Additional file 6

1. STAD data

Table 1. Statistics of gene expression profiling, DNA methylation and clinical cohort information of STAD under study.

Item	Statistics
#. STAD clinical cohort	
Tumor	375
Normal	32
Survival status (tumor)	
Living	204
Deceased	171
Race (tumor)	
Asian	74
Black	11
White	238
Not reported	52
Tumor stage	
I	53
II	111
III	150
IV	38
Not reported	23
Follow-up (months)	0.03-125.8
Age (years)	
Range	35-90
Median	63
Gender (tumor)	
Male	241
Female	134
#. (Epi) genomic data	
mRNA profiling (DEGs)	16486
DNA methylation (DMPs)	6197

2. The results of our proposed methods

Table 1. The detailed analysis results of STAD dataset about comparisons on the adopted wavelet-based, SWT-CNN methods and classic LASSO methods with diverse predictors

	Wavelet function	AUC at 3 years	AUC at 5 years	gene number
	db2	0.726	0.725	8
	db3	0.719	0.684	7
	db4	0.712	0.691	5
db	db5	0.697	0.720	7
	db6	0.732	0.717	7
	db7	0.670	0.645	4
	db8	0.697	0.720	7
	bior1.1	0.656	0.655	7
	bior1.3	0.725	0.718	6
	bior1.5	0.710	0.706	6
	bior2.2	0.725	0.718	6
	bior2.4	0.707	0.690	6
	bior2.6	0.700	0.719	7
	bior2.8	0.725	0.718	6
bior	bior3.1	0.698	0.714	5
	bior3.3	0.701	0.697	5
	bior3.5	0.701	0.697	5
	bior3.7	0.700	0.719	7
	bior3.9	0.714	0.682	7
	bior4.4	0.710	0.706	6
	bior5.5	0.725	0.718	6
	bior6.8	0.710	0.706	6
	sym2	0.726	0.725	8
	sym3	0.719	0.684	7
	sym4	0.726	0.729	5
sym	sym5	0.701	0.780	7
	sym6	0.709	0.705	5
	sym7	0.756	0.730	12
	sym8	0.716	0.718	8
	coif2	0.709	0.705	5
	coif3	0.709	0.705	5
coif	coif4	0.712	0.691	5
	coif5	0.712	0.691	5
haar		0.692	0.681	9
dmeyer		0.710	0.706	6
	rbio1.1	0.672	0.771	5
	rbio1.3	0.685	0.666	6

	rbio1.5	0.670	0.623	7
	rbio2.2	0.673	0.695	8
	rbio2.4	0.670	0.623	7
	rbio2.6	0.688	0.636	5
	rbio2.8	0.708	0.648	8
rbio	rbio3.1	0.656	0.655	6
	rbio3.3	0.656	0.655	6
	rbio3.5	0.673	0.695	8
	rbio3.7	0.655	0.623	4
	rbio3.9	0.673	0.695	8
	rbio4.4	0.710	0.706	6
	rbio5.5	0.700	0.719	7
	rbio6.8	0.710	0.706	6
	fk4	0.709	0.703	6
	fk6	0.712	0.691	5
fk	fk8	0.716	0.718	8
	fk14	0.715	0.705	7
	fk18	0.697	0.720	7
	fk22	0.714	0.693	11
SWT-CNN		0.673	0.742	7
LASSO		0.682	0.709	14

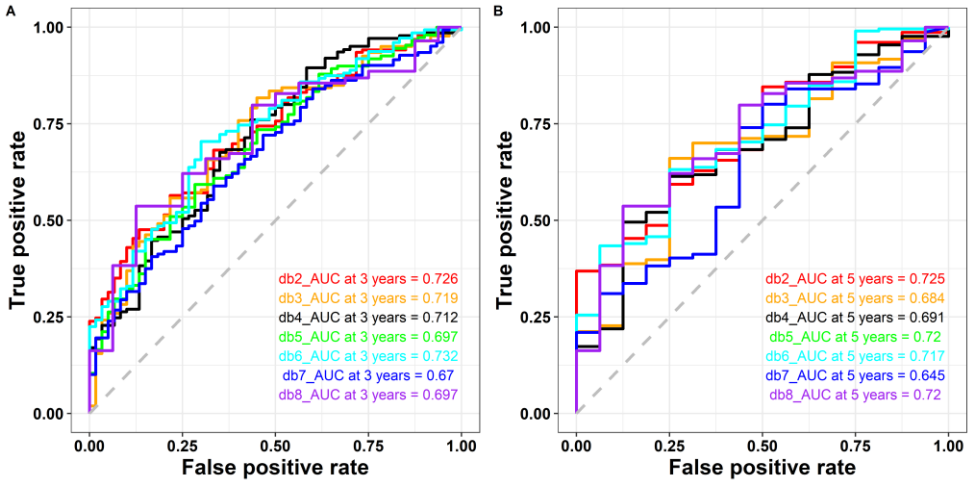

Figure 1. The performance of STAD dataset on db basis function.

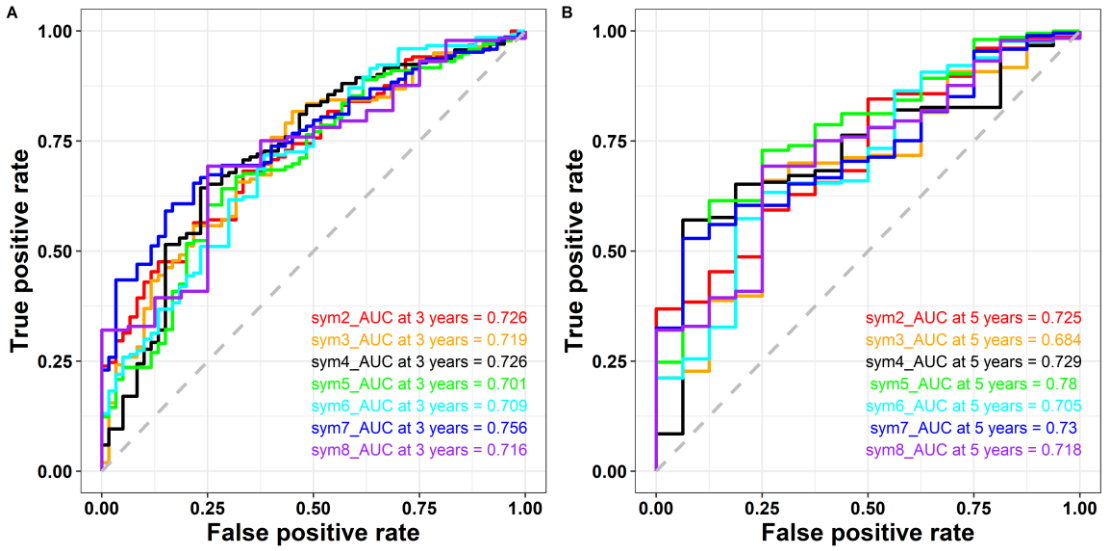

Figure 2. The performance of STAD dataset sym basis function.

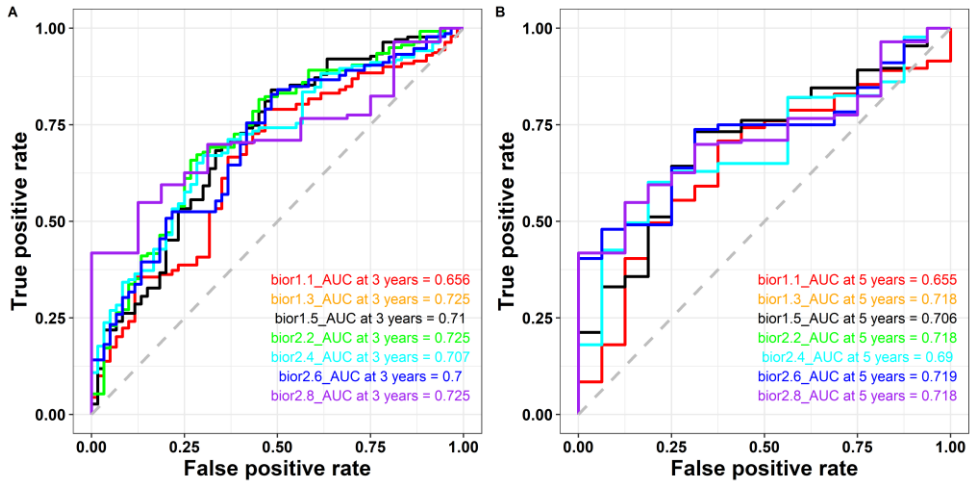

Figure 3. The performance of STAD dataset on bior basis function (bior1.1~bior2.8).

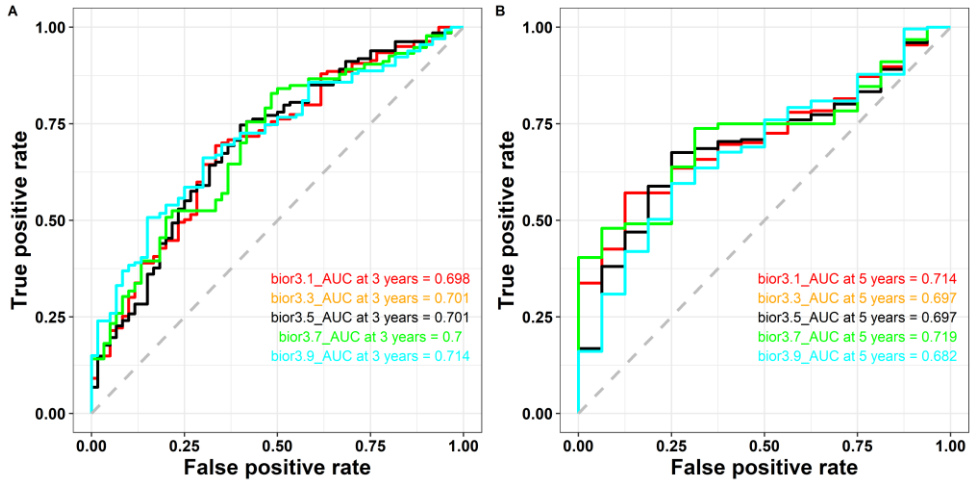

Figure 4. The performance of STAD dataset on bior basis function (bior3.1~bior3.9).

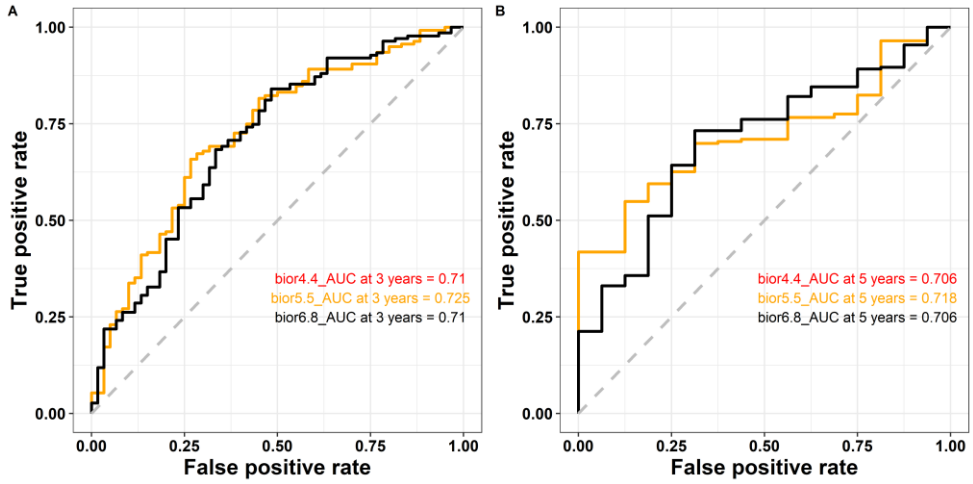

Figure 5. The performance of STAD dataset on bior basis function (bior4.4~bior6.8).

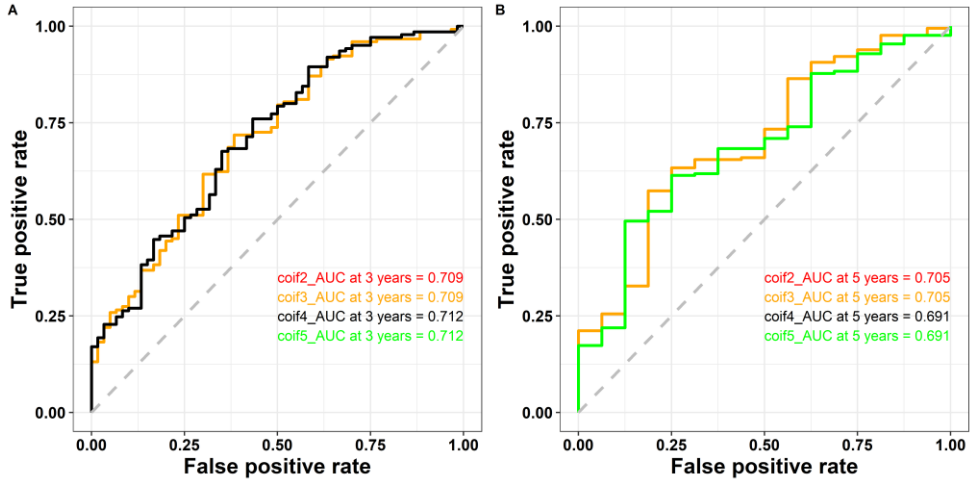

Figure 6. The performance of STAD dataset on coif basis function.

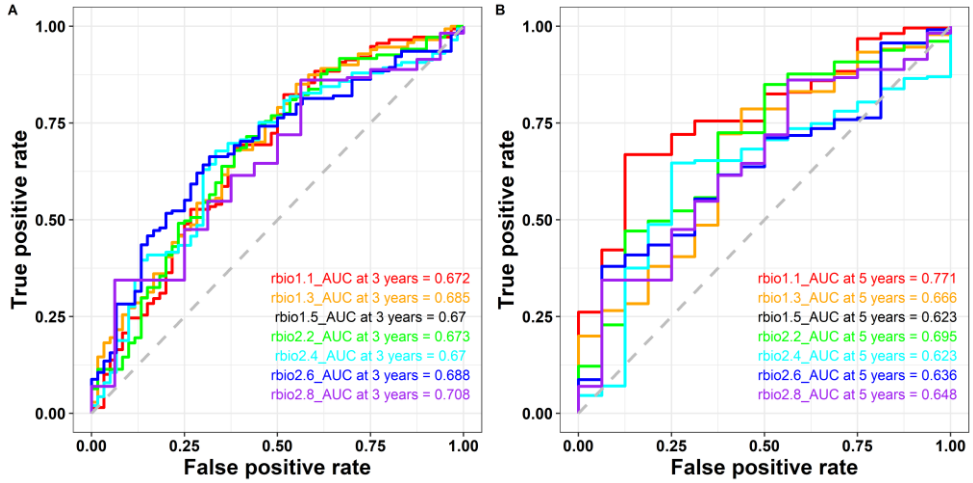

Figure 7. The performance of STAD dataset on rbio basis function (rbio1.1~rbio2.8).

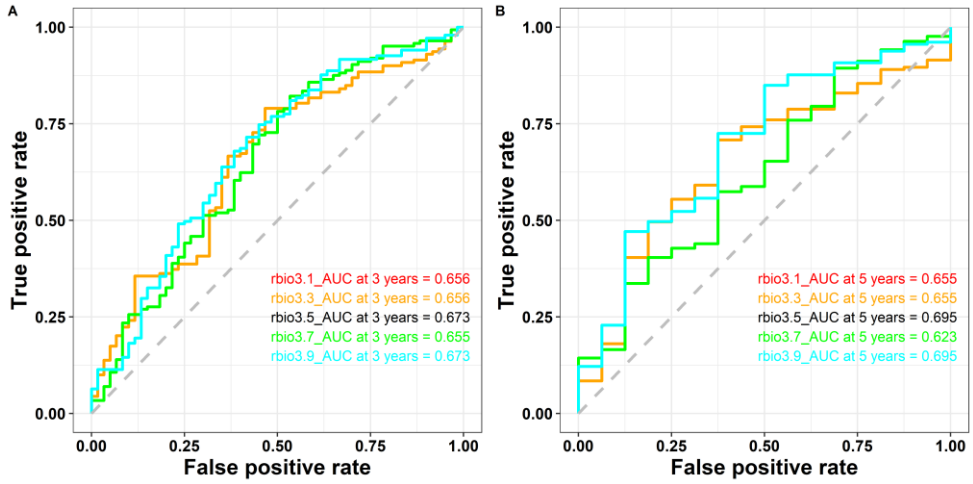

Figure 8. The performance of STAD dataset on rbio basis function (rbio3.1~rbio3.9).

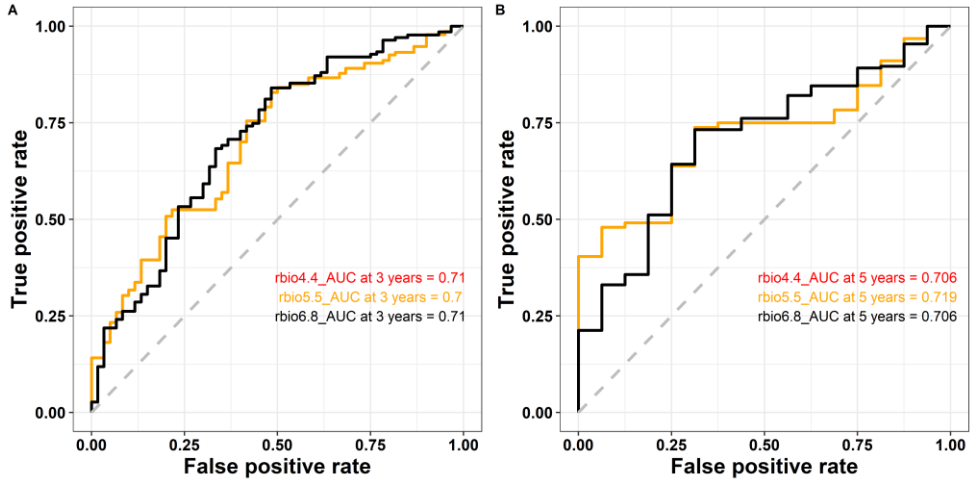

Figure 9. The performance of STAD dataset on rbio basis function (rbio4.4~rbio6.8).

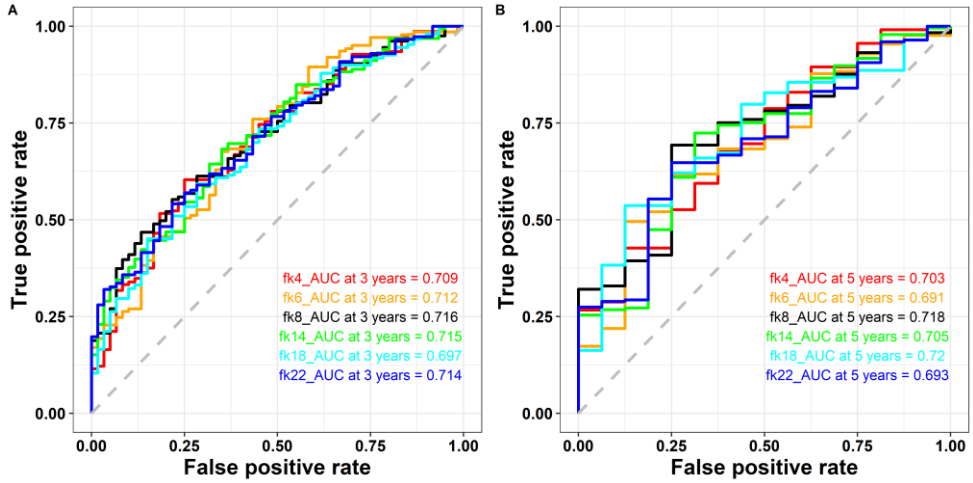

Figure 10. The performance of STAD dataset on fk basis function.

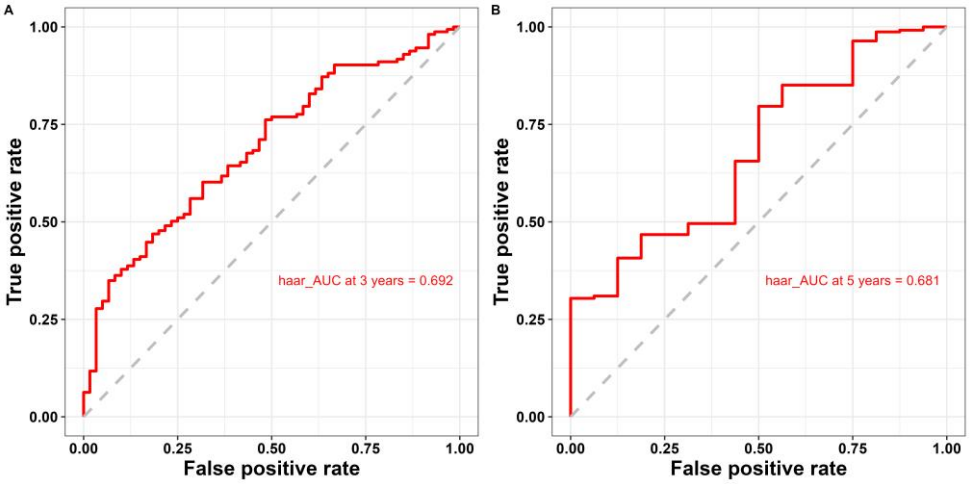

Figure 11. The performance of STAD dataset on haar basis function.

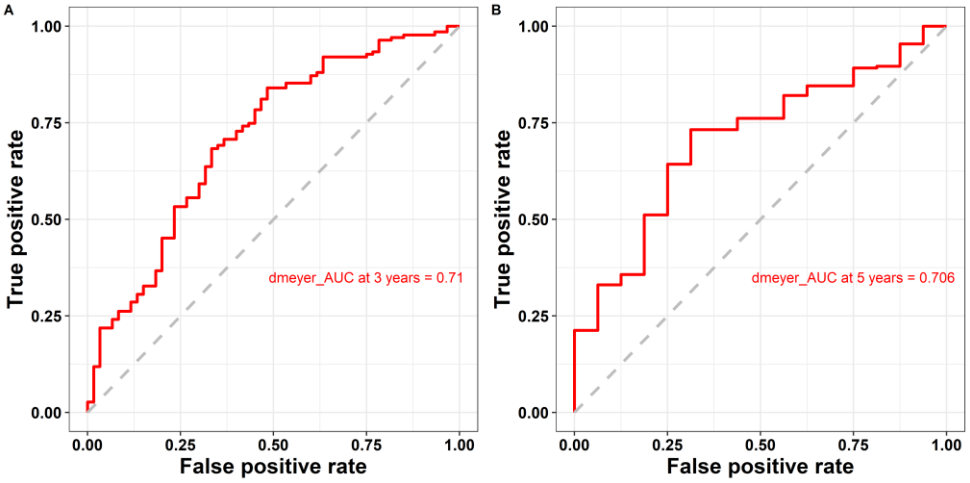

Figure 12. The performance of STAD dataset on dmeyer basis function.

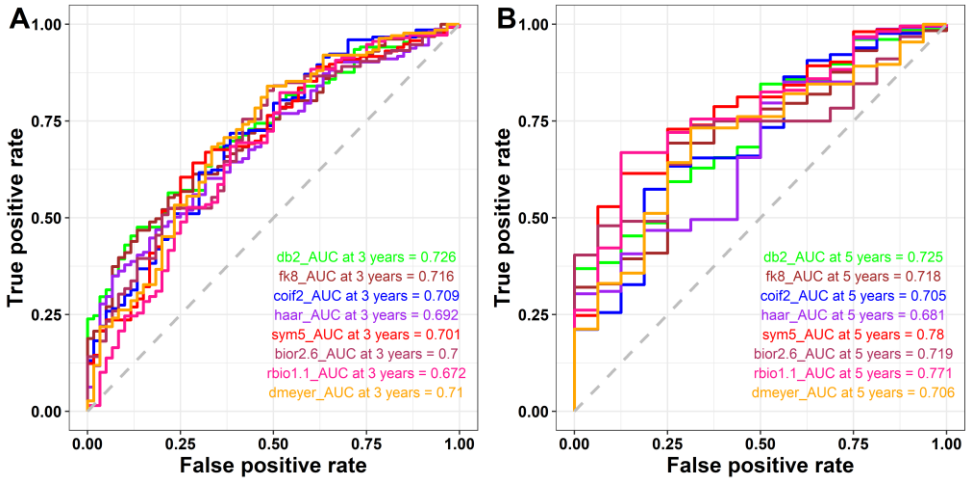

Figure 13. The performance of STAD dataset on all basis functions (Take the smoothness corresponding to the best result for each basis function).

3. Comparison of the three methods

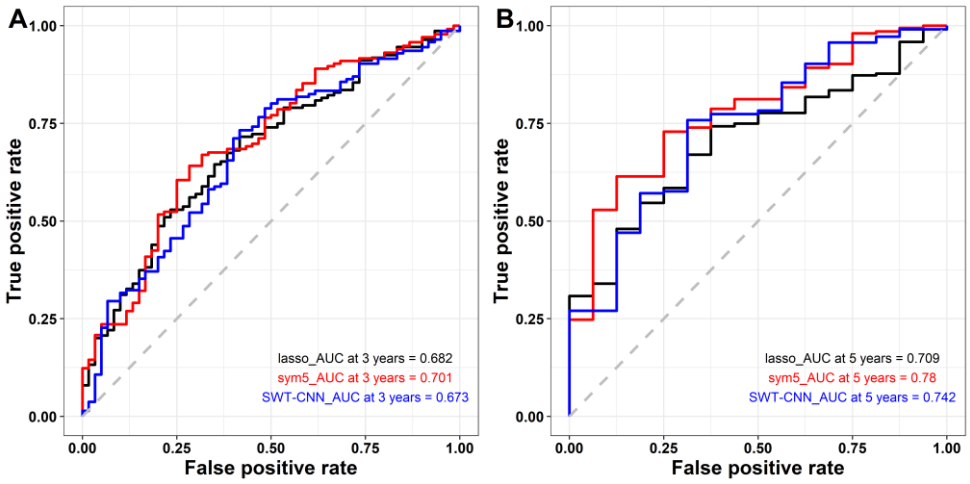

Figure 16. Comparison of the three methods on the STAD dataset. (A) AUC at 3 years: sym5_AUC at 3 years = 0.701, lasso_AUC at 3 years = 0.682, SWT-CNN at 3 years = 0.673; (B) AUC at 5 years: sym5_AUC at 5 years = 0.780, lasso_AUC at 5 years = 0.709, SWT-CNN at 5 years = 0.742.