

Supplementary Materials: Evaluating the biomarker performance over a restricted domain of high sensitivity

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Table S1. Simulation results of 10,000 random samples with size $n = 100$ for each binormal ROC model.

b	AUC	TPR_0	$FpAUC$			95% CI	
			Mean	Bias	SD	Low	Up
0.5	0.55	0.9	0.6245954	0.001655447	0.02590201	0.5794468	0.6800271
		0.8	0.6336641	0.00172405	0.02659432	0.5866085	0.6911896
		0.7	0.6433616	0.001839713	0.02723291	0.5945833	0.7012918
		0.6	0.6546034	0.002011045	0.02791765	0.6044739	0.7137364
		0.5	0.6680828	0.002220716	0.02872853	0.6158022	0.7285161
	0.65	0.9	0.6440245	0.001934703	0.02936419	0.5924614	0.7071084
		0.8	0.6596015	0.002073067	0.03066697	0.6046655	0.7250301
		0.7	0.6758286	0.002228498	0.03173894	0.6186185	0.7426454
		0.6	0.6938791	0.002397528	0.03265126	0.6336204	0.762618
		0.5	0.714136	0.002459582	0.03338129	0.6520445	0.7838624
	0.75	0.9	0.6718115	0.002067363	0.03374133	0.6109004	0.7431961
		0.8	0.6973917	0.002155138	0.03558272	0.6320246	0.7713159
		0.7	0.7228261	0.002184195	0.03660373	0.6538301	0.7981706
		0.6	0.7488924	0.002003218	0.0369359	0.678575	0.8235492
		0.5	0.7750897	0.001550933	0.03635573	0.7046808	0.8474584
	0.85	0.9	0.7168091	-0.0001375311	0.03876775	0.64157	0.7885817
		0.8	0.757652	-0.0009985873	0.03997576	0.6777845	0.8318443
		0.7	0.7934277	-0.001905229	0.03933383	0.7136111	0.8671967
		0.6	0.8244922	-0.002902352	0.03702263	0.7476242	0.8926417
		0.5	0.8506002	-0.003705619	0.03402315	0.7800026	0.9118017
	0.95	0.9	0.8047574	-0.02685653	0.0437217	0.7093416	0.8801134
		0.8	0.860915	-0.02640532	0.03803334	0.774634	0.9257051
		0.7	0.8952863	-0.02358188	0.03181761	0.8217905	0.9472467
		0.6	0.9171706	-0.02071222	0.02667352	0.8543599	0.9597633
		0.5	0.9319396	-0.01811886	0.02250016	0.8789607	0.9674647
1	0.55	0.9	0.6273812	0.1075111	0.08651375	0.5095285	0.7480906
		0.8	0.6293145	0.1064461	0.08735481	0.5104251	0.7505208
		0.7	0.6315037	0.1061136	0.08805292	0.5112592	0.753634
		0.6	0.6340264	0.1062395	0.08884593	0.512855	0.7575465
		0.5	0.6369363	0.1067232	0.08971426	0.513704	0.7621752
	0.65	0.9	0.6204294	0.05604278	0.06894196	0.5238073	0.7481509
		0.8	0.6263019	0.05211454	0.068109	0.5299895	0.7554118
		0.7	0.6315762	0.04925125	0.06778129	0.5341369	0.7627993
		0.6	0.6365337	0.04659049	0.06774184	0.5381298	0.7705873
		0.5	0.6420121	0.04449912	0.06801188	0.5425018	0.7794414
	0.75	0.9	0.6419233	0.02250682	0.05648455	0.547629	0.7509011
		0.8	0.6561746	0.01883174	0.05412381	0.5630157	0.7638427
		0.7	0.6681171	0.016265	0.05257736	0.5753191	0.7748332
		0.6	0.6795033	0.01444329	0.05158024	0.5865734	0.7865055
		0.5	0.6907137	0.01294236	0.051032	0.5972964	0.7980257
	0.85	0.9	0.6990107	0.003745407	0.05494855	0.5908895	0.8023507
		0.8	0.7254672	0.00285371	0.05170491	0.6216724	0.82305
		0.7	0.7461418	0.002565651	0.04913346	0.6469846	0.8389251
		0.6	0.7640257	0.00239235	0.04698019	0.6694555	0.8530543
		0.5	0.7801295	0.002110163	0.04530041	0.6880103	0.8665002
	0.95	0.9	0.8270716	-0.0007875378	0.04783165	0.7247062	0.9113977
		0.8	0.8604097	-0.0005883846	0.04115932	0.7717688	0.9325321
		0.7	0.8820235	-0.0006256009	0.03651525	0.8028981	0.945313
		0.6	0.8980373	-0.0007762952	0.03285448	0.8263655	0.9547746
		0.5	0.9106385	-0.0009819187	0.02980191	0.8449012	0.9616409

Table S1. continued

<i>b</i>	<i>AUC</i>	<i>TPR</i> ₀	<i>FpAUC</i>			95% CI	
			Mean	Bias	SD	Low	Up
2	0.55	0.9	0.7601574	-0.002960923	0.04161661	0.6723355	0.8338
		0.8	0.750636	-0.002607202	0.04136589	0.6639374	0.8244885
		0.7	0.742136	-0.002306563	0.04126488	0.6558895	0.81593
		0.6	0.7336327	-0.001992687	0.04120146	0.646916	0.807507
		0.5	0.7245275	-0.001669728	0.04123856	0.6377561	0.7992687
	0.65	0.9	0.7923991	-0.002485187	0.03766764	0.7120404	0.8581117
		0.8	0.7866035	-0.002067924	0.03711448	0.7081119	0.8521837
		0.7	0.7812047	-0.00172298	0.03682403	0.7030626	0.8469665
		0.6	0.775636	-0.001399212	0.0366899	0.6982906	0.8415262
		0.5	0.769548	-0.001074092	0.03669341	0.6927355	0.8357343
	0.75	0.9	0.8284354	-0.001861235	0.03295873	0.7575531	0.885924
		0.8	0.8265318	-0.001388059	0.0321334	0.7576136	0.8829055
		0.7	0.8243309	-0.001014902	0.03170301	0.7564865	0.8805151
		0.6	0.821783	-0.0006798947	0.03150106	0.754266	0.8783047
		0.5	0.8187734	-0.0003587272	0.03149208	0.7520585	0.8759183
	0.85	0.9	0.8720737	-0.001061615	0.02696685	0.8130079	0.9186131
		0.8	0.8741264	-0.000593173	0.02599251	0.8179064	0.9201215
		0.7	0.8750833	-0.0002584535	0.02553713	0.8201296	0.9207303
		0.6	0.875456	0.00001478198	0.02536532	0.8213299	0.9211979
		0.5	0.875372	0.0002512013	0.02541599	0.8213275	0.9216513
	0.95	0.9	0.9346536	-0.0002348478	0.01772344	0.895961	0.9654708
		0.8	0.9396177	-0.0000273009	0.01681173	0.9031781	0.9692494
		0.7	0.9427292	0.00006276168	0.0163881	0.907249	0.9717697
		0.6	0.9450175	0.00009651483	0.01618441	0.9102256	0.9738309
		0.5	0.9468161	0.00009179076	0.01612146	0.9120827	0.9755344
3	0.55	0.9	0.8492977	-0.002311443	0.02771382	0.7896605	0.896934
		0.8	0.8385909	-0.00215238	0.0285225	0.7775755	0.8879502
		0.7	0.8291294	-0.002018252	0.02927817	0.7669946	0.8802374
		0.6	0.8196833	-0.001888167	0.03005952	0.7554235	0.8727169
		0.5	0.8095866	-0.00175166	0.03091587	0.7435619	0.864287
	0.65	0.9	0.8727107	-0.001751024	0.02397066	0.8209973	0.9138957
		0.8	0.8648276	-0.001546382	0.02450719	0.8123022	0.9075485
		0.7	0.8577775	-0.001378878	0.02506364	0.8043503	0.9015937
		0.6	0.8506835	-0.001220613	0.02567718	0.7961156	0.8955951
		0.5	0.843056	-0.001058708	0.026383	0.7872088	0.8896055
	0.75	0.9	0.8978061	-0.00113105	0.01994982	0.854303	0.9320601
		0.8	0.8927867	-0.0008936891	0.02026559	0.8487172	0.9280131
		0.7	0.8881776	-0.0007061841	0.02067039	0.8434384	0.9245681
		0.6	0.8834628	-0.0005344295	0.02116294	0.8381841	0.9209562
		0.5	0.8783326	-0.0003639523	0.0217657	0.8320317	0.9172044
	0.85	0.9	0.92663	-0.0004717552	0.01544465	0.8929867	0.9533287
		0.8	0.9245141	-0.0002457814	0.01563697	0.8903821	0.9519679
		0.7	0.9223675	-0.0000787204	0.01596362	0.8878817	0.9509428
		0.6	0.920046	0.00006568659	0.01639372	0.8847143	0.9497211
		0.5	0.9174232	0.0002010882	0.01693836	0.8810358	0.9481605
	0.95	0.9	0.9647772	0.00002515238	0.009586	0.9439512	0.9815686
		0.8	0.9653021	0.0001039182	0.00970397	0.9445501	0.9823882
		0.7	0.9653976	0.0001434203	0.009922037	0.9443021	0.9830562
		0.6	0.9652637	0.0001645046	0.01020449	0.9436196	0.9834773
		0.5	0.9649431	0.0001729104	0.01055276	0.9426078	0.9837429

Table S2. Simulation results of 10,000 random samples with size $n = 1000$ for each binormal ROC model.

b	AUC	TPR_0	$FpAUC$			95% CI	
			Mean	Bias	SD	Low	Up
0.5	0.55	0.9	0.6230997	0.0001597886	0.00814946	0.6077017	0.6393783
		0.8	0.6321006	0.0001605482	0.008383376	0.6161745	0.6488625
		0.7	0.641687	0.0001652051	0.008593345	0.6252353	0.6588218
		0.6	0.6527668	0.0001743753	0.008811917	0.6358992	0.6701875
		0.5	0.6660489	0.0001868096	0.009066357	0.6487653	0.6840633
	0.65	0.9	0.6422754	0.0001855721	0.009279199	0.6247336	0.6608499
		0.8	0.6577181	0.0001897023	0.009713283	0.6390796	0.6769892
		0.7	0.6737966	0.000196458	0.01005975	0.654428	0.6936965
		0.6	0.6916848	0.0002031862	0.01035883	0.6718463	0.7120968
		0.5	0.7118775	0.0002011431	0.01060849	0.6915727	0.7330709
	0.75	0.9	0.669964	0.0002198603	0.0108208	0.64931	0.6914392
		0.8	0.6954584	0.0002217709	0.01145733	0.6734022	0.7183308
		0.7	0.7208582	0.0002162642	0.01182557	0.6981509	0.7442612
		0.6	0.7470829	0.0001937058	0.01195146	0.7239764	0.7708441
		0.5	0.7736821	0.0001433617	0.01178972	0.7508544	0.7972385
	0.85	0.9	0.7172018	0.000255154	0.01312834	0.6920607	0.743343
		0.8	0.7588624	0.0002117937	0.01361137	0.7323675	0.785571
		0.7	0.7954699	0.0001369812	0.0133132	0.7694111	0.821656
		0.6	0.8274379	0.00004334917	0.01244126	0.8028483	0.8519594
		0.5	0.8542618	-0.0000439935	0.01121478	0.8320698	0.8760613
	0.95	0.9	0.8262998	-0.005314134	0.01523457	0.7971094	0.8518365
		0.8	0.8783896	-0.008930742	0.01638089	0.8212213	0.8990199
		0.7	0.9072943	-0.01157388	0.01663234	0.8560455	0.9263972
		0.6	0.9250275	-0.01285529	0.01586612	0.8823802	0.9437126
		0.5	0.9367677	-0.01329082	0.01478211	0.901801	0.9548009
1	0.55	0.9	0.567638	0.04776783	0.07999631	0.5069966	0.7487244
		0.8	0.5685951	0.04572661	0.07990637	0.5088475	0.7506305
		0.7	0.5696483	0.0442583	0.07987016	0.510379	0.7524902
		0.6	0.5709144	0.04312752	0.07981832	0.5119362	0.7544097
		0.5	0.5722265	0.04201351	0.07984551	0.5133121	0.7565814
	0.65	0.9	0.5666603	0.002273628	0.02318635	0.5288341	0.6102351
		0.8	0.575592	0.001404692	0.02107221	0.5390923	0.6147586
		0.7	0.5833325	0.001007515	0.01980407	0.5477969	0.6207101
		0.6	0.5907201	0.0007768651	0.01886069	0.5558216	0.6264945
		0.5	0.5981185	0.0006055542	0.01809689	0.5643594	0.6324979
	0.75	0.9	0.6192974	-0.0001190819	0.01974289	0.5798105	0.6567464
		0.8	0.6372461	-0.00009677	0.01869301	0.5999832	0.6730179
		0.7	0.6517819	-0.0000701156	0.01786319	0.6159922	0.6862381
		0.6	0.6650315	-0.0000285186	0.01716452	0.6306253	0.6981055
		0.5	0.6777806	0.00000924348	0.01657033	0.644864	0.7097416
	0.85	0.9	0.695105	-0.0001602661	0.01877502	0.6576742	0.730797
		0.8	0.7225075	-0.0001059672	0.01737564	0.6875739	0.7555136
		0.7	0.7435126	-0.0000635848	0.01633348	0.7103603	0.7747373
		0.6	0.7615994	-0.000033939	0.01549253	0.7301897	0.7913494
		0.5	0.7780006	-0.0000187107	0.01478812	0.7481515	0.8063218
	0.95	0.9	0.8276785	-0.0001805795	0.01527662	0.7964039	0.8564896
		0.8	0.8608451	-0.0001529308	0.01316279	0.8338855	0.8856906
		0.7	0.8824989	-0.0001502163	0.01170487	0.8588247	0.9045469
		0.6	0.8986535	-0.0001600285	0.01055402	0.8772063	0.918292
		0.5	0.9114447	-0.0001757661	0.009580882	0.8920362	0.9290016

Table S2. continued

<i>b</i>	<i>AUC</i>	<i>TPR</i> ₀	<i>FpAUC</i>			95% CI	
			Mean	Bias	SD	Low	Up
2	0.55	0.9	0.762804	-0.0003143121	0.01304274	0.7363722	0.7871775
		0.8	0.7529588	-0.0002843868	0.012998	0.7265724	0.7773174
		0.7	0.7441837	-0.0002588934	0.01299244	0.717837	0.7684719
		0.6	0.7353911	-0.0002342934	0.01301294	0.7091401	0.7598134
		0.5	0.7259883	-0.0002088777	0.013059	0.6997688	0.7507684
	0.65	0.9	0.7946103	-0.000274023	0.01179493	0.7705967	0.8165005
		0.8	0.7884329	-0.0002385524	0.01165511	0.7646691	0.8101608
		0.7	0.7827185	-0.0002091967	0.01158834	0.7593013	0.8044964
		0.6	0.7768536	-0.0001816214	0.01156563	0.7535234	0.7987886
		0.5	0.7704682	-0.0001539086	0.0115824	0.7469882	0.7924896
	0.75	0.9	0.8300773	-0.0002192794	0.01031469	0.8090532	0.8494656
		0.8	0.8277414	-0.0001785075	0.01008743	0.8071688	0.8468292
		0.7	0.8251995	-0.0001463208	0.009972896	0.8048588	0.8440616
		0.6	0.8223455	-0.0001174049	0.009923987	0.8022668	0.8412388
		0.5	0.8190425	-0.0000896712	0.009931295	0.798934	0.8380641
	0.85	0.9	0.8729891	-0.0001461737	0.008438532	0.8558683	0.8888247
		0.8	0.8746149	-0.0001046822	0.008160062	0.8577607	0.8900416
		0.7	0.8752668	-0.0000749573	0.008033339	0.8585469	0.8905781
		0.6	0.8753906	-0.0000506706	0.007990856	0.8588198	0.8906265
		0.5	0.8750911	-0.0000296841	0.00801607	0.8585946	0.8903774
	0.95	0.9	0.9348269	-0.0000615823	0.005566497	0.9233001	0.945249
		0.8	0.9396036	-0.0000413422	0.00530871	0.9287226	0.9495554
		0.7	0.9426341	-0.0000323708	0.005195553	0.93215	0.9522928
		0.6	0.944892	-0.0000289385	0.00514828	0.9344389	0.9544434
		0.5	0.9466949	-0.0000294023	0.005143699	0.9361809	0.9562475
3	0.55	0.9	0.8513663	-0.0002428335	0.008594386	0.8338341	0.8672736
		0.8	0.8405125	-0.0002306947	0.008873707	0.8224349	0.856972
		0.7	0.8309272	-0.0002204519	0.009130562	0.8123133	0.8478294
		0.6	0.821361	-0.0002104946	0.009393213	0.8022436	0.8388917
		0.5	0.8111382	-0.0002000061	0.009678498	0.791423	0.8292863
	0.65	0.9	0.8742696	-0.00019209	0.007441098	0.8589875	0.8879768
		0.8	0.8661981	-0.0001758069	0.007633184	0.8506352	0.8803175
		0.7	0.8589938	-0.0001625296	0.007824906	0.8430132	0.8736319
		0.6	0.8517541	-0.000150011	0.008031594	0.8354419	0.866991
		0.5	0.8439775	-0.0001372157	0.008265551	0.8271238	0.8595682
	0.75	0.9	0.8988021	-0.0001350393	0.006204145	0.886088	0.9103851
		0.8	0.8935649	-0.0001155038	0.006323058	0.880678	0.9054532
		0.7	0.8887836	-0.0001001575	0.006462941	0.8755899	0.9009852
		0.6	0.8839111	-0.0000861613	0.00662709	0.8703362	0.8964051
		0.5	0.8786242	-0.0000723207	0.006823765	0.8647285	0.8916114
	0.85	0.9	0.9270293	-0.0000724357	0.004816498	0.917024	0.9360662
		0.8	0.9247067	-0.0000531808	0.00489085	0.9145644	0.9339919
		0.7	0.9224071	-0.0000390599	0.00500177	0.9120771	0.9319434
		0.6	0.9199534	-0.0000269558	0.005142945	0.9093912	0.9297733
		0.5	0.9172063	-0.0000157139	0.00531909	0.9062844	0.9274222
	0.95	0.9	0.9647332	-0.0000188290	0.003015765	0.958598	0.9703514
		0.8	0.9651864	-0.0000117988	0.003066107	0.9589708	0.9709428
		0.7	0.9652457	-0.0000085078	0.003144752	0.9588845	0.9711456
		0.6	0.9650922	-0.0000070403	0.00324277	0.958511	0.9711541
		0.5	0.9647633	-0.0000068975	0.003361482	0.9579321	0.9710457