

tSNE on patient and cell line proteomics, all values

Data import

```
data_read<-read.table("Merged_Fold_change_all_values.txt",sep="\t",header=TRUE)

library(tsnr)
data_read$SampleType<-gsub("Cellline", "C", data_read$SampleType)
data_read$SampleType<-gsub("Patient", "P", data_read$SampleType)

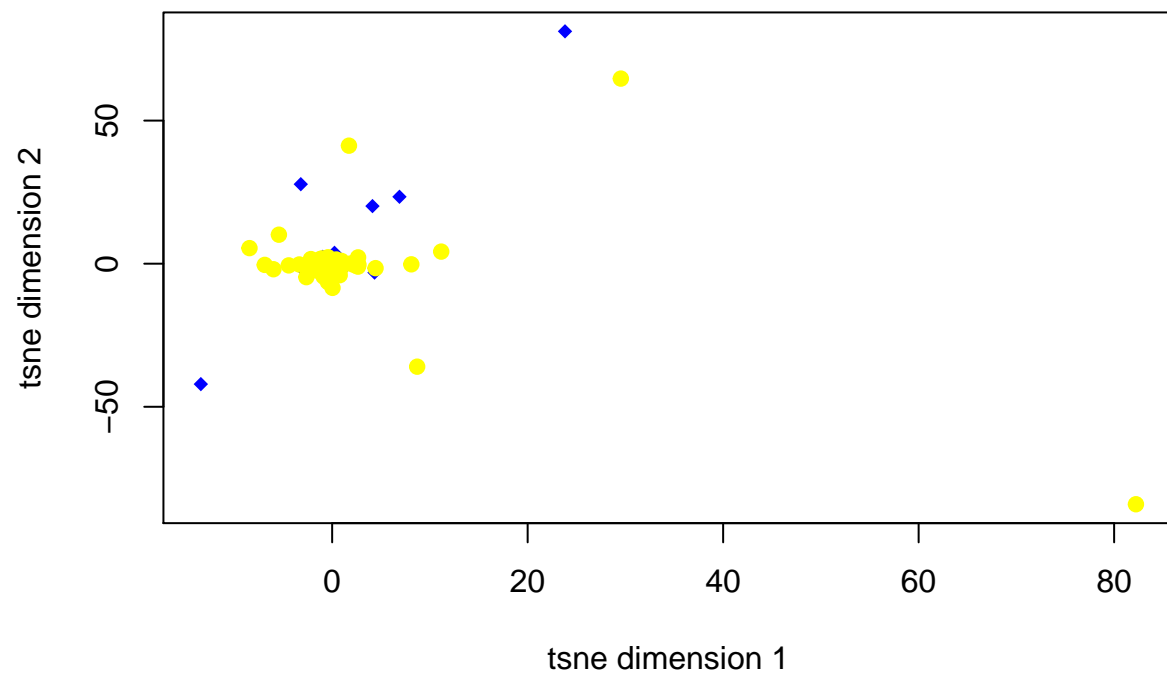
colors = c("blue", "yellow")
shapes=c(18,19)
names(colors) = unique(data_read$SampleType)
names(shapes) = unique(data_read$SampleType)
ecb = function(x,y){ plot(x,t='p', xlab = "tsne dimension 1", ylab = "tsne dimension 2", pch=shapes[data_read$SampleType])

set.seed(27)
tsne(data_read[,4:56], initial_config = NULL, k = 2, initial_dims = 30, perplexity = 30,
max_iter = 1000, min_cost = 0, epoch_callback = ecb, whiten = TRUE,
epoch=100)

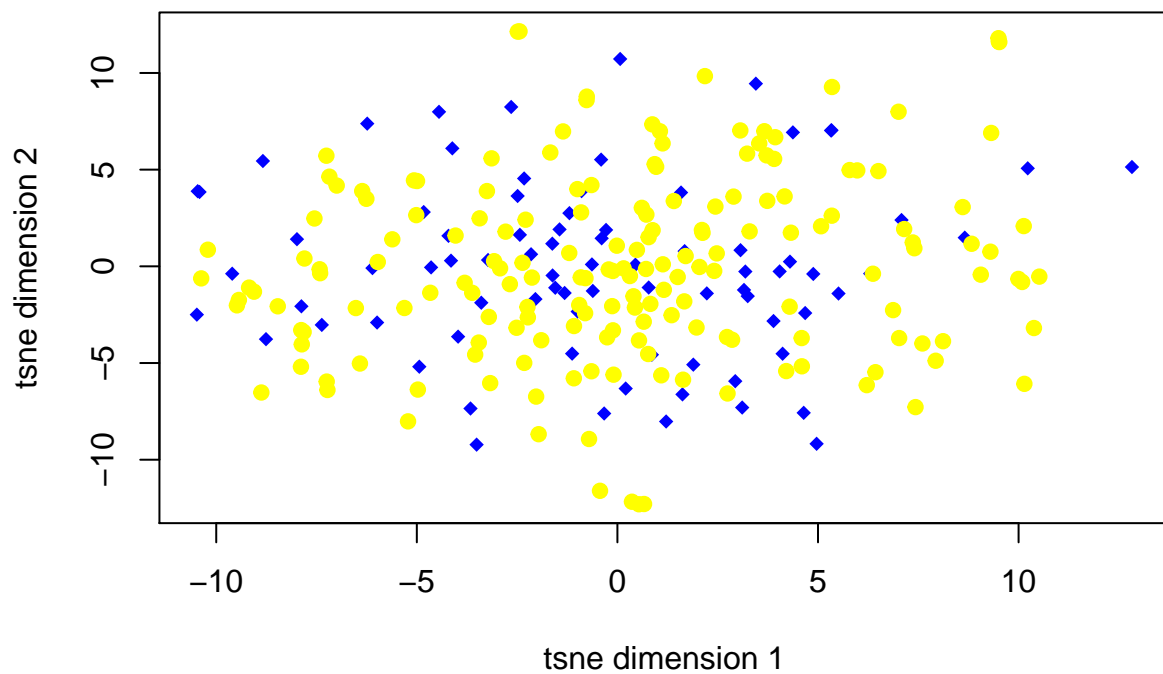
## sigma summary: Min. : 0.383805076519123 |1st Qu. : 0.556453441667144 |Median : 0.598523049535778 |Me

## Epoch: Iteration #100 error is: 20.5777346493586

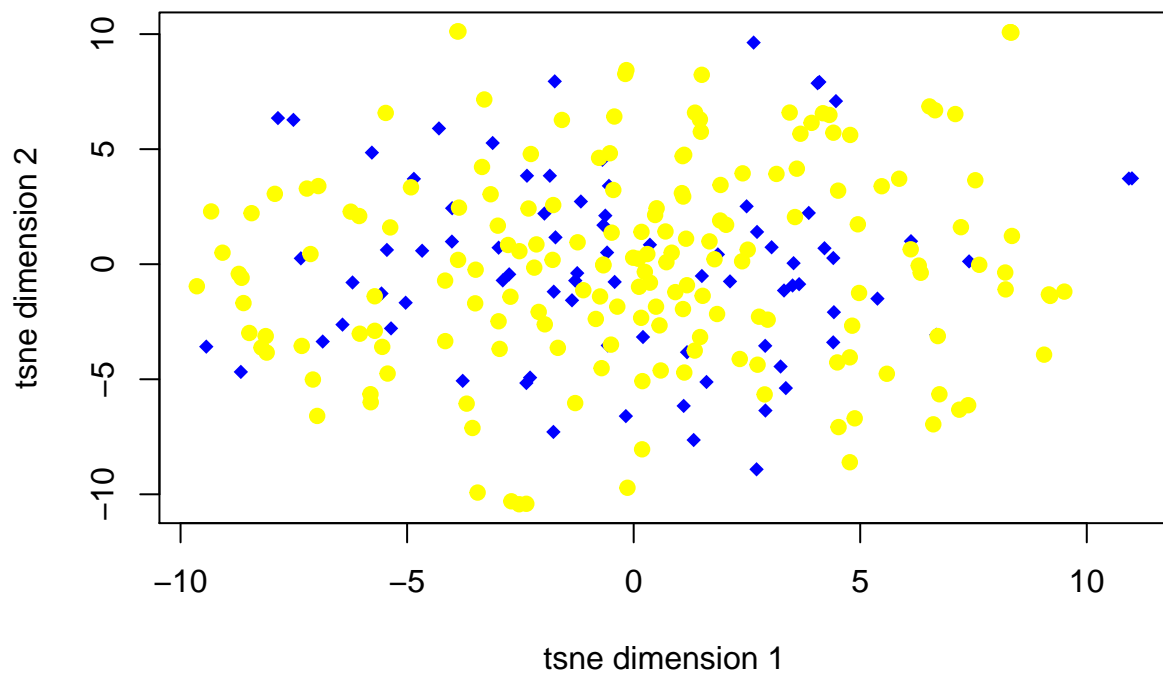
## Epoch: Iteration #200 error is: 1.23100222897905
```



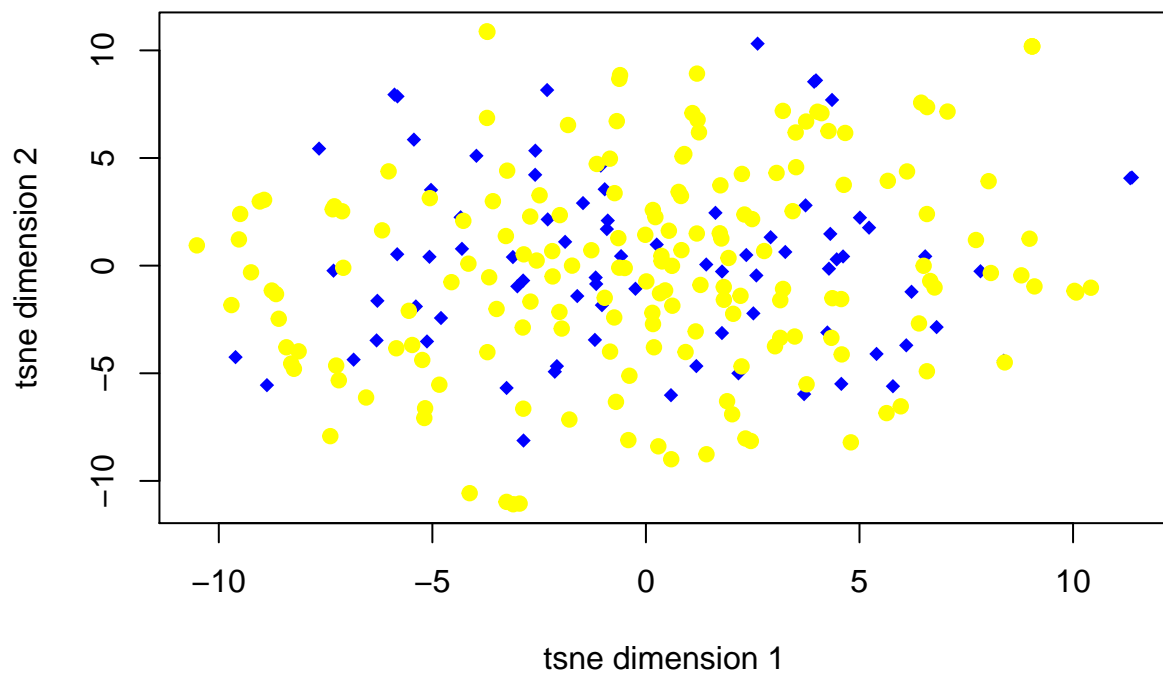
Epoch: Iteration #300 error is: 1.1748679396361



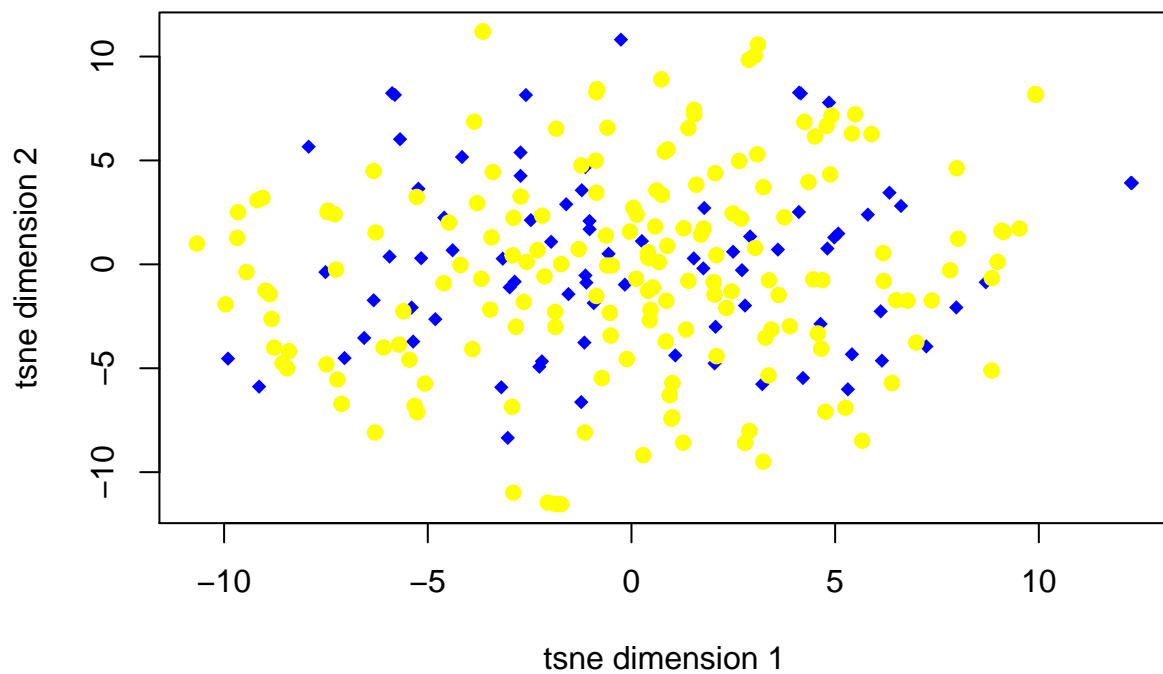
Epoch: Iteration #400 error is: 1.14829795782868



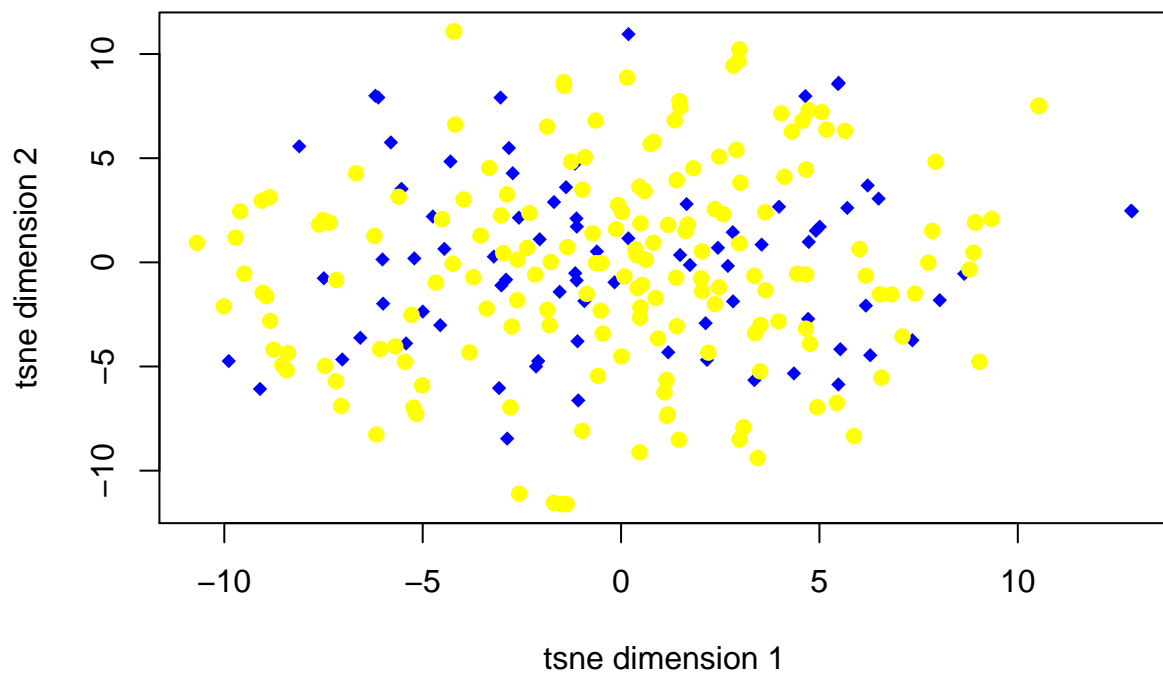
Epoch: Iteration #500 error is: 1.14534415091721



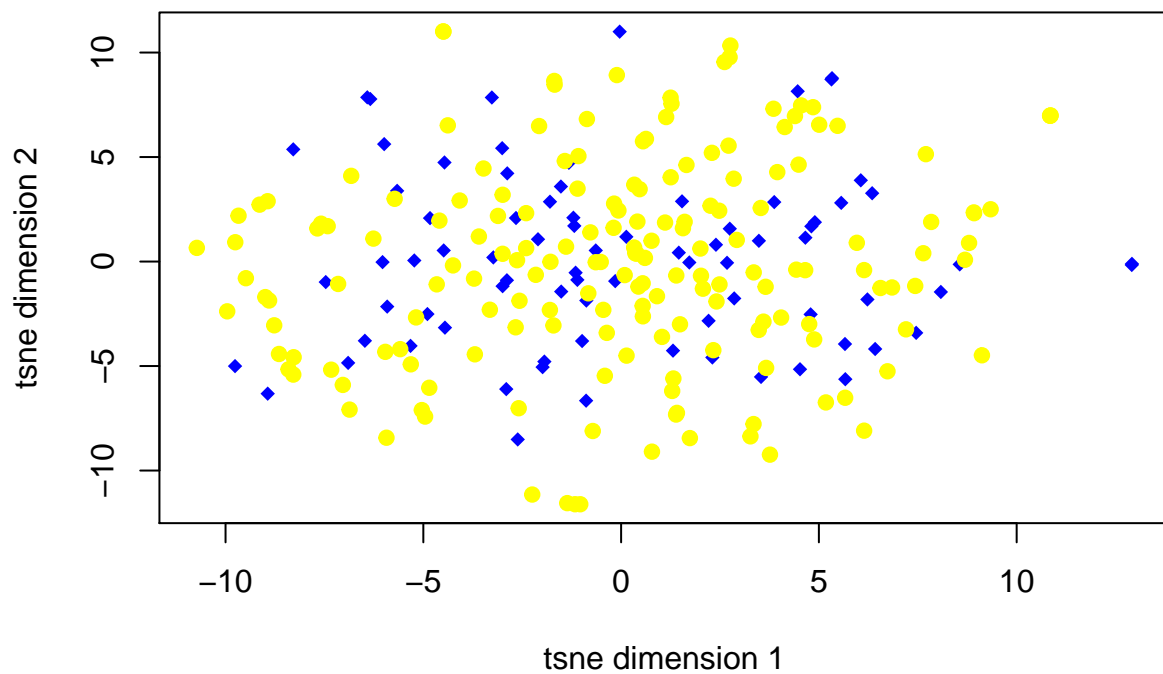
Epoch: Iteration #600 error is: 1.14485447921925



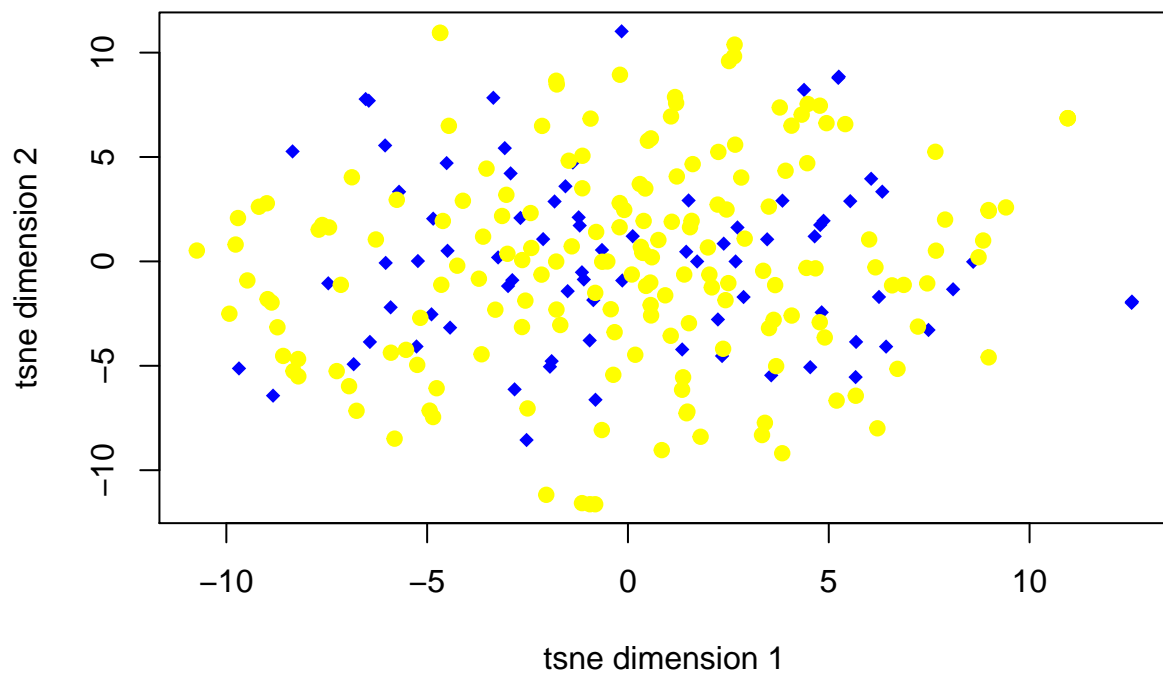
Epoch: Iteration #700 error is: 1.14473478511573



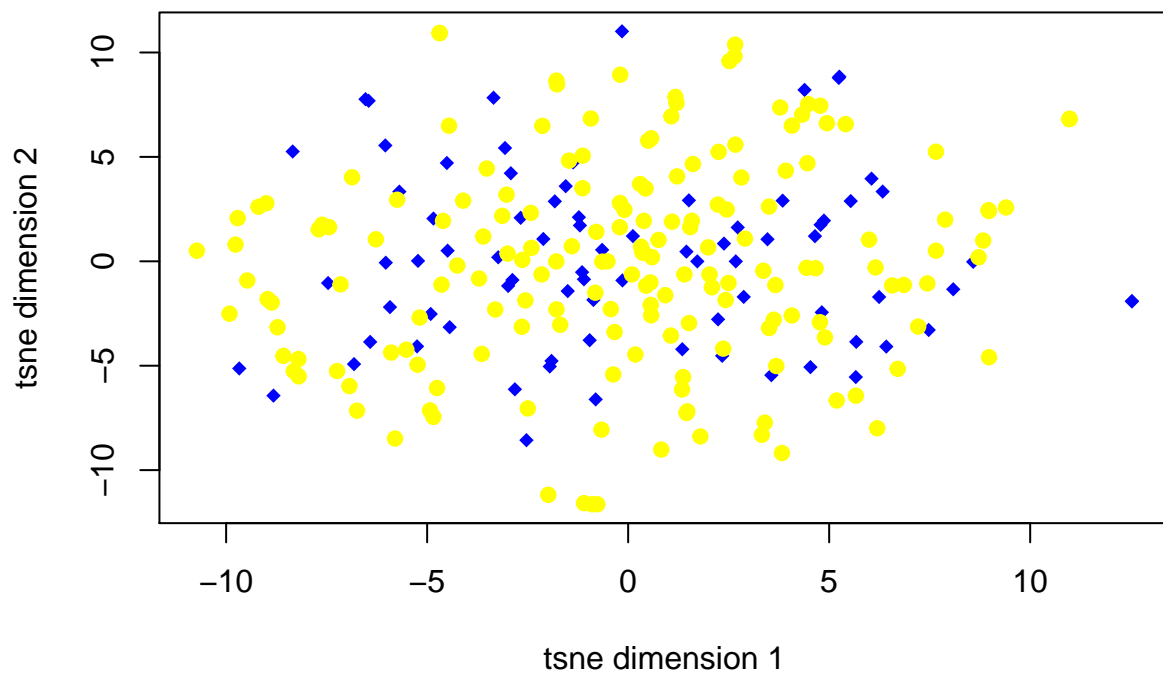
Epoch: Iteration #800 error is: 1.14468097567394

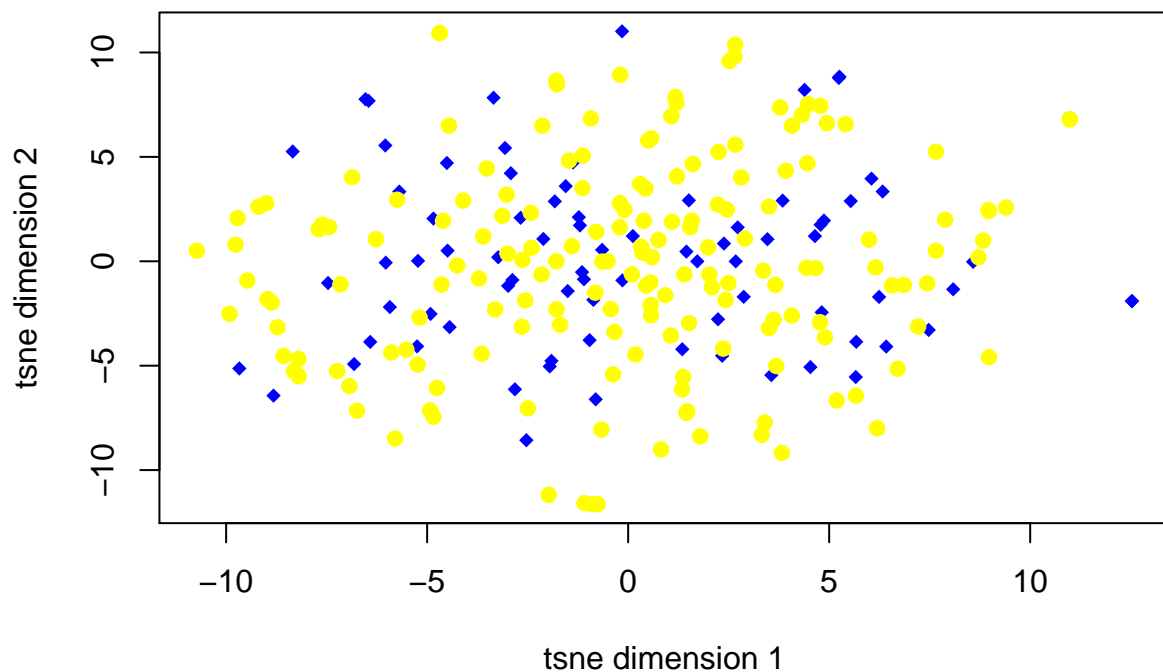


Epoch: Iteration #900 error is: 1.14467784675959



Epoch: Iteration #1000 error is: 1.14467778396214





##		[,1]	[,2]
##	[1,]	-0.15160700	11.011587769
##	[2,]	-5.69077157	3.335127865
##	[3,]	-3.34820807	7.832574548
##	[4,]	1.51002956	2.918542019
##	[5,]	-1.95042149	-5.035817287
##	[6,]	-4.50914043	4.707453487
##	[7,]	-0.95891824	-3.778109789
##	[8,]	-0.14225328	-0.914399212
##	[9,]	-1.82473110	2.870144431
##	[10,]	-3.06318439	5.425247912
##	[11,]	-6.02902784	-0.066027893
##	[12,]	-0.86453705	-1.848668515
##	[13,]	2.38304232	0.848955012
##	[14,]	12.53159138	-1.906055374
##	[15,]	12.53089698	-1.906534725
##	[16,]	-0.80776992	-6.610032165
##	[17,]	-6.04076534	5.547647109
##	[18,]	3.46544525	1.056170756
##	[19,]	1.71943329	-0.002800907
##	[20,]	1.44909463	0.463369315
##	[21,]	-5.92737793	-2.192306535
##	[22,]	-2.10979262	1.068976448
##	[23,]	6.33107620	3.340293307
##	[24,]	2.72501076	1.622580590
##	[25,]	-4.91477222	-2.521164395

##	[26,]	-6.41581479	-3.861805374
##	[27,]	5.24102448	8.779774362
##	[28,]	5.25478889	8.838704966
##	[29,]	5.53664182	2.885199750
##	[30,]	-1.36817351	4.737030562
##	[31,]	-9.67115166	-5.133104523
##	[32,]	5.66206557	-5.542000703
##	[33,]	1.34615121	-4.211281868
##	[34,]	5.67311562	-3.857416283
##	[35,]	4.53338556	-5.067784737
##	[36,]	-2.53134657	-8.569778988
##	[37,]	6.24102614	-1.708032074
##	[38,]	-2.91788479	4.216285197
##	[39,]	-4.84321841	2.046183303
##	[40,]	6.05306079	3.957593948
##	[41,]	-2.81678179	-6.131204988
##	[42,]	-2.87881508	-0.894873294
##	[43,]	-2.98463389	-1.177213201
##	[44,]	-3.23197110	0.192875718
##	[45,]	-8.34424687	5.257272254
##	[46,]	-6.81723739	-4.923677282
##	[47,]	2.67642887	-0.003474218
##	[48,]	-1.90777039	-4.770407020
##	[49,]	-1.14655265	-0.520510712
##	[50,]	7.47485722	-3.288860578
##	[51,]	2.33876155	-4.525644796
##	[52,]	-1.55330016	3.598217585
##	[53,]	2.23543390	-2.778104605
##	[54,]	-2.67401295	2.083166789
##	[55,]	4.81591522	-2.441949358
##	[56,]	-4.44124986	-3.152092515
##	[57,]	4.38826305	8.207136979
##	[58,]	4.87047351	1.949648541
##	[59,]	4.78630900	1.749081207
##	[60,]	4.64598135	1.205736450
##	[61,]	-7.46429571	-1.040126642
##	[62,]	-1.22591173	2.110584395
##	[63,]	3.84245323	2.905112905
##	[64,]	-1.19998337	1.718538809
##	[65,]	8.58097864	-0.025545730
##	[66,]	-8.82070986	-6.433935518
##	[67,]	-6.45571885	7.684812376
##	[68,]	8.95613205	-4.554444738
##	[69,]	-6.53404266	7.763230254
##	[70,]	3.56157245	-5.451056980
##	[71,]	-5.22753105	0.020118873
##	[72,]	6.42022282	-4.083955782
##	[73,]	-1.09964575	-0.862481980
##	[74,]	-4.49143169	0.509664852
##	[75,]	-1.50339373	-1.424701045
##	[76,]	-5.24990624	-4.072629582
##	[77,]	-0.64732180	0.547051600
##	[78,]	0.11794095	1.207649517
##	[79,]	2.87478999	-1.703058559

##	[80,]	8.08554460	-1.340460288
##	[81,]	-7.23922053	-5.255439239
##	[82,]	0.38862461	0.406089052
##	[83,]	0.44835934	-1.170800996
##	[84,]	0.35603336	0.422200845
##	[85,]	0.32046955	0.695413459
##	[86,]	-8.71977816	-3.159195306
##	[87,]	-7.61064705	1.752448664
##	[88,]	-4.60440769	1.937498206
##	[89,]	-0.33794964	-3.385233240
##	[90,]	-4.10456735	2.905224199
##	[91,]	-3.60410781	1.188174575
##	[92,]	-0.09163547	2.464479528
##	[93,]	4.76924180	-2.915336621
##	[94,]	2.66823538	5.586915511
##	[95,]	2.02409989	-0.630598599
##	[96,]	-8.57294903	-4.531481839
##	[97,]	-1.69052889	-3.041592643
##	[98,]	-3.70956782	-0.823485642
##	[99,]	3.50636903	-3.193708527
##	[100,]	-3.12923282	2.177499623
##	[101,]	-8.19370609	-5.509806934
##	[102,]	4.77878807	7.449849545
##	[103,]	4.47843823	7.531577708
##	[104,]	4.32743927	7.022013528
##	[105,]	2.52243469	9.587932686
##	[106,]	-3.51660013	4.445544753
##	[107,]	-1.76991899	8.473499234
##	[108,]	-0.19693380	8.933991915
##	[109,]	-1.78396459	8.651949567
##	[110,]	8.97133686	2.408906998
##	[111,]	-6.74285097	-7.152694416
##	[112,]	0.92432174	-1.622477679
##	[113,]	1.36570593	-5.541547264
##	[114,]	-4.64209803	-1.116376823
##	[115,]	0.75652507	1.025123108
##	[116,]	7.65577497	0.507671591
##	[117,]	8.82941580	0.993213538
##	[118,]	5.41022859	6.567419345
##	[119,]	1.51383243	-2.956454205
##	[120,]	4.94403146	6.614405260
##	[121,]	-10.72826659	0.507534594
##	[122,]	0.29757978	3.702555654
##	[123,]	-1.13007048	5.057929117
##	[124,]	-1.13438833	3.500607620
##	[125,]	3.50395147	2.621520008
##	[126,]	-3.64278354	-4.432840823
##	[127,]	-0.79188393	1.410763744
##	[128,]	5.99054193	1.034240042
##	[129,]	0.17966505	-4.462217424
##	[130,]	7.44167687	-1.058454343
##	[131,]	-7.69488861	1.535046166
##	[132,]	3.36121103	-0.451093108
##	[133,]	-7.44019425	1.638080310

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## [134,] -1.78254637 -2.302093601
## [135,]  0.56113638 -2.087374888
## [136,]  0.81989496 -9.011751487
## [137,]  7.88259357  1.994318763
## [138,] -4.24893446 -0.201862381
## [139,]  1.06198143 -3.556176945
## [140,]  9.39784394  2.575502267
## [141,] -8.20151813 -4.679013017
## [142,] -4.69321847 10.934846238
## [143,] -4.68677269 10.923014853
## [144,]  3.62168091 -2.797147476
## [145,]  4.07104800 -2.594830569
## [146,] -5.79632707 -8.486544899
## [147,] 10.98520499  6.802886168
## [148,] 10.98718107  6.804868249
## [149,] 10.98352139  6.802581180
## [150,]  3.66390406 -1.134915830
## [151,] -5.23631866 -4.951049151
## [152,] -2.63272516  0.068296432
## [153,] -2.40486335  0.644519561
## [154,] -2.99902974  0.368368556
## [155,]  8.96416856  2.448839587
## [156,] -9.91513758 -2.512937773
## [157,] -0.20284459  2.793648515
## [158,]  2.90543923  1.090346003
## [159,]  6.19435825 -7.995816477
## [160,] -0.66637038 -8.059781249
## [161,] -6.93073114 -5.976531982
## [162,]  2.36392392 -4.181113109
## [163,]  8.97725189 -4.592685153
## [164,] -0.81678585 -1.503324844
## [165,] -0.64160425 -0.015323101
## [166,] -2.49476589 -7.046793560
## [167,]  0.38999950  1.937158209
## [168,]  0.55275686 -1.012013194
## [169,]  0.09287861 -0.626434352
## [170,]  2.08398906 -1.244324038
## [171,] -9.47308222 -0.919092235
## [172,] -0.51466142 -0.002434980
## [173,] -1.78613962 -0.006029136
## [174,] -6.27563181  1.055180997
## [175,]  6.56699250 -1.155151862
## [176,] -5.89243655 -4.370472182
## [177,]  0.59306035  0.197544723
## [178,]  3.78313277  7.365832856
## [179,] -2.13310897  6.488154377
## [180,] -0.92772216  6.837595883
## [181,] -9.71276802  2.067723627
## [182,] -9.19512477  2.611061966
## [183,] -9.00248471  2.776862762
## [184,] -5.74504964  2.948785358
## [185,]  3.82399662 -9.180116003
## [186,] -5.51653599 -4.232186294
## [187,]  2.81562504  4.013681468

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## [188,]	4.07338874	6.494874313
## [189,]	1.61047760	4.659052785
## [190,]	4.45866700	4.697868975
## [191,]	-8.96617614	-1.812258002
## [192,]	-1.39874616	0.722648134
## [193,]	-1.46988250	4.822040618
## [194,]	-3.02394157	3.191248267
## [195,]	6.85700317	-1.132235237
## [196,]	1.17597420	7.871084871
## [197,]	6.70458649	-5.149016497
## [198,]	1.07481614	6.943168000
## [199,]	1.20253657	7.580675748
## [200,]	2.24972554	5.240883982
## [201,]	-4.92621878	-7.141521995
## [202,]	0.49905487	5.778443189
## [203,]	0.57327923	5.892252795
## [204,]	1.21571831	4.068072887
## [205,]	0.43358058	3.490613433
## [206,]	-8.31479992	-5.259387517
## [207,]	-0.37317219	-5.415174639
## [208,]	1.09088315	1.896989357
## [209,]	-6.86693449	4.024610451
## [210,]	8.71576140	0.192908855
## [211,]	-9.76492228	0.797785552
## [212,]	2.45267005	2.480722798
## [213,]	2.23249341	2.717321701
## [214,]	-2.42152155	2.318786286
## [215,]	2.49575322	-1.039389811
## [216,]	-4.75271718	-6.067147255
## [217,]	-2.64347688	-3.134051769
## [218,]	4.89408216	-3.643559858
## [219,]	3.68477827	-5.013674657
## [220,]	5.18782665	-6.665446740
## [221,]	-8.86706495	-1.975443956
## [222,]	4.43820459	-0.310614006
## [223,]	1.58380842	1.940472283
## [224,]	3.91993770	4.337007777
## [225,]	4.66289687	-0.330938854
## [226,]	1.79534358	-8.384127920
## [227,]	1.45229252	-7.261299017
## [228,]	1.47167401	-7.182429513
## [229,]	-4.45654988	6.493340392
## [230,]	1.34021770	-6.137278486
## [231,]	-4.84252193	-7.448835644
## [232,]	3.39844090	-7.722811371
## [233,]	3.32442183	-8.308472479
## [234,]	5.66457046	-6.434950914
## [235,]	2.42590512	-1.854486051
## [236,]	-7.15325919	-1.101519919
## [237,]	-0.20768842	1.634517030
## [238,]	1.54353688	1.636427639
## [239,]	7.65699480	5.249478375
## [240,]	1.39832142	-0.627251130
## [241,]	-1.08477537	-11.583483823

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## [242,] -0.75526949 -11.634812135
## [243,] -0.88685652 -11.635078628
## [244,] -0.43163075 -2.288270645
## [245,]  0.57099523 -2.585113904
## [246,]  2.66202030 10.375904671
## [247,]  1.98964327  0.668185745
## [248,]  2.64779193  9.816950434
## [249,]  7.21346158 -3.126837644
## [250,] -1.97449457 -11.183514254
## [251,] -5.18749105 -2.692392568
## [252,] -2.15240243 -0.627959476
## [253,] -3.30767200 -2.305743177
## [254,] -2.55731310 -1.873202460
## [255,]  6.15284157 -0.293197238
```

The tsne plots produced show little if any separation between the two sample types. The final image of this tsne has been saved as "Tsne plot.pdf".