

Genomics2 Practical4

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```
library(survival)
library(survminer)
```

```
## Loading required package: ggplot2
```

```
## Loading required package: ggpubr
```

```
##
```

```
## Attaching package: 'survminer'
```

```
## The following object is masked from 'package:survival':
```

```
##
```

```
##      myeloma
```

```
setwd("~/Downloads")
```

```
a<-read.table("survival_times",header = TRUE)
```

```
aa<-data.frame(a)
```

```
b<-subset(a,aa$status==0)
```

```
c<-subset(a,aa$status==1)
```

```
summary(b)
```

```
##      ID           time      status
## Length:249      Min.    :  -2    Min.    :0
## Class :character 1st Qu.:  473    1st Qu.:0
## Mode  :character Median : 1146    Median :0
##                      Mean   : 1880    Mean   :0
##                      3rd Qu.: 2659    3rd Qu.:0
##                      Max.    :11252    Max.    :0
##                      NA's    :9
```

```
summary(c)
```

```
##      ID           time      status
## Length:220      Min.    :  0.0    Min.    :1
## Class :character 1st Qu.:  518.8    1st Qu.:1
## Mode  :character Median : 1094.5    Median :1
##                      Mean   : 1790.3    Mean   :1
##                      3rd Qu.: 2080.0    3rd Qu.:1
##                      Max.    :10870.0    Max.    :1
```

```
#compare
```

```
1880-1790.3
```

```
## [1] 89.7
```

```
setwd("~/Downloads")
```

```
ciber<-read.delim("CIBERSORTx_Job1_Adjusted2.txt")
```

```

#summary(ciber)
exa<-ciber[4,]
newciber<- ciber[,c(1,5)]
colnames(newciber)[1]<-'ID'
common<-merge(aa,newciber,by="ID")

design<-ifelse(common$T.cells.CD8>0.2,"CD8high","CD8low")
common<-cbind(common,design)
surv_object<-Surv(common$time,common$status)
survfit_object<-survfit(surv_object~common$design)
summary(survfit_object)

```

```

## Call: survfit(formula = surv_object ~ common$design)
##
## 9 observations deleted due to missingness
##               common$design=CD8high
##   time  n.risk  n.event  survival  std.err  lower 95% CI  upper 95% CI
##   216    154      1      0.994  0.00647      0.981      1.000
##   282    152      1      0.987  0.00915      0.969      1.000
##   315    148      1      0.980  0.01126      0.958      1.000
##   326    146      1      0.974  0.01303      0.948      0.999
##   424    136      1      0.966  0.01477      0.938      0.996
##   447    135      1      0.959  0.01631      0.928      0.992
##   468    133      1      0.952  0.01771      0.918      0.987
##   549    131      1      0.945  0.01901      0.908      0.983
##   601    126      1      0.937  0.02028      0.898      0.978
##   608    125      1      0.930  0.02146      0.889      0.973
##   650    122      1      0.922  0.02260      0.879      0.968
##   659    120      1      0.914  0.02368      0.869      0.962
##   710    117      1      0.907  0.02473      0.859      0.956
##   723    115      1      0.899  0.02574      0.850      0.951
##   821    111      1      0.891  0.02675      0.840      0.945
##   857    109      1      0.883  0.02773      0.830      0.939
##   877    108      2      0.866  0.02953      0.810      0.926
##   938    104      1      0.858  0.03039      0.800      0.920
##   955    103      1      0.850  0.03122      0.790      0.913
##   961    102      1      0.841  0.03200      0.781      0.906
##  1026    100      1      0.833  0.03277      0.771      0.900
##  1032     99      1      0.824  0.03350      0.761      0.893
##  1059     98      1      0.816  0.03420      0.752      0.886
##  1078     97      1      0.808  0.03487      0.742      0.879
##  1096     95      1      0.799  0.03552      0.732      0.872
##  1124     94      1      0.791  0.03615      0.723      0.865
##  1154     92      1      0.782  0.03676      0.713      0.857
##  1321     86      1      0.773  0.03744      0.703      0.850
##  1354     85      1      0.764  0.03809      0.693      0.842
##  1429     83      1      0.755  0.03872      0.682      0.834
##  1441     82      1      0.745  0.03933      0.672      0.827
##  1446     81      1      0.736  0.03991      0.662      0.819
##  1490     78      1      0.727  0.04050      0.652      0.811
##  1618     73      1      0.717  0.04115      0.640      0.802
##  1832     65      1      0.706  0.04197      0.628      0.793
##  1857     64      1      0.695  0.04273      0.616      0.784
##  1871     63      1      0.684  0.04345      0.604      0.774

```

```

## 1917      62      1    0.673 0.04413      0.591      0.765
## 1960      59      1    0.661 0.04483      0.579      0.755
## 1992      58      1    0.650 0.04548      0.567      0.745
## 2004      57      1    0.638 0.04609      0.554      0.735
## 2022      55      1    0.627 0.04669      0.542      0.725
## 2028      53      1    0.615 0.04729      0.529      0.715
## 2073      51      1    0.603 0.04787      0.516      0.704
## 2101      49      1    0.591 0.04845      0.503      0.694
## 2270      46      1    0.578 0.04907      0.489      0.682
## 2927      37      1    0.562 0.05017      0.472      0.670
## 3141      34      1    0.546 0.05135      0.454      0.656
## 3195      32      1    0.529 0.05250      0.435      0.642
## 3379      31      1    0.512 0.05350      0.417      0.628
## 3564      30      1    0.495 0.05437      0.399      0.613
## 4507      22      1    0.472 0.05635      0.374      0.596
## 4634      19      1    0.447 0.05861      0.346      0.578
## 4930      16      1    0.419 0.06125      0.315      0.558
## 6225       8      1    0.367 0.07263      0.249      0.541
## 6590       7      1    0.314 0.07893      0.192      0.514
##
##
##               common$design=CD8low
##   time n.risk n.event survival std.err lower 95% CI upper 95% CI
##    0      299      1    0.9967 0.00334    0.9901      1.000
##   79      290      1    0.9932 0.00478    0.9839      1.000
##  122      288      1    0.9898 0.00588    0.9783      1.000
##  151      286      1    0.9863 0.00680    0.9731      1.000
##  190      285      1    0.9828 0.00761    0.9681      0.998
##  196      284      1    0.9794 0.00833    0.9632      0.996
##  205      283      1    0.9759 0.00899    0.9585      0.994
##  237      278      1    0.9724 0.00962    0.9537      0.991
##  263      277      1    0.9689 0.01020    0.9491      0.989
##  264      276      1    0.9654 0.01075    0.9445      0.987
##  270      275      1    0.9619 0.01127    0.9400      0.984
##  274      274      1    0.9584 0.01177    0.9356      0.982
##  279      272      1    0.9549 0.01224    0.9312      0.979
##  284      271      1    0.9513 0.01269    0.9268      0.977
##  295      270      1    0.9478 0.01312    0.9224      0.974
##  308      268      1    0.9443 0.01354    0.9181      0.971
##  317      267      1    0.9407 0.01395    0.9138      0.968
##  319      266      1    0.9372 0.01434    0.9095      0.966
##  321      265      1    0.9337 0.01471    0.9053      0.963
##  326      262      1    0.9301 0.01508    0.9010      0.960
##  347      259      1    0.9265 0.01544    0.8967      0.957
##  352      258      1    0.9229 0.01580    0.8925      0.954
##  361      256      1    0.9193 0.01614    0.8882      0.951
##  368      255      2    0.9121 0.01680    0.8798      0.946
##  369      253      1    0.9085 0.01712    0.8756      0.943
##  383      250      1    0.9049 0.01743    0.8713      0.940
##  393      247      1    0.9012 0.01774    0.8671      0.937
##  394      246      1    0.8975 0.01804    0.8629      0.934
##  395      245      1    0.8939 0.01834    0.8586      0.931
##  396      244      1    0.8902 0.01862    0.8544      0.927
##  401      242      1    0.8865 0.01891    0.8502      0.924
##  412      238      1    0.8828 0.01919    0.8460      0.921

```

##	420	235	1	0.8790	0.01947	0.8417	0.918
##	422	234	1	0.8753	0.01975	0.8374	0.915
##	423	233	1	0.8715	0.02002	0.8332	0.912
##	425	232	1	0.8678	0.02028	0.8289	0.908
##	426	231	1	0.8640	0.02054	0.8247	0.905
##	430	230	1	0.8603	0.02079	0.8205	0.902
##	454	223	1	0.8564	0.02105	0.8161	0.899
##	467	221	1	0.8525	0.02131	0.8118	0.895
##	469	220	1	0.8487	0.02156	0.8074	0.892
##	470	219	1	0.8448	0.02181	0.8031	0.889
##	472	218	1	0.8409	0.02205	0.7988	0.885
##	504	212	1	0.8369	0.02230	0.7943	0.882
##	507	210	1	0.8330	0.02255	0.7899	0.878
##	516	209	1	0.8290	0.02279	0.7855	0.875
##	518	208	1	0.8250	0.02303	0.7811	0.871
##	519	207	1	0.8210	0.02326	0.7767	0.868
##	545	204	1	0.8170	0.02349	0.7722	0.864
##	561	201	1	0.8129	0.02372	0.7677	0.861
##	566	200	1	0.8088	0.02395	0.7632	0.857
##	613	195	1	0.8047	0.02418	0.7587	0.854
##	619	194	1	0.8005	0.02441	0.7541	0.850
##	620	193	1	0.7964	0.02463	0.7496	0.846
##	636	191	2	0.7881	0.02507	0.7404	0.839
##	673	186	1	0.7838	0.02529	0.7358	0.835
##	698	183	1	0.7795	0.02551	0.7311	0.831
##	721	181	1	0.7752	0.02573	0.7264	0.827
##	728	180	1	0.7709	0.02595	0.7217	0.823
##	730	179	1	0.7666	0.02616	0.7170	0.820
##	746	177	1	0.7623	0.02637	0.7123	0.816
##	787	171	1	0.7578	0.02659	0.7075	0.812
##	802	169	1	0.7533	0.02681	0.7026	0.808
##	808	166	1	0.7488	0.02703	0.6977	0.804
##	813	165	1	0.7443	0.02724	0.6927	0.800
##	818	164	1	0.7397	0.02745	0.6878	0.796
##	822	162	1	0.7352	0.02766	0.6829	0.791
##	824	161	1	0.7306	0.02786	0.6780	0.787
##	828	160	1	0.7260	0.02806	0.6731	0.783
##	832	158	1	0.7214	0.02825	0.6681	0.779
##	841	156	1	0.7168	0.02845	0.6632	0.775
##	843	155	1	0.7122	0.02864	0.6582	0.771
##	854	153	2	0.7029	0.02901	0.6483	0.762
##	874	151	1	0.6982	0.02919	0.6433	0.758
##	875	150	1	0.6936	0.02936	0.6383	0.754
##	884	149	1	0.6889	0.02953	0.6334	0.749
##	907	148	1	0.6843	0.02970	0.6285	0.745
##	988	147	1	0.6796	0.02986	0.6235	0.741
##	996	146	1	0.6749	0.03001	0.6186	0.736
##	1044	141	1	0.6702	0.03018	0.6135	0.732
##	1070	140	1	0.6654	0.03034	0.6085	0.728
##	1093	139	1	0.6606	0.03050	0.6034	0.723
##	1103	138	1	0.6558	0.03065	0.5984	0.719
##	1195	134	1	0.6509	0.03081	0.5932	0.714
##	1235	130	1	0.6459	0.03098	0.5879	0.710
##	1265	129	1	0.6409	0.03114	0.5827	0.705

##	1280	128	1	0.6359	0.03130	0.5774	0.700
##	1301	127	1	0.6309	0.03145	0.5722	0.696
##	1315	126	1	0.6259	0.03160	0.5669	0.691
##	1333	125	1	0.6209	0.03174	0.5617	0.686
##	1341	124	1	0.6159	0.03187	0.5565	0.682
##	1413	121	1	0.6108	0.03201	0.5511	0.677
##	1424	120	1	0.6057	0.03215	0.5458	0.672
##	1438	118	1	0.6005	0.03228	0.5405	0.667
##	1460	117	1	0.5954	0.03241	0.5352	0.662
##	1478	116	1	0.5903	0.03254	0.5298	0.658
##	1486	115	1	0.5851	0.03266	0.5245	0.653
##	1487	114	1	0.5800	0.03277	0.5192	0.648
##	1506	111	1	0.5748	0.03289	0.5138	0.643
##	1524	110	1	0.5696	0.03300	0.5084	0.638
##	1525	109	1	0.5643	0.03311	0.5030	0.633
##	1544	108	1	0.5591	0.03322	0.4977	0.628
##	1548	107	1	0.5539	0.03331	0.4923	0.623
##	1628	106	1	0.5487	0.03341	0.4869	0.618
##	1640	105	1	0.5434	0.03349	0.4816	0.613
##	1655	103	1	0.5382	0.03358	0.4762	0.608
##	1691	100	1	0.5328	0.03367	0.4707	0.603
##	1766	98	1	0.5273	0.03377	0.4651	0.598
##	1780	97	1	0.5219	0.03385	0.4596	0.593
##	1807	93	1	0.5163	0.03395	0.4539	0.587
##	1860	91	1	0.5106	0.03405	0.4481	0.582
##	1864	90	1	0.5049	0.03414	0.4423	0.576
##	1910	88	1	0.4992	0.03423	0.4364	0.571
##	1927	86	1	0.4934	0.03432	0.4305	0.565
##	2005	82	1	0.4874	0.03443	0.4244	0.560
##	2030	81	1	0.4814	0.03452	0.4182	0.554
##	2071	80	1	0.4754	0.03461	0.4121	0.548
##	2184	78	1	0.4693	0.03470	0.4059	0.542
##	2192	77	1	0.4632	0.03478	0.3998	0.537
##	2273	75	1	0.4570	0.03486	0.3935	0.531
##	2402	71	1	0.4506	0.03496	0.3870	0.525
##	2421	70	1	0.4441	0.03505	0.3805	0.518
##	2454	68	1	0.4376	0.03514	0.3739	0.512
##	2470	67	1	0.4311	0.03521	0.3673	0.506
##	2588	66	1	0.4245	0.03528	0.3607	0.500
##	2711	63	1	0.4178	0.03536	0.3539	0.493
##	2829	61	1	0.4109	0.03544	0.3470	0.487
##	2889	60	1	0.4041	0.03550	0.3402	0.480
##	2993	58	1	0.3971	0.03557	0.3332	0.473
##	3106	56	1	0.3900	0.03563	0.3261	0.467
##	3136	55	1	0.3829	0.03568	0.3190	0.460
##	3139	54	1	0.3758	0.03572	0.3120	0.453
##	3259	51	1	0.3685	0.03577	0.3046	0.446
##	3424	49	1	0.3610	0.03582	0.2972	0.438
##	3453	48	1	0.3534	0.03586	0.2897	0.431
##	3587	45	1	0.3456	0.03591	0.2819	0.424
##	3683	44	1	0.3377	0.03594	0.2741	0.416
##	3869	38	1	0.3288	0.03608	0.2652	0.408
##	3943	36	1	0.3197	0.03621	0.2561	0.399
##	4000	35	1	0.3106	0.03631	0.2470	0.391

##	4062	34	1	0.3014	0.03638	0.2379	0.382
##	4222	30	1	0.2914	0.03652	0.2279	0.373
##	4601	26	1	0.2802	0.03680	0.2166	0.362
##	4648	25	1	0.2690	0.03699	0.2054	0.352
##	5101	24	1	0.2578	0.03711	0.1944	0.342
##	5107	23	1	0.2466	0.03715	0.1835	0.331
##	5110	22	1	0.2354	0.03711	0.1728	0.321
##	5118	21	1	0.2241	0.03700	0.1622	0.310
##	5237	19	1	0.2123	0.03689	0.1511	0.298
##	5318	18	1	0.2006	0.03668	0.1401	0.287
##	5370	17	1	0.1888	0.03637	0.1294	0.275
##	6164	13	1	0.1742	0.03635	0.1158	0.262
##	6598	12	1	0.1597	0.03611	0.1025	0.249
##	6873	10	1	0.1437	0.03585	0.0882	0.234
##	6953	9	1	0.1278	0.03525	0.0744	0.219
##	7514	8	1	0.1118	0.03427	0.0613	0.204
##	8174	7	1	0.0958	0.03289	0.0489	0.188
##	9061	6	1	0.0799	0.03104	0.0373	0.171
##	10346	4	1	0.0599	0.02900	0.0232	0.155
##	10870	3	1	0.0399	0.02529	0.0115	0.138

```
ggsurvplot(survfit_object, data = common, risk.table = TRUE, pval = TRUE, conf.int = TRUE, legend.labs =
```

