Supplementary material

Equation 1:

$$Specificity = \min_{1 \le i \le c} \operatorname{sgn}(-m_X m_{Y_i}) \frac{\log s_X}{\log s_{Y_i}}$$

where sgn(•) is the sign function: sgn(m)=1 if m>0, sgn(m)=-1 if m<0 and sgn(m)=0 when m=0, SX and SYi are the standard deviations of the discretized values for the module X and the modules Yi respectively, and mX and mYi are the mean values of the discretized values for the module X and the modules Yi respectively. The above expression means that the specificity of the module X is defined as the similarity to a module Yi with the nearest expression pattern to the module X. Thus, the larger specificity is, the larger expression difference from another class is. The specificity calculation is performed for every constant module X in class A, and then these modules are ranked in descending order of their specificities. The specificity calculation in class B is performed in the same manner as class A. Finally, a set of discriminative modules in each class is obtained by setting a threshold to the rank orders of the specificities.