Aggregated Rankers using Different Methods for Three Datasets[1]

TABLE 1 Breast dataset

	Base Rankers			Borda				Markov Chain			Distribution-based		Bayesian	Weighted Rank Aggregation			Mallows Model			Metaheuristic-based						
rank	TransBig	MDCC	Pusztai	MED	Mean	GEO	L2	MC1	MC2	MC3	Stuart	RRA	BIRRA	CEMC.s	CEMC.k	BiG	MM	EMM	HEMM	GA.s	GA.k	HC	ILS	VNS	GRASP	RAAD
1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	ESR1	BTG2	CD22	C9orf156	ESR1	ESR1	ESR1	ESR1	SP110	GABARAPL2	ESR1	ESR1	ESR1	ESR1	ESR1
2	TBC1D9	TBC1D9	TBC1D9	TBC1D9	TBC1D9	TBC1D9	TBC1D9	FZD10	FZD10	FZD10	TBC1D9	TBC1D9	C1orf106	USP7	MUTYH	TBC1D9	TBC1D9	TBC1D9	TBC1D9	GPR20	RBM16	FZD10	TBC1D9	TBC1D9	TBC1D9	TBC1D9
3	SCUBE2	EVL	SCUBE2	SCUBE2	SCUBE2	SCUBE2	SCUBE2	ZNF192	ZNF192	ZNF192	SCUBE2	SCUBE2	CIRBP	CUGBP2	SSR2	SCUBE2	SCUBE2	EVL	EVL	SPAG7	C1orf123	OR2H2	FUT8	FUT8	RHOB	SCUBE2
4	EVL	SCUBE2	FBP1	EVL	EVL	EVL	EVL	ZC3H7B	ZC3H7B	ZC3H7B	EVL	EVL	ESR1	WNT7A	GJA8	EVL	EVL	SCUBE2	SCUBE2	DAZAP1	C20orf43	USP2	FBP1	FBP1	FBP1	EVL
5	NAT2	CIRBP	EVL	FBP1	FBP1	FBP1	FBP1	USP2	USP2	USP2	FBP1	FBP1	EVL	WDR46	XKR8	NAT2	FBP1	CIRBP	CIRBP	HCRT	CHRM2	FBXW2	C1orf106	C1orf106	BTG2	FBP1
6	BTG2	FBP1	RHOB	CIRBP	CIRBP	CIRBP	CIRBP	FCER2	FCER2	FCER2	CIRBP	CIRBP	FBP1	SMR3A	ZYX	GSTM3	CIRBP	FBP1	FBP1	MGAT4A	TBC1D9	TULP1	RHOB	ADM	C1orf106	CIRBP
7	GSTM3	FUT8	QDPR	RHOB	BTG2	BTG2	BTG2	ERCC3	ERCC3	ERCC3	BTG2	BTG2	FUT8	KRT76	NKIRAS2	BTG2	BTG2	FUT8	BTG2	NDUFA4L2	NRF1	ERCC3	BTG2	BTG2	FUT8	FUT8
8	FBP1	RHOB	CIRBP	BTG2	FUT8	FUT8	FUT8	OR2H2	OR2H2	OR2H2	FUT8	FUT8	SCUBE2	GCK	STAT6	CIRBP	FUT8	RHOB	FUT8	MTIF2	MAD2L1	ZNF192	SCUBE2	SCUBE2	SCUBE2	RHOB
9	CIRBP	KIAA1324	IDUA	FUT8	C1orf106	RHOB	C1orf106	FBXW2	FBXW2	FBXW2	C1orf106	C1orf106	TBC1D9	MRPS18B	MAGEA5	FBP1	RHOB	KIAA1324	TBX3	SAFB	TNNC1	ZC3H7B	EVL	EVL	EVL	BTG2
10	ORC6L	BTG2	BTG2	QDPR	QDPR	C1orf106	QDPR	TULP1	TULP1	TULP1	RHOB	ADM	QDPR	APOC3	PRKAB1	ORC6L	C1orf106	BTG2	C1orf106	CCR8	NKIRAS2	FCER2	CIRBP	CIRBP	CIRBP	C1orf106
11	BUB1	TBX3	FUT8	C1orf106	KIAA1324	QDPR	KIAA1324	GTF2A2	GTF2A2	GTF2A2	QDPR	KIAA1324	YEATS2	THRAP3	AMPD2	BUB1	KIAA1324	TBX3	PFKP	FBXL7	PLK1	GTF2A2	QDPR	KIAA1324	KIAA1324	KIAA1324
12	FUT8	C1orf106	YEATS2	IDUA	YEATS2	KIAA1324	YEATS2	ZFP30	ZFP30	ZFP30	KIAA1324	YEATS2	MZF1	LGALS14	SAFB2	FUT8	TBX3	C1orf106	MZF1	MAGEB3	POLR1C	ZFP30	KIAA1324	YEATS2	TBX3	TBX3
13	PCSK6	QDPR	BLOC1S1	PCSK6	RHOB	YEATS2	ADM	MC3R	MC3R	MC3R	YEATS2	QDPR	PCSK6	GMPS	TBC1D19	PCSK6	QDPR	QDPR	KIAA1324	SERPIND1	CLTA	CAPZB	IDUA	BLOC1S1	MZF1	QDPR
14	PFKP	IDUA	C1orf106	PFKP	TBX3	TBX3	TBX3	ZFY	ZFY	ZFY	TBX3	CENPA	PFKP	TMPRSS11D	USP2	PFKP	IDUA	IDUA	ADM	KIF14	ZW10	MC3R	YEATS2	QDPR	QDPR	IDUA
15	GPR126	PFKP	PCSK6	TBX3	ADM	GSTM3	MZF1	AFF4	AFF4	AFF4	ADM	TBX3	RHOB	CHKA	C11orf9	GPR126	YEATS2	PFKP	QDPR	MRPS18B	TNRC4	GABRR1	PCSK6	NDRG1	NDRG1	PFKP
16	C1orf106	ADM	KRT18	YEATS2	GSTM3	IDUA	CENPA	AIPL1	AIPL1	AIPL1	PFKP	MZF1	TBX3	TESK1	SERPIND1	C1orf106	GSTM3	ADM	CENPA	PPP2R1A	GUCY1B3	AIPL1	PFKP	MZF1	YEATS2	YEATS2
17	TBX3	MZF1	PECI	KRT18	MZF1	PFKP	GSTM3	C7orf43	C7orf43	C7orf43	GSTM3	GSTM3	ADM	DAB1	HIST1H3C	YEATS2	PCSK6	MZF1	YEATS2	CAP1	ESM1	SCN11A	CENPA	RHOB	HCFC1R1	ADM
18	YEATS2	NDRG1	SLC7A8	MZF1	PFKP	PCSK6	RHOB	CAPZB	CAPZB	CAPZB	IDUA	BLOC1S1	KIAA1324	HERC1	TRIP13	TBX3	PFKP	NDRG1	GSTM3	OR7A5	HIST1H2BF	C7orf43	GSTM3	GSTM3	ADM	MZF1
19	MZF1	KRT18	FBXL7	KIAA1324	PCSK6	ADM	PFKP	GABRR1	GABRR1	GABRR1	PCSK6	NDRG1	GSTM3	EZH2	RFPL2	CENPA	ADM	KRT18	RHOB	KCNB2	EXT1	SMPD2	MZF1	PFKP	KRT18	NDRG1
20	CENPA	HCFC1R1	PRKAG1	PECI	CENPA	MZF1	PCSK6	SMPD2	SMPD2	SMPD2	MZF1	PFKP	CENPA	NCOR1	ADCYAP1R1	MZF1	MZF1	HCFC1R1	MELK	RBP3	PIPOX	AFF4	ADM	TBX3	PFKP	KRT18
...																										
900	C7orf43	CALR	NCAM2	ASXL2	ARHGEF11	ARHGEF11	MLLT1	GPR20	GPR20	GPR20	UTP6	NUP98	CAMK1	PPP1R8	GHRHR	PDE7B	TRPC3	ARHGEF11	MAPRE3	NKIRAS2	UBQLN2	C8G	MGAT4A	SP110	AQP3	CAMK1
901	ALDH3A1	MBD3	SETDB1	VAMP1	MLLT1	VAMP1	SETDB1	KATNB1	KATNB1	KATNB1	FBXL12	NR0B1	EPB42	SFMBT1	BMP10	NCK2	ZFY	MGAT4A	HIST1H3C	NR0B1	SEP9	SPG21	PSD	APOA4	CALR	EPB42
902	AIPL1	EPB42	ACTN3	BNIP3	MGAT4A	MGAT4A	MGAT4A	C8G	C8G	C8G	MGAT4A	SP110	AQP3	MAML1	SLC2A4	MYO5A	NR0B1	VAMP1	NUMB	MLLT1	SRRM2	SLC6A9	FAM53C	PSD	SLC4A2	AQP3
903	GABRR1	CAMK1	SFPQ	NUP98	VAMP1	MLLT1	VAMP1	SF3B4	SF3B4	SF3B4	NUP98	SMPD2	FBXL12	TBXAS1	CHRNG	ZNF76	TULP1	PSD	VAMP1	AQP3	FAM53C	MYL6	TBXAS1	VAMP1	UTP6	FBXL12
904	AFF4	C5AR1	BBC3	CACNA1S	C7orf43	C7orf43	C7orf43	WDR46	WDR46	WDR46	CLK3	TBXAS1	FOXJ1	ARHGEF11	BTBD2	CHUK	SMPD2	C7orf43	PSD	SSX2IP	CETP	WDR46	CLK3	TBXAS1	FOXJ1	FOXJ1
905	ZFY	FOXJ1	HGFAC	HIST1H3C	NKIRAS2	SFMBT1	NKIRAS2	PCTK1	PCTK1	PCTK1	C7orf43	AQP3	MBD3	APOC3	AMT	RDH8	IRGC	NKIRAS2	C7orf43	SFRS4	ATXN7	PCTK1	C7orf43	AQP3	MBD3	MBD3
906	MC3R	HSF4	HSF4	HGFAC	PSD	NKIRAS2	PSD	MMP25	MMP25	MMP25	APOA4	IRGC	HSF4	NKIRAS2	ARHGEF11	SACS	AFF4	SFMBT1	SFMBT1	PSD	PEMT	MMP25	APOA4	IRGC	HSF4	HSF4
907	ZFP30	UTP6	RASL11B	APOA4	SFMBT1	PSD	SFMBT1	MYL6	MYL6	MYL6	TBXAS1	VAMP1	UTP6	AQP3	GPATCH4	SS18L2	SP110	TBXAS1	TBXAS1	FBXL12	ARHGEF11	PTPRJ	ERCC3	C7orf43	CLK3	UTP6
908	GTF2A2	TRO	DTL	TRO	TBXAS1	TBXAS1	APOC3	EXOSC1	EXOSC1	EXOSC1	VAMP1	FBXL12	MEA1	C7orf43	KIAA1967	YTHDF2	GTF2A2	APOC3	APOC3	C7orf43	NRF1	HBXIP	NR0B1	UTP6	TRO	MEA1
909	TULP1	MEA1	CDC2L5	ITFG2	APOC3	APOC3	TBXAS1	HBXIP	HBXIP	HBXIP	NR0B1	UTP6	TRO	NR0B1	SUPT5H	DOC2B	ZFP30	SFRS4	SFRS4	HIST1H2BB	RAB27B	RND1	AQP3	MBD3	GPR37L1	TRO
910	FBXW2	SFMBT1	INTS7	ENO3	HIST1H2BB	HIST1H2BB	HIST1H2BB	PGLYRP4	PGLYRP4	PGLYRP4	IRGC	ERCC3	SFMBT1	APOA4	FAM64A	SIGLEC5	ZC3H7B	HIST1H2BB	HIST1H2BB	CLK3	MAD2L1	EXOSC1	VAMP1	FBXL12	MEA1	SFMBT1
911	OR2H2	CLK3	C2orf42	C2orf42	SFRS4	SFRS4	SFRS4	PTPRJ	PTPRJ	PTPRJ	ERCC3	C7orf43	CLK3	HIST1H2BB	MED12	FEM1B	FBXW2	NR0B1	NR0B1	SURF2	DPH2	PGLYRP4	IRGC	ERCC3	SFMBT1	CLK3
912	ERCC3	GPR37L1	QPCTL	NR0B1	NR0B1	NR0B1	NR0B1	RND1	RND1	RND1	AQP3	MBD3	GPR37L1	MLLT1	HTR3B	SAFB	OR2H2	IRGC	IRGC	IRGC	RRM2	SF3B4	NUP98	SMPD2	FBXL12	GPR37L1
913	ZC3H7B	RPS6KB2	ASXL2	AQP3	AQP3	AQP3	AQP3	TACR2	TACR2	TACR2	MBD3	SETDB1	RPS6KB2	SFRS4	DBH	ZNF695	ZNF192	AQP3	APOA4	NAT8B	CDC2L5	TACR2	MBD3	SETDB1	RPS6KB2	RPS6KB2
914	ZNF192	PSMD2	TNFRSF1A	HBZ	IRGC	IRGC	IRGC	RPL24	RPL24	RPL24	SETDB1	CLK3	PSMD2	PSD	NUFIP1	KCNN1	ERCC3	MBD3	AQP3	APOA4	TBC1D5	MUTYH	MAPRE3	MAPRE3	HBZ	PSMD2
915	FCER2	HBZ	USP39	TNFRSF1A	MBD3	MBD3	MBD3	MUTYH	MUTYH	MUTYH	MAPRE3	MAPRE3	HBZ	IRGC	TAAR5	PTCD3	FCER2	APOA4	MBD3	MBD3	GDF9	RPL24	SETDB1	CLK3	PSMD2	HBZ
916	USP2	SETDB1	NUP98	SETDB1	TRO	TRO	TRO	MYO15A	MYO15A	MYO15A	SFMBT1	TRO	SETDB1	MBD3	ATP13A1	MMP9	USP2	TRO	TRO	ERCC3	PRTN3	MYO15A	SFMBT1	TRO	SETDB1	SETDB1
917	FZD10	MAPRE3	GALK2	HSF4	APOA4	APOA4	APOA4	BAP1	BAP1	BAP1	TRO	SFMBT1	MAPRE3	TRO	UTF1	FAM53C	FZD10	SETDB1	SETDB1	TRO	TNFSF8	BAP1	TRO	SFMBT1	MAPRE3	MAPRE3

[1] This a supplementary file for the paper "Weighted Rank Aggregation Based on Estimated Ranker Accuracies for Biological Applications". The full lists as an excel file can be obtained from https://github.com/dml-qom/RAAD

TABLE 2 MicroRNA dataset

	Base Rankers			Borda				Markov Chain			Distribution-based		Bayesian	Weighted Rank Aggregation			Mallows Model			Metaheuristic-based						
rank	MR	TS	PT	MED	Mean	GEO	L2	MC1	MC2	MC3	Stuart	RRA	BIRRA	CEMC.s	CEMC.k	BiG	MM	EMM	HEMM	GA.s	GA.k	HC	ILS	VNS	GRASP	RAAD
1	BACH1	ZNF537	ZNF537	ZNF537	BACH1	BACH1	BACH1	ZNF537	ZNF537	BACH1	BACH1	BACH1	SOCS1	COL7A1	AXOT	FGF7	BACH1	BACH1	FGF7	OPRM1	BACH1	ZNF537	ZNF537	ZNF537	ZNF537	BACH1
2	SEMA5A	BACH1	BACH1	BACH1	SOCS1	ZNF537	SOCS1	BACH1	BACH1	SOCS1	ZNF537	ZNF537	FGF7	BACH1	CAB39	CARHSP1	CARHSP1	FGF7	SOCS1	SOX1	MAP3K7IP2	BACH1	BACH1	BACH1	BACH1	SOCS1
3	OR1K1	FGF7	IKBKE	CARHSP1	FGF7	FGF7	CARHSP1	IKBKE	FGF7	FGF7	FGF7	SOCS1	CARHSP1	CARHSP1	AICDA	MAP3K14	SOCS1	ZIC3	MAP3K14	ASTN2	TRIM32	IKBKE	ZNF652	ZNF652	ZNF652	FGF7
4	JARID2	ZNF652	ASTN2	RNF123	CARHSP1	ZIC3	FGF7	MGC13272	SOCS1	CARHSP1	SOCS1	FGF7	ZIC3	IKBKE	NDFIP1	CEBPB	FGF7	PAPOLA	ZIC3	SPRED1	MEIS1	ZNF652	FLJ30435	FLJ30435	FLJ30435	CARHSP1
5	JARID1B	FLJ30435	AKAP10	PAPOLA	ZIC3	CARHSP1	ZIC3	KBTBD2	RNF123	ZIC3	CARHSP1	CARHSP1	RNF123	FOS	RNF123	RNF123	ZIC3	CEBPB	CEBPB	SGKL	SEL1L	SEMA5A	RAB11FIP2	RAB11FIP2	RAB11FIP2	ZIC3
6	SGKL	RAB11FIP2	MGC13272	SOCS1	RNF123	RNF123	RNF123	COL7A1	ZIC3	RNF123	ZIC3	ZIC3	ZNF537	MLSTD2	BACH1	SMARCA4	CEBPB	RNF123	CARHSP1	SOX10	CSF1R	OR1K1	MIDN	MIDN	IKBKE	RNF123
7	OPRM1	ZIC3	FBXO11	ZIC3	CEBPB	SOCS1	CEBPB	RAB34	CARHSP1	ZNF537	RNF123	CEBPB	CEBPB	MAP3K7IP2	ASTN2	ZIC3	RNF123	SOCS1	RNF123	CUGBP2	ZNF236	FLJ30435	ARID2	ARID2	MIDN	ZNF537
8	RAPH1	MIDN	KBTBD2	ASTN2	MAP3K14	ASTN2	ZNF537	SALL1	CEBPB	CEBPB	CEBPB	RNF123	PAPOLA	KCNN3	ACTA1	SOCS1	ASTN2	ASTN2	ZNF537	CLCN5	CARHSP1	AKAP10	PICALM	PICALM	ARID2	CEBPB
9	CLCN5	ARID2	COL7A1	FBXO11	SMARCA4	CEBPB	MAP3K14	SEMA5A	PAPOLA	MAP3K14	ASTN2	PAPOLA	ASTN2	MEIS1	SPI1	182-FIP	PAPOLA	FBXO11	PAPOLA	COL7A1	MLSTD2	MGC13272	CAB39	CAB39	SEMA5A	ASTN2
10	SPI1	PAPOLA	MAP3K10	MAP3K14	ZNF537	MAP3K14	PAPOLA	OR1K1	ASTN2	ASTN2	MAP3K14	SEMA5A	SGKL	ARL8	SPRED1	ACTA1	FBXO11	MAP3K14	KIBRA	DHX40	AXOT	ARID2	SOX10	SOX10	OR1K1	PAPOLA
11	TP53INP1	KIBRA	RNF123	FGF7	ASTN2	FBXO11	ASTN2	JARID2	FBXO11	PAPOLA	PAPOLA	SMARCA4	FBXO11	SOCS1	BCAP29	ADD3	MAP3K14	SGKL	KCNN3	MYO10	KIAA1889	JARID2	GPM6B	SEMA5A	JARID2	MAP3K14
12	STAC	PICALM	FLJ14299	CSNK1G2	PAPOLA	PAPOLA	FBXO11	JARID1B	MAP3K14	FBXO11	FBXO11	IKBKE	MAP3K14	FBXO11	STAC	AGTRAP	SGKL	CARHSP1	CSNK1G2	RREB1	KIBRA	OPRM1	IKBKE	OR1K1	JARID1B	SGKL
13	CARHSP1	CAB39	SF3B1	SGKL	FBXO11	SGKL	SGKL	RAPH1	SGKL	SGKL	SEMA5A	OR1K1	TP53INP1	SEP11	SEP11	AICDA	TP53INP1	CSF1R	ASTN2	TP53INP1	MYO1D	COL7A1	ASTN2	IKBKE	OPRM1	FBXO11
14	PSKH1	CEBPB	KPNA1	CEBPB	SGKL	SEMA5A	CSNK1G2	STAC	CSNK1G2	CSNK1G2	SGKL	ASTN2	SPI1	JARID1B	TOMM20	AKAP10	SPI1	TP53INP1	FBXO11	SEMA5A	TOMM20	CLCN5	AKAP10	SUFU	ASTN2	CSNK1G2
15	MAP3K14	RNF123	CARHSP1	TP53INP1	CSNK1G2	SPI1	TP53INP1	PSKH1	KIBRA	TP53INP1	SMARCA4	MAP3K14	CSNK1G2	ENTH	JARID1B	ARID2	CSNK1G2	SPI1	SGKL	ZNF537	ASTN2	PICALM	MGC13272	JARID2	RAPH1	TP53INP1
16	HBP1	SOCS1	EHD1	KCNN3	TP53INP1	TP53INP1	SPI1	MGP	SMARCA4	SPI1	IKBKE	FBXO11	OR1K1	SMARCA4	WIT-1	ARL8	KCNN3	MLSTD2	TP53INP1	SF3B1	KBTBD2	CAB39	KBTBD2	ASTN2	AKAP10	SPI1
17	AGTRAP	SOX10	PAPOLA	SPI1	SPI1	IKBKE	KCNN3	FGF7	TP53INP1	SMARCA4	OR1K1	JARID2	SEMA5A	SF3B1	FLJ14299	ARNTL	KIBRA	SMARCA4	SPI1	FBXO33	STARD6	MAP3K10	COL7A1	AKAP10	MGC13272	KCNN3
18	KCNN3	SUFU	RAB34	CSF1R	KIBRA	OR1K1	KIBRA	ZNF652	SPI1	KIBRA	JARID2	ZNF652	KIBRA	FGF7	RAPH1	ARVCF	SEMA5A	EHD1	SEMA5A	COPS3	SMARCA4	ASTN2	MAP3K10	JARID1B	PICALM	SEMA5A
19	TRIM32	MAP3K7IP2	GCN5L2	KIBRA	KCNN3	KIBRA	MLSTD2	FLJ30435	MLSTD2	KCNN3	ZNF652	AKAP10	FLJ30435	SGKL	SGKL	ASTN2	IKBKE	CSNK1G2	OR1K1	FLJ30435	SGKL	PAPOLA	SEMA5A	MAP3K7IP2	CLCN5	OR1K1
20	CSNK1G2	GPM6B	SOCS1	MLSTD2	MLSTD2	CSNK1G2	CSF1R	RAB11FIP2	KCNN3	MLSTD2	SPI1	FLJ30435	JARID1B	AGTRAP	PRO1855	AXOT	OR1K1	KCNN3	JARID2	MGP	ADD3	SGKL	OR1K1	SGKL	KBTBD2	KIBRA
21	SOCS1	MLR1	ZIC3	SMARCA4	CSF1R	JARID2	SMARCA4	ZIC3	C10orf26	LRP1B	TP53INP1	JARID1B	JARID2	KIBRA	FBXO33	BCAP29	JARID2	KIBRA	ZNF652	FBXO11	ZIC3	TRIM32	JARID2	MGC13272	CAB39	JARID2
22	CYR61	ASTN2	MLSTD2	RREB1	LRP1B	ZNF652	LRP1B	MIDN	CSF1R	EHD1	CSNK1G2	CSNK1G2	RAB11FIP2	CYR61	CSNK1G2	BIRC4	ZNF652	ZNF652	JARID1B	SLC11A2	ARL8	MIDN	JARID1B	FBXO11	COL7A1	JARID1B
23	DUSP14	FBXO11	SALL1	ETS1	EHD1	SMARCA4	C10orf26	ARID2	LRP1B	CSF1R	KIBRA	SGKL	ZNF652	SOX1	PAPOLA	C10orf26	AKAP10	FLJ30435	FLJ30435	YWHAE	MLR1	FBXO11	OPRM1	KBTBD2	STAC	IKBKE
24	MGP	MAP3K14	ACTA1	LRP1B	C10orf26	AKAP10	RREB1	PAPOLA	EHD1	C10orf26	AKAP10	MGC13272	ARID2	SGCB	OR1K1	C1QL2	MLSTD2	RAB11FIP2	RAB11FIP2	GCET2	BCAP29	KBTBD2	RAPH1	OPRM1	MAP3K10	OPRM1
25	SLC11A2	C10orf26	LRP1B	C10orf26	RREB1	FLJ30435	SEMA5A	KIBRA	RREB1	RREB1	FLJ30435	RAB11FIP2	CLCN5	LOC51161	SUFU	C21orf107	FLJ30435	MIDN	OPRM1	EHD1	IKBKE	RAPH1	CLCN5	RAPH1	PAPOLA	AKAP10
26	FGF7	TOMM20	C1QL2	SIM2	OLFML3	JARID1B	OR1K1	PICALM	ETS1	SEMA5A	JARID1B	OPRM1	MIDN	ARNTL	SMARCA4	C3orf18	JARID1B	ARID2	MIDN	SPI1	GCN5L2	AGTRAP	STAC	CLCN5	RNF123	RAPH1
27	PCDH9	C3orf18	LOC51161	FBXO33	ETS1	KCNN3	IKBKE	CAB39	OLFML3	OR1K1	MGC13272	KBTBD2	OPRM1	ZIC3	MGC13272	CAB39	MGC13272	PICALM	RAPH1	LOC51161	MAP3K10	SOX10	RNF123	COL7A1	SOX10	MGC13272
28	DHX40	TLE4	CSNK1G2	AICDA	FBXO33	MGC13272	JARID2	CEBPB	FBXO33	IKBKE	RAB11FIP2	MIDN	RAPH1	C1QL2	C1QL2	CARD11	RAB11FIP2	IKBKE	CLCN5	ACTA1	KPNA1	SF3B1	FBXO11	TP53INP1	SUFU	ZNF652
29	KIAA0258	SGKL	FGF7	ETNK2	AICDA	RAB11FIP2	ZNF652	RNF123	AICDA	JARID2	KCNN3	RAPH1	KCNN3	MYO10	FGF7	CDC37	OPRM1	AKAP10	ARID2	FGF7	CHAF1A	CARHSP1	FLJ14299	MAP3K10	MAP3K7IP2	CLCN5
30	CEBPB	BCAP29	ADD3	OLFML3	ETNK2	EHD1	JARID1B	SF3B1	SIM2	JARID1B	OPRM1	TP53INP1	PICALM	SEL1L	ZIC3	CHAF1A	KBTBD2	MGC13272	PICALM	SALL1	STAC	PSKH1	SF3B1	SPI1	FBXO11	FLJ30435
31	GCET2	CARHSP1	MYB	EHD1	SIM2	MLSTD2	FLJ30435	KPNA1	ETNK2	ZNF652	KBTBD2	ARID2	STAC	ARID2	SYPL	CLCN5	MIDN	KBTBD2	STAC	KIAA1274	ENTH	RAB11FIP2	KPNA1	FLJ14299	SGKL	LRP1B
32	ARL8	MYO1D	OLFML3	182-FIP	SEMA5A	OPRM1	AKAP10	SOCS1	ARID2	OLFML3	MIDN	CLCN5	IKBKE	COPS3	AKAP10	COL7A1	RAPH1	COL7A1	CAB39	SDCBP	FBXO11	KPNA1	SGKL	SF3B1	PSKH1	KBTBD2
33	SEL1L	CSF1R	ARNTL	ACTA1	IKBKE	KBTBD2	RAB11FIP2	SOX10	MIDN	AKAP10	RAPH1	COL7A1	AKAP10	MEF2A	SEMA5A	COPS3	ARID2	MAP3K10	PSKH1	CSNK1G2	SEP11	GCN5L2	CARHSP1	STAC	FLJ14299	RAB11FIP2
34	ZIC3	FLJ37543	COPS3	ADD3	OR1K1	MIDN	MGC13272	SUFU	RAB11FIP2	FLJ30435	MLSTD2	KCNN3	MGC13272	KPNA1	EIF2C4	CSF1R	COL7A1	FLJ14299	HBP1	EIF2C4	COL7A1	SOCS1	PSKH1	KPNA1	HBP1	MLSTD2
35	RREB1	SOX1	SMARCA4	AGTRAP	JARID2	RAPH1	OPRM1	MAP3K7IP2	FLJ30435	MGC13272	ARID2	SPI1	CAB39	SUFU	C10orf26	CSNK1G2	CLCN5	SF3B1	C10orf26	CEBPB	ARNTL	KIBRA	AGTRAP	CARHSP1	SF3B1	COL7A1
36	MYPN	UPP2	SPRED1	AKAP10	ZNF652	LRP1B	RAPH1	GPM6B	ZNF652	OPRM1	CLCN5	CSF1R	PSKH1	FLJ14299	LRP1B	CUGBP2	MAP3K10	KPNA1	AGTRAP	SATB2	OPRM1	SPI1	PAPOLA	PSKH1	KPNA1	STAC
37	RNF123	TP53INP1	CEBPB	ARID2	AKAP10	ARID2	MIDN	MLR1	PICALM	RAB11FIP2	COL7A1	MAP3K10	AGTRAP	SKI	KBTBD2	CYR61	PICALM	LRP1B	SOX10	KCNN3	CAB39	STAC	RAB34	HBP1	CARHSP1	SMARCA4
38	C21orf107	MYO10	ARVCF	ARL8	FLJ30435	CLCN5	KBTBD2	ASTN2	CAB39	ETS1	CSF1R	KIBRA	HBP1	DNCI1	PSKH1	DHX40	CSF1R	CAB39	SUFU	SMARCA4	NKX3-1	RNF123	GCN5L2	RAB34	RAB34	MAP3K10
39	STARD6	SPI1	KCNN3	ARNTL	JARID1B	COL7A1	CLCN5	AKAP10	SOX10	RAPH1	EHD1	MLSTD2	SOX10	CAB39	TRIM32	DNAJB1	FLJ14299	SOX10	MAP3K7IP2	BACH1	RNF123	ZIC3	SOCS1	AGTRAP	SOCS1	MIDN
40	CDC37	DNCI1	CSF1R	ARVCF	MGC13272	C10orf26	ARID2	FBXO11	SUFU	CLCN5	MAP3K10	FLJ14299	COL7A1	GCN5L2	ZNF642	DNCI1	STAC	SUFU	TRIM32	OR1K1	MYO10	TP53INP1	ZIC3	TRIM32	ZIC3	EHD1
41	AICDA	PRO1855	ZNF642	AXOT	RAB11FIP2	CSF1R	COL7A1	MAP3K10	MAP3K7IP2	KBTBD2	LRP1B	PICALM	KBTBD2	ZNF642	EHD1	DUSP14	LRP1B	MAP3K7IP2	GPM6B	ETS1	UBQLN1	CSNK1G2	SALL1	CSNK1G2	GPM6B	PSKH1
42	SATB2	LOC284058	KIBRA	BCAP29	OPRM1	MAP3K10	MAP3K10	FLJ14299	GPM6B	FBXO33	C10orf26	STAC	MLSTD2	SBLF	ENTH	EHD1	SMARCA4	GPM6B	MLR1	CYR61	SIM2	ACTA1	ACTA1	FGF7	MLR1	ARID2
43	FBXO33	ETS1	YWHAE	BIRC4	KBTBD2	FLJ14299	EHD1	GCN5L2	MLR1	COL7A1	FLJ14299	CAB39	GPM6B	C21orf107	SF3B1	EIF2C4	CAB39	MLR1	RREB1	CSF1R	KCNN3	MLSTD2	C1QL2	ZIC3	SPI1	C10orf26
44	RPS6KA3	MLSTD2	ETNK2	C1QL2	MIDN	PICALM	STAC	UBQLN1	IKBKE	MIDN	PICALM	SF3B1	MAP3K7IP2	UBQLN1	TLE4	ENTH	SF3B1	C10orf26	CYR61	MYB	PSKH1	SALL1	LOC51161	RNF123	TP53INP1	FLJ14299
45	FOS	GDF6	182-FIP	C21orf107	RAPH1	RREB1	PICALM	AXOT	MGC13272	AICDA	STAC	KPNA1	SUFU	EIF2C4	MYB	ETNK2	PSKH1	TOMM20	DUSP14	MIDN	EHD1	ARNTL	ADD3	PAPOLA	AGTRAP	CSF1R
46	BIRC4	KIAA1889	SEPT11	C3orf18	ARID2	STAC	FLJ14299	MAP3K14	AKAP10	MAP3K10	CAB39	PSKH1	TRIM32	RAPH1	SOX10	ETS1	C10orf26	C3orf18	MGP	CARD11	MAP3K14	LOC51161	MYB	GCN5L2	GCN5L2	SF3B1
47	NKX3-1	SMARCA4	SCG2	CAB39	CLCN5	CAB39	CAB39	CYR61	C3orf18	ARID2	SF3B1	RREB1	FLJ14299	STARD6	GPM6B	FBXO11	KPNA1	TLE4	SLC11A2	LOC284058	KIAA1274	HBP1	KIBRA	SOCS1	MLSTD2	HBP1
48	EIF2C4	RREB1	UBQLN1	CARD11	COL7A1	SF3B1	SF3B1	SLC11A2	TLE4	STAC	RREB1	ETS1	MAP3K10	FLJ20273	IKBKE	FBXO33	EHD1	BCAP29	TOMM20	C1QL2	DUSP14	KCNN3	MAP3K14	KCNN3	SALL1	PICALM
49	LRP1B	ZNF236	ETS1	CDC37	MAP3K10	OLFML3	PSKH1	PCDH9	TOMM20	FLJ14299	KPNA1	LRP1B	CYR61	SIM2	GDF6	FLJ14299	HBP1	MYO1D	C3orf18	C21orf107	FLJ37543	CEBPB	TLE4	GPM6B	ACTA1	RREB1
50	KIAA1411	DNAJB1	SIM2	CHAF1A	PICALM	KPNA1	KPNA1	STARD6	KPNA1	PICALM	PSKH1	EHD1	DUSP14	KIAA1889	MAP3K7IP2	FLJ20273	AGTRAP	FLJ37543	PCDH9	NDFIP1	BIRC4	YWHAE	SPI1	MLR1	TRIM32	KPNA1
51	CHAF1A	FLJ20273	KIAA0863	CLCN5	STAC	PSKH1	HBP1	SATB2	SF3B1	SF3B1	ETS1	HBP1	MLR1	PAPOLA	KCNN3	FLJ30435	SOX10	SOX1	TLE4	CDC37	ARVCF	JARID1B	TP53INP1	MAP3K14	C1QL2	AGTRAP
52	C10orf26	SIM2	AXOT	COL7A1	FLJ14299	ETS1	AGTRAP	RPS6KA3	FLJ14299	PSKH1	HBP1	C10orf26	KPNA1	C10orf26	PCDH9	FLJ37543	SUFU	UPP2	DHX40	CAB39	MGP	MAP3K14	TRIM32	CYR61	CSNK1G2	CAB39
53	SGCZ	FBXO33	WIT-1	COPS3	CAB39	HBP1	SOX10	FOS	MAP3K10	SIM2	SIM2	SIM2	SF3B1	KIAA0863	MYO10	FOS	RAB34	MYO10	KIAA0258	C3orf18	GDF6	SUFU	CYR61	DUSP14	CYR61	TRIM32
54	SDCBP	SBLF	ENTH	CUGBP2	SF3B1	FBXO33	SUFU	NKX3-1	COL7A1	ETNK2	OLFML3	FBXO33	CSF1R	TOMM20	SLC11A2	GCET2	MAP3K7IP2	DNCI1	BCAP29	FOS	ZNF537	MGP	HBP1	SALL1	LOC51161	RAB34
55	SMARCA4	SGCB	SKI	CYR61	KPNA1	AICDA	RAB34	EIF2C4	KBTBD2	CAB39	FBXO33	AGTRAP	EHD1	GCET2	COPS3	GCN5L2	GCN5L2	PRO1855	GCET2	CARHSP1	TP53INP1	SLC11A2	CSNK1G2	ACTA1	FGF7	GCN5L2
56	CUGBP2	AICDA	H3F3A	DHX40	PSKH1	AGTRAP	TRIM32	CHAF1A	BCAP29	KPNA1	AGTRAP	SOX10	C10orf26	CSF1R	CDC37	GDF6	TRIM32	LOC284058	MYO1D	MGC13272	SUFU	FGF7	KCNN3	MGP	ADD3	SOX10
57	HRPT2	CARD11	MAP3K14	DNAJB1	HBP1	SOX10	MAP3K7IP2	C10orf26	MYO1D	HBP1	SOX10	RAB34	MGP	FBXO33	DHX40	GPM6B	GPM6B	ETS1	ARL8	CHAF1A	RAB11FIP2	GPM6B	DUSP14	SLC11A2	MYB	CYR61
58	MEIS1	ETNK2	SLA	DNCI1	AGTRAP	RAB34	GCN5L2	TOMM20	UPP2	AGTRAP	AICDA	SUFU	SLC11A2	MIDN	CYR61	H3F3A	MLR1	GDF6	SEL1L	SEP11	ETS1	DHX40	MGP	PCDH9	ARNTL	OLFML3
59	MEF2A	OLFML3	KIAA1274	DUSP14	SOX10	SUFU	GPM6B	C3orf18	SOX1	TRIM32	RAB34	AICDA	TOMM20	ZNF236	KPNA1	HBP1	RREB1	KIAA1889	CSF1R	TRIM32	SALL1	PCDH9	SLC11A2	C1QL2	KIBRA	SUFU
60	SYPL	EHD1	NDFIP1	EIF2C4	RAB34	ETNK2	MLR1	TLE4	FLJ37543	RAB34	SUFU	GCN5L2	SOCS1	COL7A1	AXOT	FGF7	BACH1	BACH1	FGF7	OPRM1	BACH1	KIAA0258	FGF7	CEBPB	MAP3K14	DUSP14

TABLE 3 Prostate dataset

	Base Rankers					Borda				Markov chain			Distribution-based		Bayesian	Weighted Rank Aggregation			Mallows Model			Metaheuristic-based						
rank	Luo	Welsh	Dhanasekaran	Truee	Singh	MED	Mean	GEO	L2	MC1	MC2	MC3	stuart	RRA	BIRRA	CEMC.s	CEMC.k	BiG	MM	EMM	HEMM	GA.s	GA.k	HC	ILS	VNS	GRASP	RAAD
1	HPN	HPN	OGT	AMACR	HPN	HPN	HPN	HPN	HPN	HPN	HPN	HPN	OGT	HPN	HPN	AMACR	NACA	AMACR	HPN	HPN	AMACR	HPN	ANK3	OGT	OGT	OGT	OGT	HPN
2	AMACR	AMACR	AMACR	HPN	SLC25A6	AMACR	AMACR	AMACR	AMACR	AMACR	AMACR	AMACR	HPN	AMACR	AMACR	EPRS	GUCY1A3	HPN	AMACR	AMACR	HPN	TFF3	EEF2	AMACR	HPN	AMACR	AMACR	AMACR
3	CYP1B1	OACT2	FASN	NME2	EEF2	FASN	GDF15	GDF15	GDF15	GDF15	GDF15	GDF15	AMACR	NME1	FASN	NME1	PRSS8	NME2	GDF15	OACT2	GDF15	NACA	CANX	HPN	AMACR	HPN	HPN	GDF15
4	ATF5	GDF15	HPN	CBX3	SAT	KRT18	NME1	FASN	NME1	NME1	FASN	NME1	NME2	GDF15	GDF15	HPN	HPN	CBX3	FASN	GDF15	NME1	RPL36AL	DAPK1	CYP1B1	GUCY1A3	CBX3	GUCY1A3	NME1
5	BRCA1	FASN	UAP1	GDF15	NME2	GDF15	FASN	NME1	FASN	FASN	KRT18	FASN	LDHA	FASN	KRT18	NME2	AMACR	SLC25A6	KRT18	FASN	FASN	NME2	FASN	SLC25A6	OACT2	SLC25A6	SLC25A6	FASN
6	LGALS3	ANK3	GUCY1A3	MTHFD2	LDHA	EEF2	EEF2	EEF2	KRT18	EEF2	NME1	EEF2	RPL15	KRT18	OACT2	BRCA1	SND1	CANX	NME1	KRT18	OACT2	LGALS3	GDF15	CBX3	CYP1B1	SAT	CYP1B1	KRT18
7	MYC	KRT18	OACT2	MRPL3	CANX	NME1	KRT18	KRT18	EEF2	KRT18	EEF2	KRT18	CYP1B1	NME2	NME2	SLC39A6	LDHA	SAT	EEF2	UAP1	KRT18	GDF15	SLC7A5	SAT	NME2	NME2	ATF5	EEF2
8	PCDHGC3	UAP1	SLC19A1	SLC25A6	NACA	UAP1	UAP1	UAP1	NME2	NME2	UAP1	UAP1	ATF5	EEF2	SLC25A6	PPIB	GDF15	MRPL3	NME2	GRP58	EEF2	ALCAM	HPN	GUCY1A3	CBX3	EEF2	BRCA1	NME2
9	WT1	GRP58	KRT18	NME1	FASN	ACADSB	NME2	NME2	UAP1	SLC25A6	OACT2	NME2	BRCA1	OACT2	EEF2	RAN	OACT2	GDF15	OACT2	PPIB	CYP1B1	SNX4	NACA	OACT2	ATF5	LDHA	LGALS3	SLC25A6
10	TFF3	PPIB	EEF2	COX6C	SND1	ALCAM	OACT2	SLC25A6	OACT2	UAP1	NME2	SLC25A6	LGALS3	OGT	UAP1	OACT2	PTPLB	DDB2	SLC25A6	NME1	ATF5	CYP1B1	OGT	ATF5	BRCA1	FASN	MYC	UAP1
11	MARCKS	KRT7	STRA13	JTV1	KRT18	ANK3	SLC25A6	OACT2	SLC25A6	OACT2	SLC25A6	OACT2	MYC	SLC25A6	NME1	SLC19A1	KRT18	NME1	UAP1	STRA13	BRCA1	GRP58	KRT18	EEF2	LGALS3	CYP1B1	OACT2	OACT2
12	OS-9	NME1	ALCAM	CCNG2	RPL15	AP3S1	CANX	OGT	STRA13	CYP1B1	OGT	CANX	PCDHGC3	UAP1	OGT	EEF2	JTV1	TRA1	CANX	TMEM4	ANK3	AMACR	PSAP	NME2	MYC	ATF5	SAT	OGT
13	CCND2	STRA13	GDF15	AP3S1	TNFSF10	ATF5	STRA13	CANX	CANX	ATF5	SAT	GRP58	WT1	CYP1B1	ATF5	FMO5	SLC39A6	CYP1B1	GRP58	CANX	LGALS3	TRA1	AMACR	LDHA	PCDHGC3	GUCY1A3	PCDHGC3	STRA13
14	NME1	DAPK1	NME1	EEF2	SERP1	ATP6V0B	GRP58	GRP58	GRP58	CANX	NACA	STRA13	GUCY1A3	STRA13	CBX3	TRAP1	NME1	WT1	STRA13	MRPL3	MYC	UAP1	LMAN1	SND1	WT1	OACT2	NME2	CYP1B1
15	DRRK1A	TMEM4	CALR	RAN	GRP58	BRCA1	SND1	MTHFD2	SND1	OGT	LDHA	SND1	OACT2	GRP58	CYP1B1	AP3S1	OGT	EMTPD6	SND1	SLC19A1	UAP1	SND1	G3BP	MYC	TFF3	BRCA1	CBX3	CANX
16	TRAP1	CANX	SND1	PRKACA	ALCAM	CALR	ALCAM	STRA13	ALCAM	BRCA1	CANX	ALCAM	TFF3	ATF5	STRA13	PSAP	RAN	COX6C	OGT	SLC25A6	PCDHGC3	MRPL3	STRA13	NACA	MARCKS	LGALS3	EEF2	GRP58
17	FMO5	TRA1	STAT6	RAD23B	GDF15	CANX	MTHFD2	SND1	TMEM4	MTHFD2	SLC19A1	MTHFD2	MARCKS	CBX3	ANK3	ACADSB	CCT2	STRA13	ALCAM	EEF2	WT1	PPP1CA	PPIB	FASN	OS-9	NACA	LDHA	MTHFD2
18	ZHX2	PRSS8	TCEB3	PSAP	TMEM4	CBX3	MRPL3	MRPL3	MTHFD2	LGALS3	ANK3	MRPL3	OS-9	SAT	BRCA1	NACA	SLC19A1	PCDHGC3	MTHFD2	ALCAM	GRP58	KRT7	TNFSF10	GDF15	CCND2	KRT18	WT1	SND1
19	RPL36AL	EMTPD6	EIF4A1	CCT2	CCT2	CCND2	PPIB	ALCAM	MRPL3	GRP58	ALCAM	SLC19A1	CCND2	ALCAM	GUCY1A3	G3BP2	MARCKS	MTHFD2	CYP1B1	SND1	TFF3	TRAM1	GRP58	KRT18	SLC25A6	GDF15	NACA	ATF5
20	ITPR3	PPP1CA	LMAN1	G3BP	SLC39A6	CCNG2	SLC19A1	SLC19A1	PPIB	SND1	GUCY1A3	TMEM4	CBX3	CANX	LGALS3	CALR	SNX4	PTPLB	SAT	SAT	PPIB	TFCP2	PRSS8	MARCKS	EEF2	MYC	FASN	CBX3
21	GCSH	ACADSB	MAOA	EPRS	RPL5	CCT2	TMEM4	PPIB	OGT	CBX3	SND1	PPIB	GDF15	SND1	MTHFD2	JTV1	RPL36AL	SND1	ATF5	NME2	KRT7	CBX3	ZHX2	LGALS3	SAT	ANK3	TFF3	SAT
22	DDB2	PTPLB	ATP6V0B	CKAP1	RPS13	CKAP1	CCT2	CYP1B1	CYP1B1	MRPL3	MTHFD2	CCT2	FASN	BRCA1	SAT	SAT	STRA13	NACA	CBX3	LDHA	MARCKS	PCDHGC3	SLC25A6	RPL15	LDHA	PCDHGC3	KRT18	ALCAM
23	TFCP2	TMEM23	PPIB	LIG3	MTHFD2	COX6C	FMO5	TMEM4	SLC19A1	MYC	TMEM4	FMO5	ANK3	TMEM4	GRP58	MRPL3	CKAP1	LDHA	MRPL3	NACA	OS-9	EIF4A1	BRCA1	PCDHGC3	NACA	WT1	GDF15	MRPL3
24	TRAM1	MRPL3	FMO5	SNX4	G3BP2	CYP1B1	OGT	ATF5	ATF5	STRA13	MRPL3	OGT	KRT18	CCT2	CANX	OS-9	UAP1	KRT7	BRCA1	RPL15	STRA13	COX6C	ACADSB	MTHFD2	FASN	UAP1	ANK3	BRCA1
25	YTHDF3	SLC19A1	SLC7A5	NSMAF	UAP1	DAPK1	CYP1B1	CBX3	CBX3	ALCAM	GRP58	CYP1B1	SLC39A6	ANK3	MRPL3	TMEM23	SAT	PPIB	LGALS3	TNFSF10	CCND2	ACADSB	EIF4A1	ANK3	SND1	COX6C	UAP1	SLC19A1