

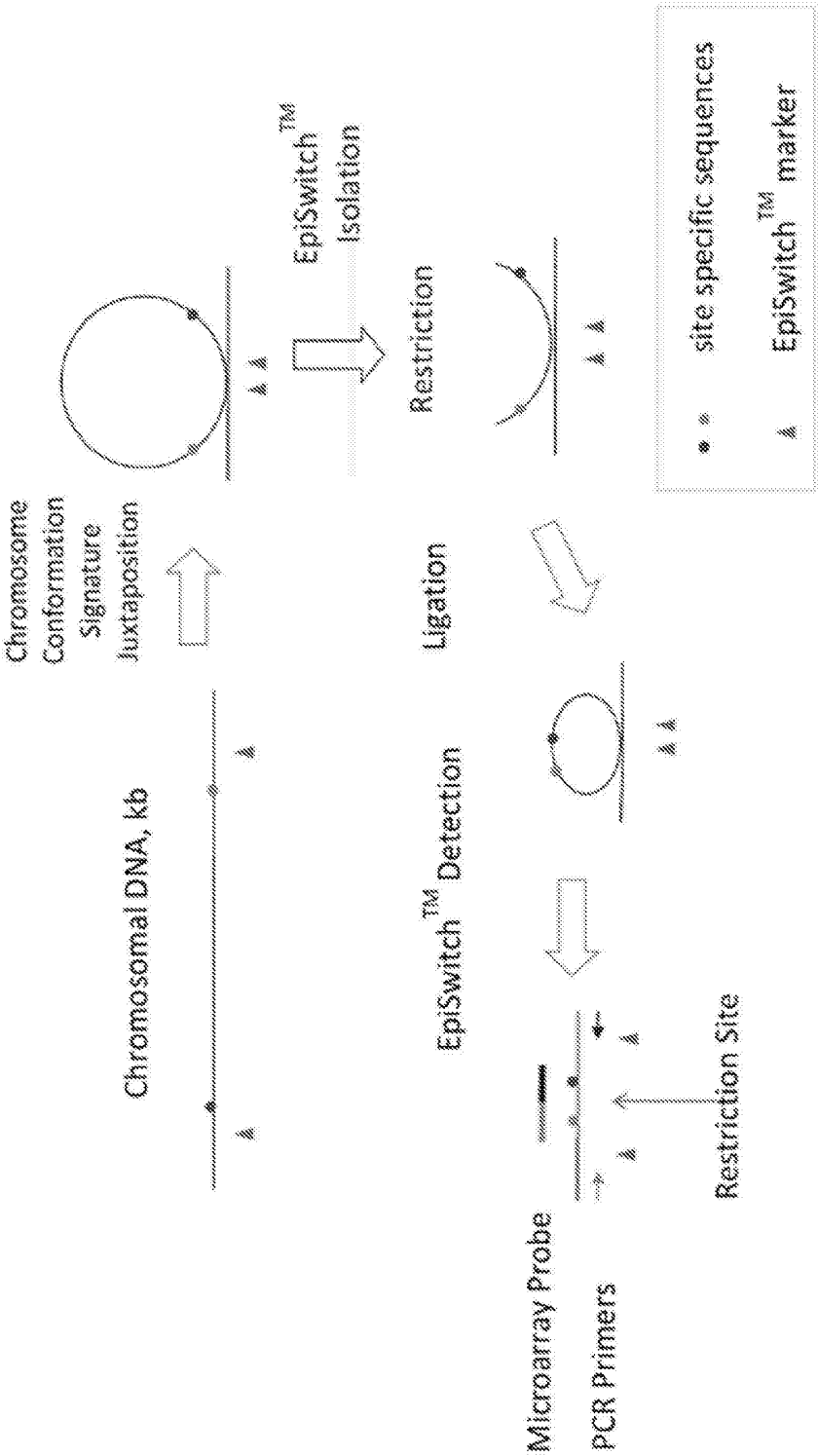


Figure 1

PFS: Clinical Outcome RECIST 1.1

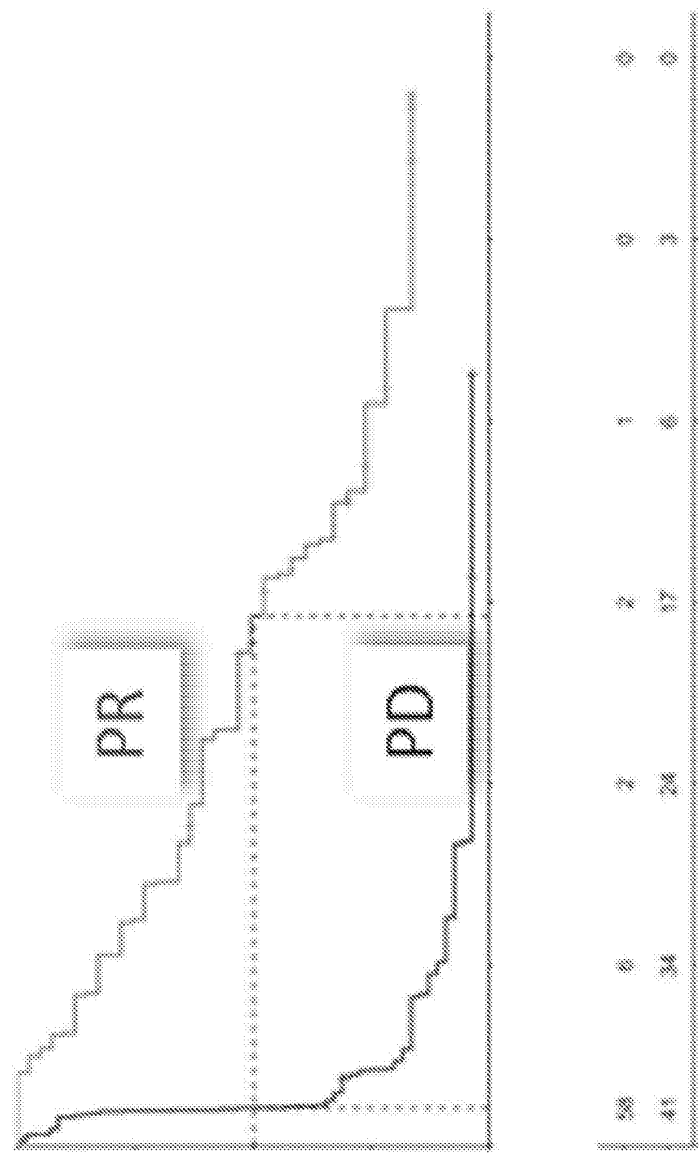


Figure 2a

PFS: PD-L1 IHC % at Baseline

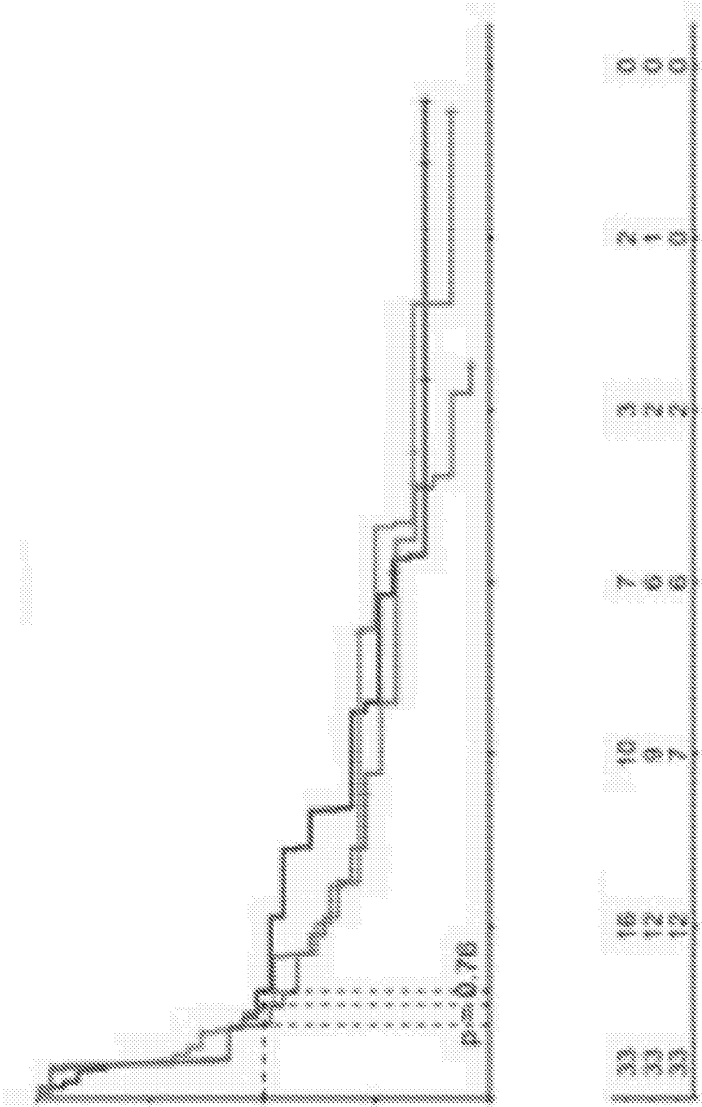


Figure 2b

PFS: EpiSwitch™ Predicted at Baseline

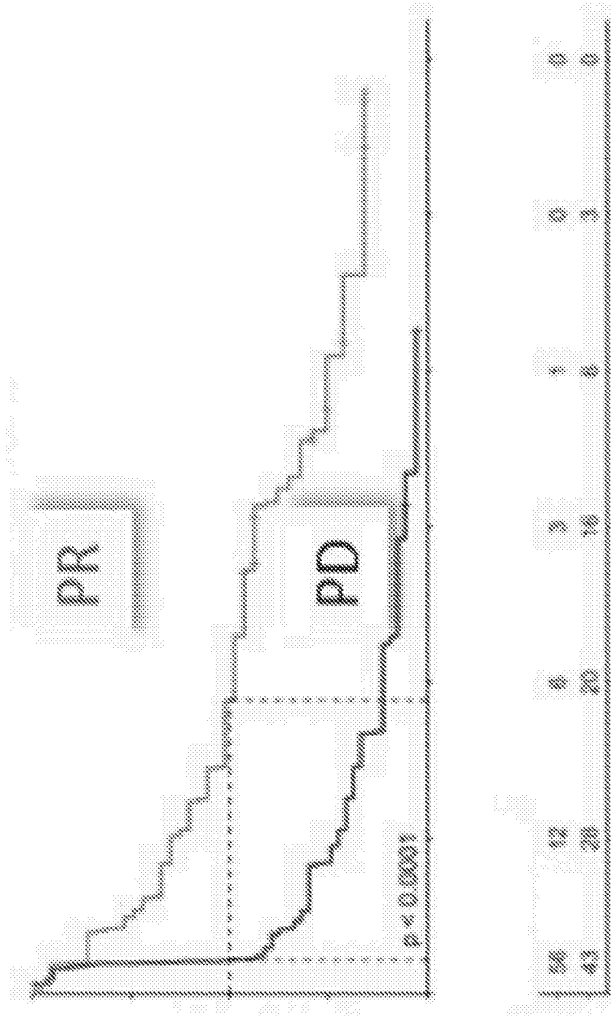


Figure 2c

5/29

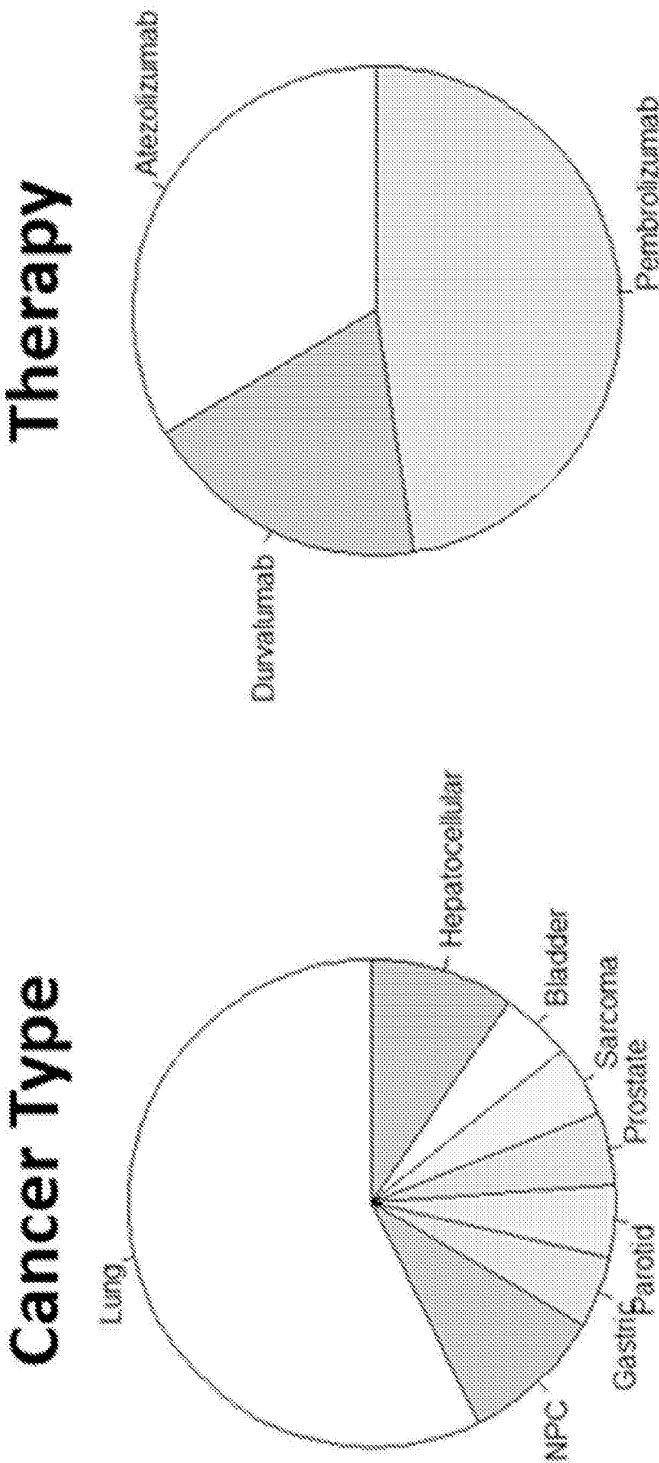


Figure 3

6/29

Patient #	PD-L1 Expression		EpiSwitch Call		Clinical Response	
	Hi	Lo	R	NR	R	NR
1	Hi			NR		NR
2	Lo			NR		NR
3	Lo			NR		NR
4	Hi		R		R	
5	Hi		NR		R	
6	Hi		R		R	
7	Lo		NR		NR	
8	Med		NR		NR	

	Lung Cancer		All Cancers	
Sensitivity	71%		80%	
Specificity	100%		100%	
PPV	100%		100%	
NPV	71%		75%	

Figure 4

7/29

```
Confusion Matrix and Statistics

      Reference
Prediction NR  R
      NR 45  5
      R   6 24

      Accuracy : 0.8625
      95% CI : (0.7673, 0.9293)
      No Information Rate : 0.6375
      P-Value [Acc > NIR] : 6.552e-06

      Kappa : 0.7047

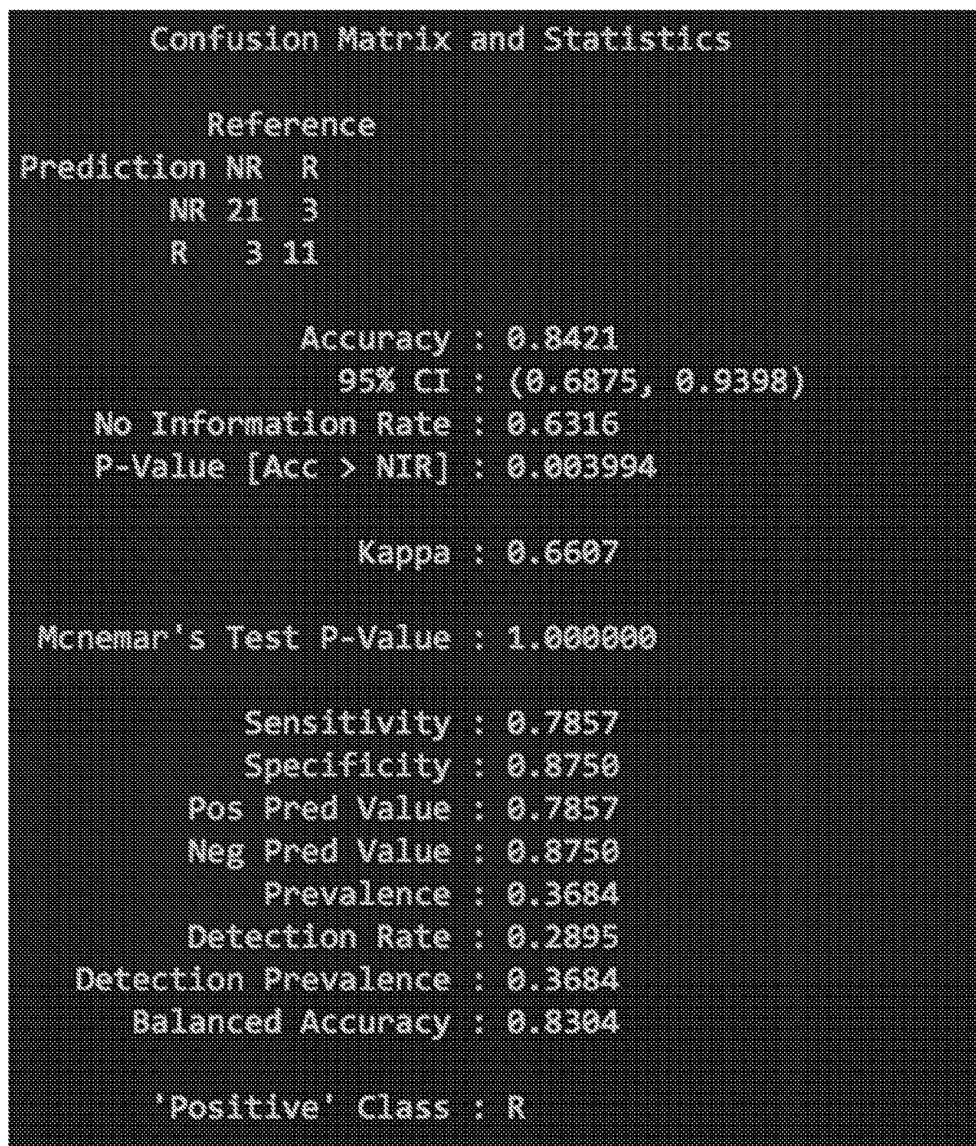
      Mcnemar's Test P-Value : 1

      Sensitivity : 0.8276
      Specificity : 0.8824
      Pos Pred Value : 0.8000
      Neg Pred Value : 0.9000
      Prevalence : 0.3625
      Detection Rate : 0.3000
      Detection Prevalence : 0.3750
      Balanced Accuracy : 0.8550

      'Positive' Class : R
```

Figure 5

8/29

**Figure 6**

9/29

Confusion Matrix and Statistics

	Reference	
Prediction	NR	R
NR	7	3
R	3	7

Accuracy : 0.7

95% CI : (0.4572, 0.8811)

No Information Rate : 0.5

P-Value [Acc > NIR] : 0.05766

Kappa : 0.4

McNemar's Test P-Value : 1.00000

Sensitivity : 0.70

Specificity : 0.70

Pos Pred Value : 0.70

Neg Pred Value : 0.70

Prevalence : 0.50

Detection Rate : 0.35

Detection Prevalence : 0.50

Balanced Accuracy : 0.70

'Positive' Class : R

Figure 7

10/29

Sample	call	Resp	Time	CPI	Disease	Staus
IOMA1007	NR	NR		7.1 Atezolizumab	Alveolar soft part sarcoma	alive
IOMP1007	R	R		18.1 Pembrolizumab	Bladder	alive
IOMA1002	R	R		2.1 Atezolizumab	HCC	dead
IOMP1009	NR	NR		20.1 Pembrolizumab	HCC	dead
OBDM-033	R	NR		1.1 Atezolizumab	Lung	alive
OBDM-019	NR	NR		3.1 Atezolizumab	Lung	dead
OBDM-034	R	R		5.1 Atezolizumab	Lung	
OBDM-035	NR	R		6.1 Atezolizumab	Lung	dead
OBDM-044	R	R		8.1 Durvalumab	Lung	
OBDM-015	NR	R		9.1 Durvalumab	Lung	alive
OBDM-008	R	R		10.1 Durvalumab	Lung	alive
OBDM-042	R	NR		12.1 Pembrolizumab	Lung	
OBDM-001	NR	NR		14.1 Pembrolizumab	Lung	dead
OBDM-014	R	R		15.1 Pembrolizumab	Lung	alive
IOMP1006	NR	R		17.1 Pembrolizumab	Lung	alive
OBDM-002	NR	NR		19.1 Pembrolizumab	Lung	
IOMP1010	R	NR		21.1 Pembrolizumab	Lung	
IOMP1005	NR	NR		16.1 Pembrolizumab	NPC	alive
IOMP1002	NR	NR		13.1 Pembrolizumab	NPC_Gastric Cancer	dead
IOMA1004	R	R		4.1 Atezolizumab	Parotid Gland	alive

Figure 8

ORD_ID	ID	Patient	Clinical_note	EpSwitch	Cd Disease	Drug	National	Blood collection	Time Line	Clinical diagnosis	NR	R
1	ICM03001	8 PR		R	Lung	Durvalumab	Chinese	08 Jun 18		BL Stage 3A T3N2M0 Carcinoma of lung	0.441274	0.554726
2	ICM03001	8 PR		NR	Lung	Durvalumab	Chinese	01 Aug 18		2m Stage 3A T3N2M0 Carcinoma of lung	0.533819	0.466181
3	ICM03001	8 PR		R	Lung	Durvalumab	Chinese	20 Sep 18		4m Stage 3A T3N2M0 Carcinoma of lung	0.48912	0.51088
4	ICM04001	8 PR		R	Lung	Durvalumab	Chinese	20 Nov 18		6m Stage 3A T3N2M0 Carcinoma of lung	0.115224	0.884776
5	ICM05001	8 PR		R	Lung	Durvalumab	Chinese	08 Jan 19		8m Stage 3A T3N2M0 Carcinoma of lung	0.339278	0.660722
6	ICM05001	15 PR		R	Lung	Pembrolizumab	Chinese	20 Aug 18		BL Co Lung (left)	0.306813	0.693187
7	ICM05001	15 PR		R	Lung	Pembrolizumab	Chinese	09 Nov 18		2m Co Lung (left)	0.238984	0.761016
8	ICM05001	15 PR		NR	Lung	Pembrolizumab	Chinese	01 Feb 19		5m Co Lung (left)	0.551593	0.448407
9	ICM05001	1 PD		NR	Lung	Atezolizumab	Chinese	07 Aug 18		BL Poorly differentiated adenocarcinoma of lung	0.597943	0.402057
10	ICM05001	1 SD		R	Lung	Atezolizumab	Chinese	19 Sep 18		1m Poorly differentiated adenocarcinoma of lung	0.226769	0.773231
11	ICM05001	1 PD		R	Lung	Atezolizumab	Chinese	10 Oct 18		2m Poorly differentiated adenocarcinoma of lung	0.366813	0.633187
12	ICM05001	17 PR		R	NPC	Pembrolizumab	Chinese	14 Sep 18		BL Nasopharyngeal carcinoma - metastatic	0.350316	0.649684
13	ICM05001	17 PR		R	NPC	Pembrolizumab	Chinese	10 Dec 18		3m Nasopharyngeal carcinoma - metastatic	0.049696	0.950304

Figure 9

12/29

Patient	Drug	Time	Clinical	EpiSwitch Cells	Q8D.029.031	Q8D.043.047	Q8D.161.263	Q8D.301.303	Q8D.645.647	Q8D.753.755	Q8D.869.871
IQMD1001	Durvalumab	BL	PR	R	1	1	1	1	0	1	1
IQMD2001	Durvalumab	2m	PR	NR	1	1	1	0	0	1	1
IQMD3001	Durvalumab	4m	PR	R	0	0	1	1	0	1	1
IQMD4001	Durvalumab	6m	PR	R	0	0	1	1	0	1	1
IQMD5001	Durvalumab	8m	PR	R	1	1	1	1	0	1	0
IQMP1004	Pembrolizumab	BL	PR	R	0	0	0	0	0	0	0
IQMP2004	Pembrolizumab	2M	PR	R	0	0	0	0	0	1	1
IQMP3004	Pembrolizumab	5M	PR	NR	0	1	1	0	0	1	1
IQMA1001	Atezolizumab	BL	PO	NR	1	0	0	0	0	0	0
IQMA2001	Atezolizumab	1M	SD	R	0	0	0	0	0	0	1
IQMA3001	Atezolizumab	2M	PO	R	0	0	0	0	0	0	0
IQMP1006	Pembrolizumab	BL	PR	R	0	1	1	0	0	1	0
IQMP2006	Pembrolizumab	3M	PR	R	0	1	1	0	0	1	0
IQMA1001	Atezolizumab	1M	PO	NR	1	0	0	0	0	0	0
IQMA2001	Atezolizumab	BL	PO	R	0	0	0	0	0	0	0
IQMA3001	Atezolizumab	3M	PO	R	0	0	0	0	0	0	0

Figure 10

SUBSTITUTE SHEET (RULE 26)

13/29

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Patient ID	OS	PFS	IRPFS	OS C	PFS C	HP	Subject ID	Specimen ID	bor_1	class_1	bor_2	class_2	Cohort_Type	Cohort
1	509175_A1	1387	1160	1160	0	0	0 S	1020075	AE023355-4	PR	R	PR	R	2L	2
2	509259_A1	1149	1147	1147	0	0	0 S	1560011	AE485786-4	CR	R	CR	R	2L	2
3	521959_A1	855	836	836	0	0	0 S	1420014	AE466127-4	PR	R	SD	R	1L	2
4	521728_A1	771	751	751	0	0	0 S	1930050	AE220021-4	PR	R	PR	R	1L	2
5	517308_A1	719	715	715	0	0	0 S	4080014	EE515670-4	PR	R	PR	R	1L	1
6	509211_A1	1479	710	710	0	0	0 S	1220003	AE756710-4	CR	R	CR	R	2L	2
7	509237_A1	625	554	554	0	0	0 S	1420008	AE774158-4	PR	R	PR	R	2L	2
8	521683_A1	895	542	542	0	0	0 S	2040003	AE291334-3	PR	R	PR	R	1L	2
9	509218_A1	1401	723	723	0	0	1 S	1220011	AE756715-4	PR	R	PR	R	2L	2
10	509274_A1	1112	631	631	0	0	1 S	1670004	AE187296-1	PR	R	PR	R	2L	2
11	509289_A1	1128	627	627	0	0	1 S	2760002	AE615475-4	PR	R	PR	R	2L	2
12	509194_A1	1247	585	585	0	0	1 S	1110004	AE515133-4	PR	R	PR	R	2L	2
13	521705_A1	771	460	460	0	0	1 S	1220039	AE049795-4	PR	R	PR	R	1L	1
14	517237_A1	6	6	6	1	1	1 H	4080013	EE515668-4	NE	NR	NE	NR	1L	2
15	521722_A1	13	13	13	1	1	1 H	2100025	AE559494-4	NE	NR	NE	NR	1L	2
16	509166_A1	26	19	19	1	1	1 H	1020001	AE757084-4	PD	NR	PD	NR	2L	2
17	529813_A1	32	32	32	1	1	1 H	1050007	AE439175-4	NE	NR	NE	NR	1L	2
18	521892_A1	35	35	35	1	1	1 H	1670026	AE329215-6	NE	NR	NE	NR	1L	2
19	509295_A1	52	39	39	1	1	1 H	1930003	AE380933-4	PD	NR	PD	NR	2L	2
20	521042_A1	53	40	40	1	1	1 H	1880019	AGE76187-4	PD	NR	PD	NR	1L	2
21	509222_A1	57	13	13	1	1	1 H	1220022	AE938757-4	PD	NR	PD	NR	2L	2
22	509300_A1	81	50	50	1	1	1 H	2080002	AE277834-4	PD	NR	PD	NR	2L	2
23	509233_A1	84	32	32	1	1	1 H	1410002	AE077263-4	PD	NR	PD	NR	2L	1
24	509280_A1	102	45	45	1	1	1 H	1680005	AE058025-4	PD	NR	PD	NR	2L	2
25	521953_A1	127	42	42	1	1	1 H	1350016	AE504910-4	PD	NR	PD	NR	1L	2
26	521838_A1	132	42	42	1	1	1 H	1070031	AE050807-4	PD	NR	PD	NR	1L	2

Figure 11

SUBSTITUTE SHEET (RULE 26)

1	Patient ID	OS	PFS	IRPFS	OS_C	PFS_C	HP	Subject ID	Specimen ID	bot_1	class_1	bot_2	class_2	Cohort_Type	Cohort
2	521913_A1	759	612	612	0	0	0.5	1350013	AH336622-4	PR	R	PR	R	1L	2
3	521709_A1	813	710	710	0	0	1.5	1240012	AH382360-4	PR	R	PR	R	1L	2
4	509283_A1	1343	1087	1087	0	0	0.5	1710002	AF006412-4	PR	R	PR	R	2L	2
5	521755_A1	22	12	22	1	1	1 H	1950027	AH471940-4	PD	NR	PD	NR	1L	2
6	509245_A1	119	40	40	1	1	1 H	1510008	AF237674-4	PD	NR	PD	NR	2L	2
7	521919_A1	42	42	42	1	1	1 H	1930019	AH327970-4	NE	NR	NE	NR	1L	2

Figure 12

SUBSTITUTE SHEET (RULE 26)

1	markerName	OS.pval	PFS.pval	Diff	Gene
2	OBD148_105.107_2	0.02101101	0.02260266	5	PAG1
3	OBD148_669.671_2	0.17777781	0.04222486	-3	PANK3
4	OBD117_029.031_2	0.28452726	0.08518713	-3	CD274_PDCD1LG2
5	OBD148_645.647_4	0.05317131	0.1075997	-5	IFT88_IL17D
6	OBD148_821.823_1	0.05384985	0.12730792	4	CASP6_PLA2G12A_CFI
7	OBD148_893.895_2	0.0667315	0.14221077	5	CCL8_CCL13_CCL1
8	OBD148_917.919_4	0.03030755	0.14565984	6	TNFSF8_TNC
9	OBD148_301.303_2	0.04261089	0.14989053	5	TRAF1_PHF19
10	OBD148_505.507_2	0.07939328	0.2284663	5	TNFRSF11A
11	OBD148_661.663_1	0.05941606	0.31868899	5	DPYSL2
12	OBD148_261.263_1	0.06613001	0.44550018	5	IKKBK

Figure 13

16/29

DETAILED RESULTS

Pathways: 36, Matching Gene(s): 14

Enter filter text

	Score	Name	# Matched Genes (Total Genes)	Sources
+	27.05	SuperPath: RAK Pathway	8 (683)	
+	26.10	SuperPath: PEDF Induced Signaling	8 (743)	
+	22.49	SuperPath: TRAF Pathway	5 (188)	
+	22.18	SuperPath: Akt Signaling	7 (682)	
+	20.32	SuperPath: NF-kappa B Signaling Pathway	4 (102)	
+	18.71	SuperPath: CCR5 Pathway in Macrophages	5 (321)	
+	18.58	SuperPath: NF-kappaB Signaling	5 (327)	
+	17.65	SuperPath: Translocation of ZAP-70 to Immunological Synapse	3 (46)	
+	17.29	SuperPath: Apoptosis and Survival Anti-apoptotic TNFs/NF-kB/IcI-2 Pathway	3 (50)	
+	17.00	SuperPath: Apoptosis and Autophagy	4 (183)	
+	16.66	SuperPath: T Cell Co-Signaling Pathway: Ligand-Receptor Interactions	3 (58)	RD
+	16.30	SuperPath: TNFR1 Pathway	4 (207)	
+	14.12	SuperPath: RANK Signaling in Osteoclasts	3 (105)	
+	14.04	SuperPath: Chemokine Superfamily Pathway: Human/Mouse Ligand-Receptor Interactions	3 (107)	RD
+	13.18	SuperPath: ERK Signaling	6 (1179)	
+	12.81	SuperPath: EBV LMP1 Signaling	2 (24)	
+	10.47	SuperPath: Apoptosis Modulation and Signaling	3 (249)	
+	10.14	SuperPath: P75(NTR)-mediated Signaling	2 (61)	
+	9.95	SuperPath: TGF-Beta Pathway	4 (653)	
+	9.92	SuperPath: TCR Signaling in Naive CD4+ T Cells	2 (66)	

Figure 14

17/29

DETAILED RESULTS

Pathways: 36, Matching Gene(s): 14

Enter filter text

	Score	Name	# Matched Genes (Total Genes)	Sources
+	9.71	SuperPath: Microglia Activation During Neuroinflammation; Microglia Polarization	2 (71)	BD
+	9.67	SuperPath: TNF Signaling (REACTOME)	2 (72)	J, BD
+	9.17	SuperPath: CD28 Co-stimulation	2 (86)	J
+	8.98	SuperPath: Small Cell Lung Cancer	2 (92)	BD
+	8.72	SuperPath: Class I MHC Mediated Antigen Processing and Presentation	4 (823)	J
+	8.62	SuperPath: Innate Immune System	6 (2124)	J
+	8.59	SuperPath: P70S6K Signaling	3 (392)	J
+	8.42	SuperPath: TNF Signaling Pathway	2 (112)	BD
+	8.37	SuperPath: CDK-mediated Phosphorylation and Removal of Cdc6	4 (879)	J
+	8.32	SuperPath: IL-17 Family Signaling Pathways	2 (116)	BD, J, BD
+	8.18	SuperPath: TCR Signaling (REACTOME)	2 (122)	J
+	8.07	SuperPath: C-type Lectin Receptor Signaling Pathway	2 (127)	BD, BD
+	8.04	SuperPath: Osteoclast Differentiation	2 (128)	BD
+	7.71	SuperPath: Brain-Derived Neurotrophic Factor (BDNF) Signaling Pathway	2 (144)	J
+	7.68	SuperPath: Immune Response CCR3 Signaling in Eosinophils	2 (146)	J
+	7.66	SuperPath: Cell Adhesion Molecules (CAMs)	2 (147)	BD

Items per page: 20

Figure 15

18/29

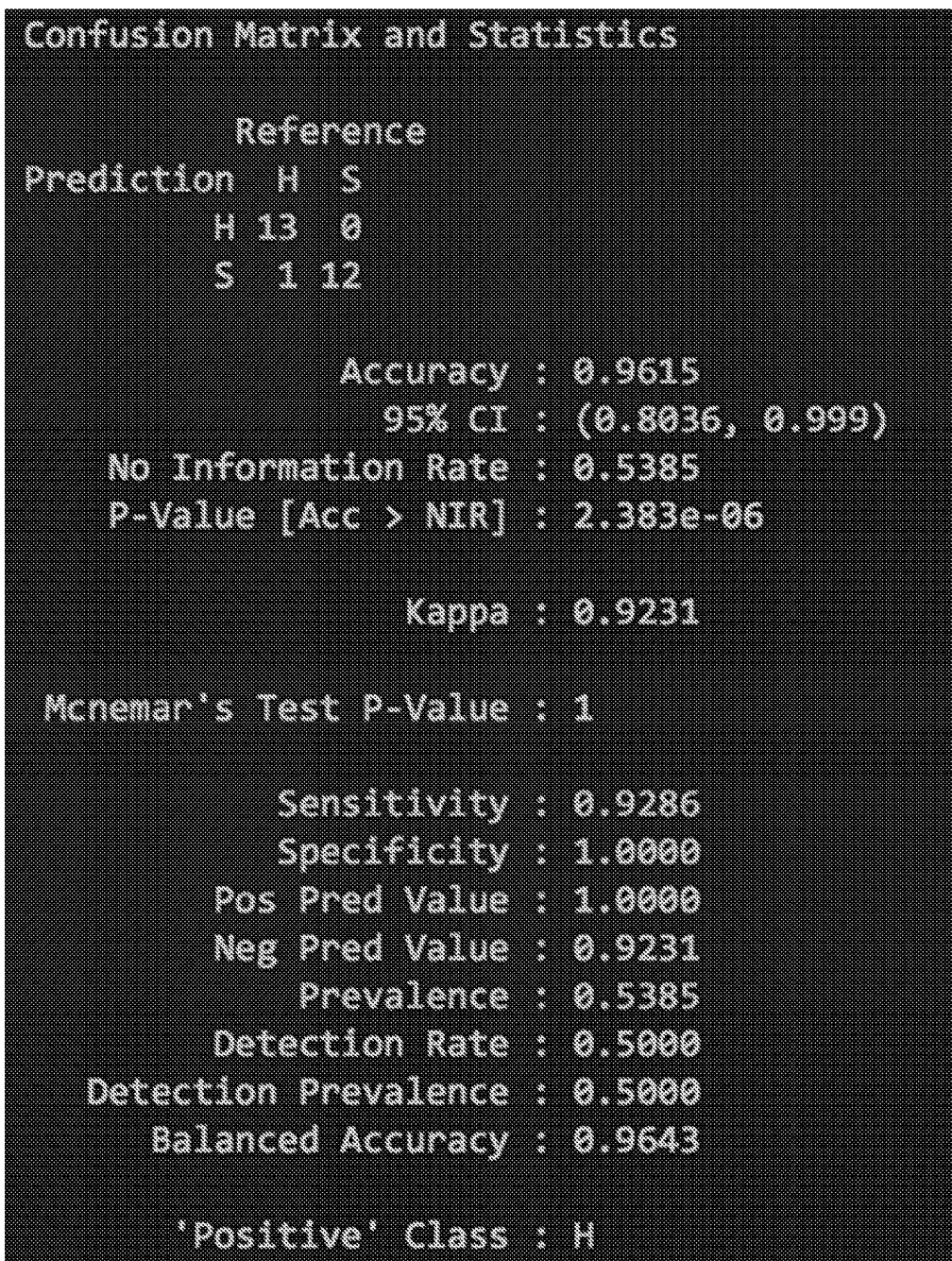
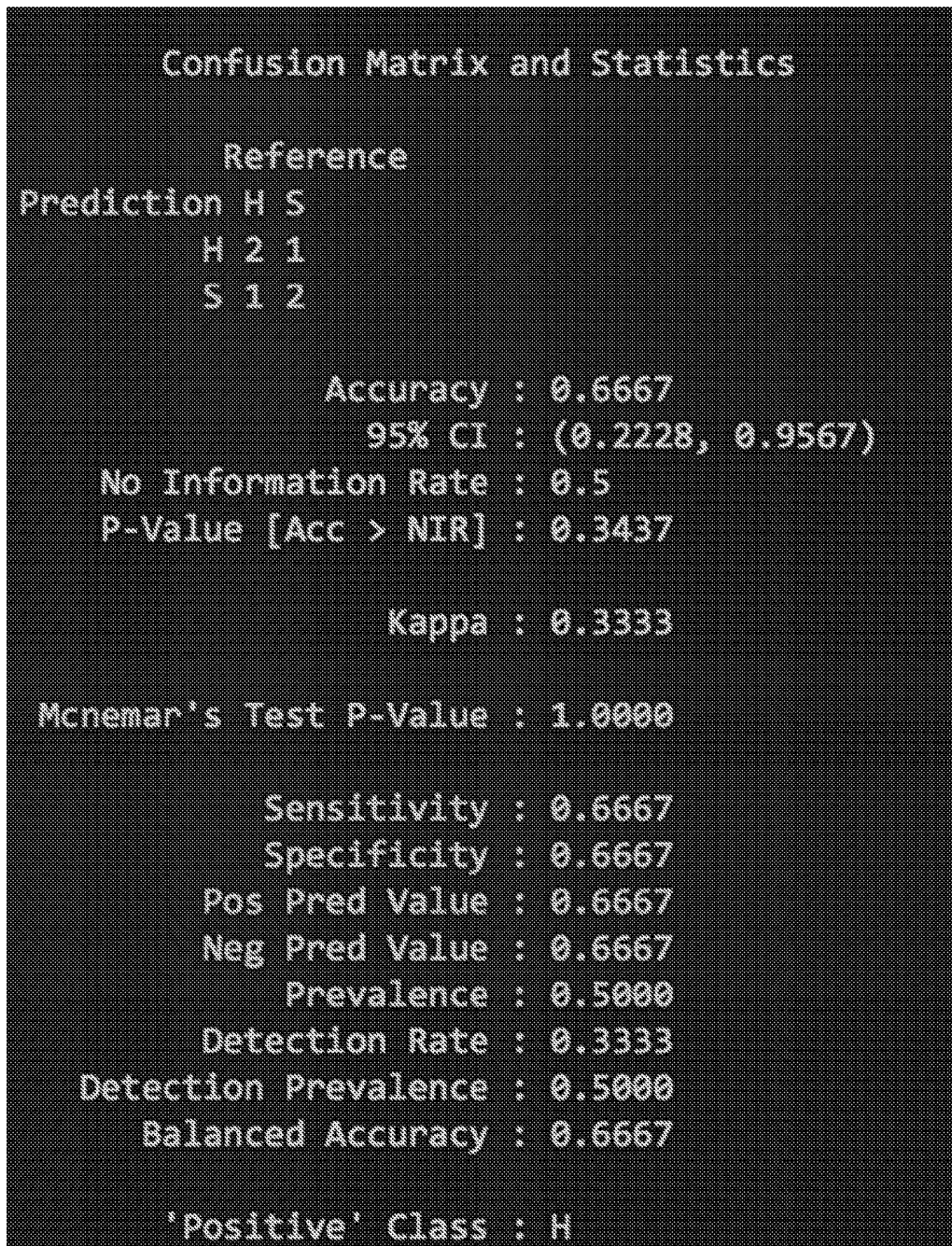
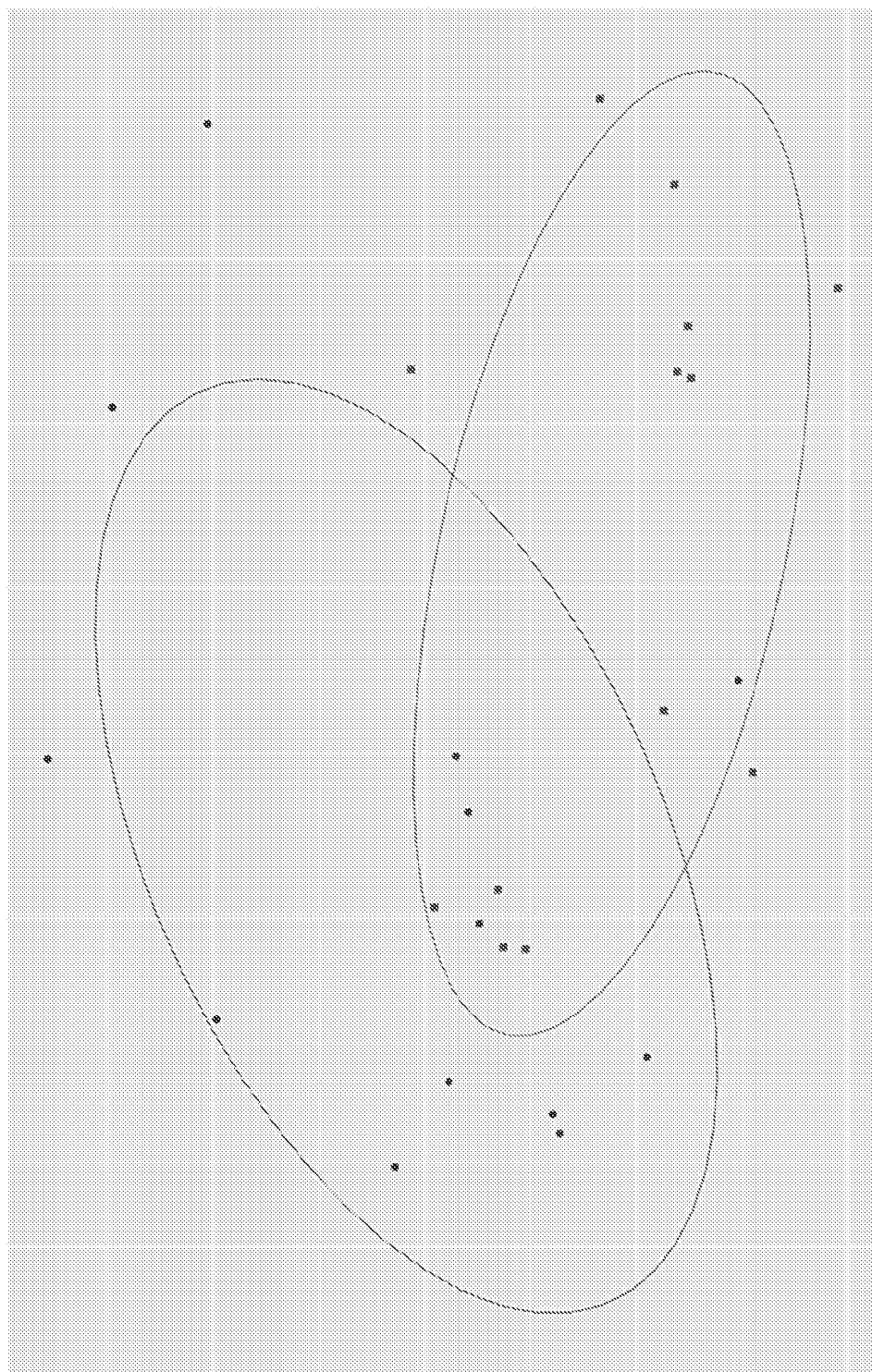


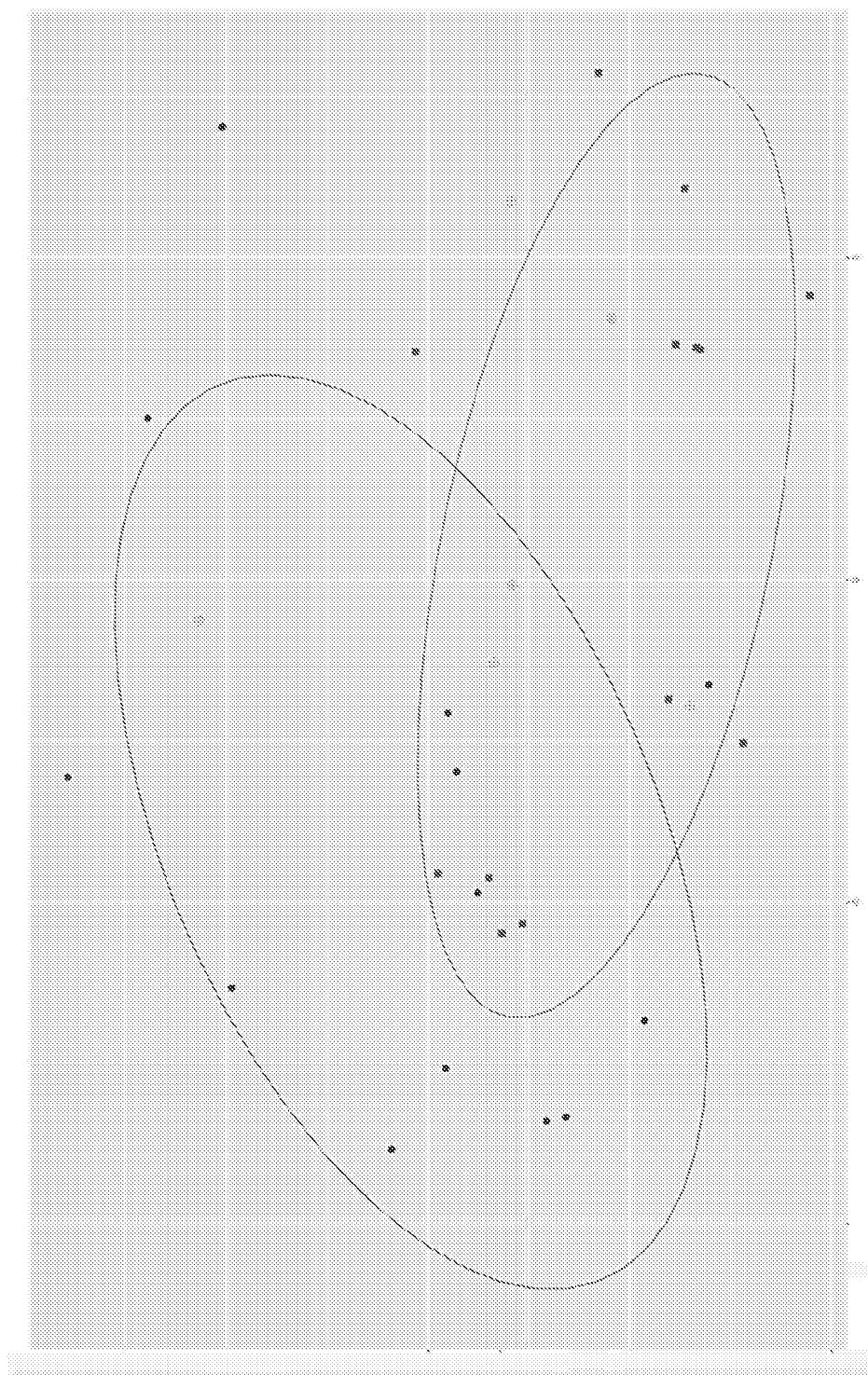
Figure 16

19/29

**Figure 17**

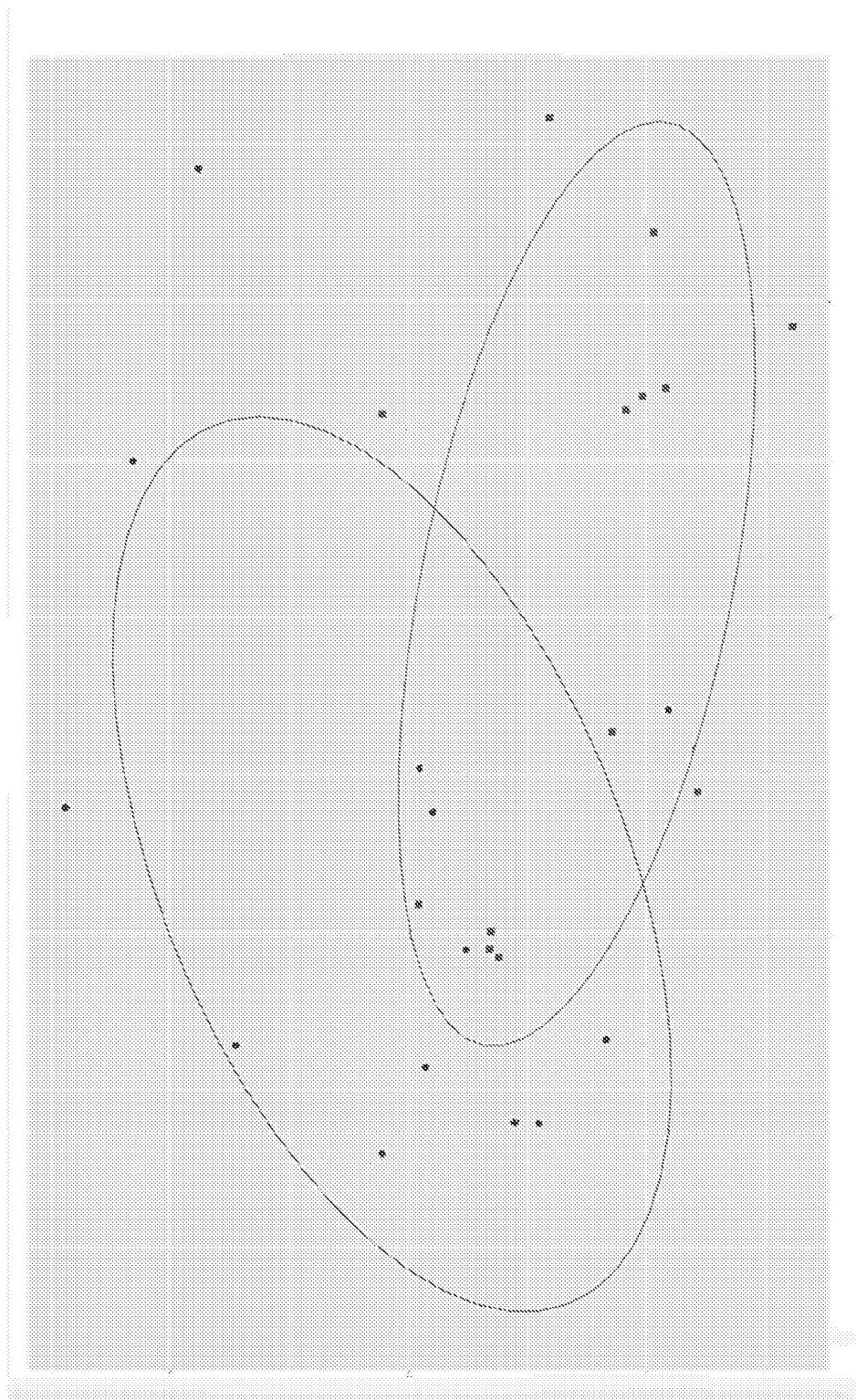
**Figure 18**

SUBSTITUTE SHEET (RULE 26)

**Figure 19**

SUBSTITUTE SHEET (RULE 26)

22/29

**Figure 20**

SUBSTITUTE SHEET (RULE 26)

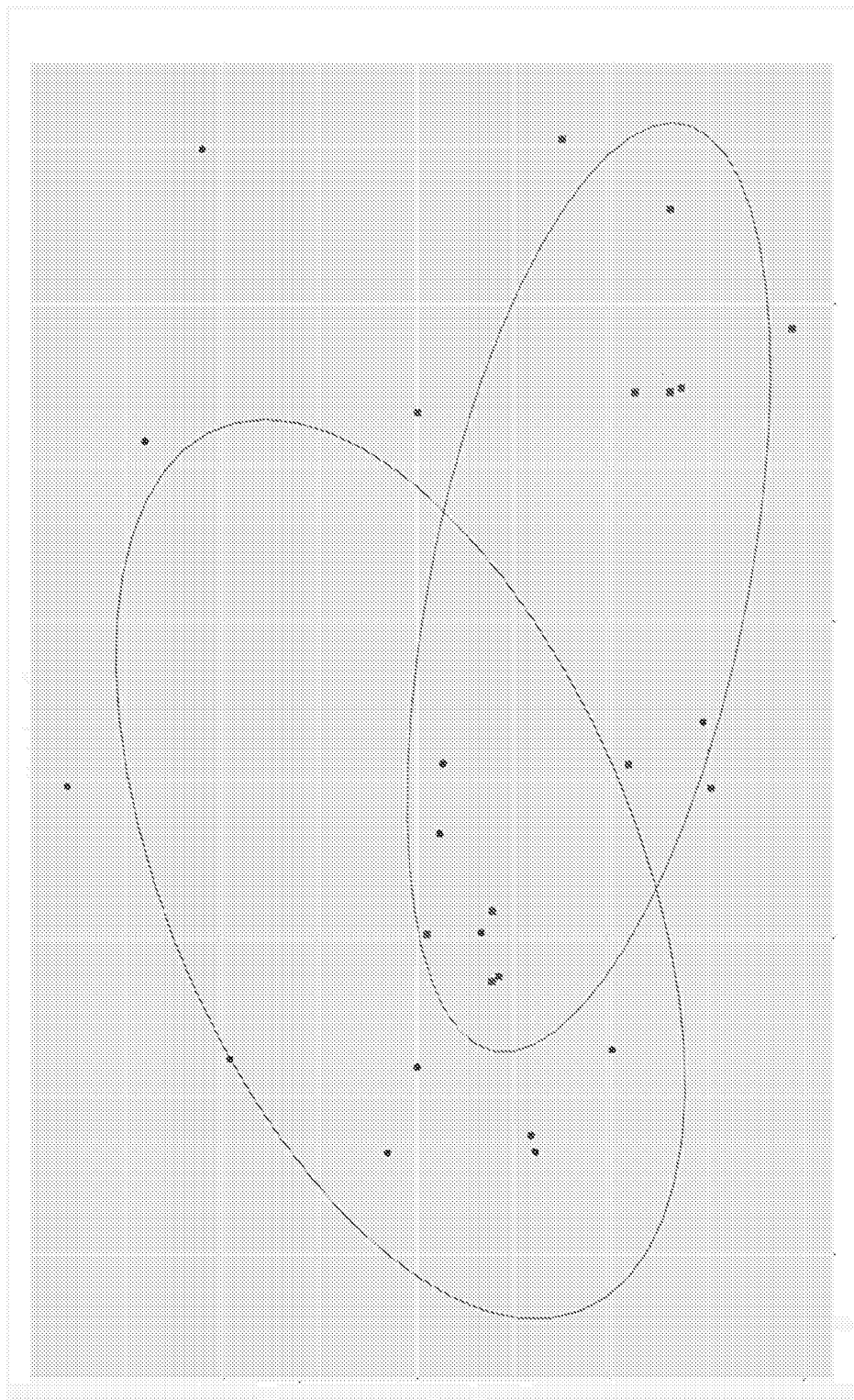


Figure 21

SUBSTITUTE SHEET (RULE 26)

24/29

Confusion Matrix and Statistics

	Reference	
Prediction	NR	R
NR	39	0
R	0	39

Accuracy : 1
95% CI : (0.9538, 1)
No Information Rate : 0.5
P-Value [Acc > NIR] : < 2.2e-16

Kappa : 1

Mcnemar's Test P-Value : NA

Sensitivity : 1.0
Specificity : 1.0
Pos Pred Value : 1.0
Neg Pred Value : 1.0
Prevalence : 0.5
Detection Rate : 0.5
Detection Prevalence : 0.5
Balanced Accuracy : 1.0

'Positive' Class : R

Figure 22

25/29

Confusion Matrix and Statistics

	Reference	
Prediction	NR	R
NR	10	2
R	2	10

Accuracy : 0.8333
95% CI : (0.6262, 0.9526)
No Information Rate : 0.5
P-Value [Acc > NIR] : 0.0007719

Kappa : 0.6667

McNemar's Test P-Value : 1.0000000

Sensitivity : 0.8333
Specificity : 0.8333
Pos Pred Value : 0.8333
Neg Pred Value : 0.8333
Prevalence : 0.5000
Detection Rate : 0.4167
Detection Prevalence : 0.5000
Balanced Accuracy : 0.8333

'Positive' Class : R

Figure 23

SUBSTITUTE SHEET (RULE 26)

26/29

Confusion Matrix and Statistics

	Reference	
Prediction	NR	R
NR	92	2
R	27	7

Accuracy : 0.7734

95% CI : (0.6911, 0.8427)

No Information Rate : 0.9297

P-Value [Acc > NIR] : 1

Kappa : 0.2412

McNemar's Test P-Value : 8.324e-06

Sensitivity : 0.7731

Specificity : 0.7778

Pos Pred Value : 0.9787

Neg Pred Value : 0.2059

Prevalence : 0.9297

Detection Rate : 0.7188

Detection Prevalence : 0.7344

Balanced Accuracy : 0.7754

'Positive' Class : NR

Figure 24

27/29

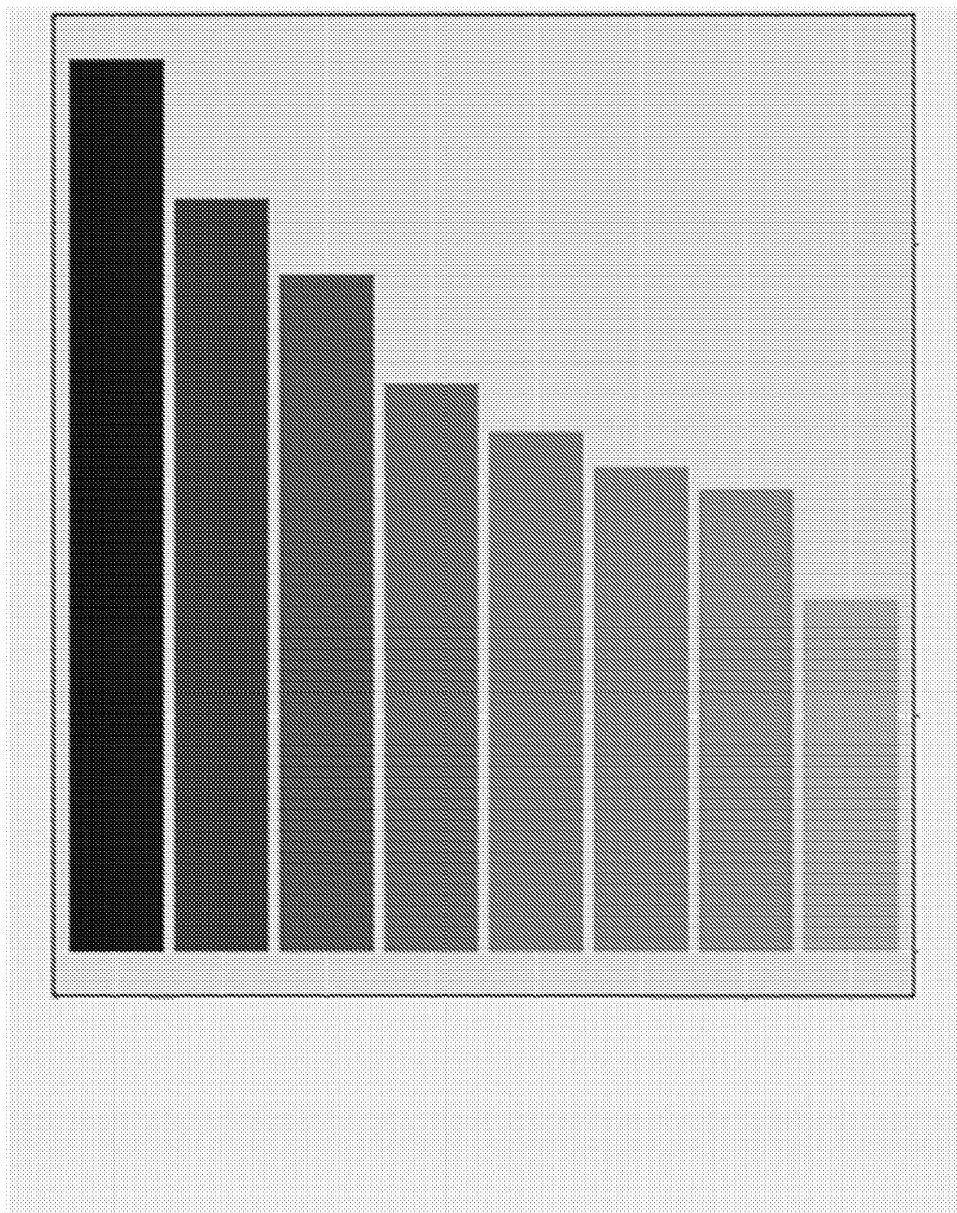


Figure 25

SUBSTITUTE SHEET (RULE 26)

28/29

1	Marker	Gene	Distancede	Rank_Model
2	OBD189_q065_q067	ITK	0	1
3	OBD189_q065_q067	CYFIP2	0	1
4	OBD189_q053_q055	CPB2	0	2
5	OBD189_q053_q055	LCP1	0	2
6	OBD189_q081_q083	IFT88	0	3
7	OBD189_q081_q083	IL17D	3493	3
8	OBD189_q893_q895	CCL8	0	4
9	OBD189_q893_q895	CCL13	0	4
10	OBD189_q893_q895	CCL13	0	4
11	OBD189_q049_q051	TNFSF8	0	5
12	OBD189_q049_q051	TNFSF15	49628	5
13	OBD189_q049_q051	TNC	90160	5
14	OBD189_q029_q031	TNFRSF25	0	6
15	OBD189_q029_q031	PLEKHG5	0	6
16	OBD189_q057_q059	PDCD1LG2	0	7
17	OBD189_q057_q059	CD274	25427	7
18	OBD189_q005_q007	CASP6	0	8
19	OBD189_q005_q007	PLA2G12A	0	8
20	OBD189_q005_q007	CFI	0	8

Figure 26

29/29

	Score	Name	# Matched Genes (Total Genes)	Sources
+	23.30	SuperPath: PEDF Induced Signaling	8 (745)	
+	21.90	SuperPath: NF-kappaB Signaling	6 (327)	
+	19.89	SuperPath: Akt Signaling	7 (682)	
+	19.83	SuperPath: PAK Pathway	7 (686)	
+	17.18	SuperPath: CCR5 Pathway in Macrophages	5 (322)	
+	16.80	SuperPath: Translocation of ZAP-70 to Immunological Synapse	3 (46)	
+	16.44	SuperPath: Apoptosis and Survival Anti-apoptotic TNFs/tNF-kB/Bcl-2 Pathway	3 (50)	
+	16.11	SuperPath: TNF Superfamily - Human Ligand-Receptor Interactions and Their Associated Functions	3 (54)	 RD
+	14.67	SuperPath: ERK Signaling	7 (1185)	
+	13.25	SuperPath: Integrin Pathway	5 (570)	
+	13.19	SuperPath: Chemokine Superfamily: Human/Mouse Ligand-Receptor Interactions	3 (107)	 RD
+	12.74	SuperPath: Death Receptor Signaling	3 (119)	 RD
+	12.14	SuperPath: Innate Immune System	8 (2124)	
+	10.88	SuperPath: Cell Adhesion_Cell-matrix Glycoconjugates	2 (39)	
+	10.82	SuperPath: TRAF Pathway	3 (188)	
+	10.42	SuperPath: TNFR1 Pathway	3 (207)	 RD
+	9.56	SuperPath: IL 10 Signaling Pathway	2 (62)	
+	8.87	SuperPath: TGF-Beta Pathway	4 (653)	
+	8.63	SuperPath: CD28 Co-stimulation	2 (86)	
+	8.57	SuperPath: Complement and Coagulation Cascades	2 (88)	

Figure 27

SUBSTITUTE SHEET (RULE 26)