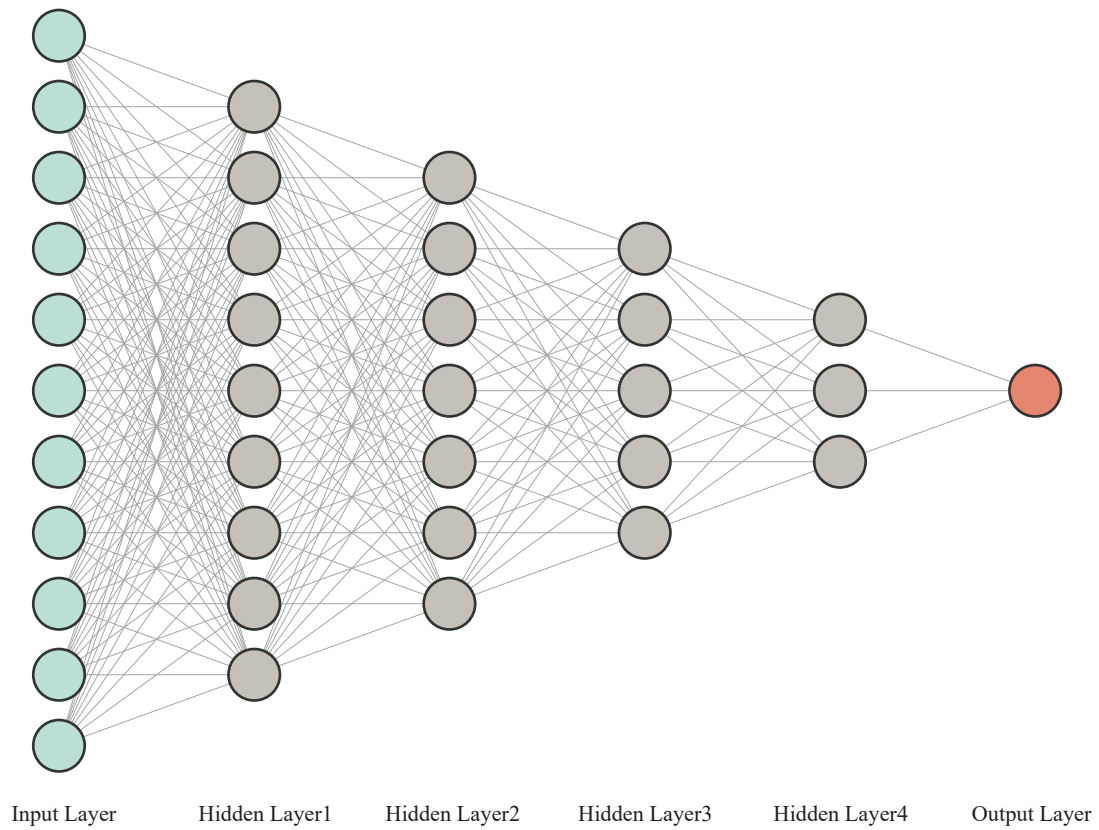
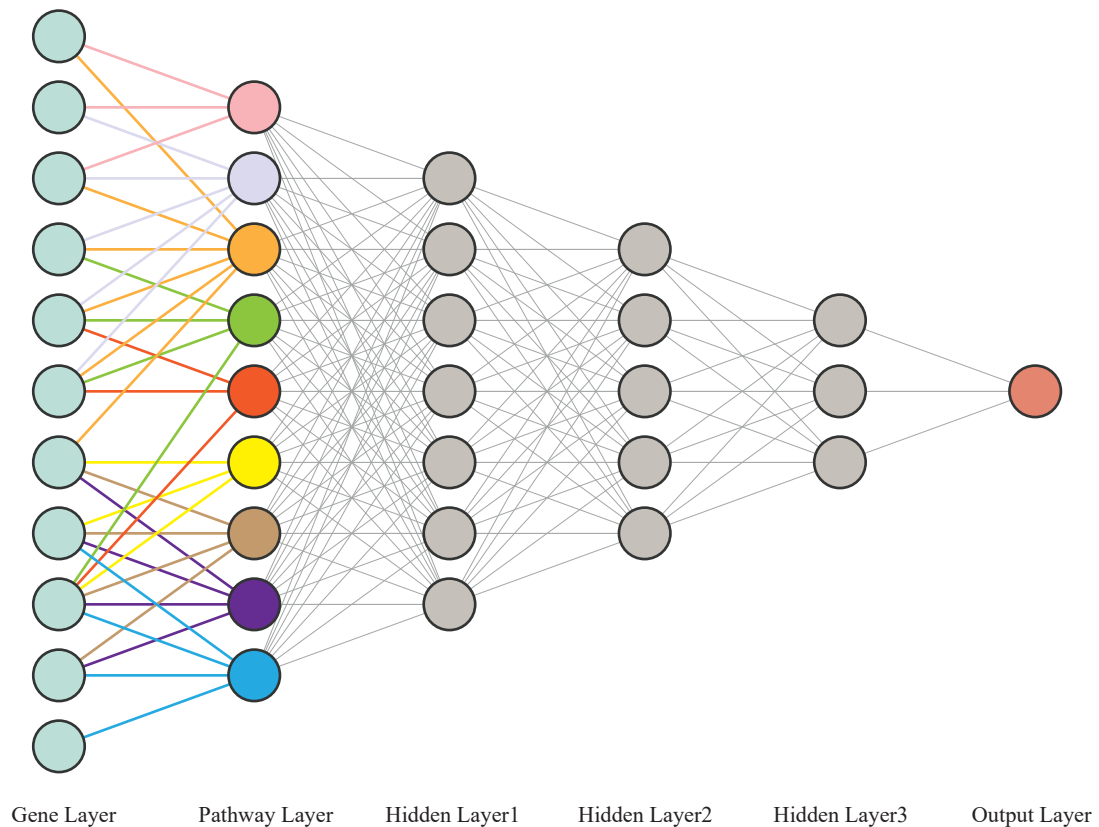


A.



B.



Additional file 2. The architecture of DNN and PGDNN. A) The DNN comprised of one input layer, four hidden layers and one output layer. The nodes number of hidden layers were 855, 128, 64 and 16, respectively. ReLU was used as an activation function between layers and a sigmoid function was applied in the output layer. B) the architecture of PGDNN was same with DNN, but the first hidden layer, named pathway layer, which represents the biological pathways linked with input genes.