

**Table S1** The specific model architecture and core parameters of each model

Model name	Model Structure	Key Parameters
DeepDMLR	Base Classifier:	Activation function: ReLU.
	DNN 1	Optimizer: Adam.
	DNN 2	Initial learning rate: 0.0001
	DNN 3	
	Ensemble way:	
	Soft-voting	
DeepSPLR	Base Classifier:	kernel function: RBF.
	DNN	Penalty factor C: 0.1
	SVM	
	LR	
	Ensemble way:	
	Soft-voting	
DeepRPLR	Base Classifier:	Max_depth: 80
	DNN	
	LR	
	DT	
	Ensemble way:	
	Soft-voting	