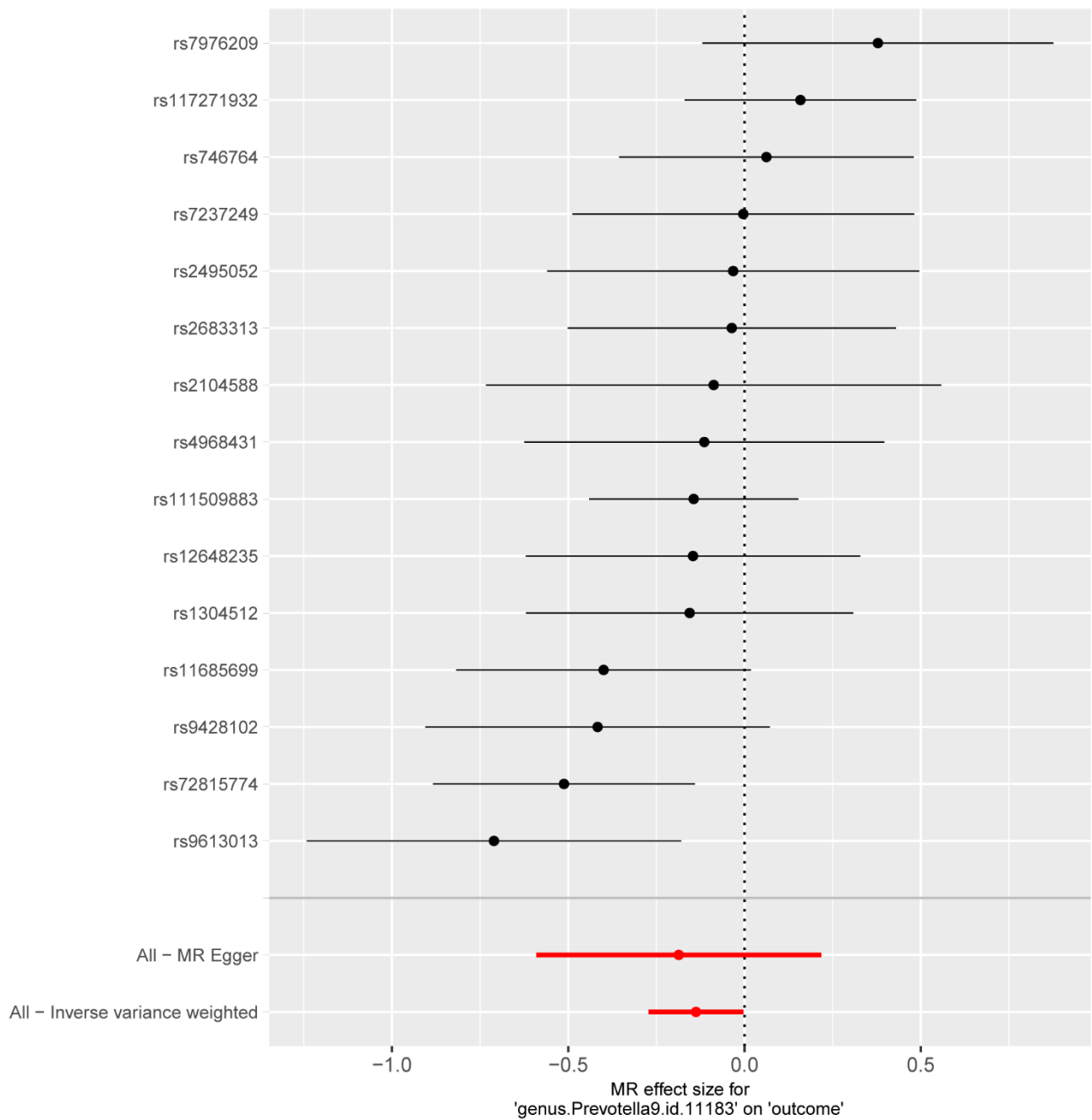
Joint Correspondence to Dr. Baojian Wei, Email: bjwei@sdfmu.edu.cn, Dr. Wu Zhu, Email: zhuwu70@hotmail.com, and Dr. Wangqing Chen, Email: lanchen2008@163.com.



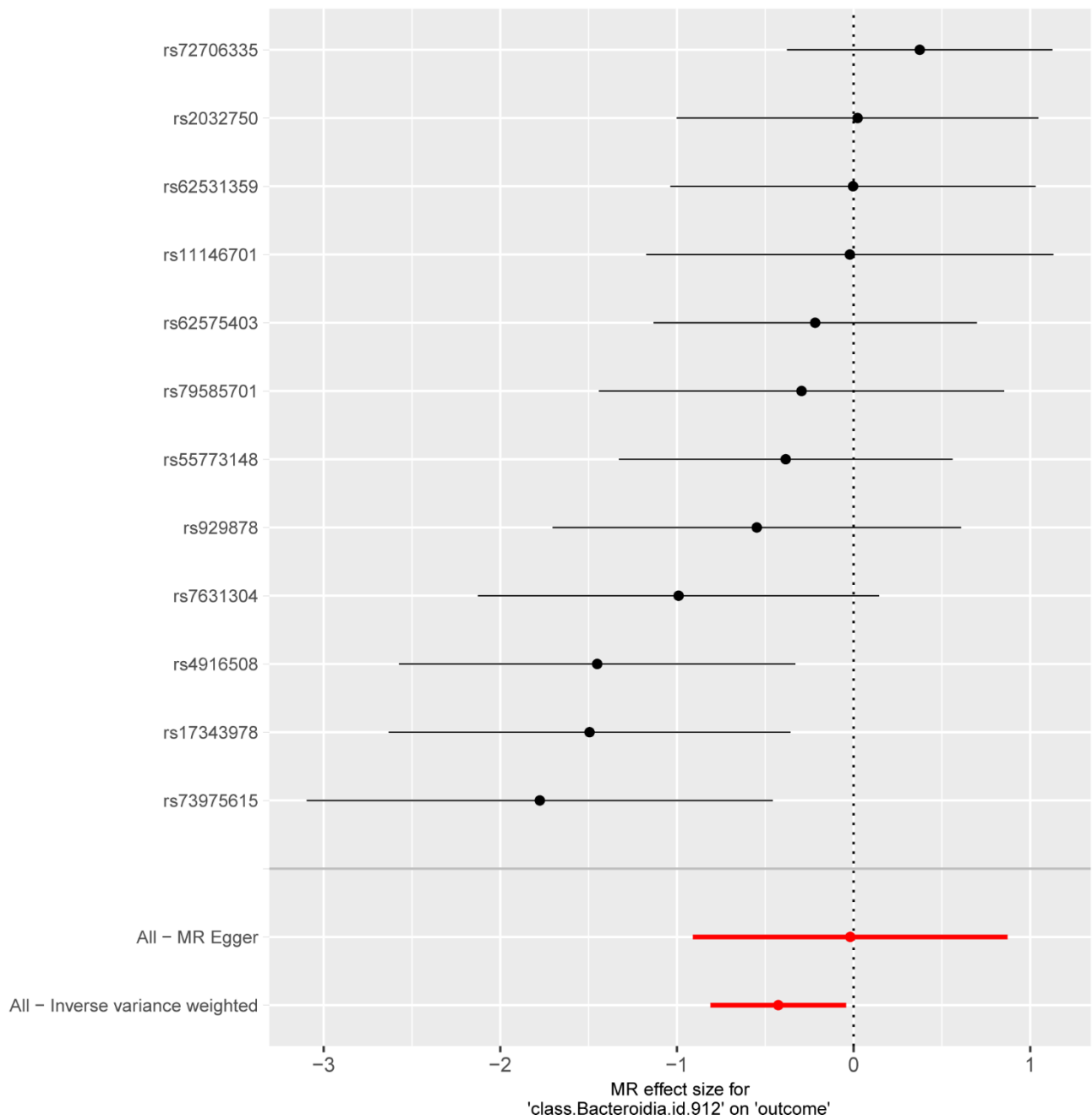
(a) Forest plots of Bacteroidetes(phylum) on psoriasis in MR analysis.



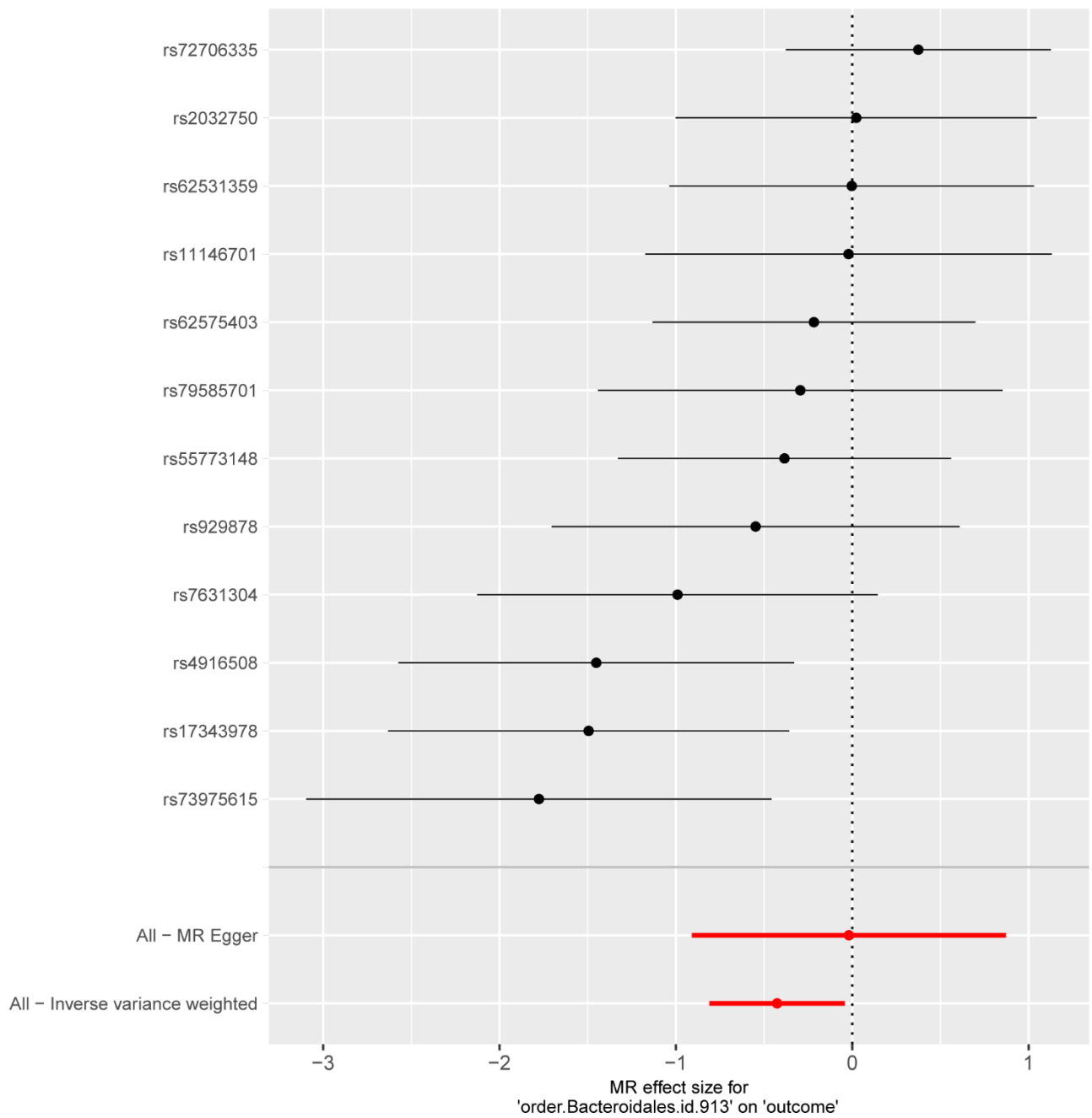
(b) Forest plots of Eubacteriumfissicatengroup (genus) on psoriasis in MR analysis.



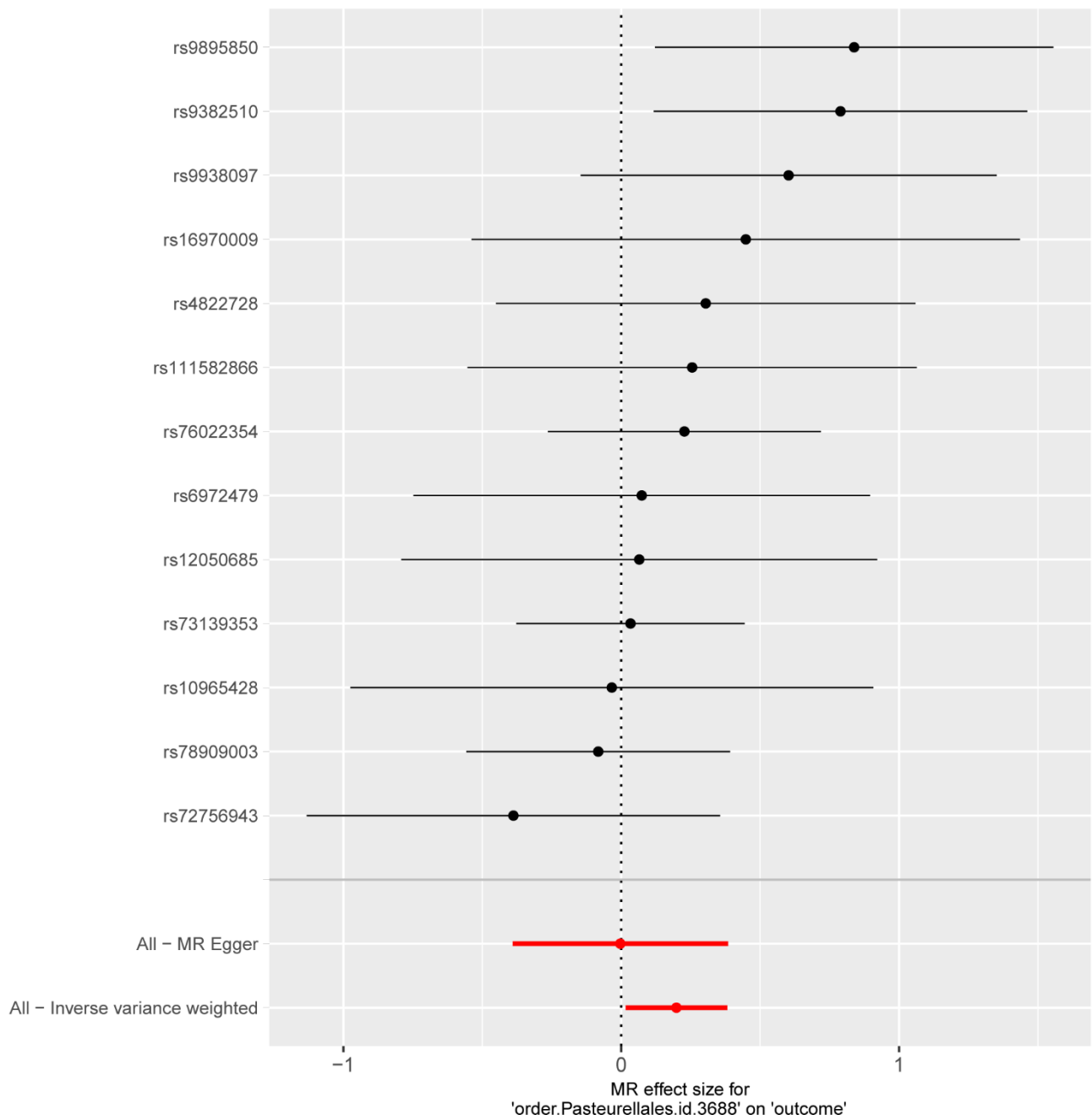
(c) Forest plots of *Prevotella9* (genus) on psoriasis in MR analysis.



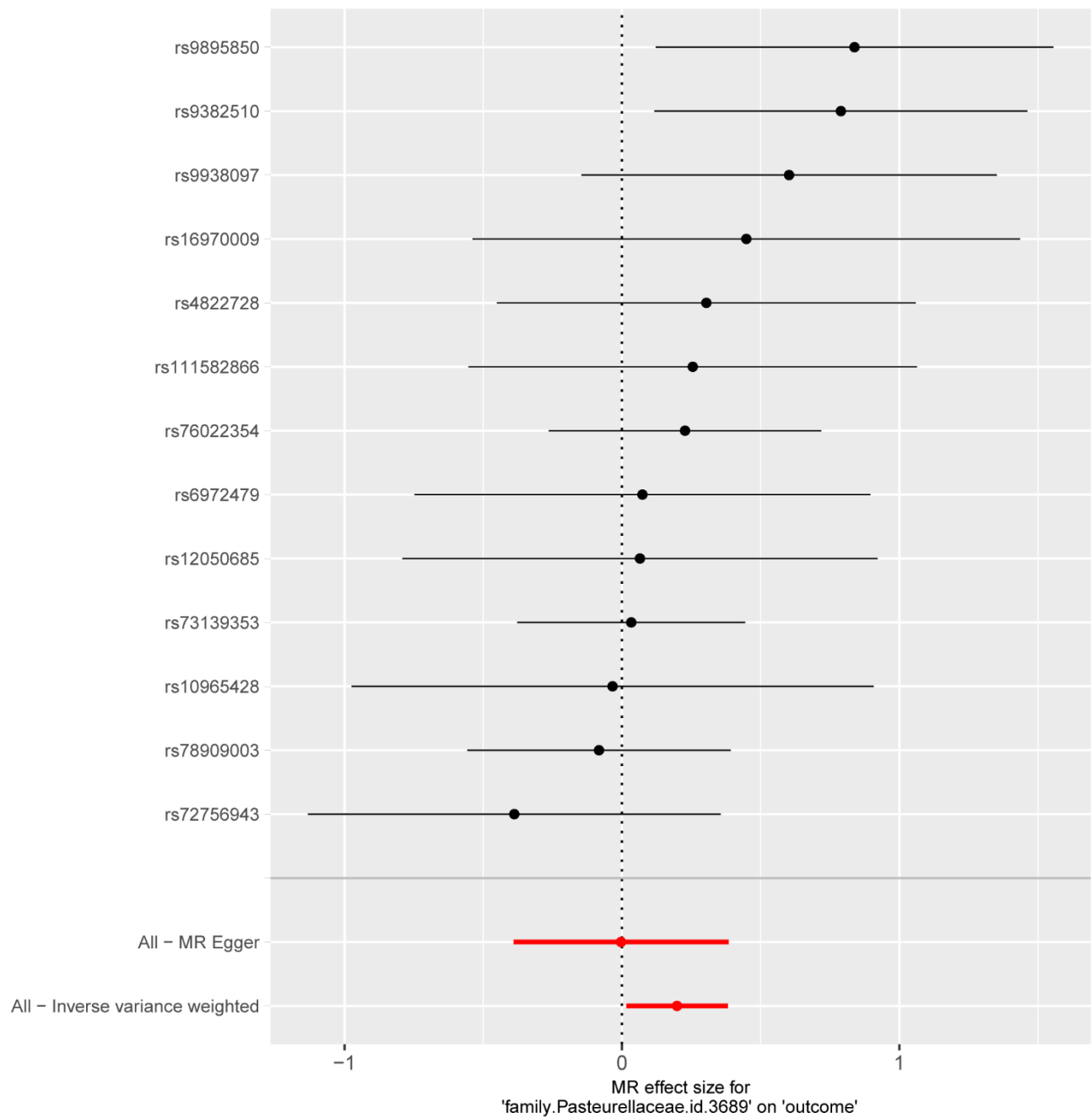
(d) Forest plots of Bacteroidia (class) on arthropathic psoriasis in MR analysis.



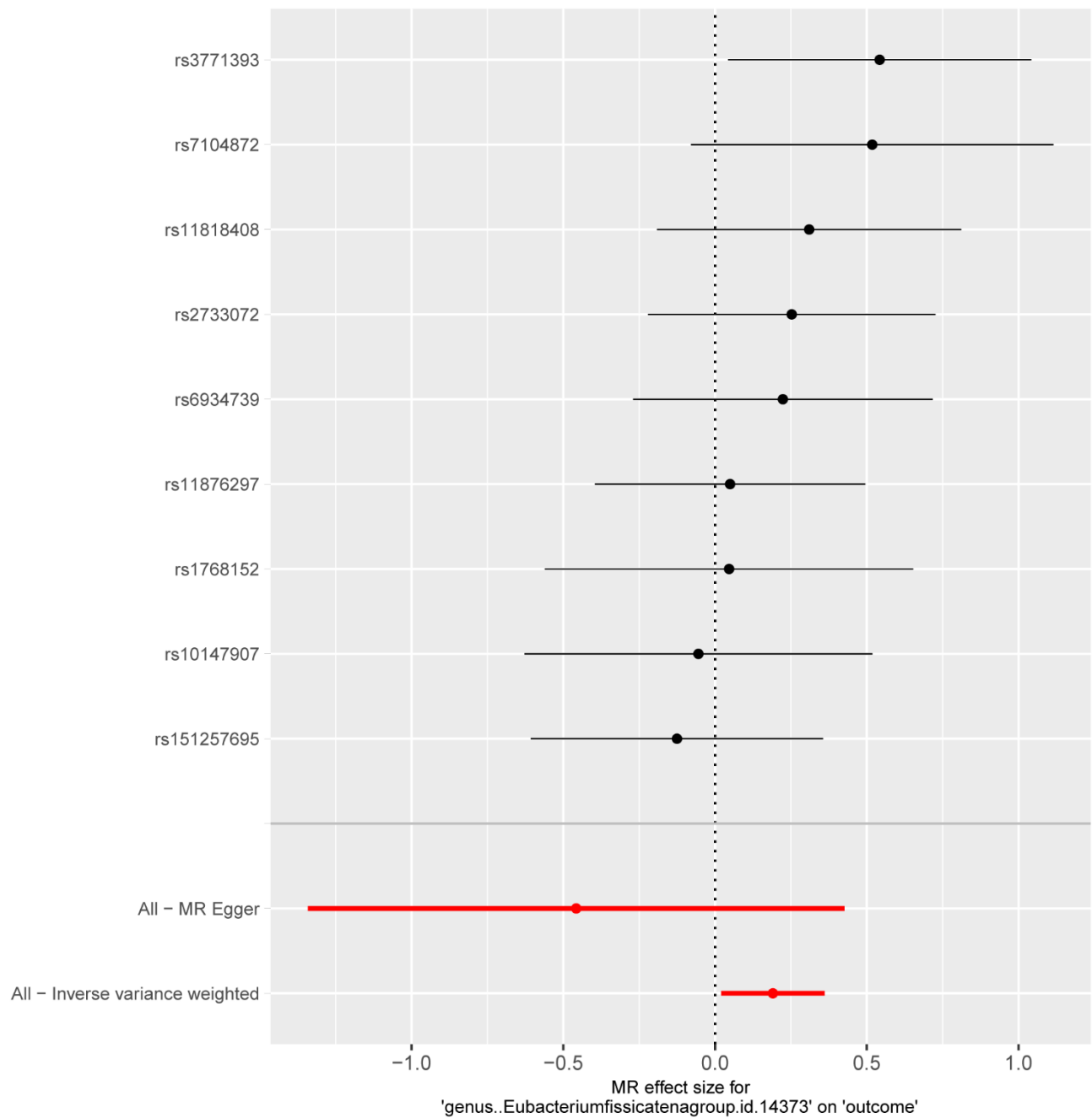
(e) Forest plots of Bacteroidales (order) on arthropathic psoriasis in MR analysis.



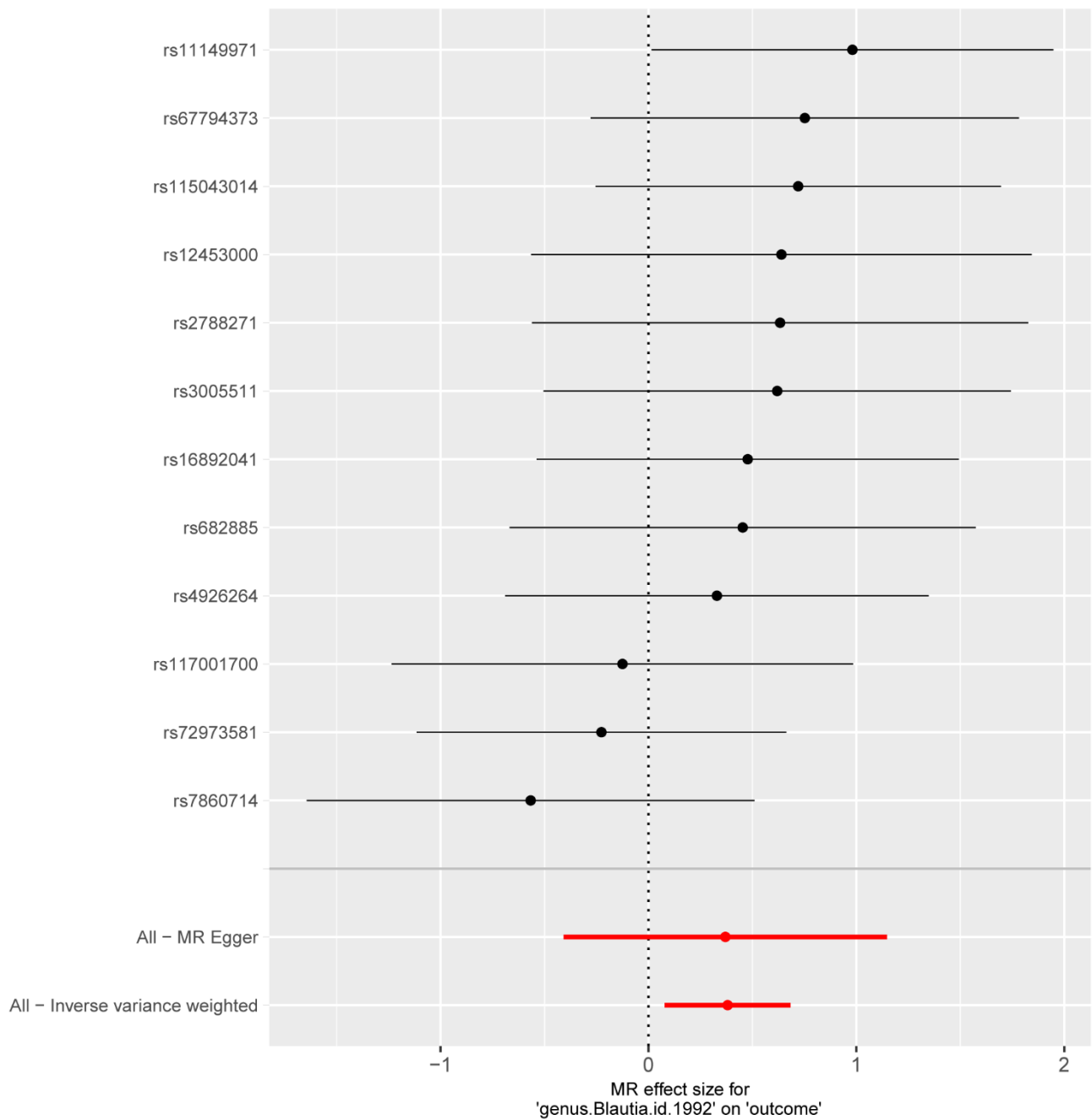
(f) Forest plots of Pasteurellales (order) on arthropathic psoriasis in MR analysis.



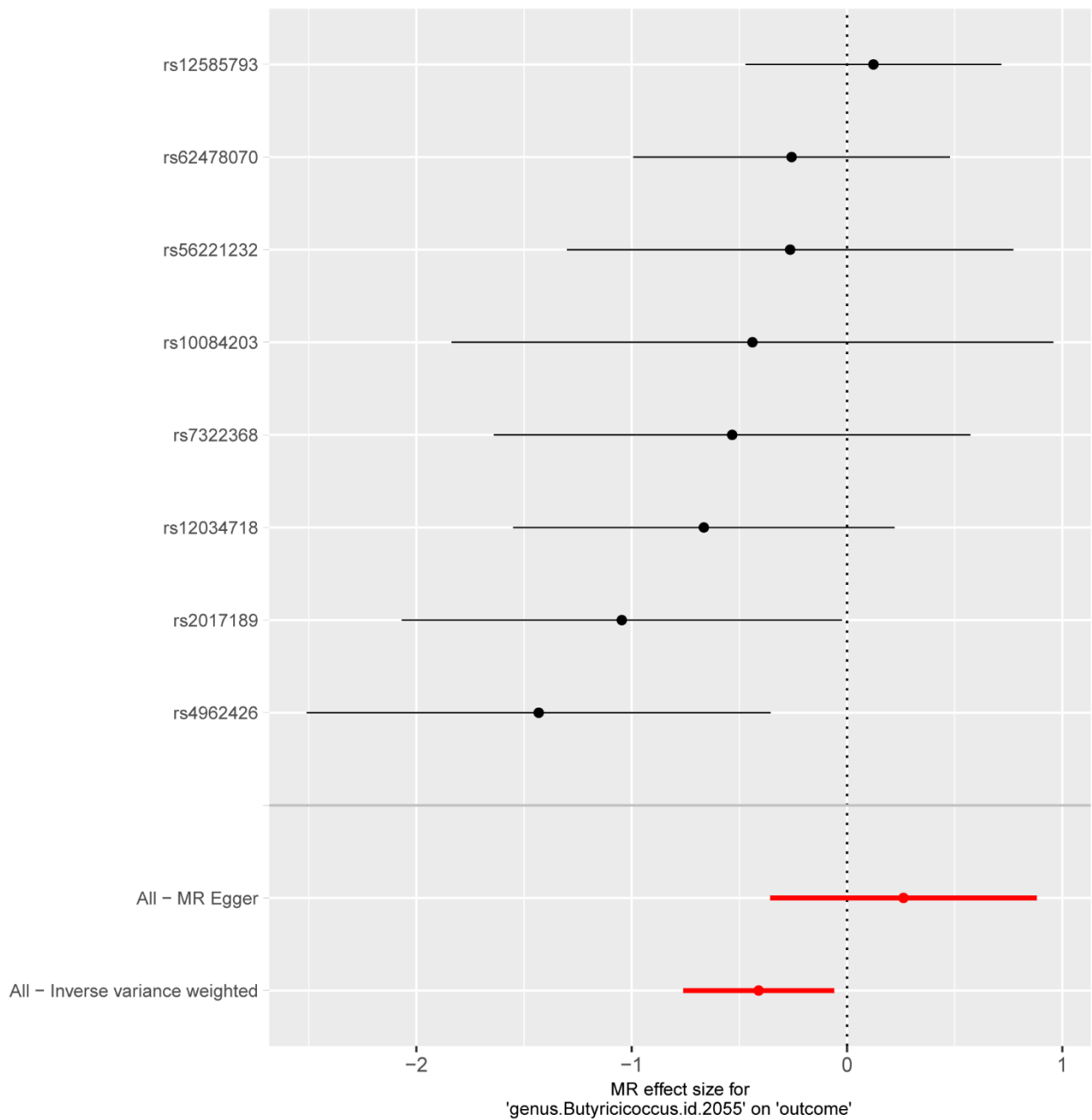
(g) Forest plots of Pasteurellaceae (family) on arthropathic psoriasis in MR analysis.



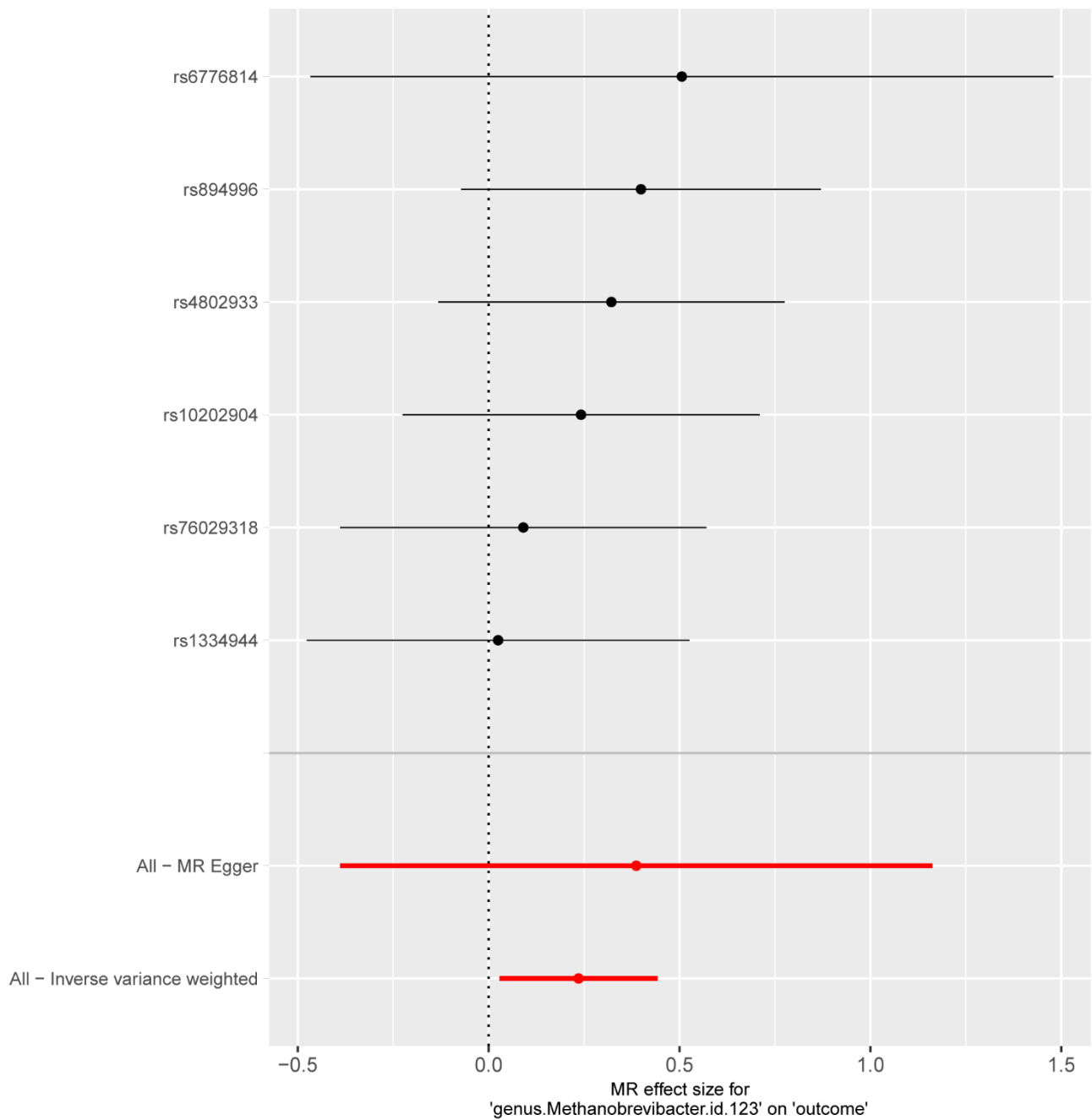
(h) Forest plots of Eubacteriumfissicatengroup (genus) on arthropathic psoriasis in MR analysis.



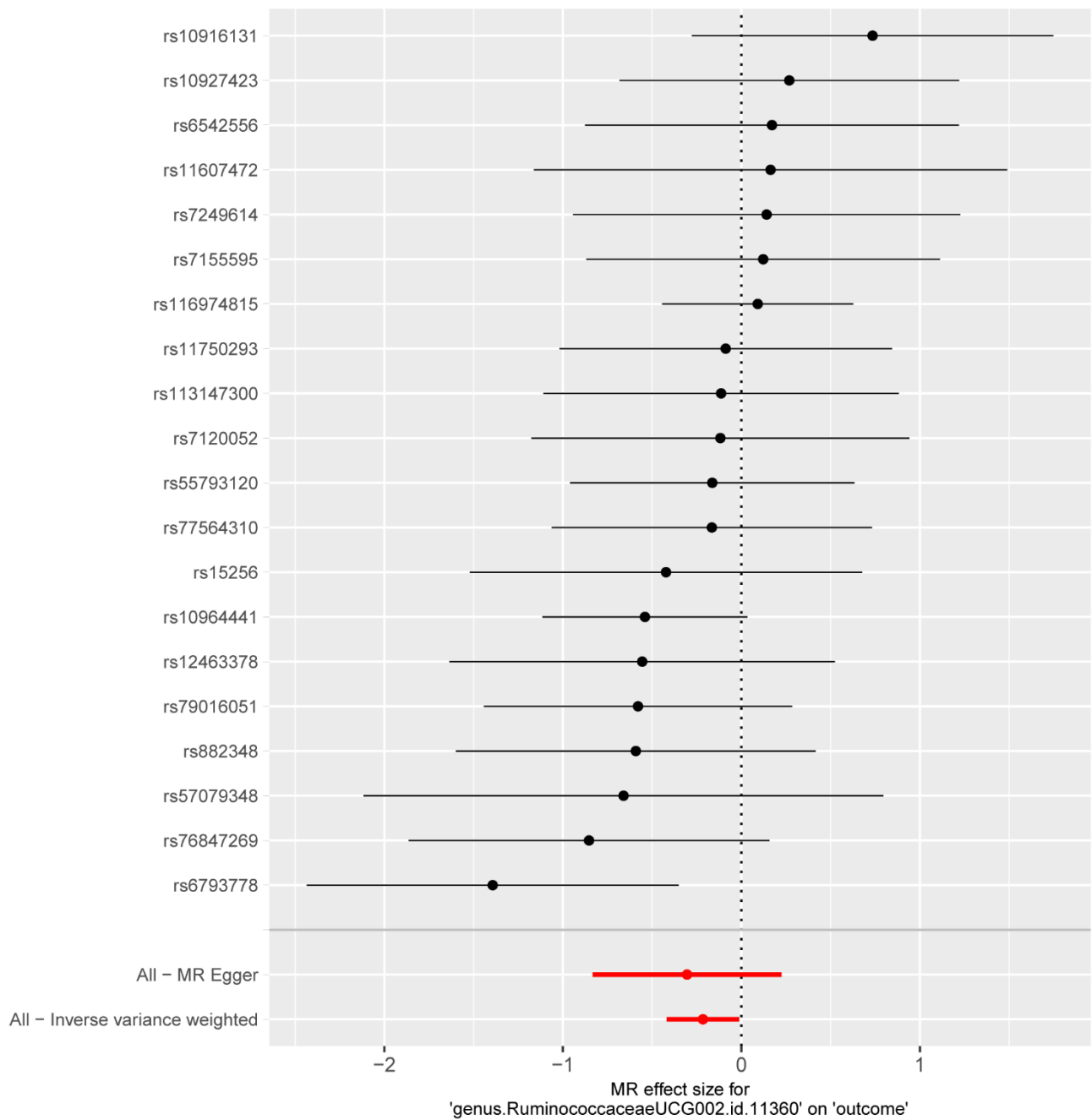
(i) Forest plots of *Blaudia* (genus) on arthropathic psoriasis in MR analysis.



(j) Forest plots of *Butyricicoccus* (genus) on arthropathic psoriasis in MR analysis.

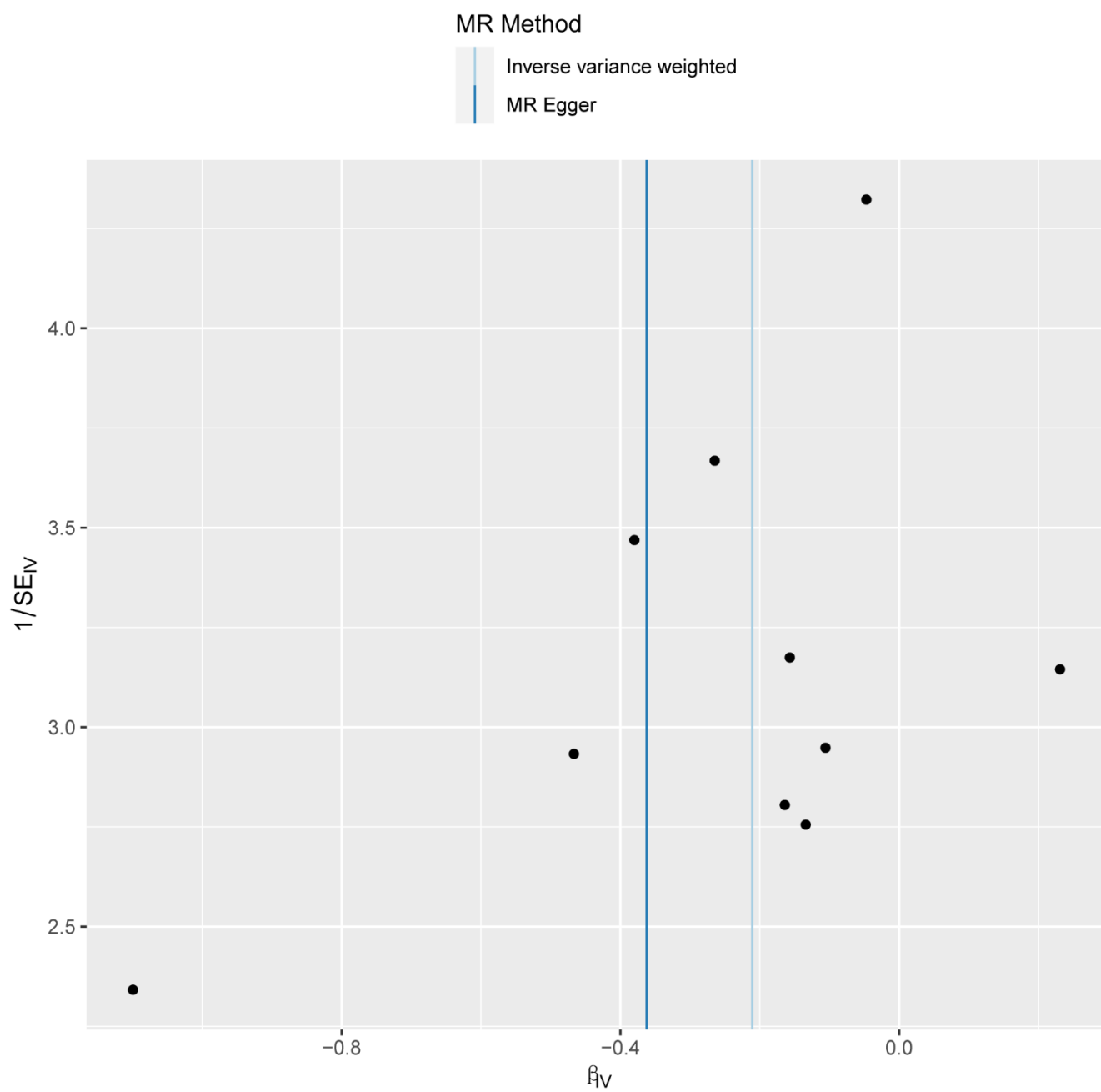


(k) Forest plots of *Methanobrevibacter* (genus) on arthropathic psoriasis in MR analysis.

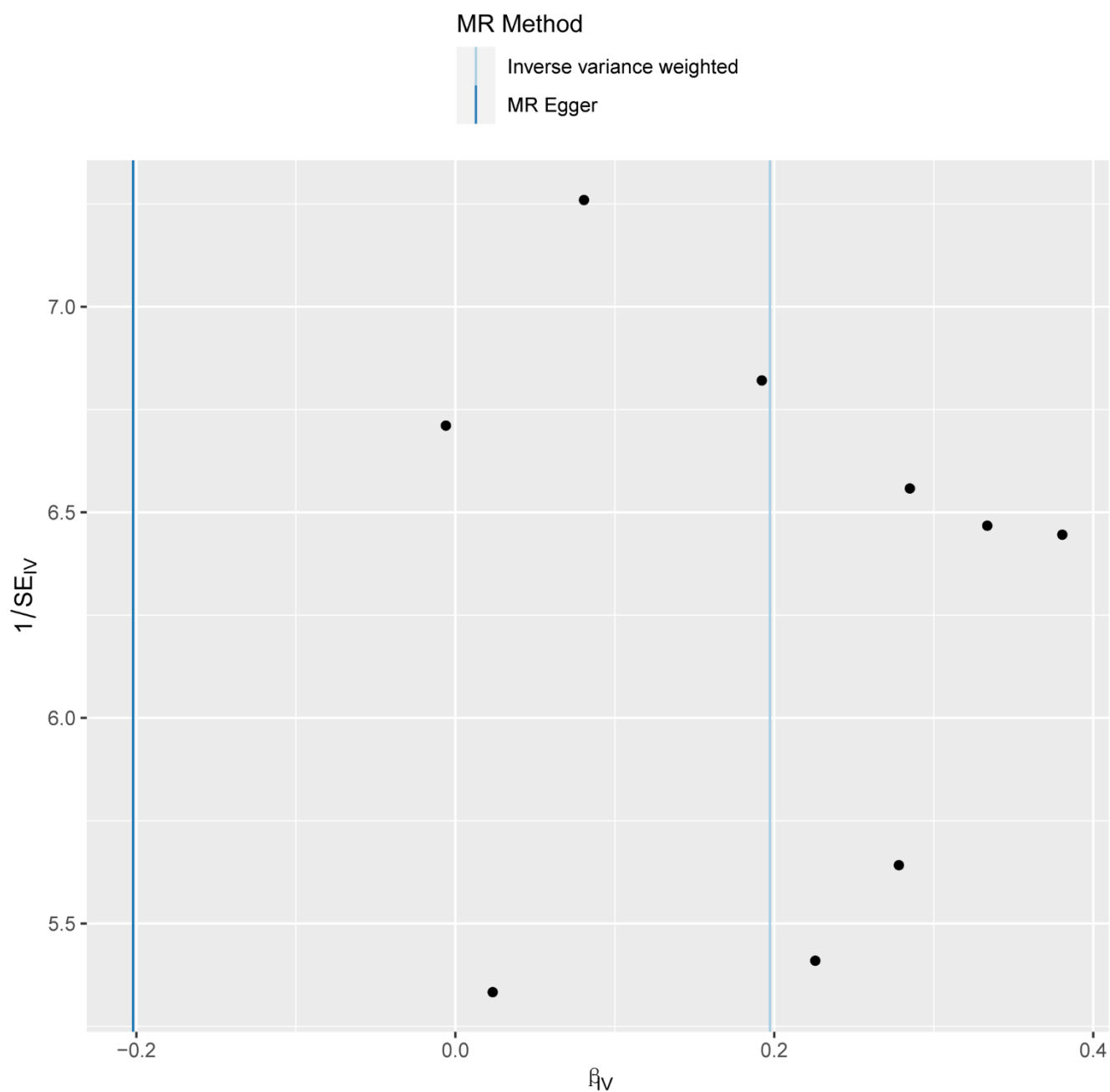


(l) Forest plots of RuminococcaceaeUCG002 (genus) on arthropathic psoriasis in MR analysis.

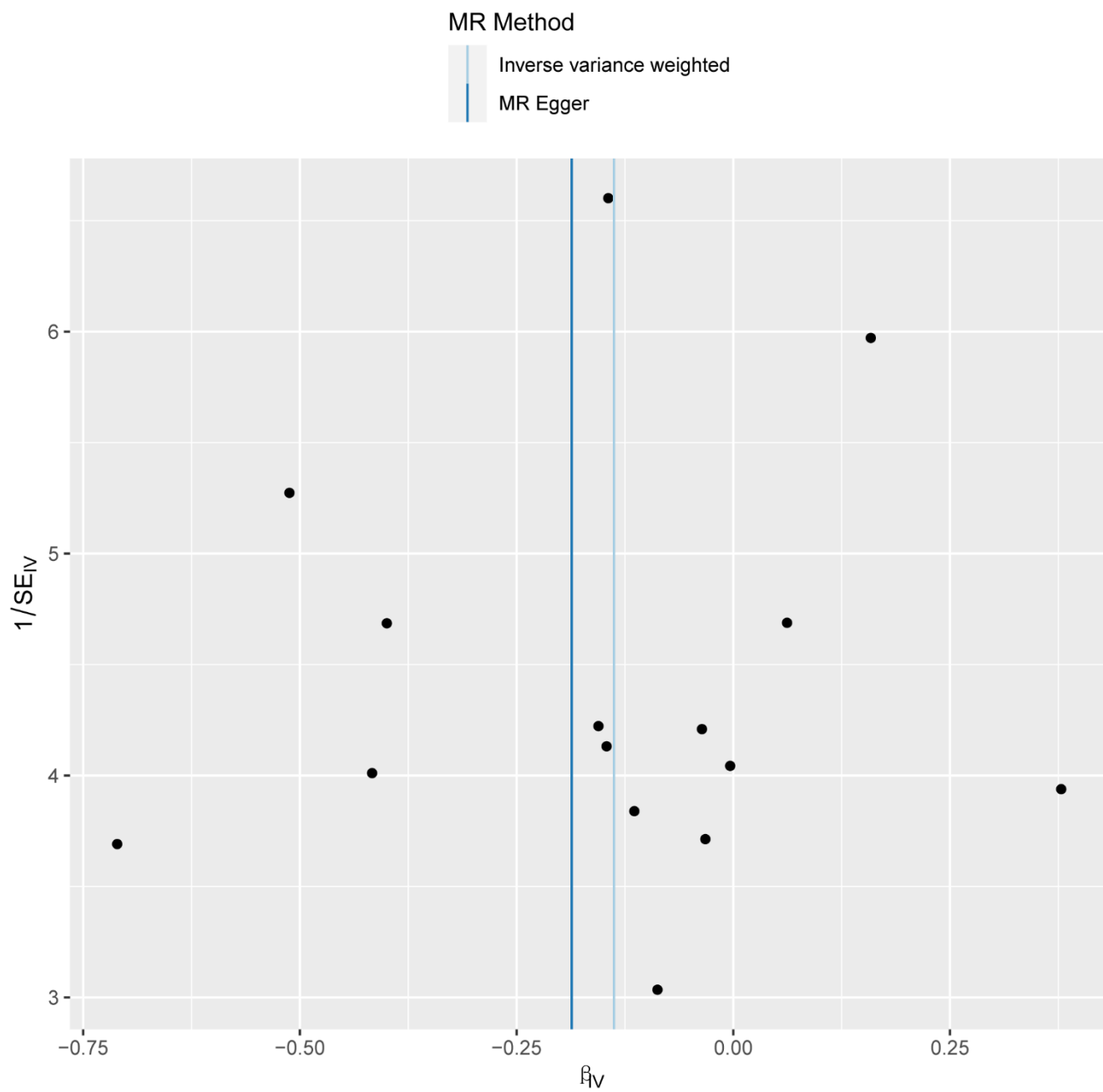
Figure S1 Forest plots of the identified bacterial taxa on psoriasis and arthropathic psoriasis in MR analysis.



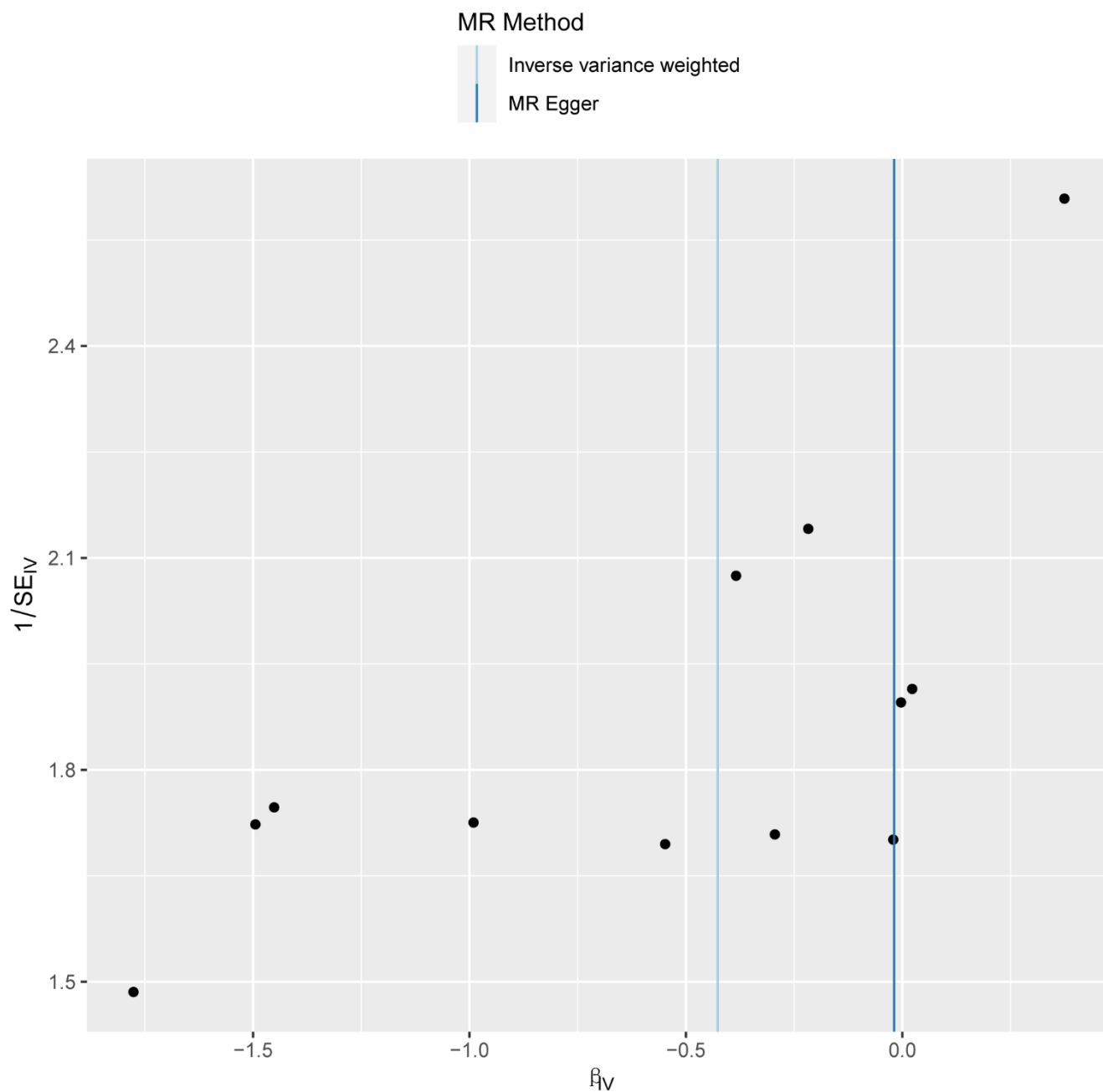
(a) Funnel plots of the Bacteroidetes(phylum) on psoriasis.



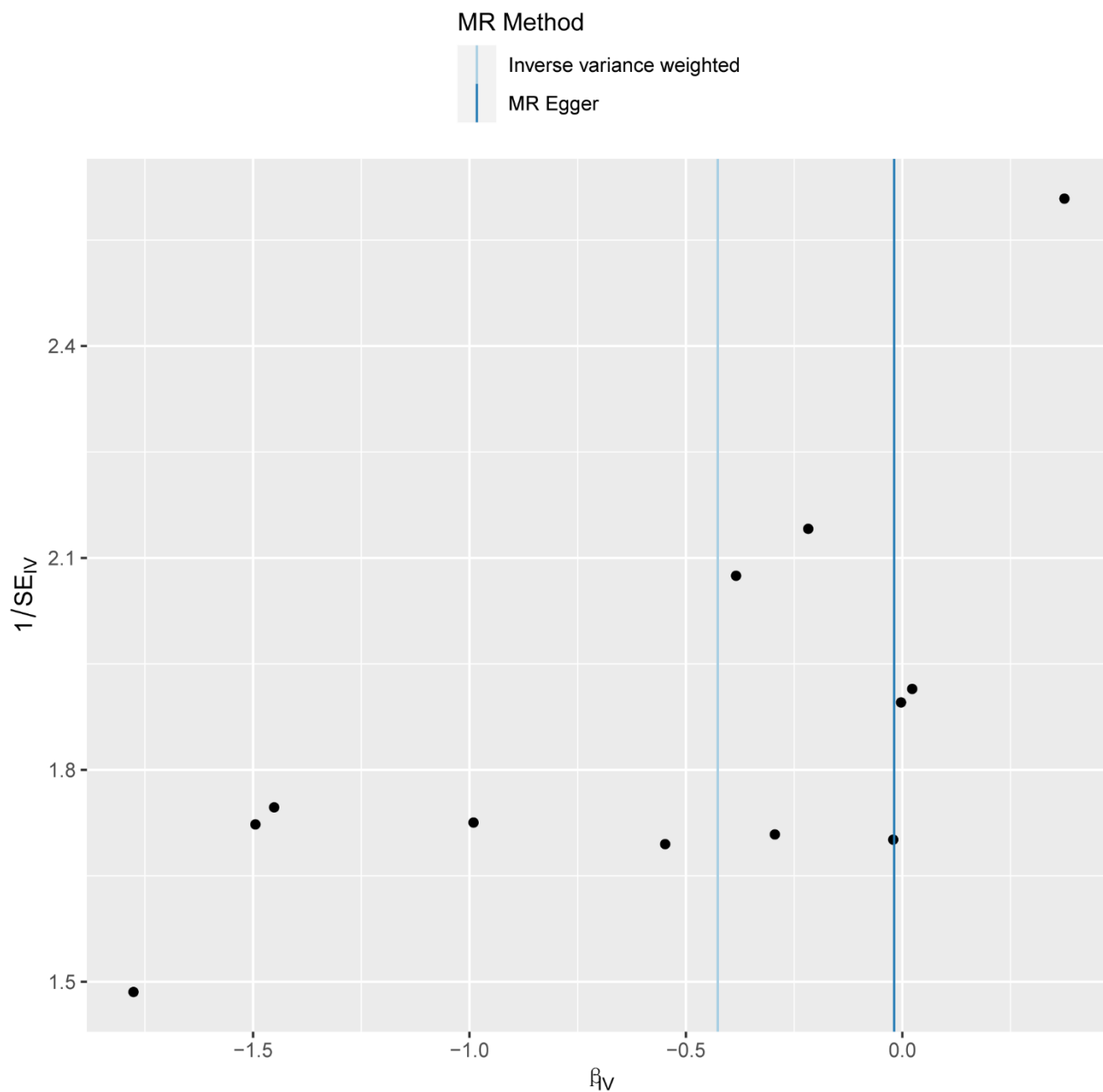
(b) Funnel plots of the *Eubacteriumfissicatenagroup* (genus) on psoriasis.



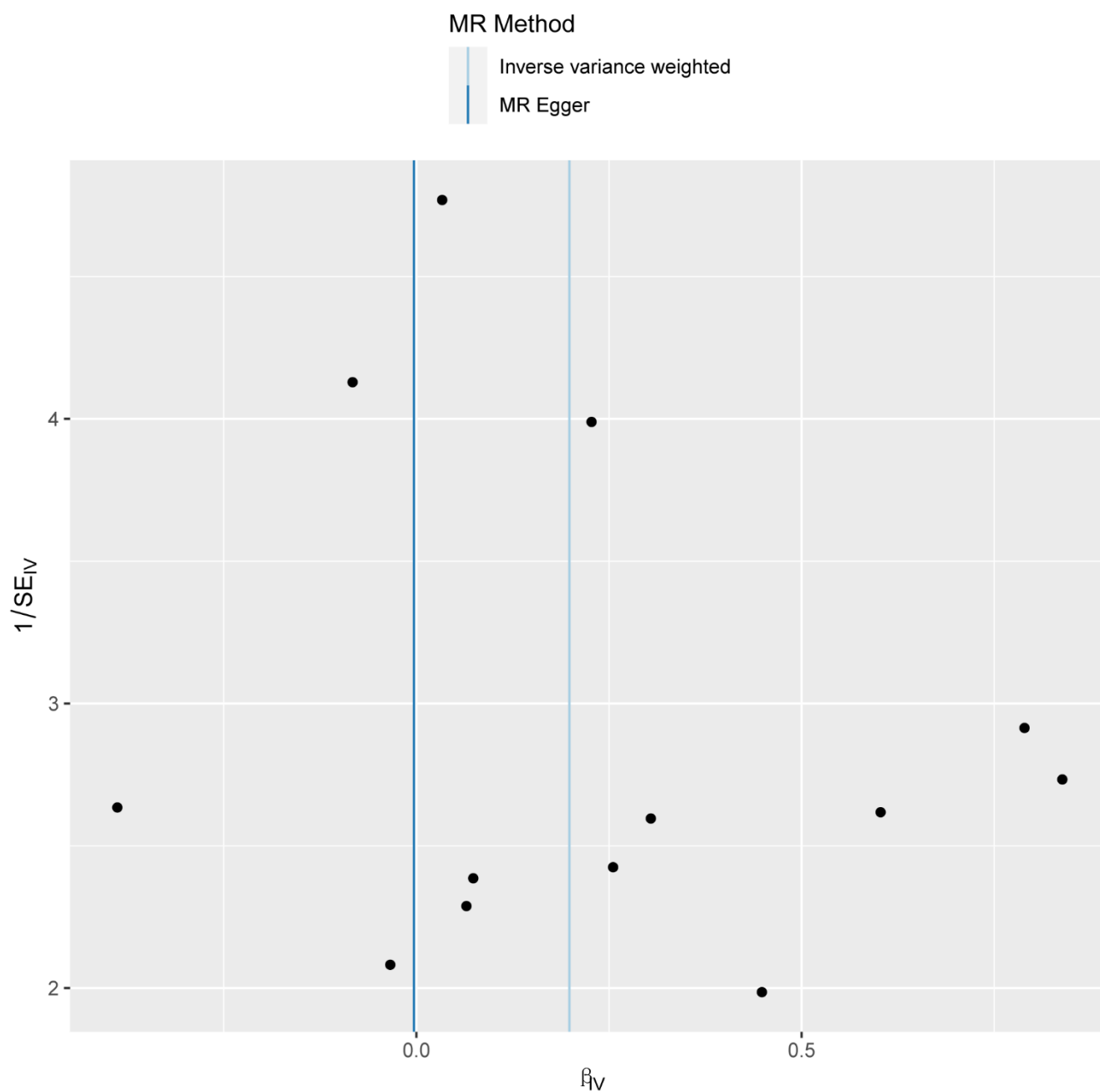
(c) Funnel plots of the Prevotella9 (genus) on psoriasis.



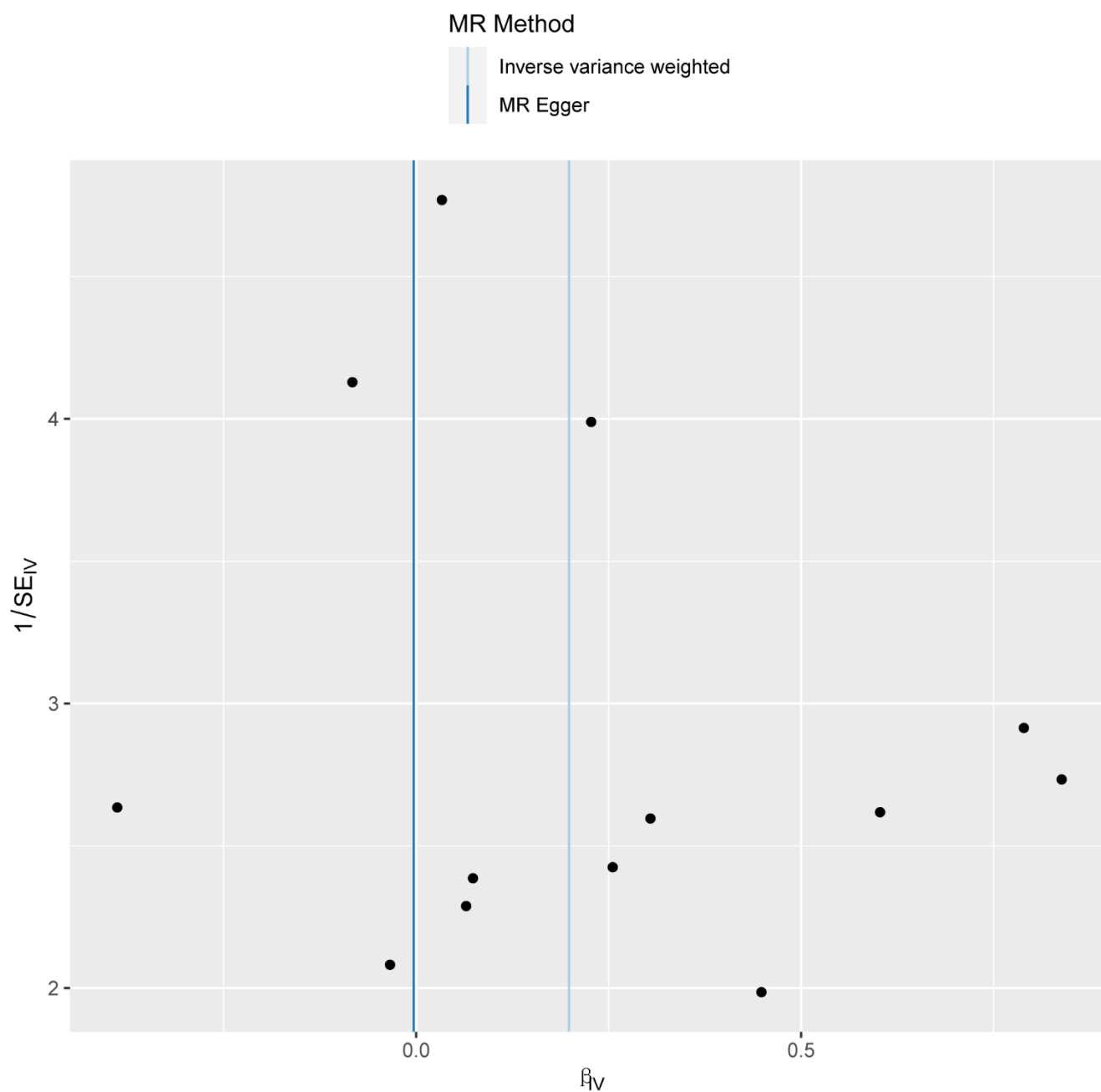
(d) Funnel plots of the Bacteroidia (class) on arthropathic psoriasis.



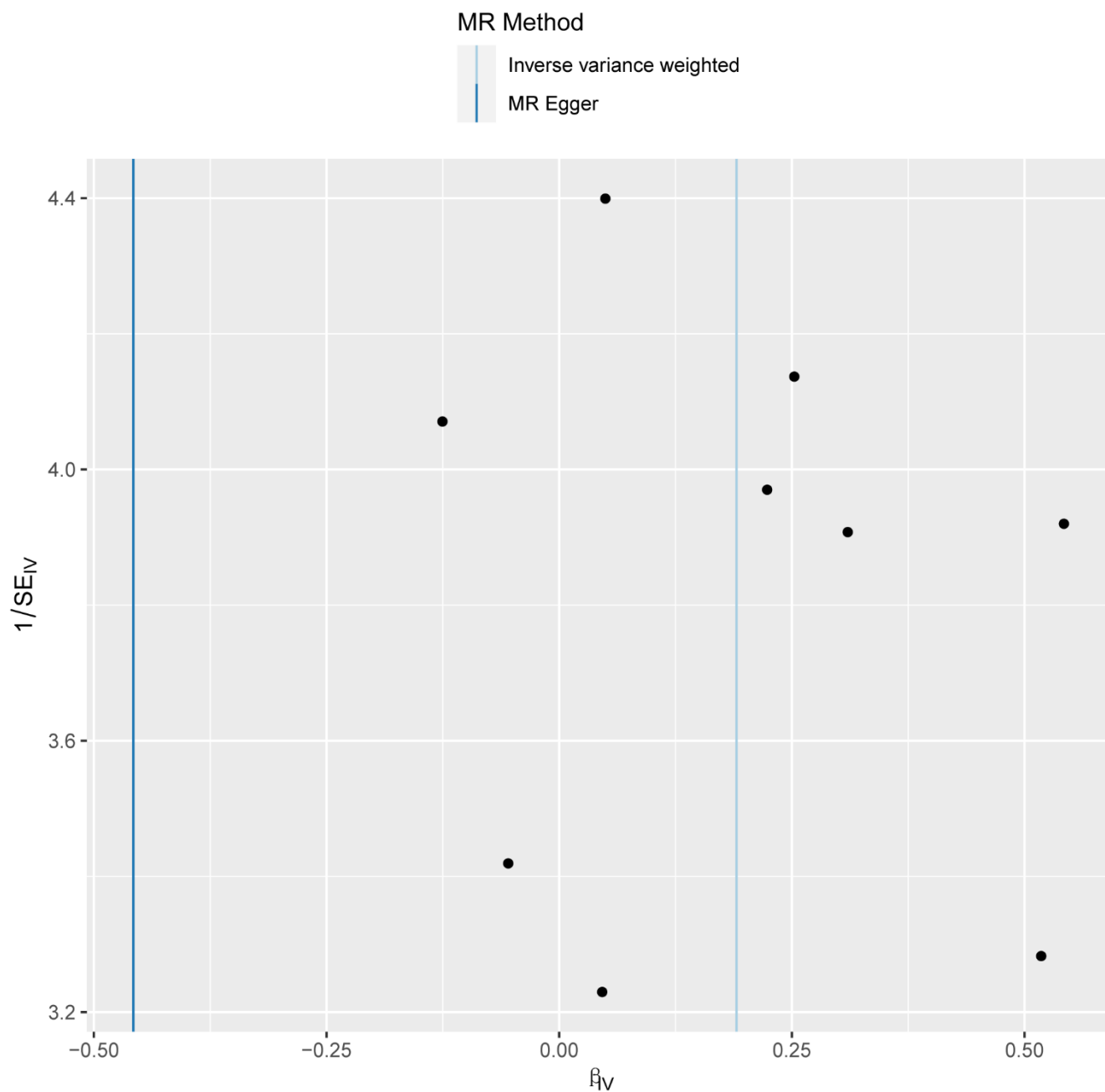
(e) Funnel plots of the Bacteroidales (order) on arthropathic psoriasis.



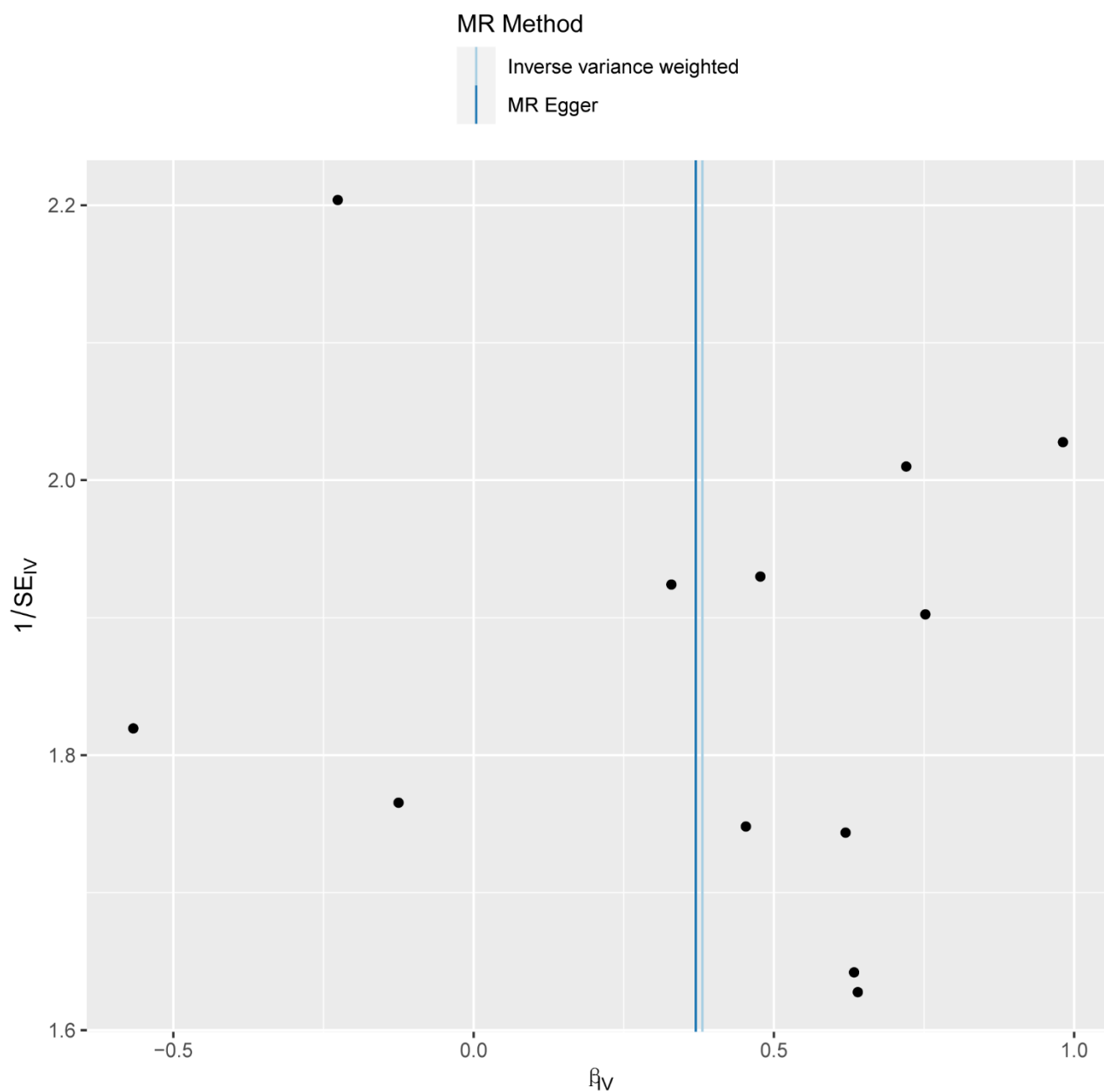
(f) Funnel plots of the Pasteurellales (order) on arthropathic psoriasis.



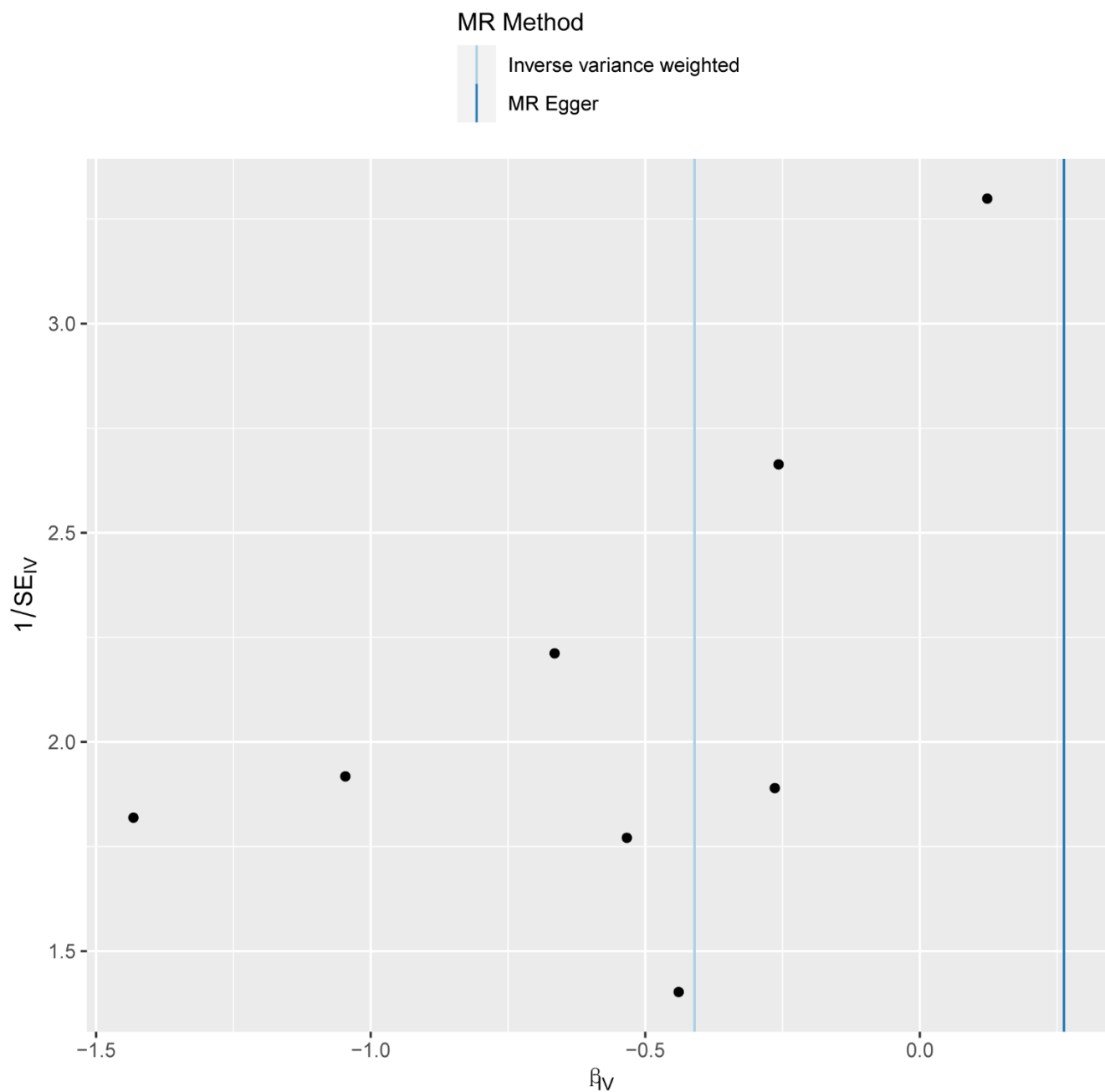
(g) Funnel plots of the Pasteurellaceae (family) on arthropathic psoriasis.



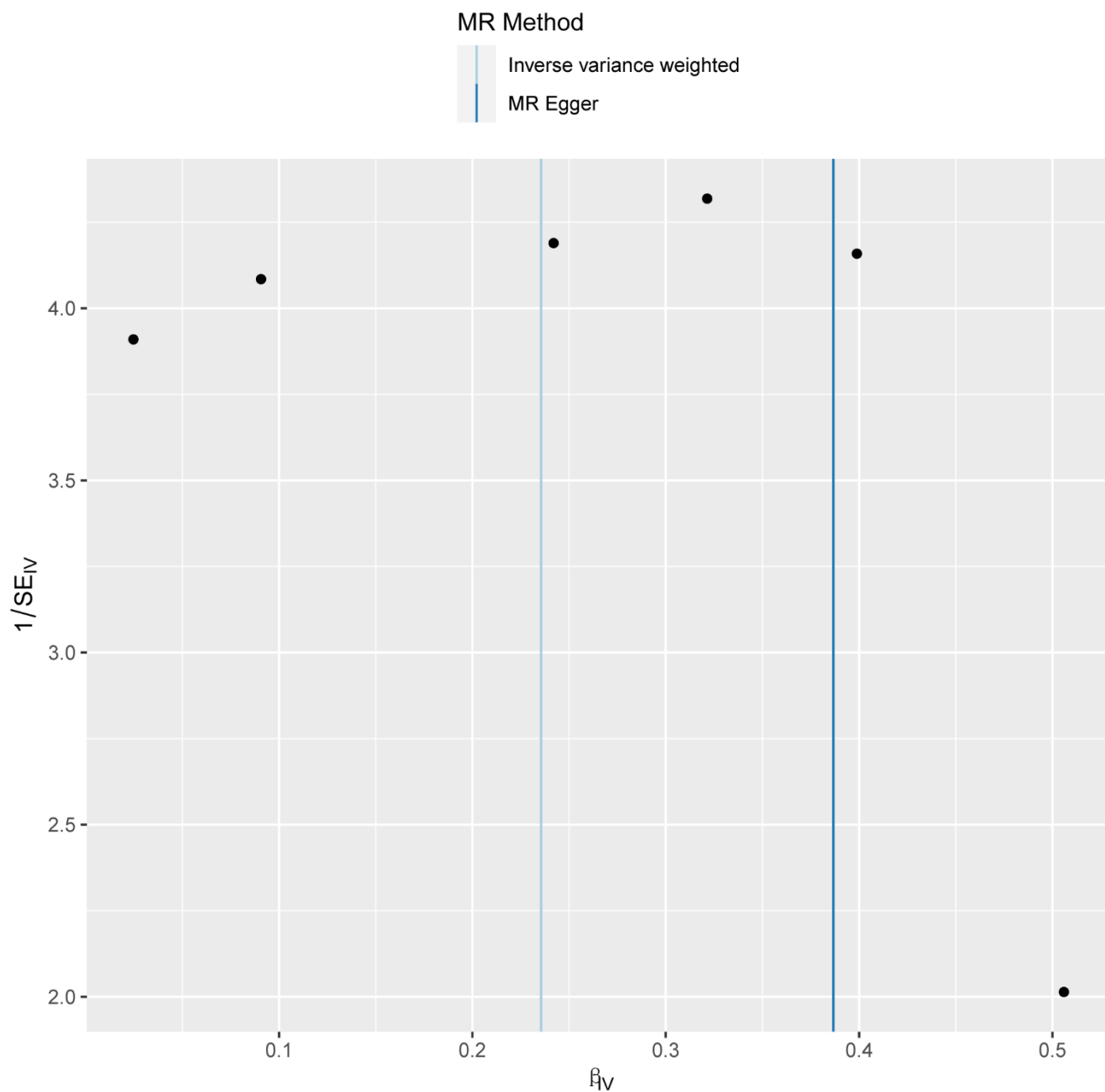
(h) Funnel plots of the *Eubacteriumfissicatena* group (genus) on arthropathic psoriasis.



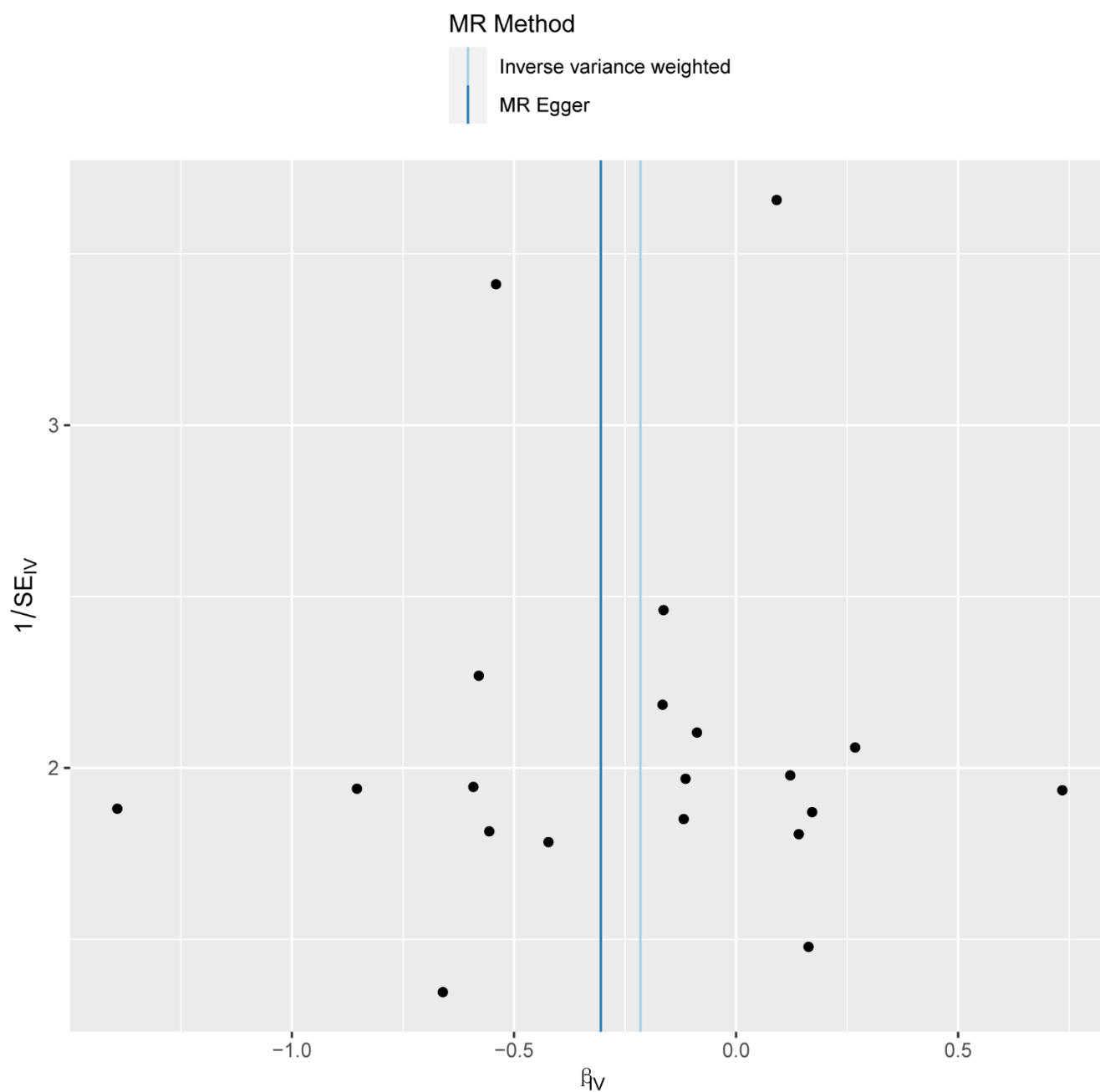
(i) Funnel plots of the *Blautia* (genus) on arthropathic psoriasis.



(j) Funnel plots of the *Butyricicoccus* (genus) on arthropathic psoriasis.

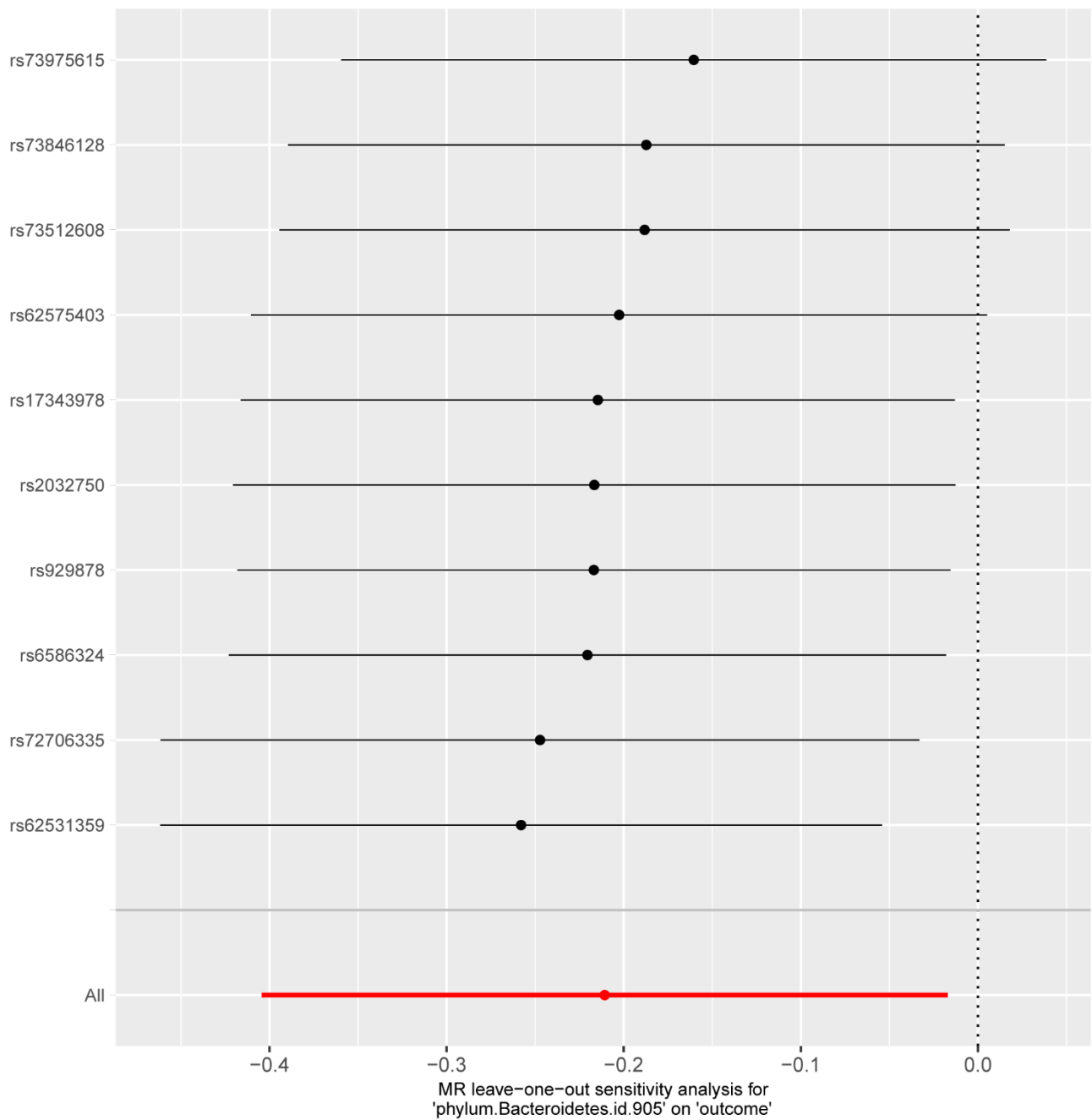


(k) Funnel plots of the *Methanobrevibacter* (genus) on arthropathic psoriasis.

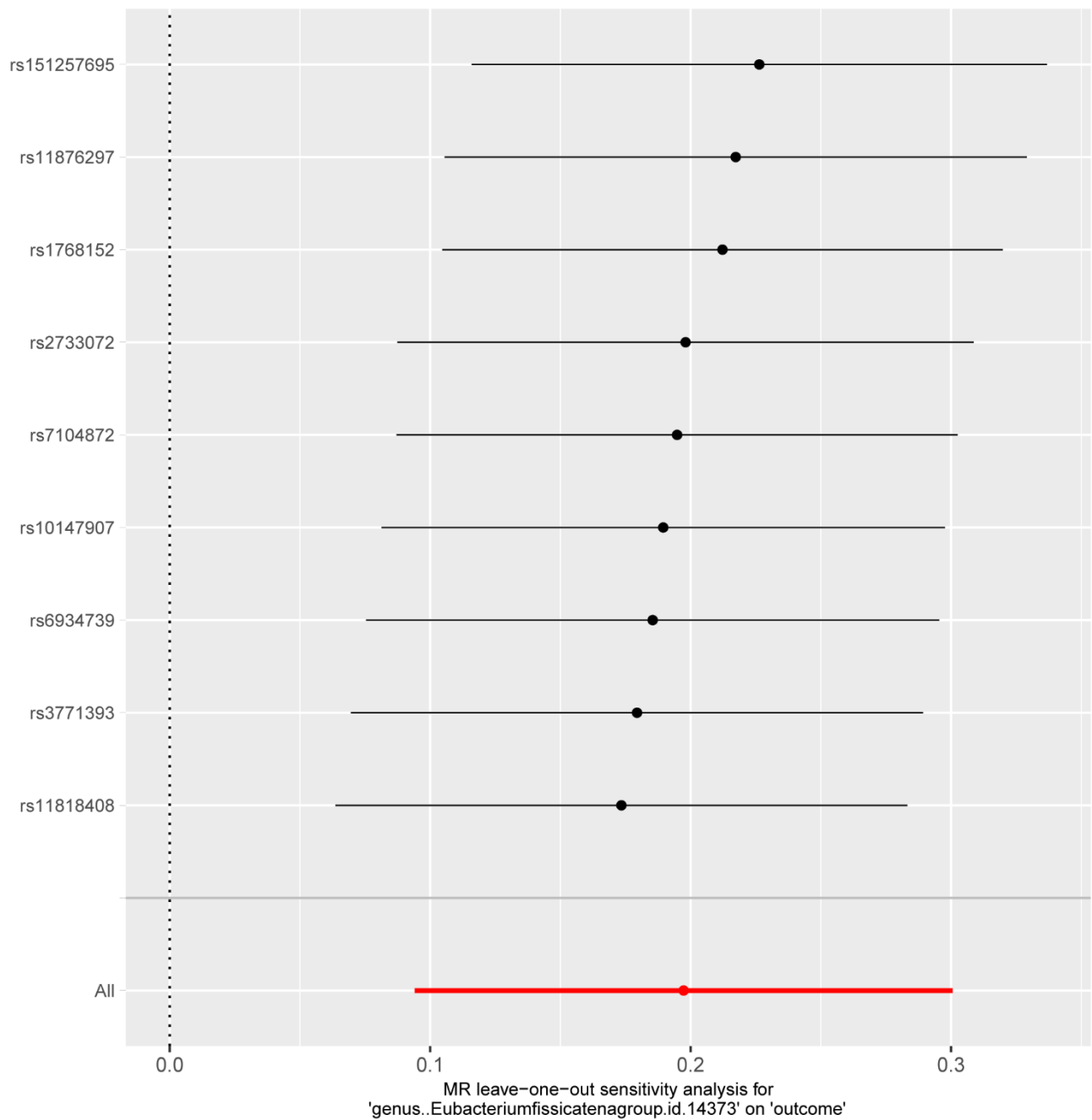


(l) Funnel plots of the RuminococcaceaeUCG002 (genus) on arthropathic psoriasis.

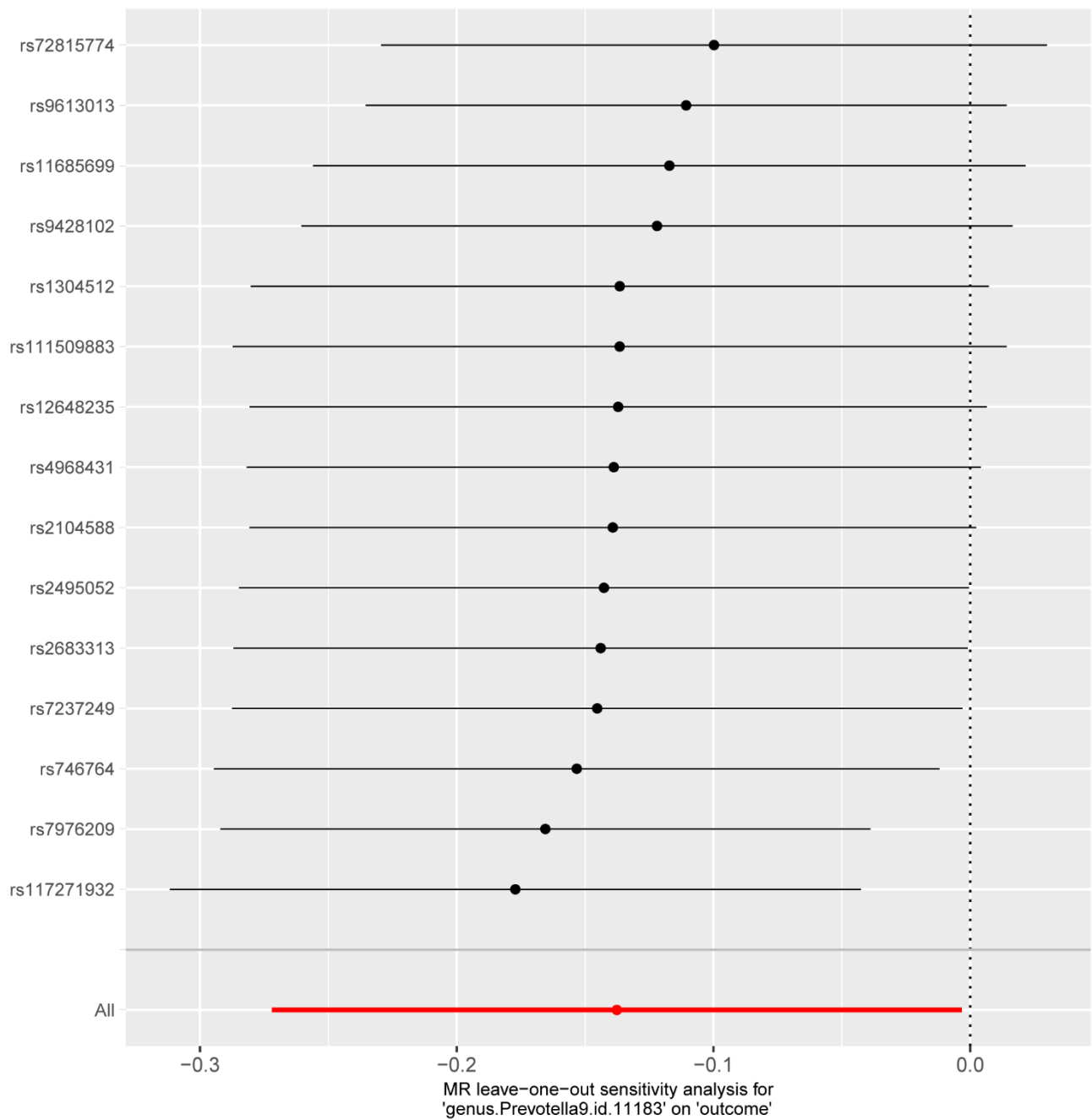
Figure S2 Funnel plots of the identified bacterial taxa on psoriasis and arthropathic psoriasis.



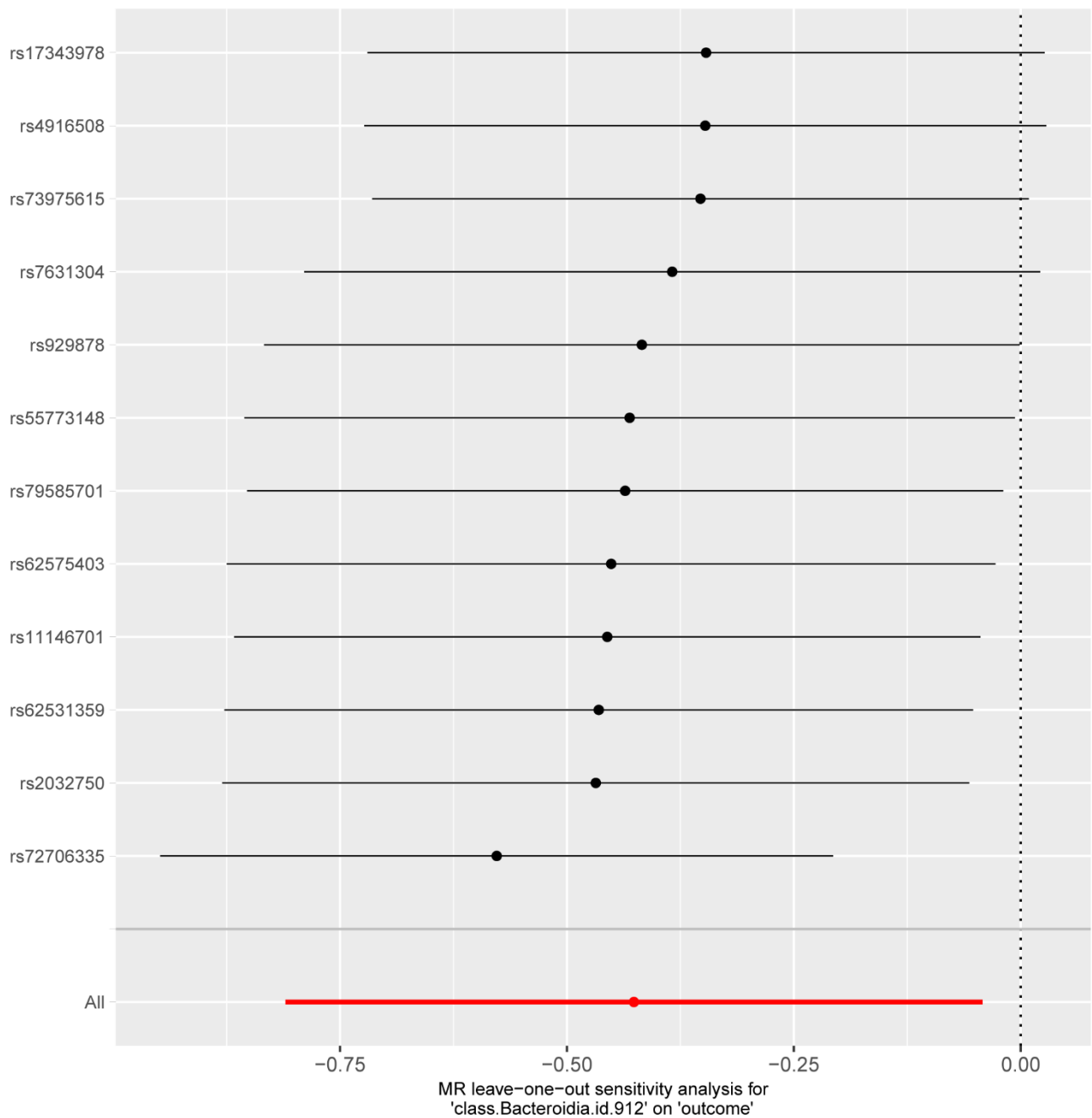
(a) Forest plots of leave-one-out sensitivity analysis of Bacteroidetes(phylum) on psoriasis.



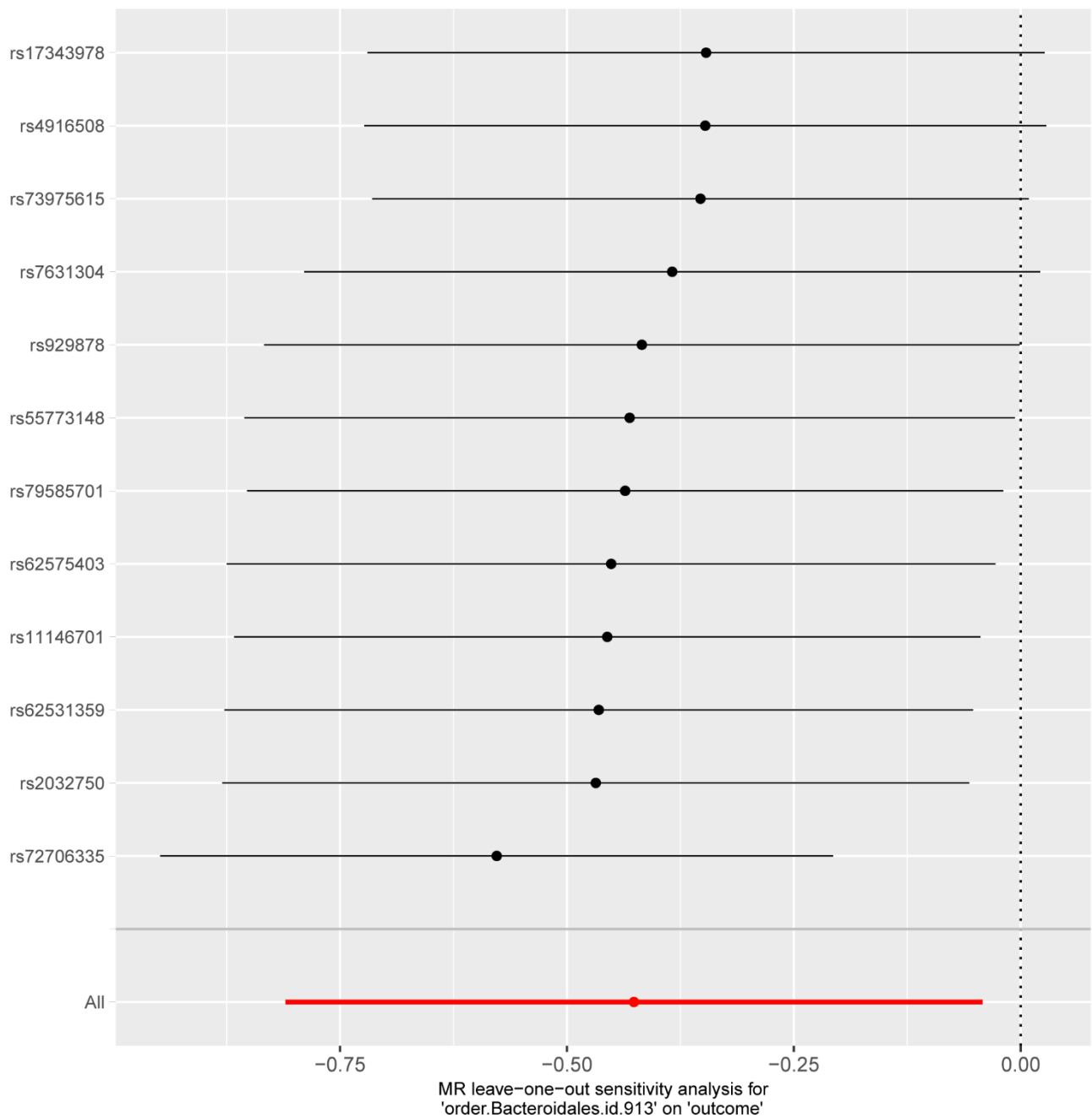
(b) Forest plots of leave-one-out sensitivity analysis of Eubacteriumfissicatengroup (genus) on psoriasis.



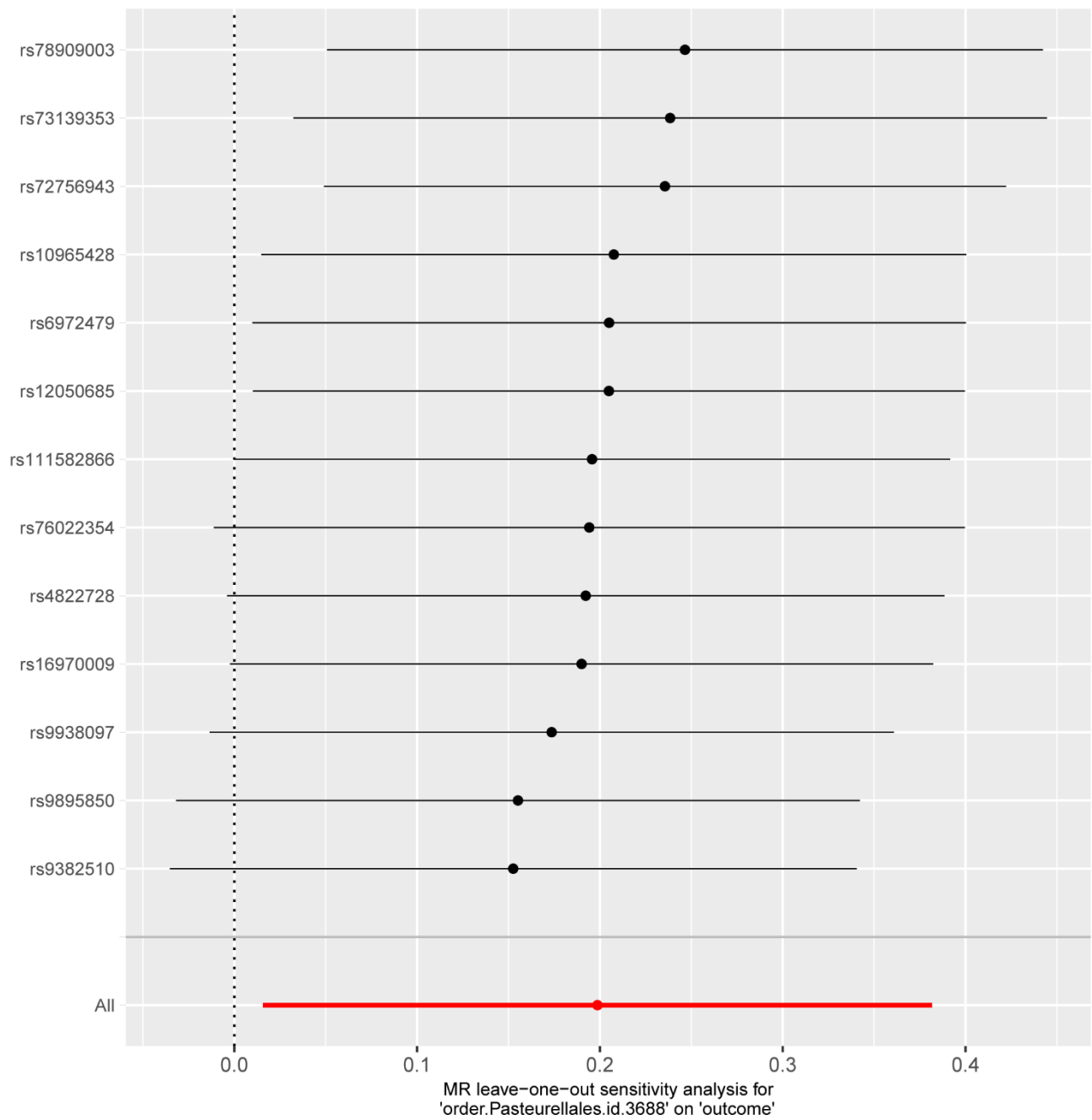
(c) Forest plots of leave-one-out sensitivity analysis of *Prevotella9* (genus) on psoriasis.



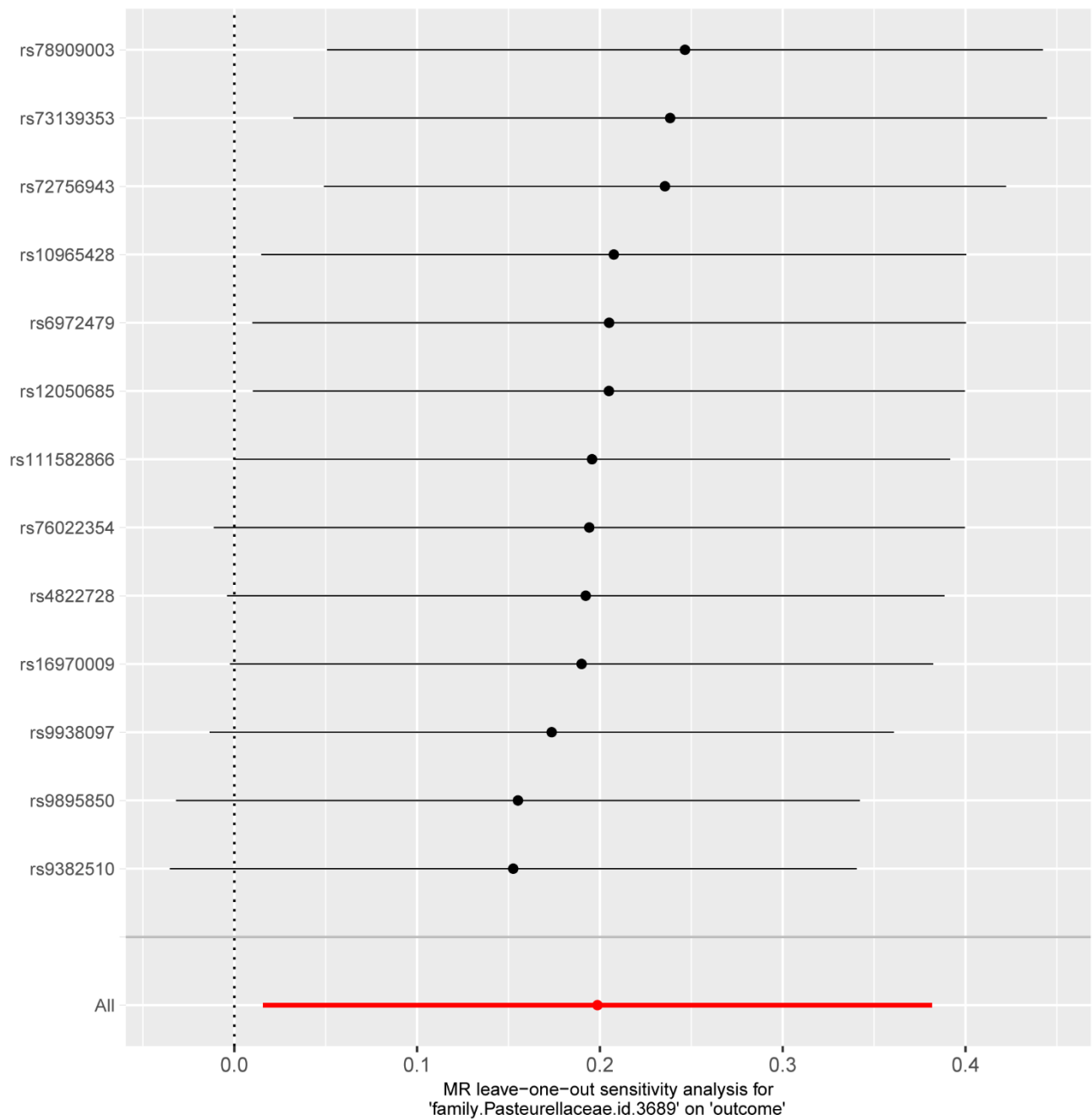
(d) Forest plots of leave-one-out sensitivity analysis of Bacteroidia (class) on arthropathic psoriasis.



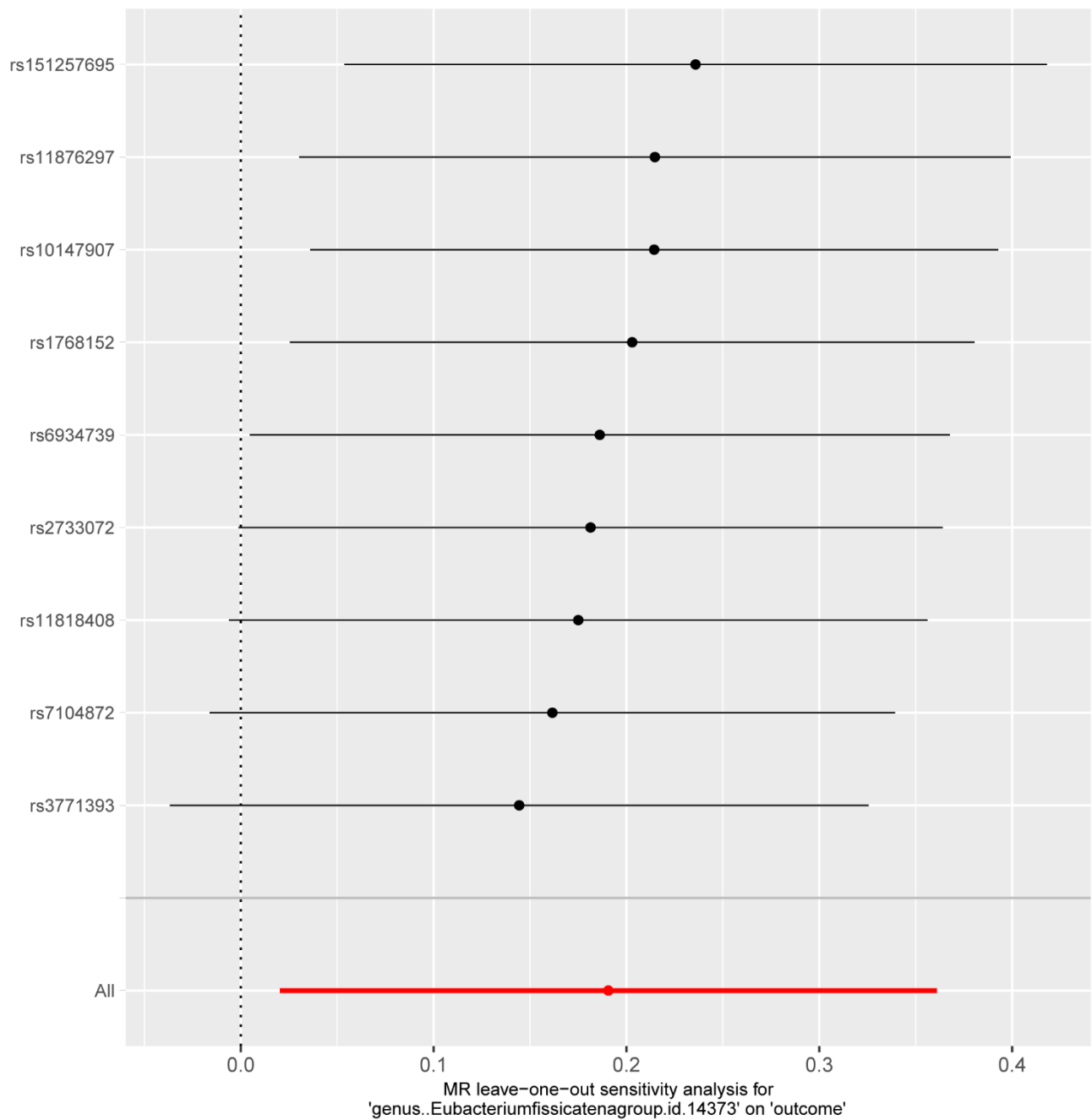
(e) Forest plots of leave-one-out sensitivity analysis of Bacteroidales (order) on arthropathic psoriasis.



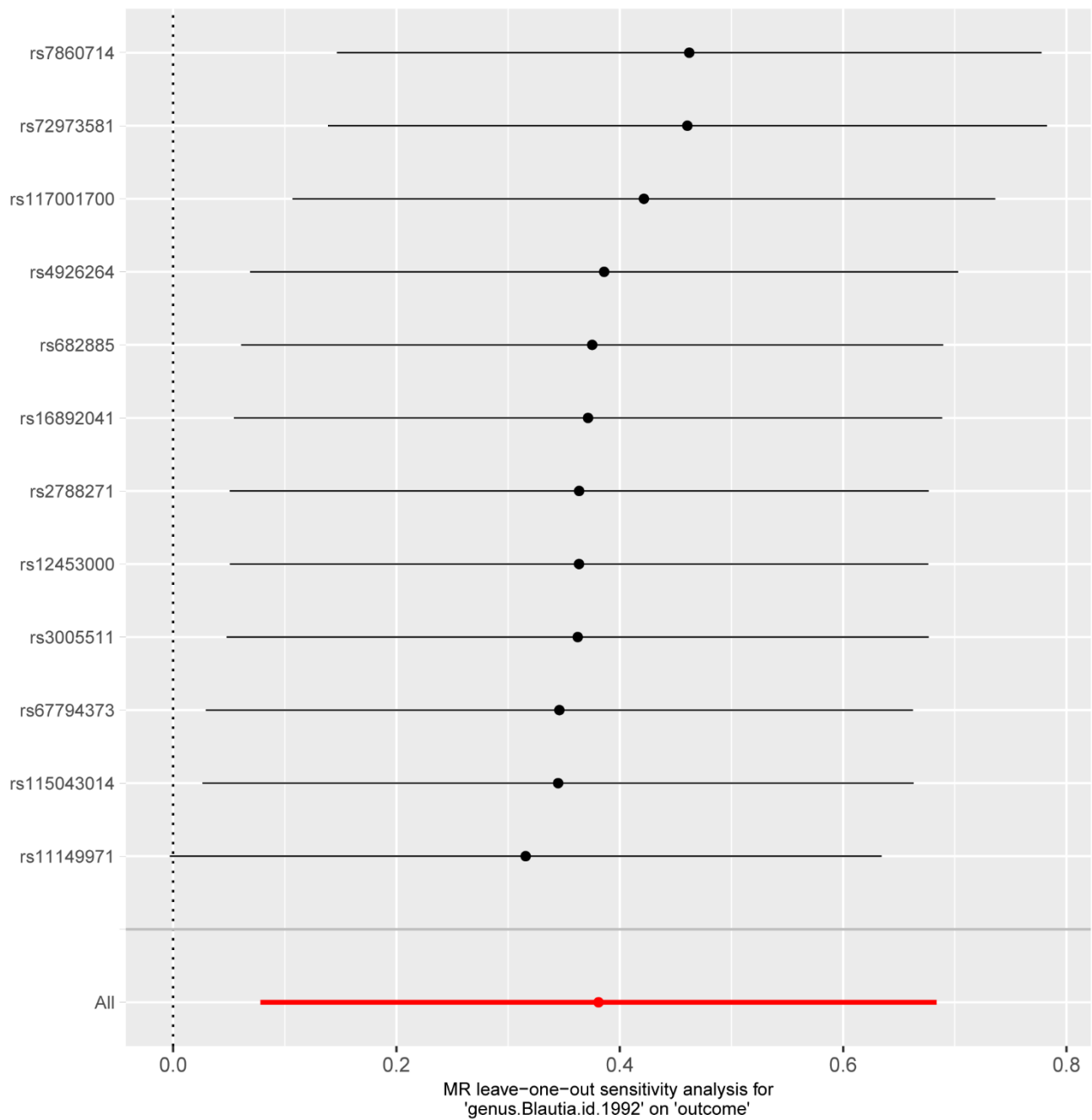
(f) Forest plots of leave-one-out sensitivity analysis of Pasteurellales (order) on arthropathic psoriasis.



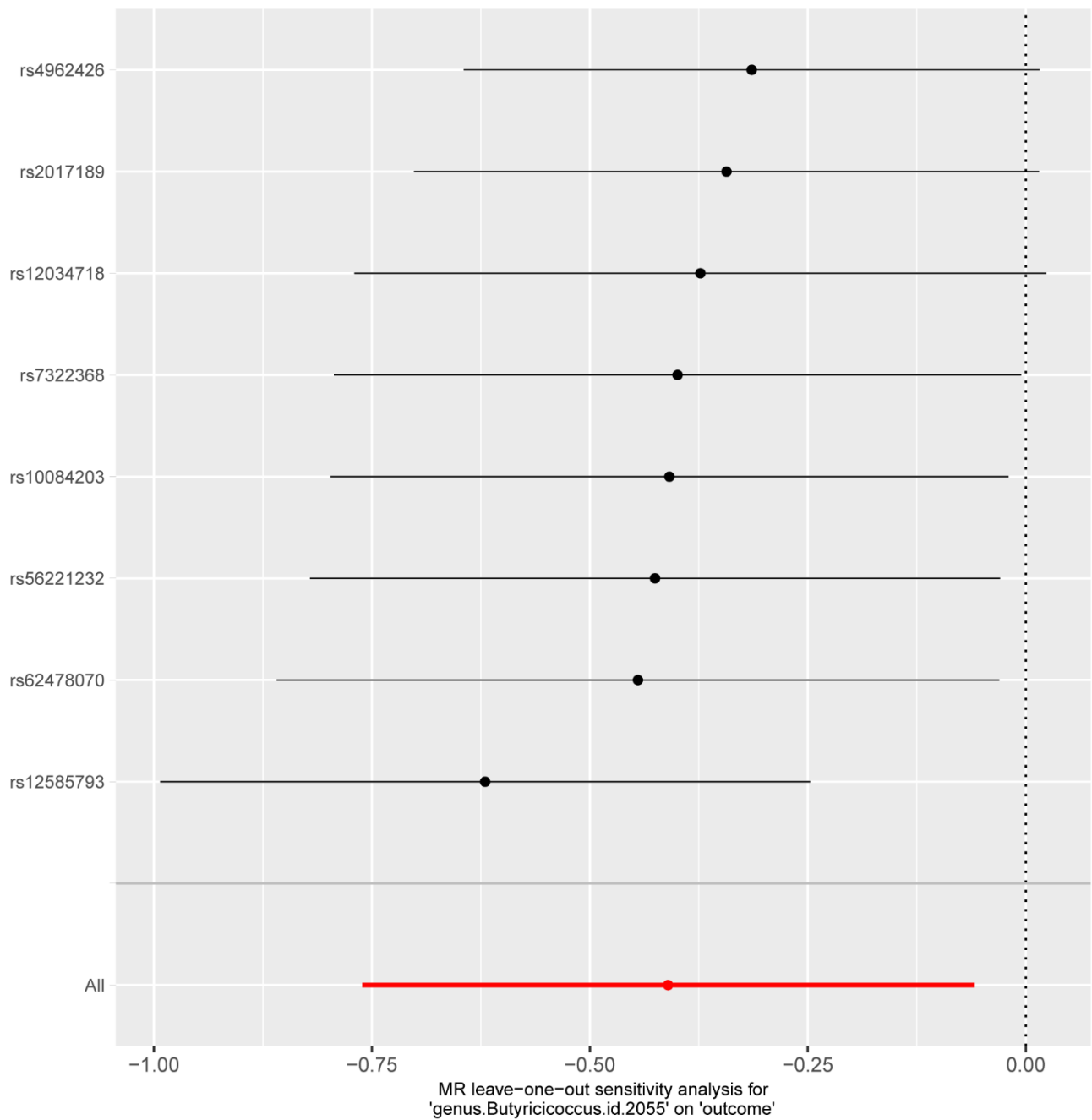
(g) Forest plots of leave-one-out sensitivity analysis of Pasteurellaceae (family) on arthropathic psoriasis.



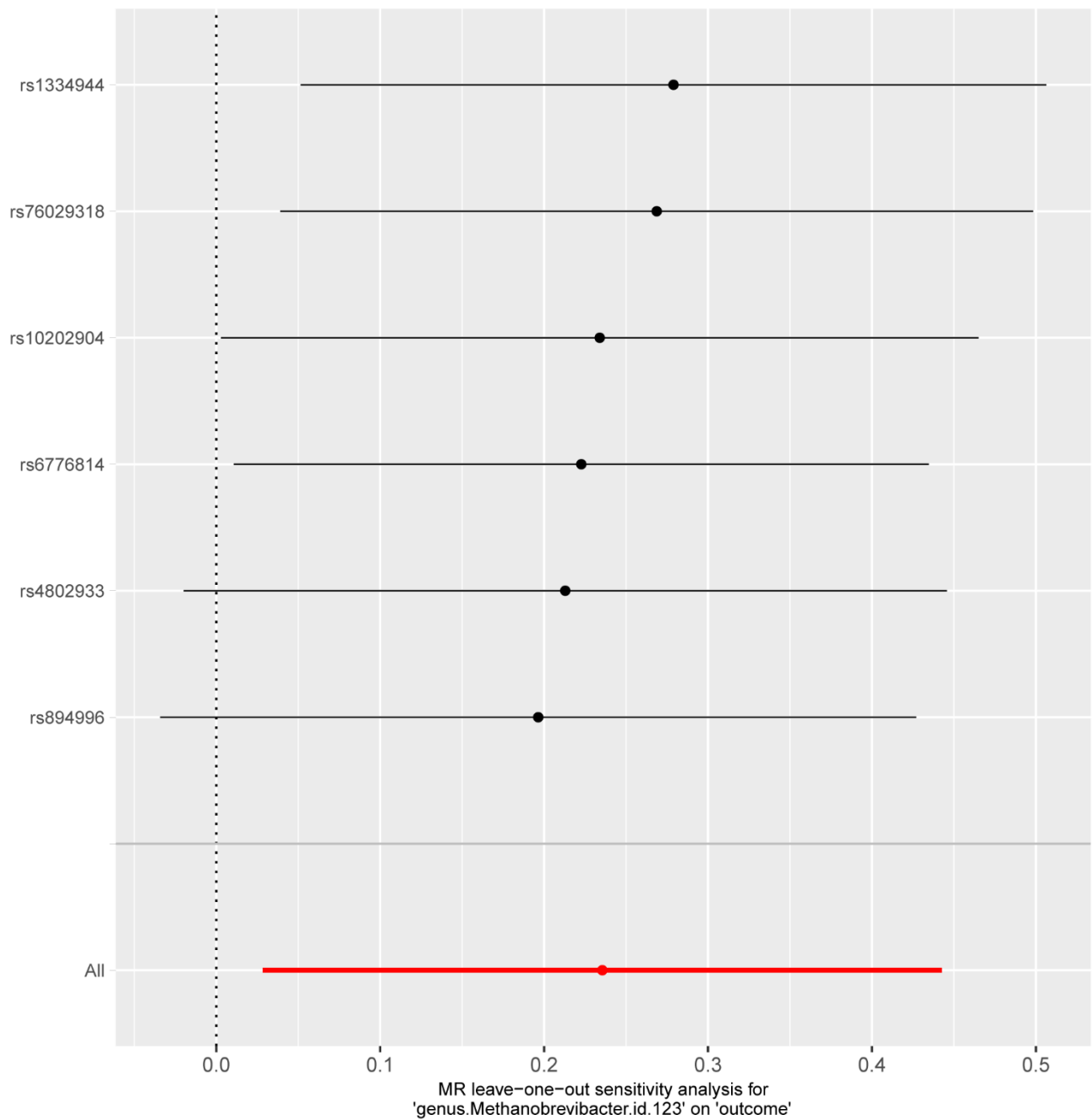
(h) Forest plots of leave-one-out sensitivity analysis of Eubacteriumfissicatengroup (genus) on arthropathic psoriasis.



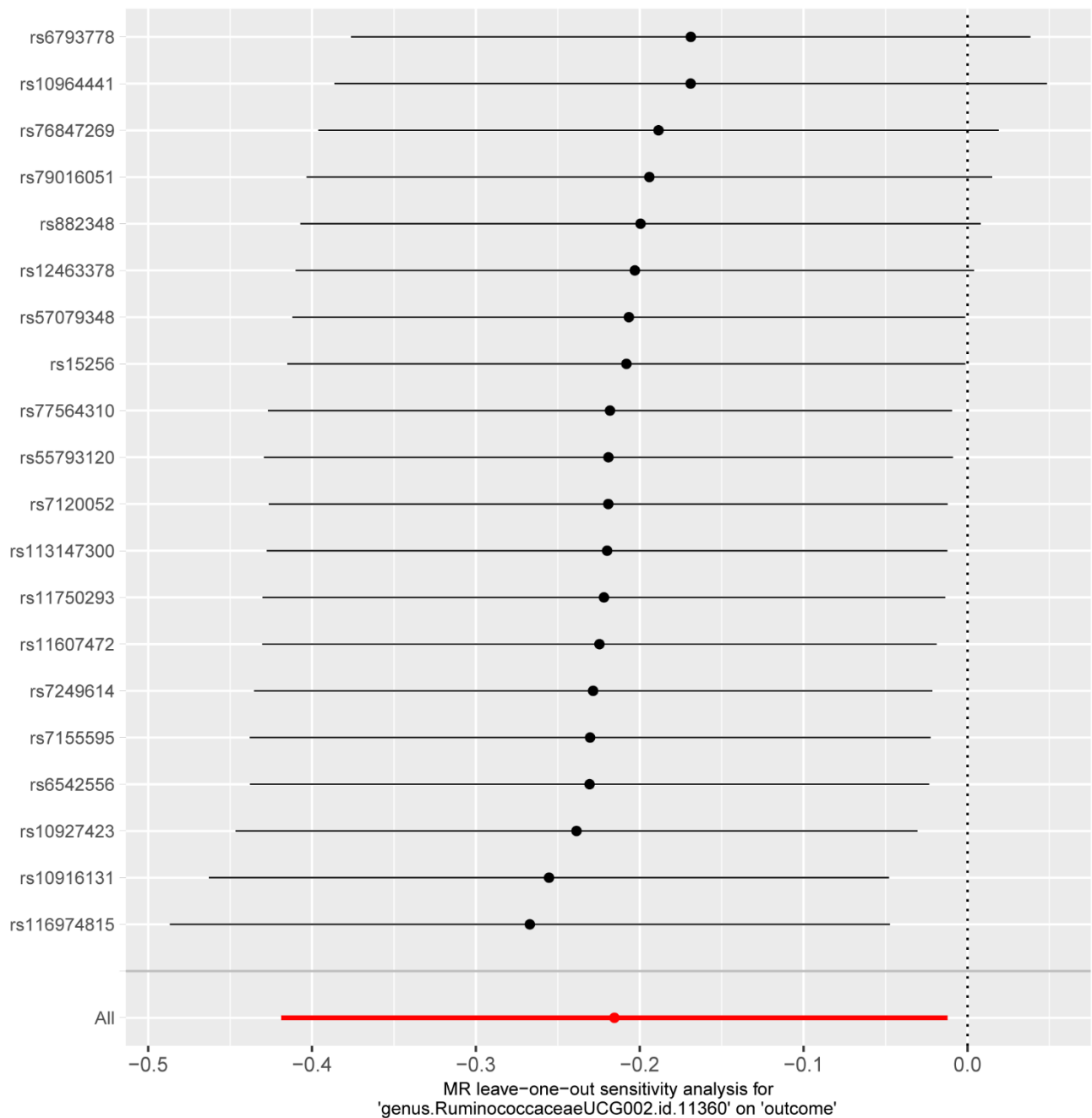
(i) Forest plots of leave-one-out sensitivity analysis of *Blaudia* (genus) on arthropathic psoriasis.



(j) Forest plots of leave-one-out sensitivity analysis of *Butyricoccus* (genus) on arthropathic psoriasis.

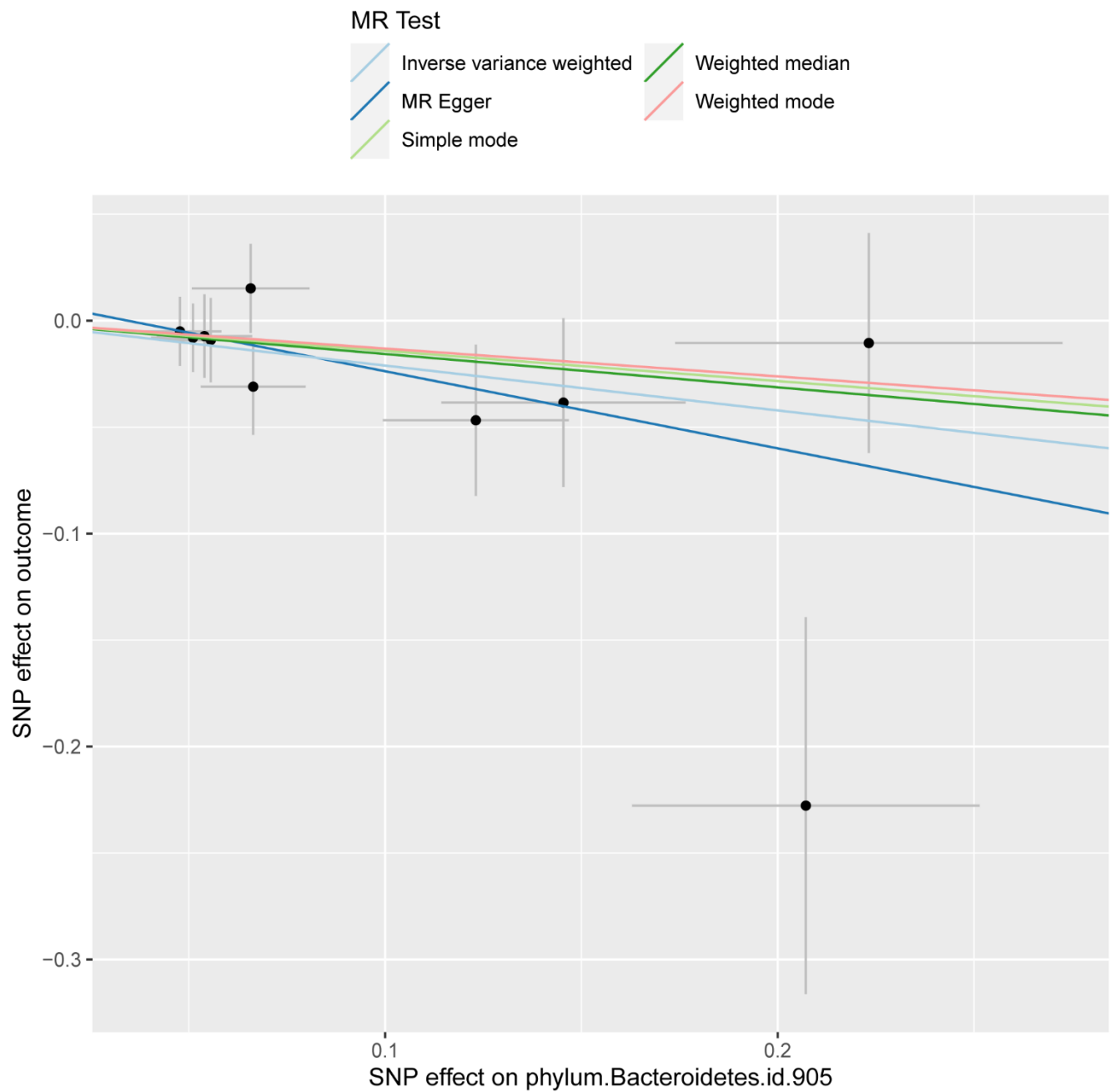


(k) Forest plots of leave-one-out sensitivity analysis of *Methanobrevibacter* (genus) on arthropathic psoriasis.

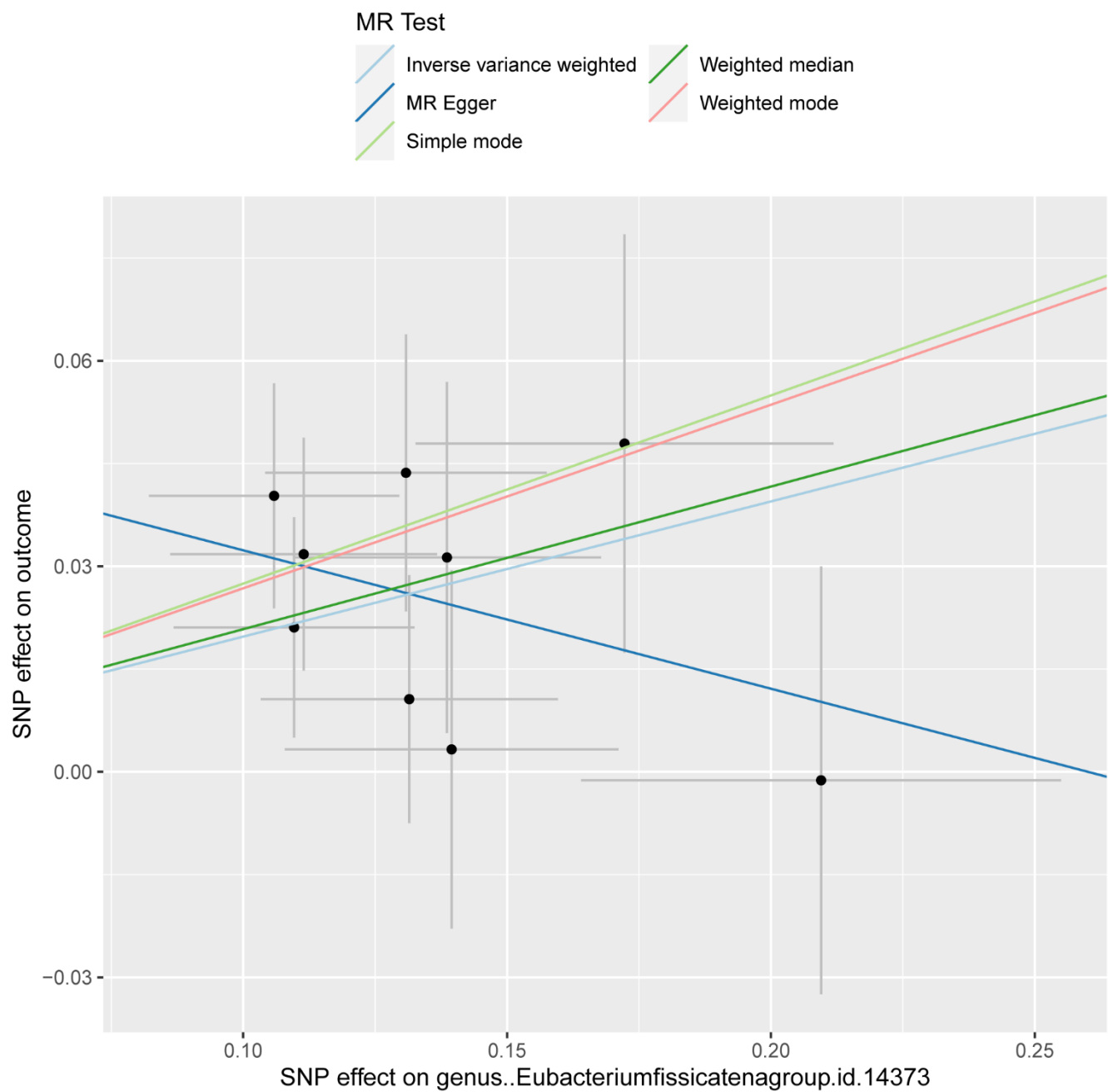


(l) Forest plots of leave-one-out sensitivity analysis of RuminococcaceaeUCG002 (genus) on arthropathic psoriasis.

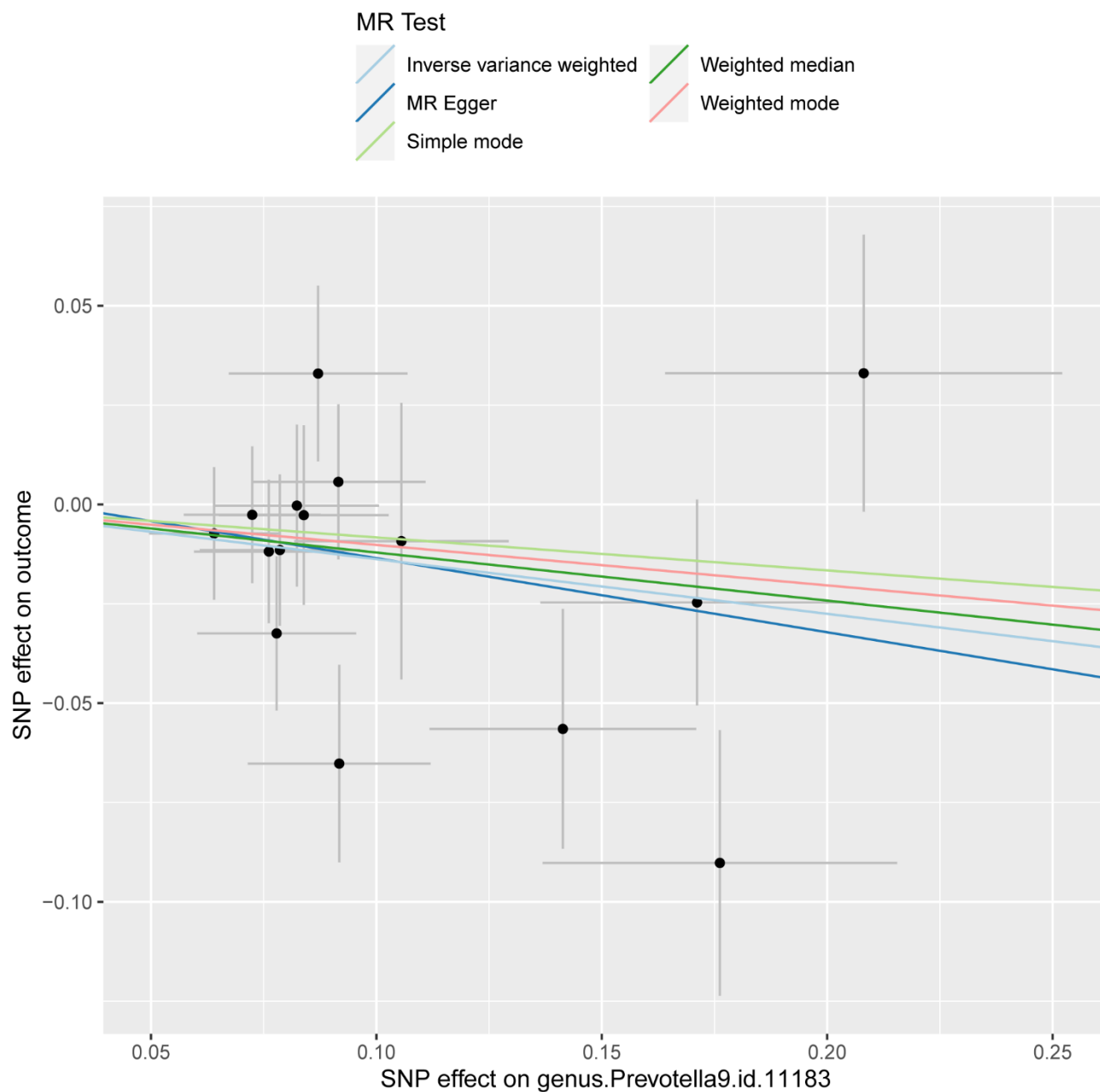
Figure S3 Forest plots of leave-one-out sensitivity analysis of the identified bacterial taxa on psoriasis and arthropathic psoriasis.



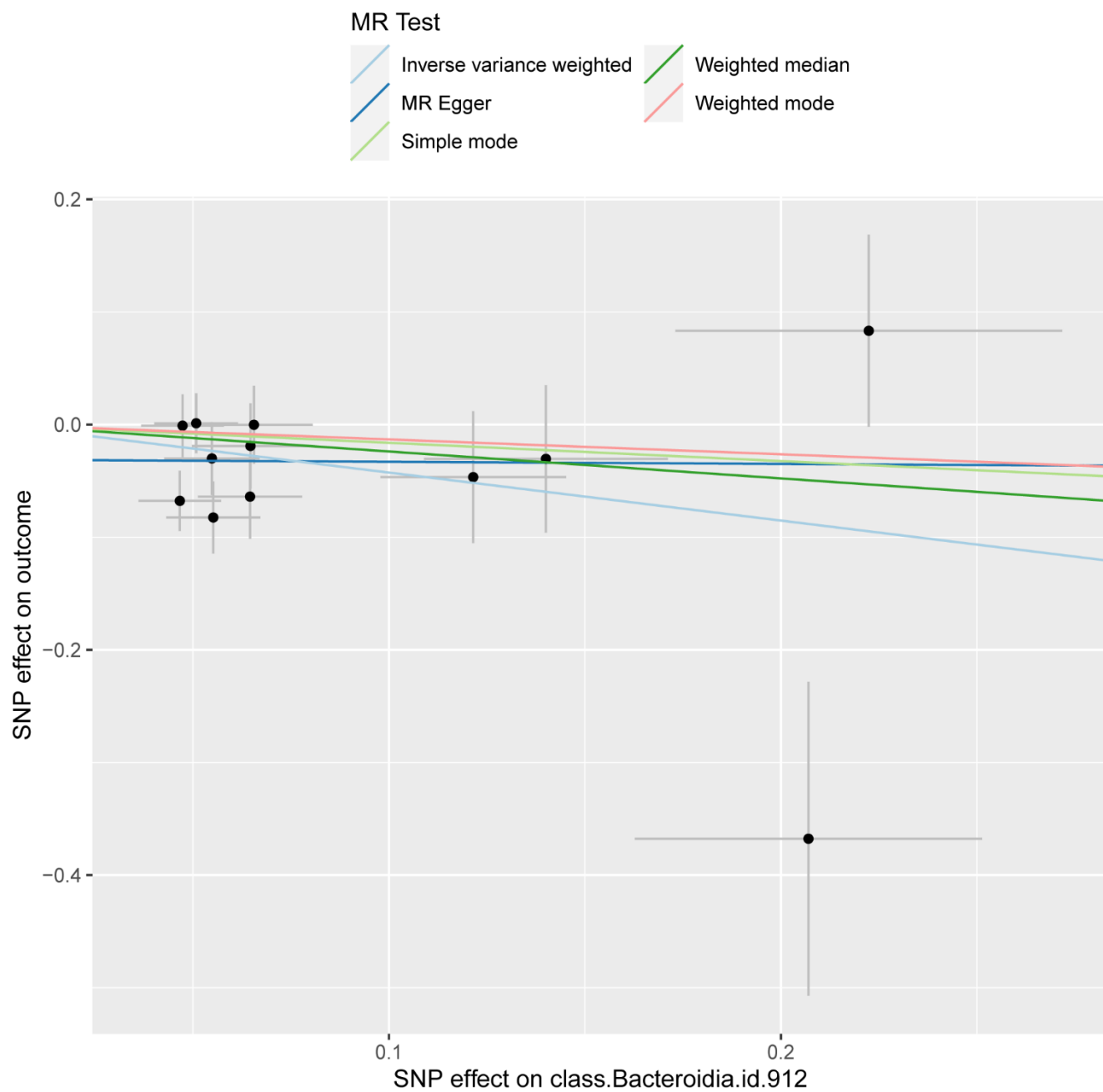
(a) Scatter plots for the causal effects of Bacteroidetes(phylum) on psoriasis.



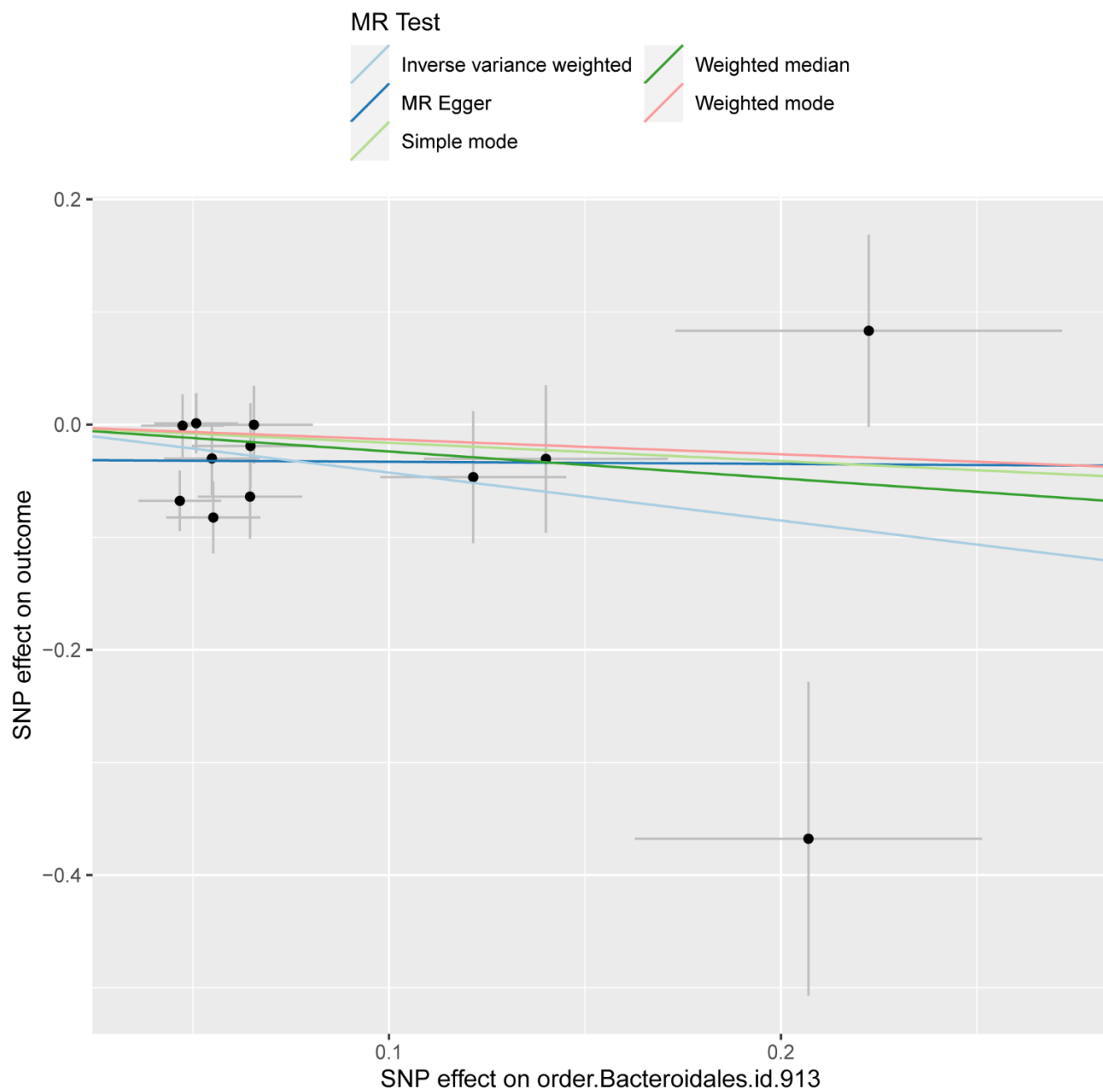
(b) Scatter plots for the causal effects of Eubacteriumfissicatenagroup (genus) on psoriasis.



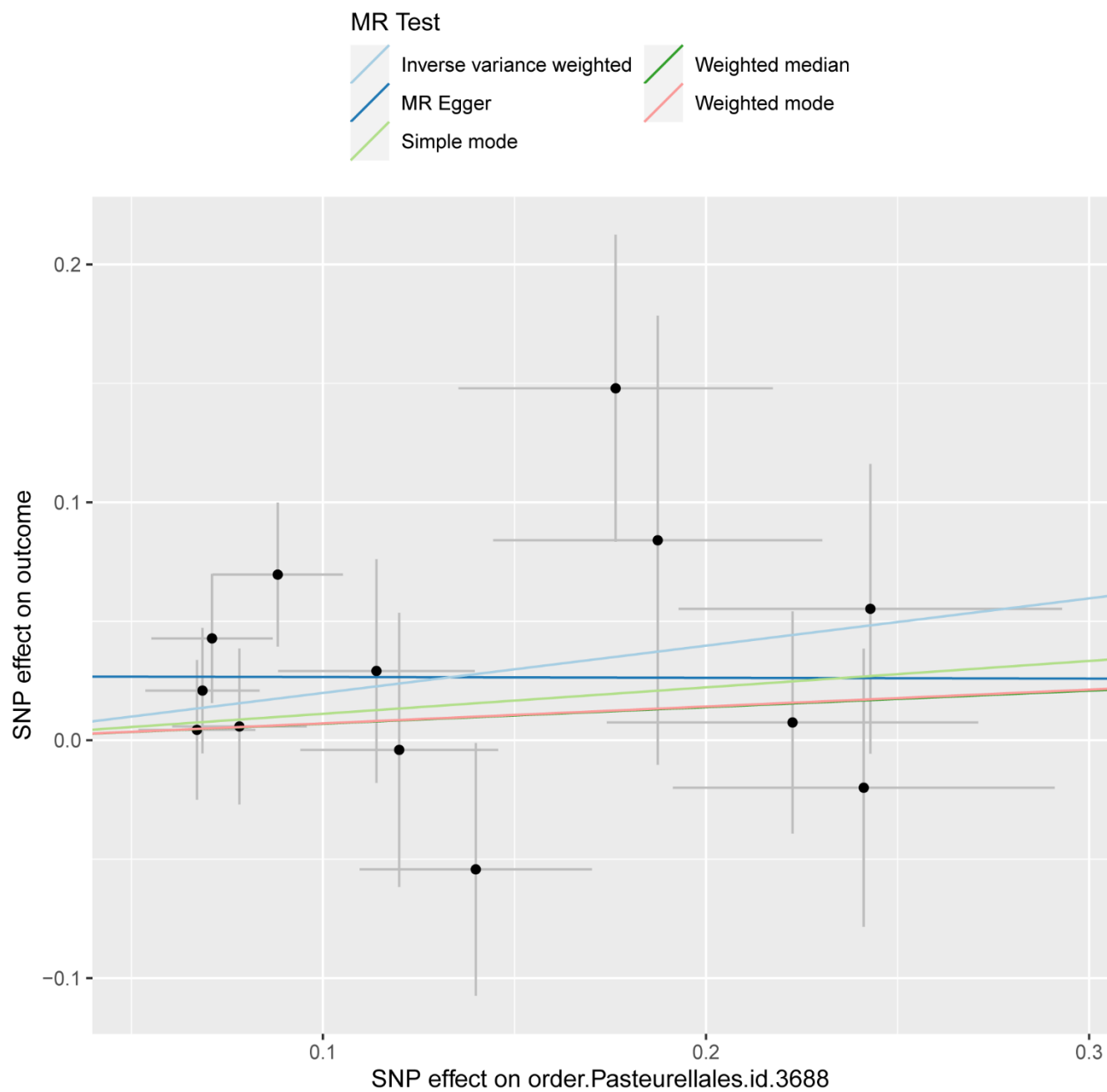
(c) Scatter plots for the causal effects of Prevotella9 (genus) on psoriasis.



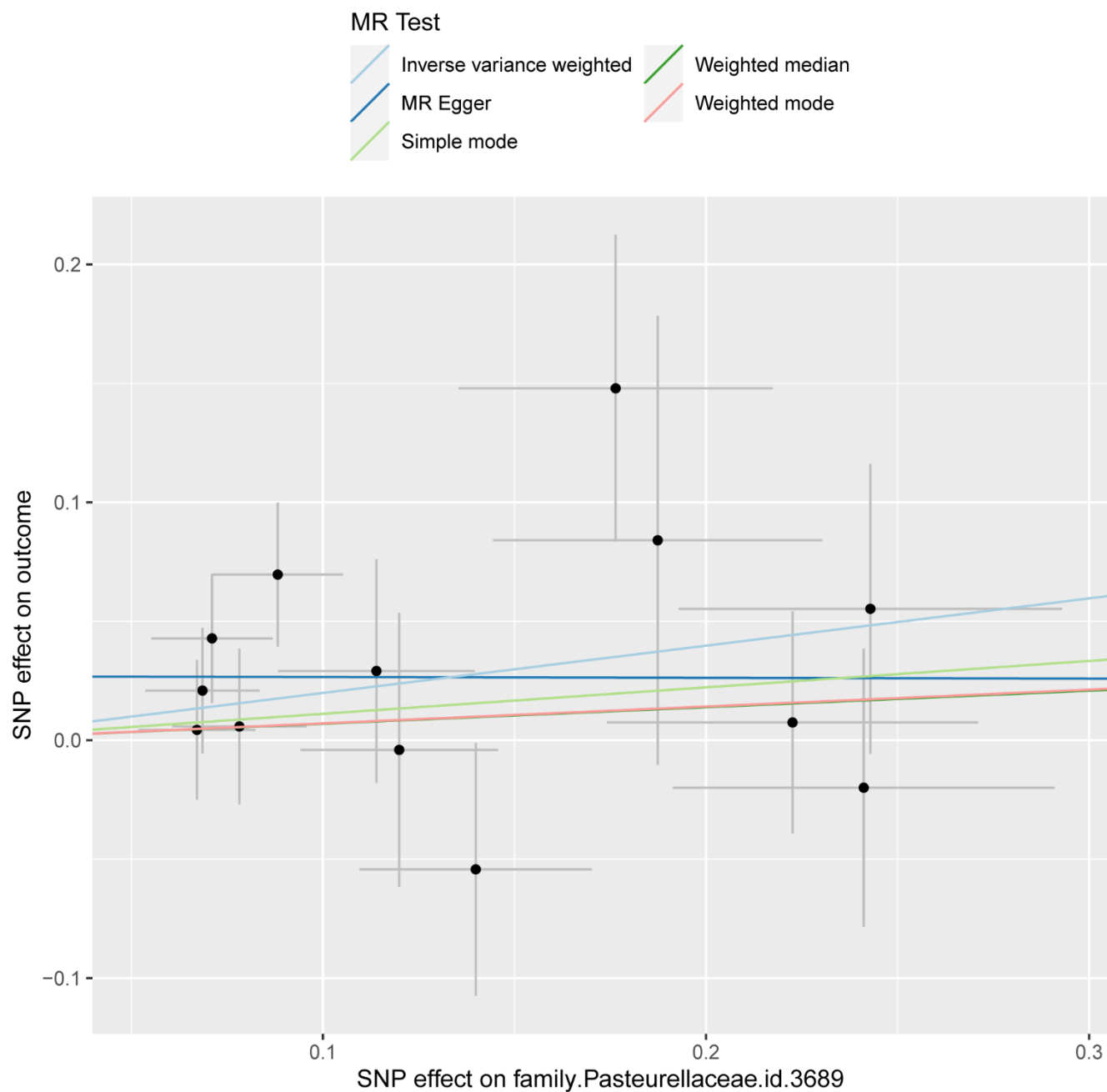
(d) Scatter plots for the causal effects of Bacteroidia (class) on arthropathic psoriasis.



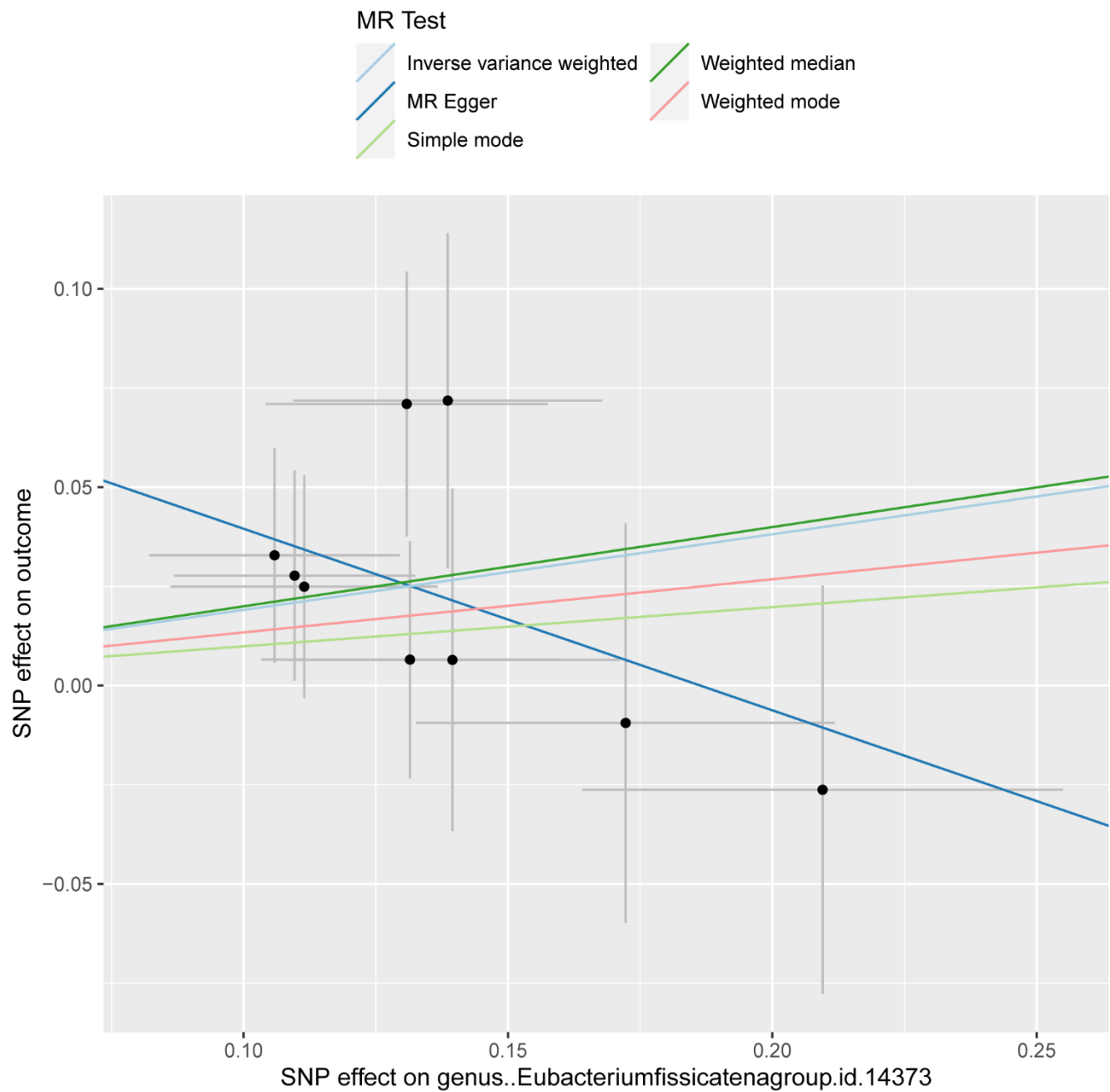
(e) Scatter plots for the causal effects of Bacteroidales (order) on arthropathic psoriasis.



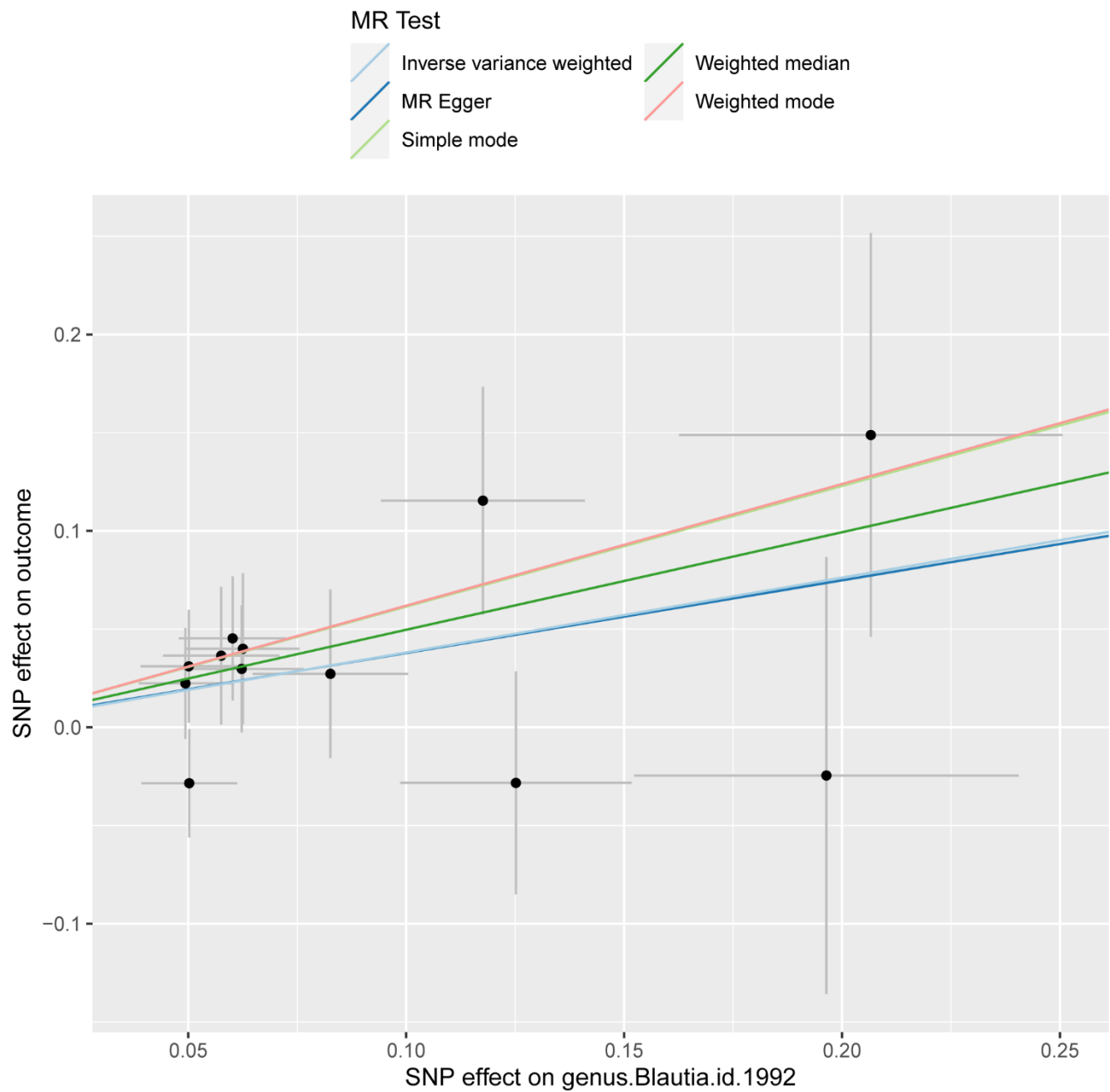
(f) Scatter plots for the causal effects of Pasteurellales (order) on arthropathic psoriasis.



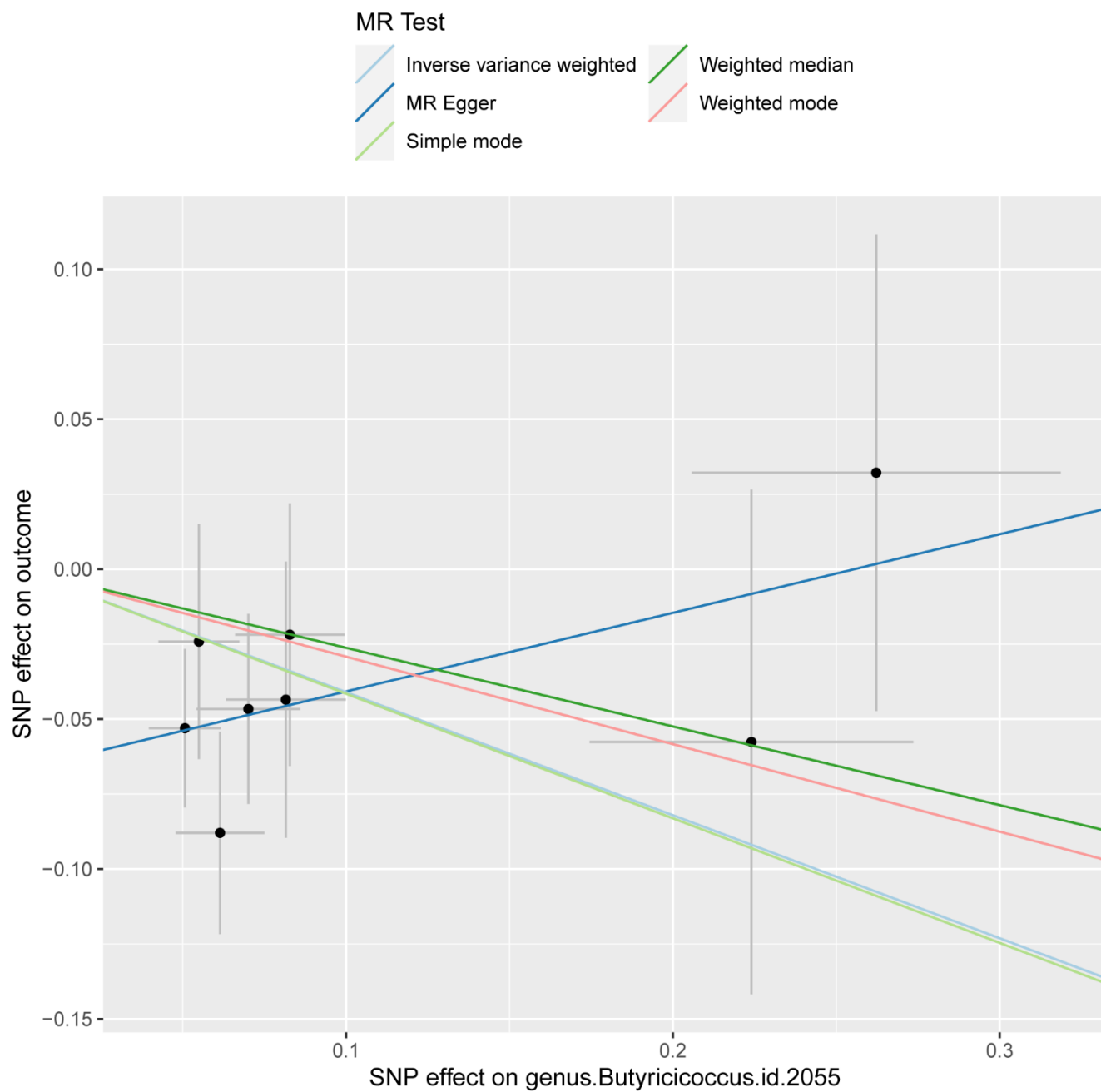
(g) Scatter plots for the causal effects of Pasteurellaceae (family) on arthropathic psoriasis.



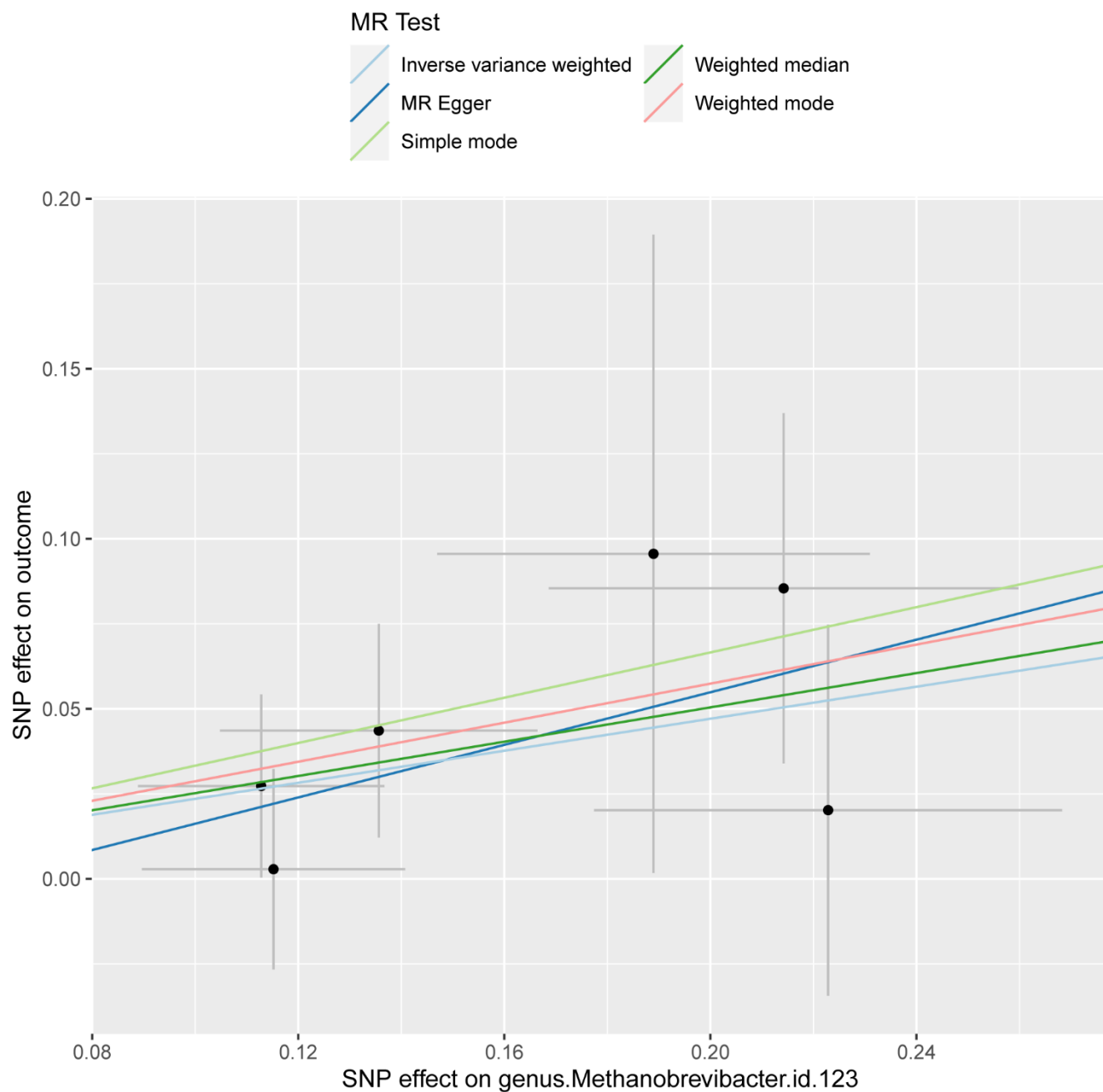
(h) Scatter plots for the causal effects of Eubacteriumfissicatengroup (genus) on arthropathic psoriasis.



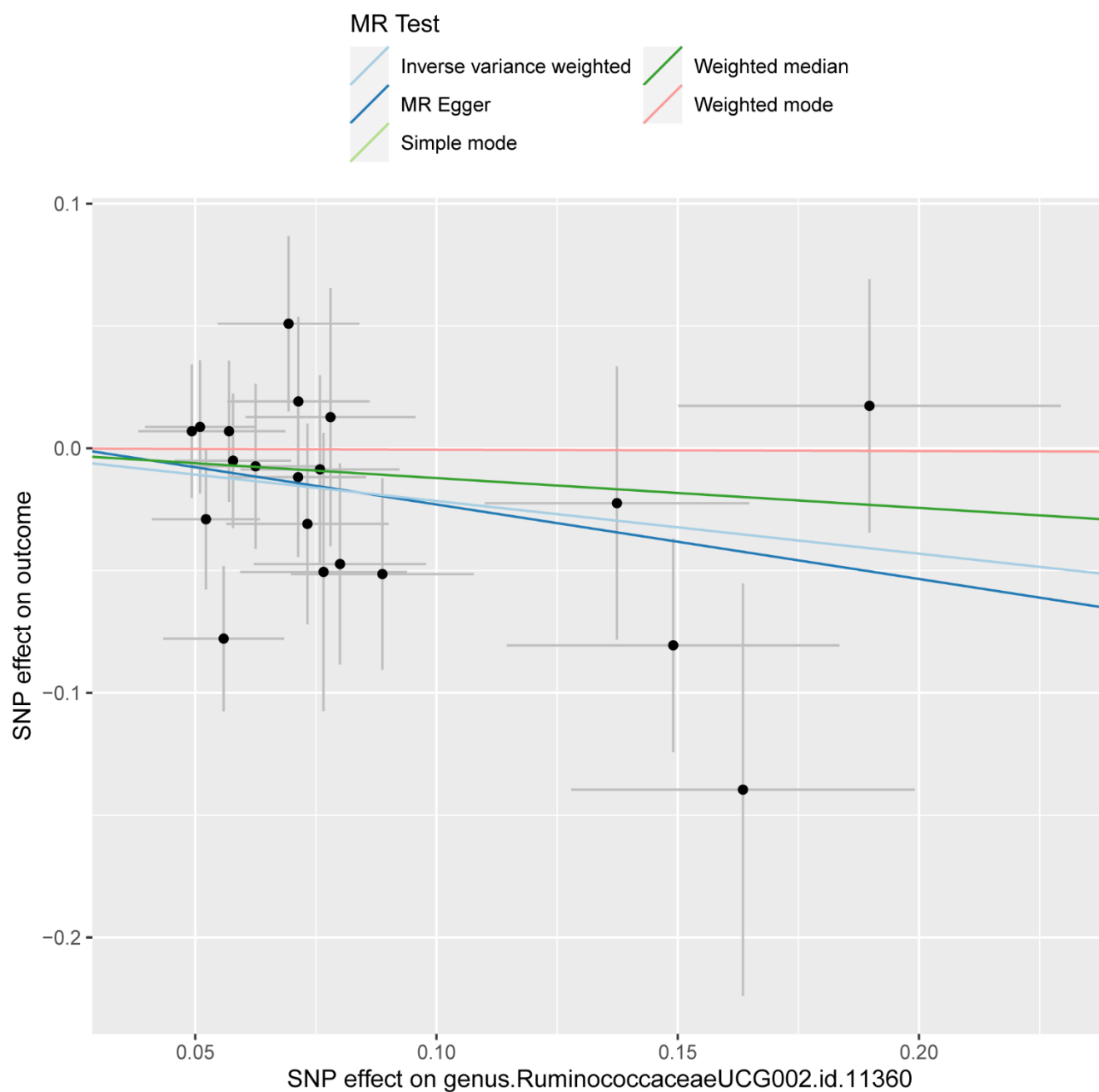
(i) Scatter plots for the causal effects of Blautia (genus) on arthropathic psoriasis.



(j) Scatter plots for the causal effects of Butyricicoccus (genus) on arthropathic psoriasis.



(k) Scatter plots for the causal effects of Methanobrevibacter (genus) on arthropathic psoriasis.



(l) Scatter plots for the causal effects of RuminococcaceaeUCG002 (genus) on arthropathic psoriasis.

Figure S4 Scatter plots for the causal effects of the identified bacterial taxa on psoriasis and arthropathic psoriasis.