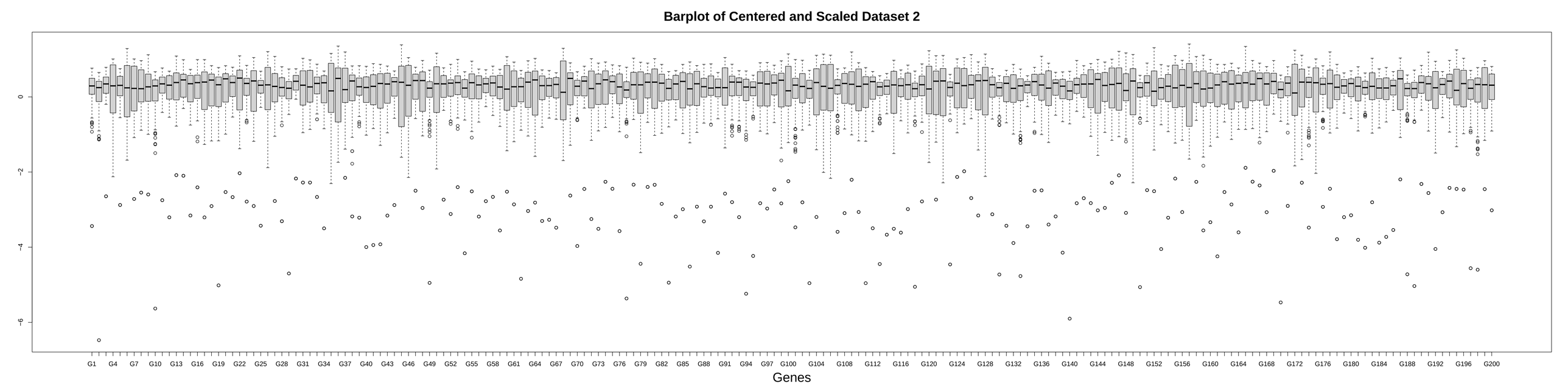
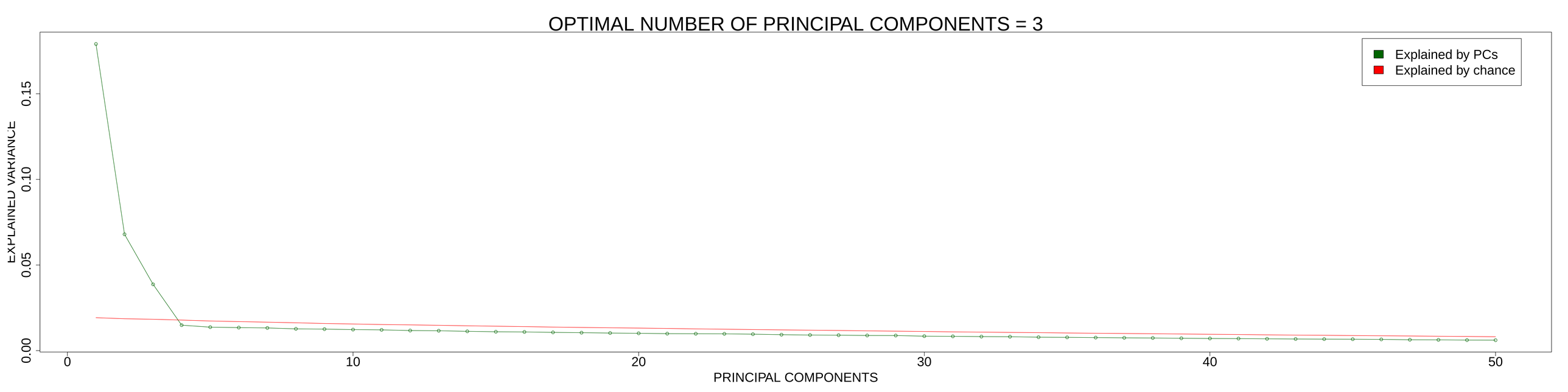
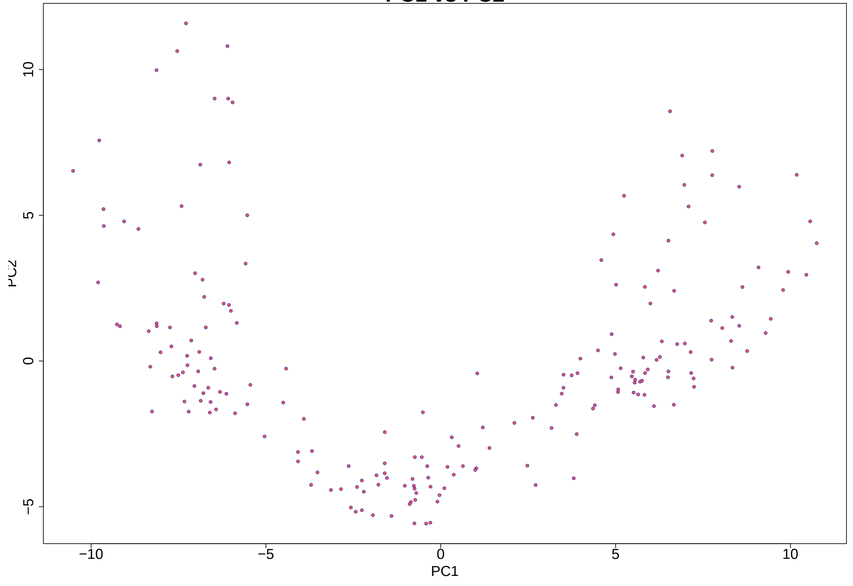

Barplot of Centered and Scaled Dataset 2
0
−2
−4
−6
G1 G4 G7 G10 G13 G16 G19 G22 G25 G28 G31 G34 G37 G40 G43 G46 G49 G52 G55 G58 G61 G64 G67 G70 G73 G76 G79 G82 G85 G88 G91 G94 G97 G100 G104 G108 G112 G116 G120 G124 G128 G132 G136 G140 G144 G148 G152 G156 G160 G164 G168 G172 G176 G180 G184 G188 G192 G196 G200
Genes

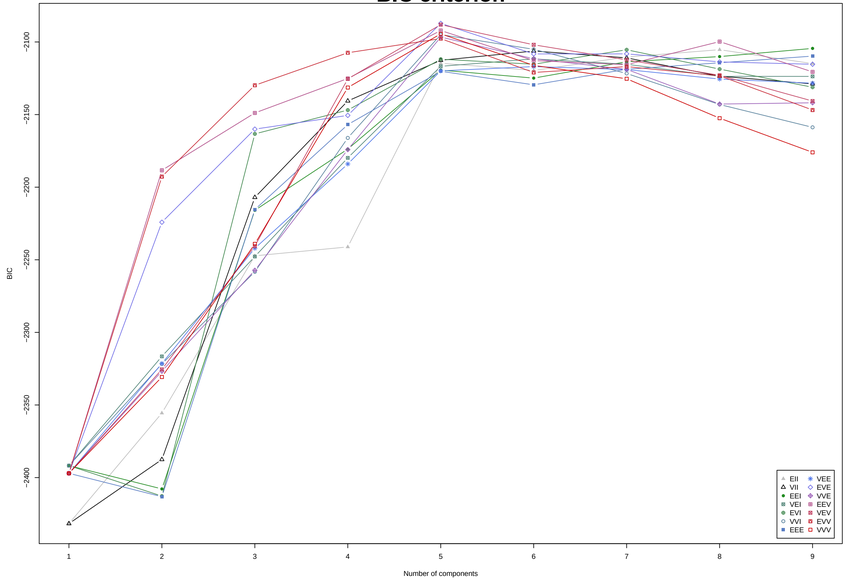

OPTIMAL NUMBER OF PRINCIPAL COMPONENTS = 3
Explained by PCs
Explained by chance
EXPLAINED VARIANCE
0.00
0.05
0.10
0.15
0
10
20
30
40
50
PRINCIPAL COMPONENTS

# PCA

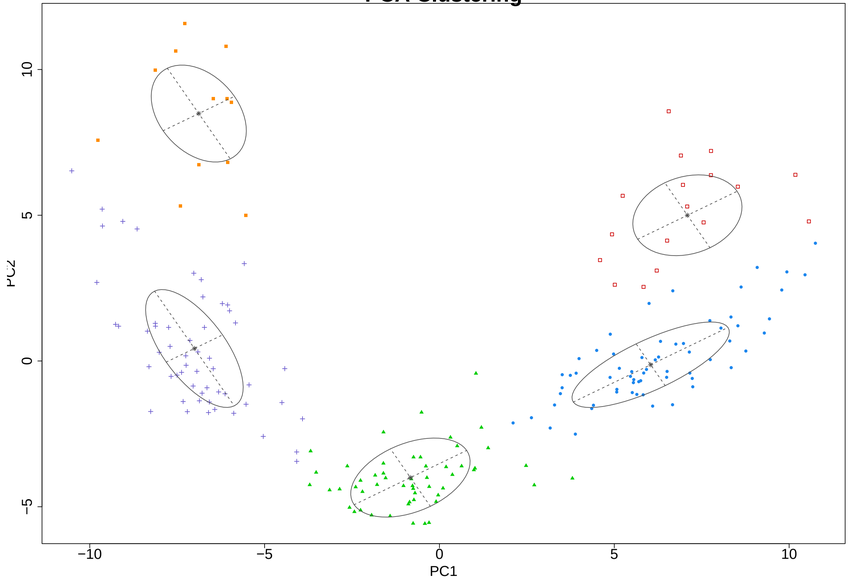
## PC1 vs PC2

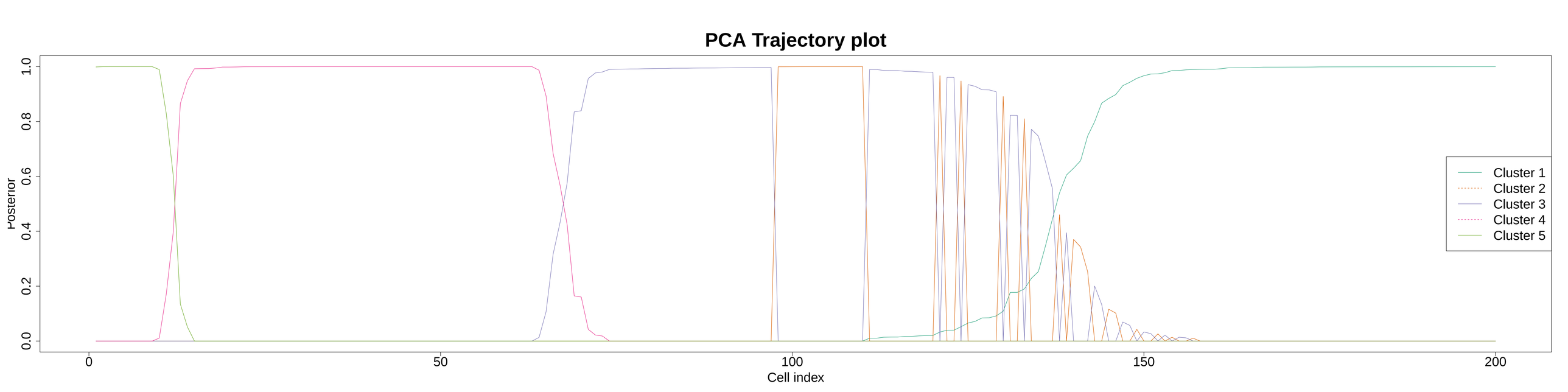



## BIC criterion

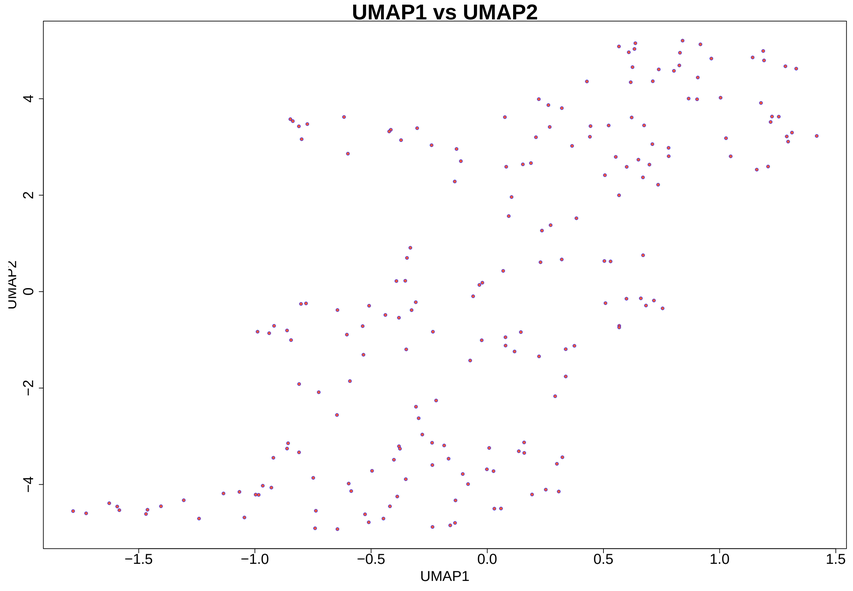


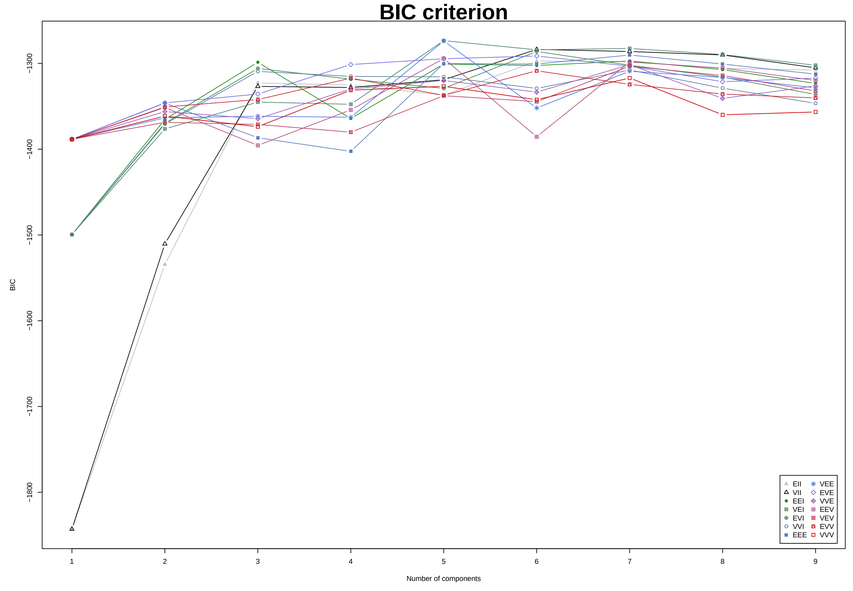

## PCA Clustering

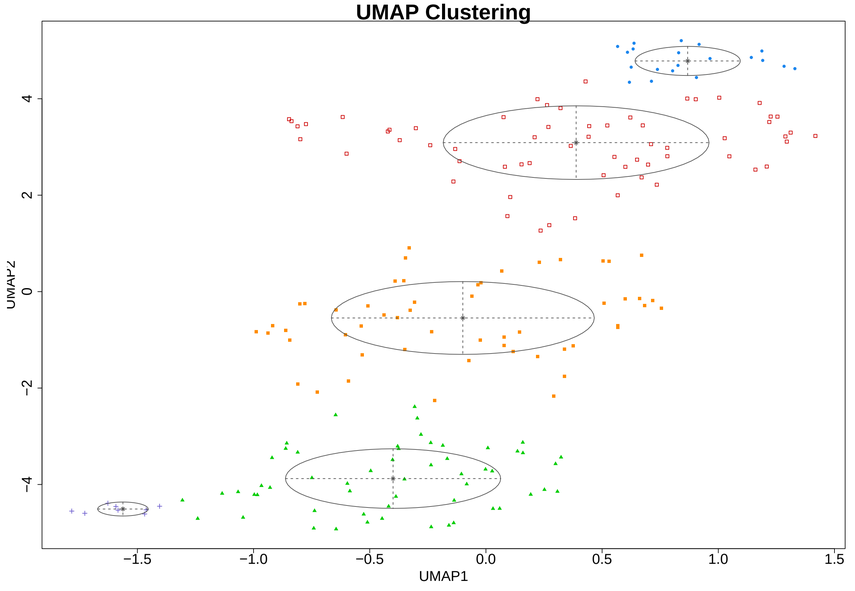


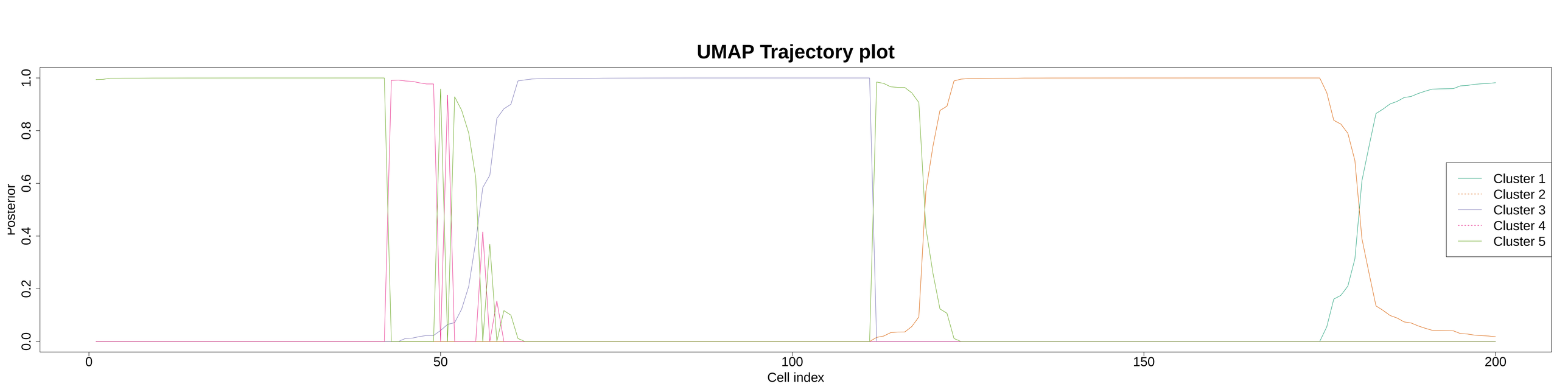

PCA Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5

# Clustering: UMAP
# n = 5 | dist = 0.05

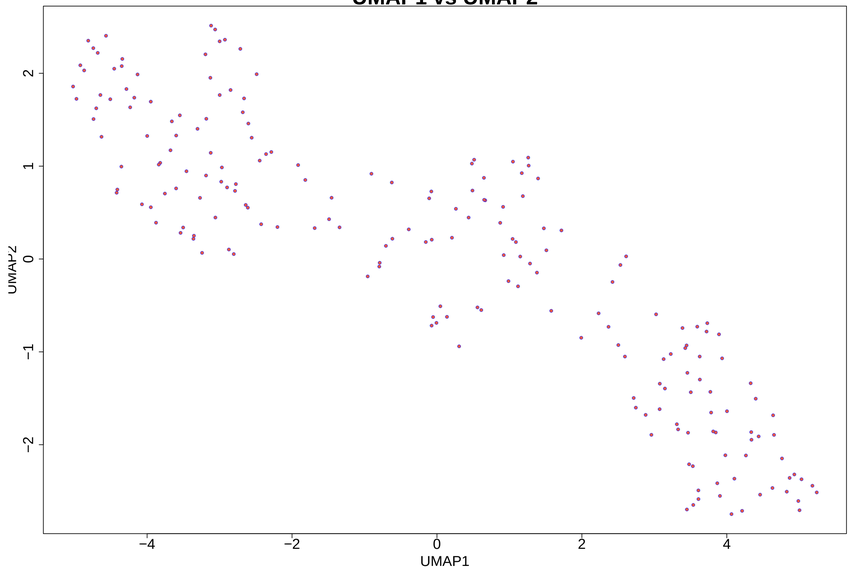


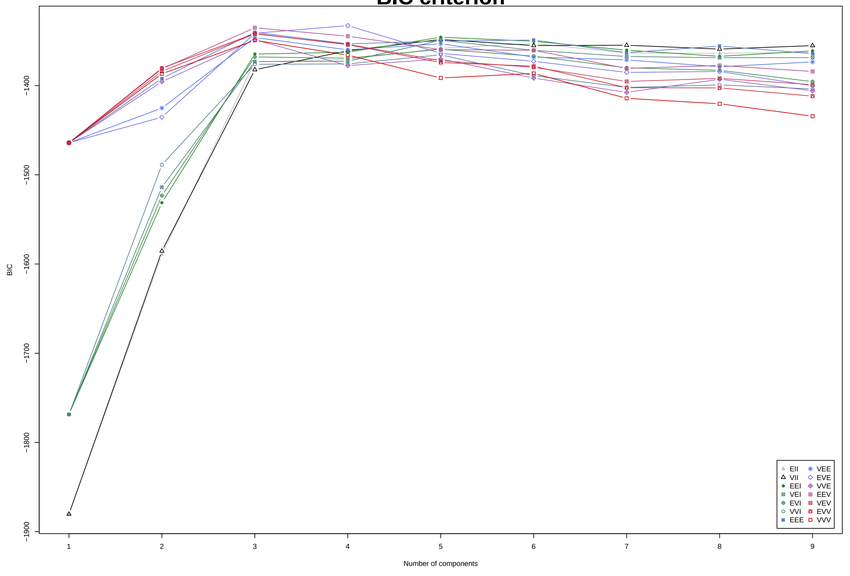



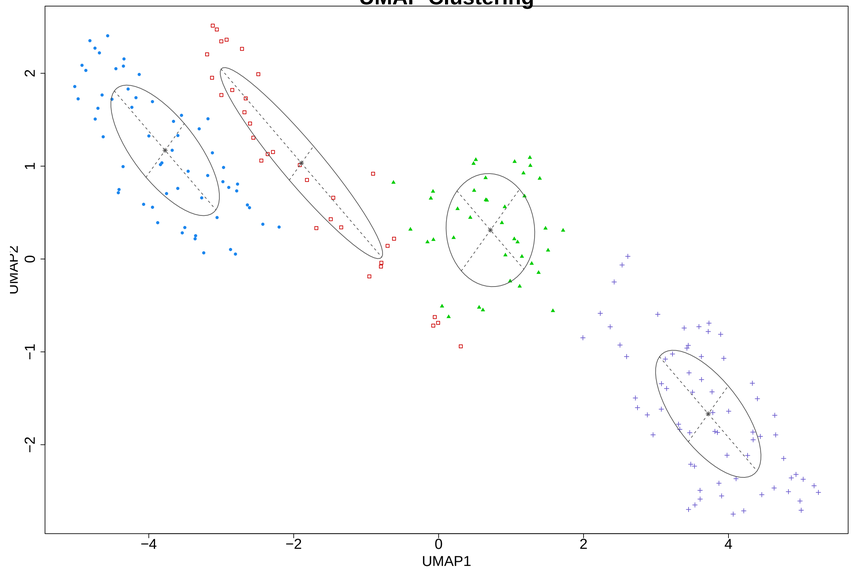



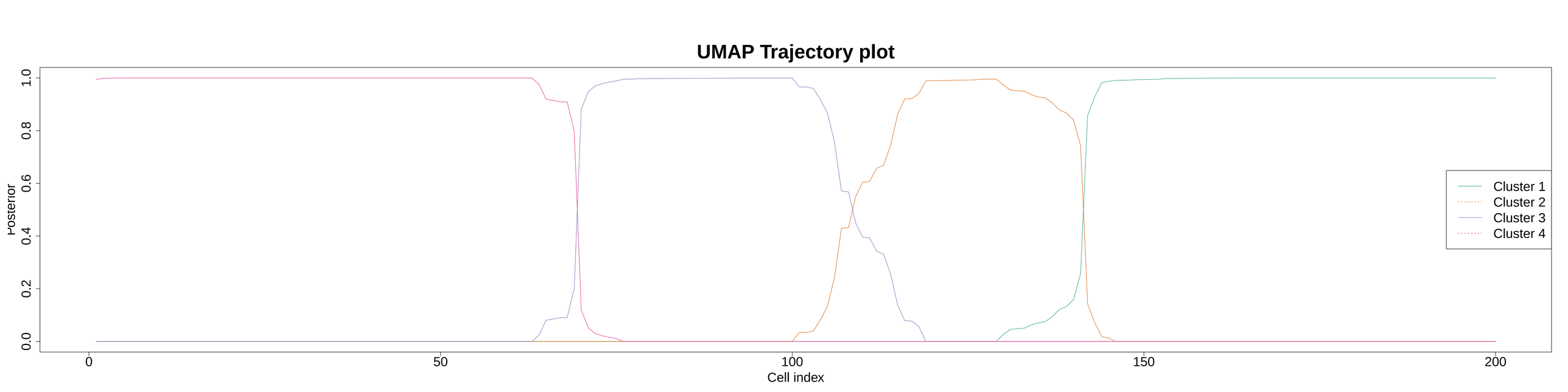

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5

# Clustering: UMAP
# n = 5 | dist = 0.1

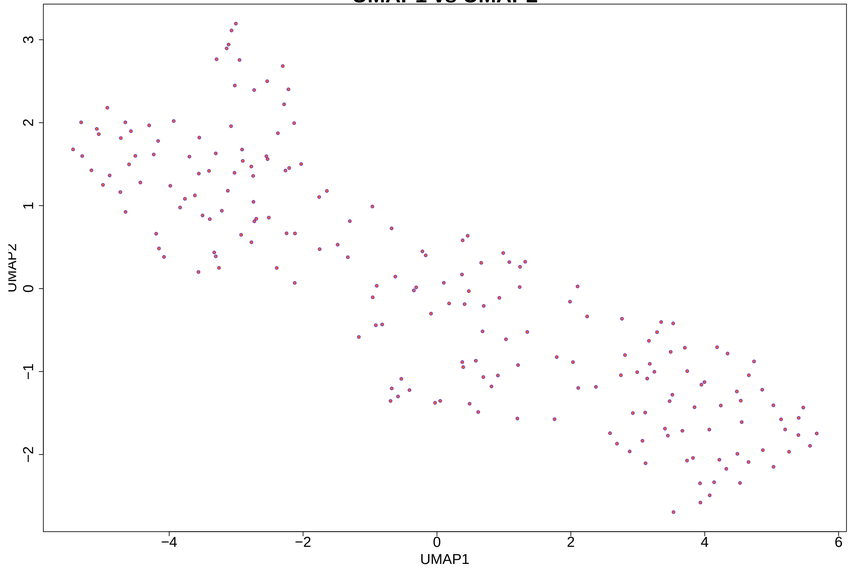


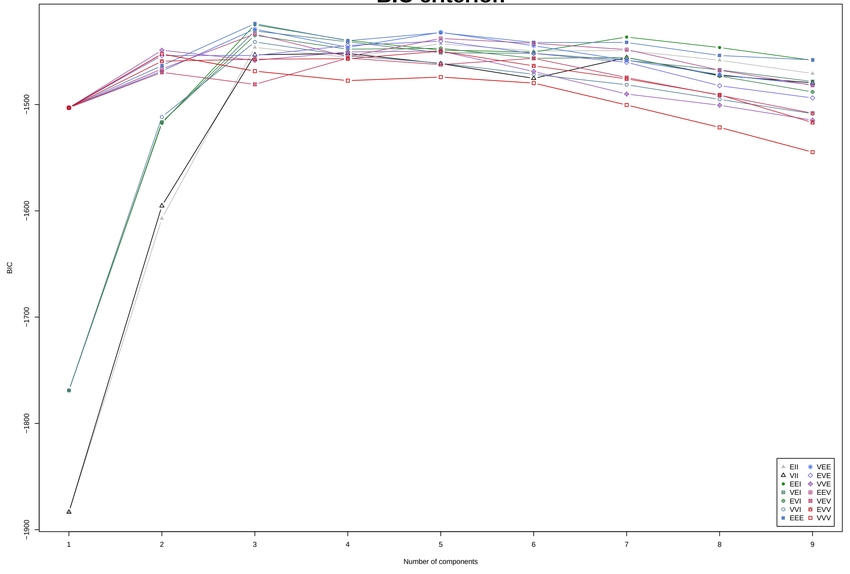



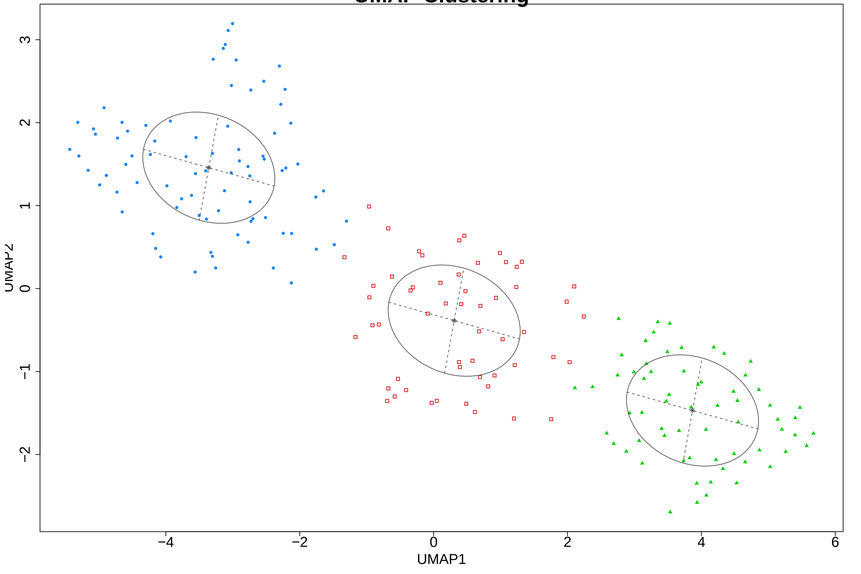



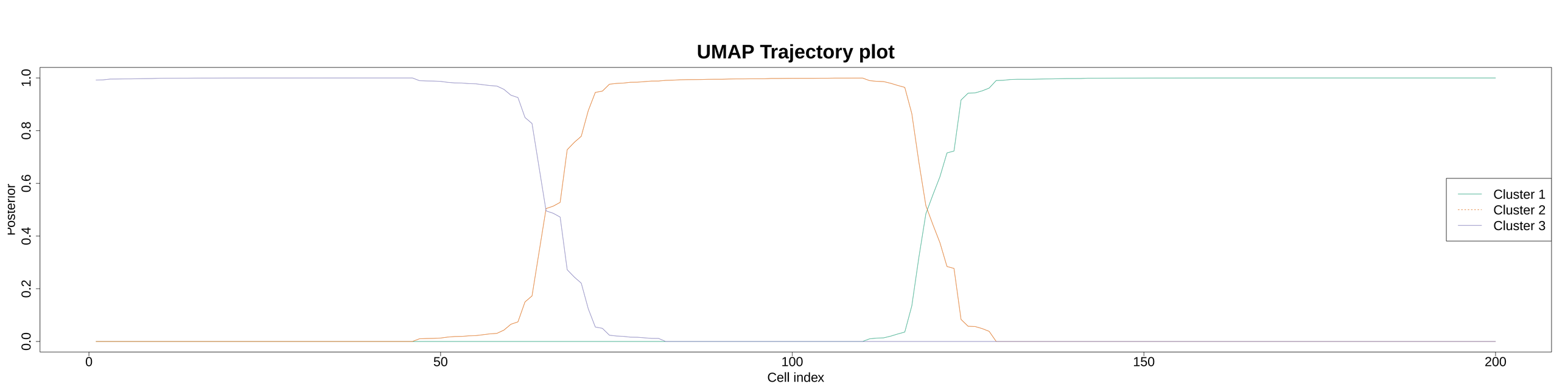

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

# Clustering: UMAP
# n = 5 | dist = 0.2

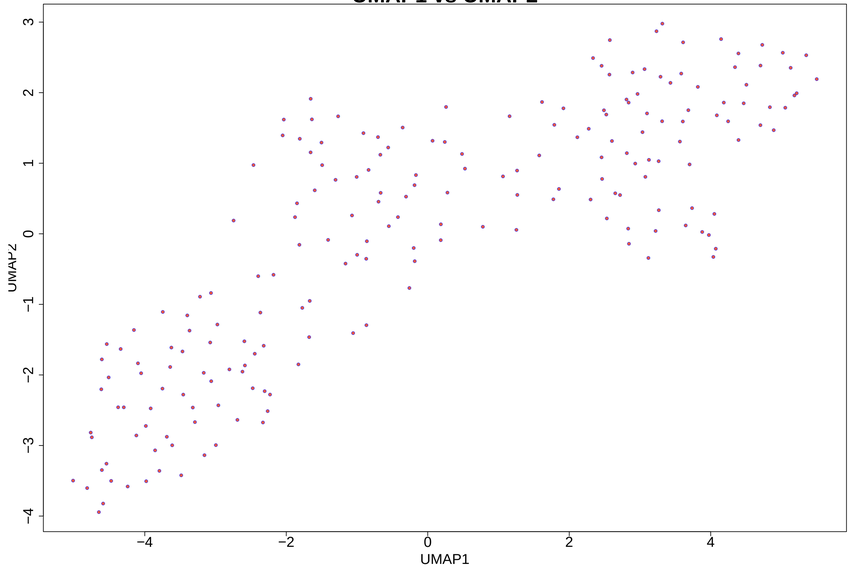


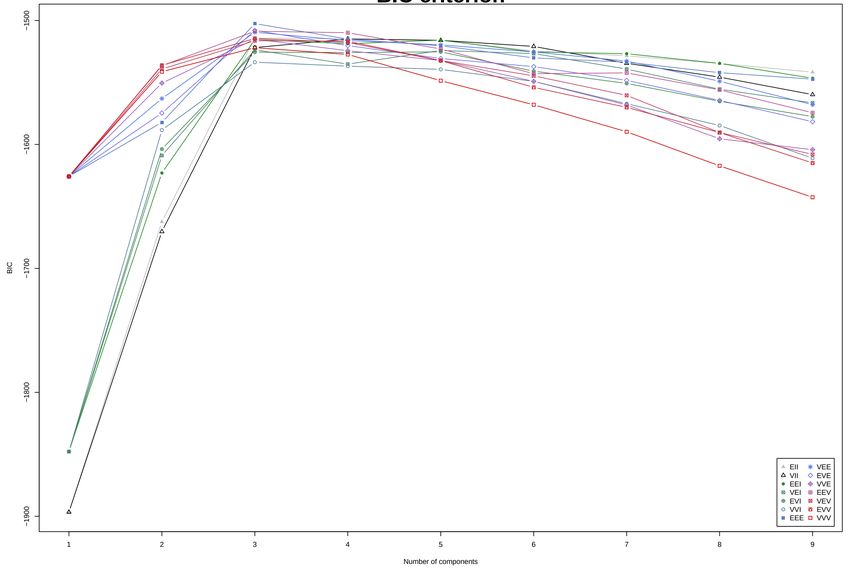



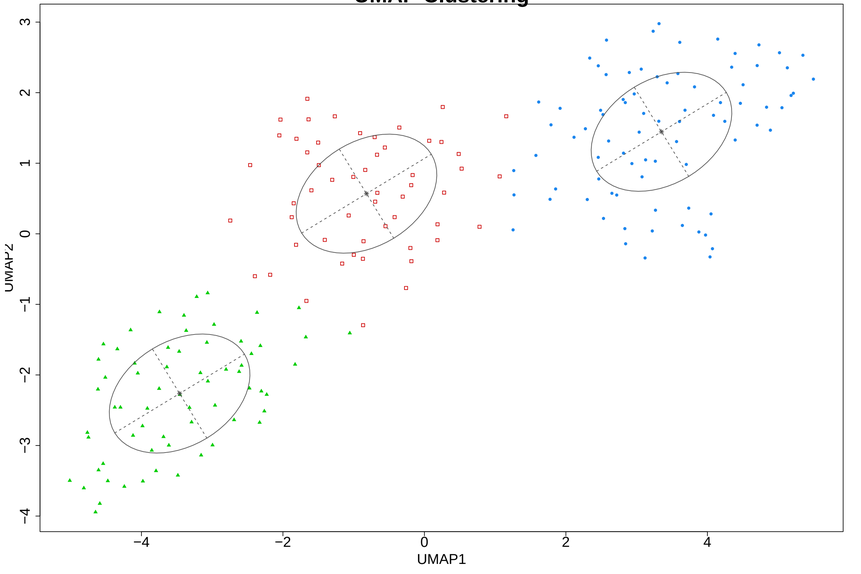



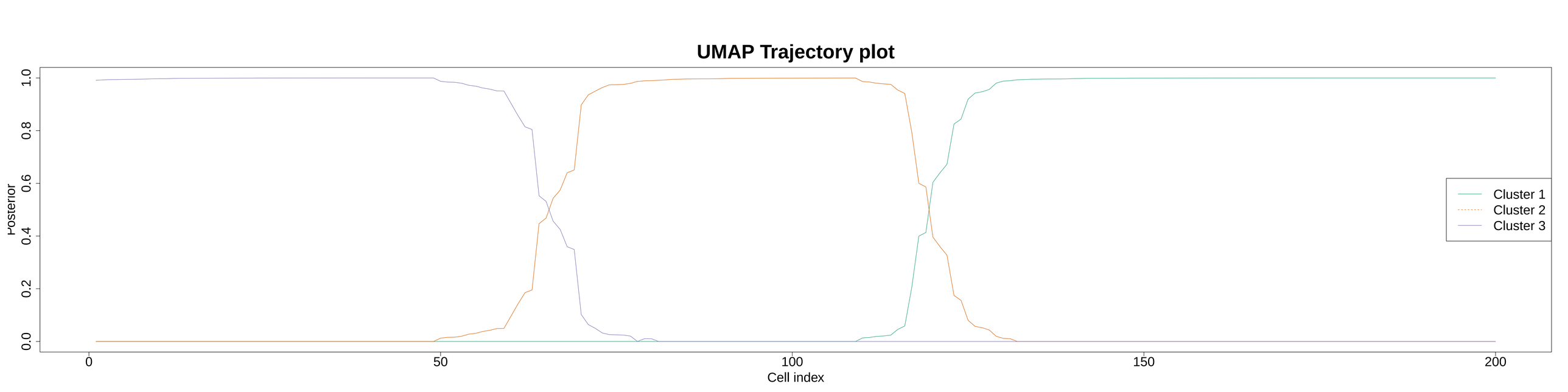

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 5 | dist = 0.3

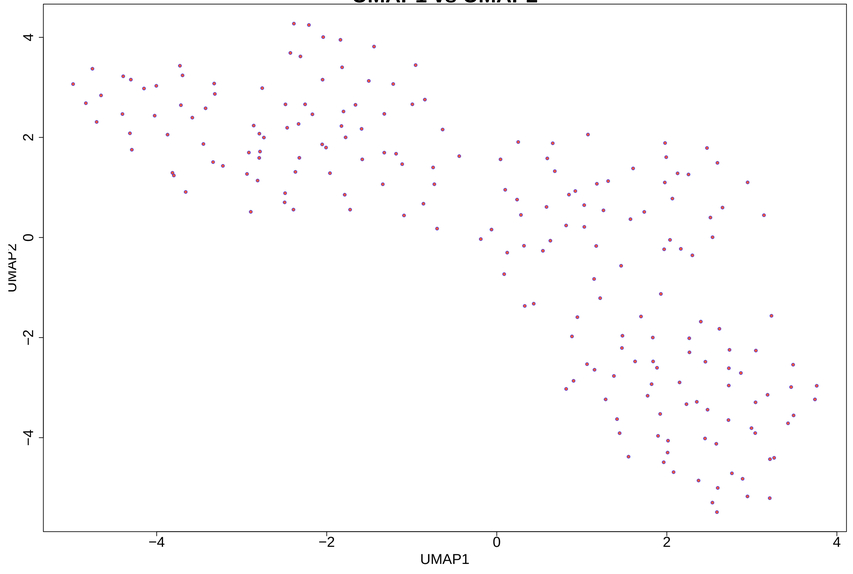


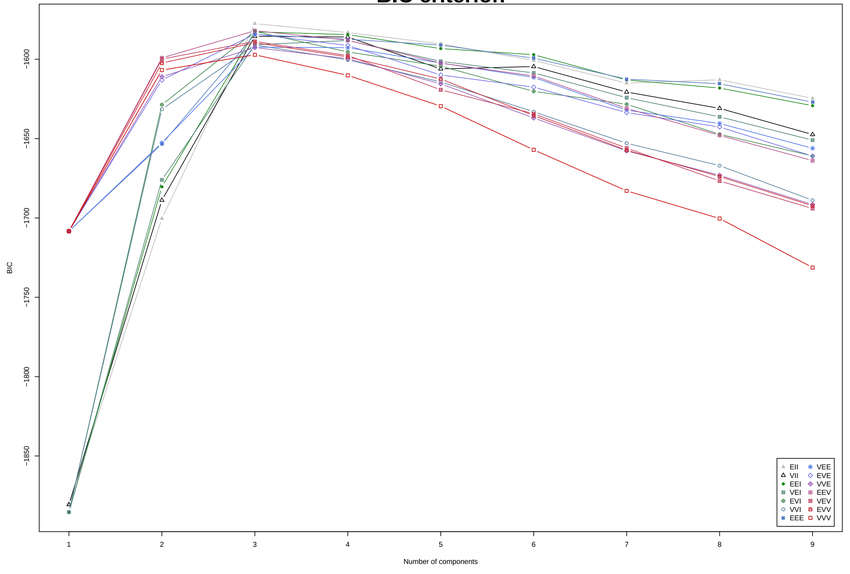



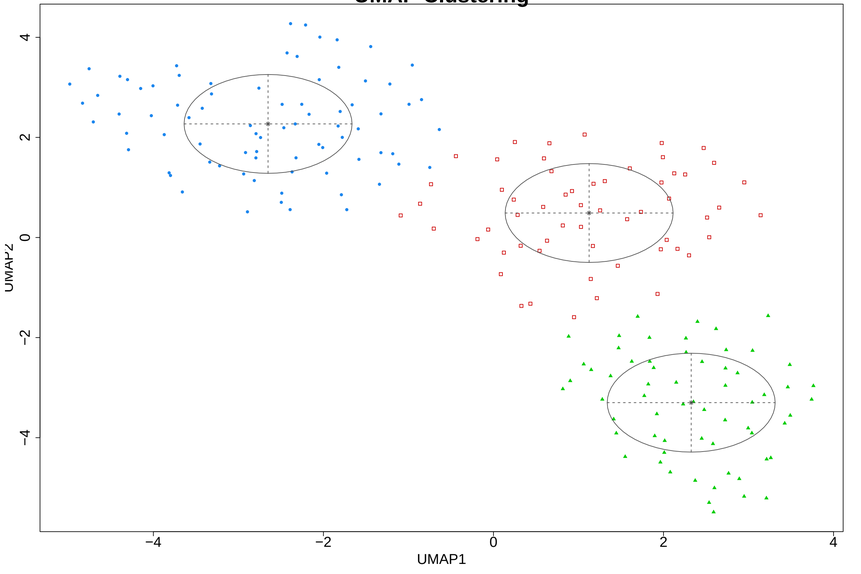



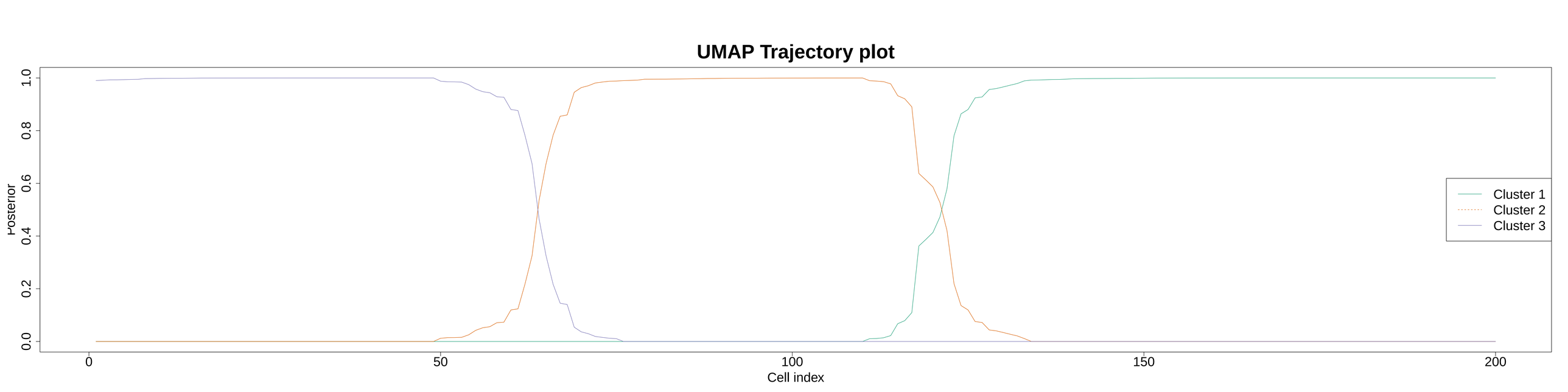

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
## n = 5 | dist = 0.4

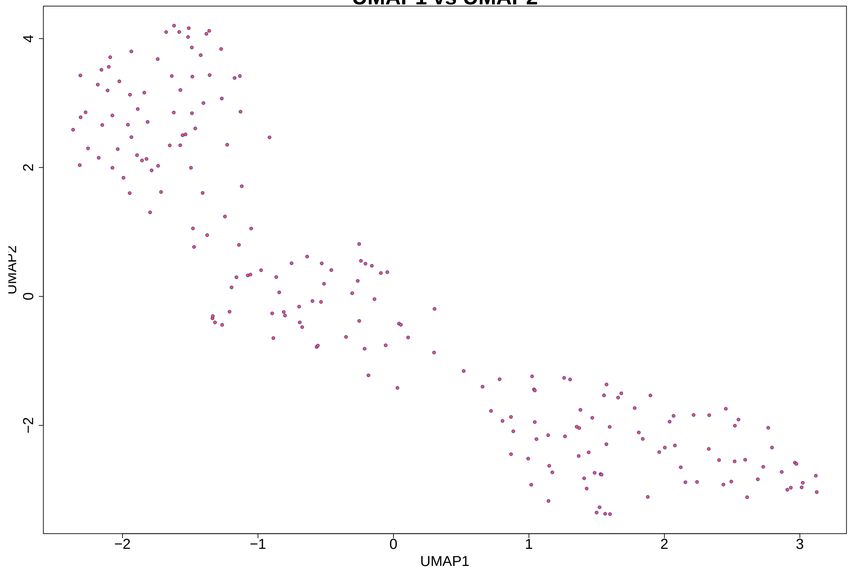


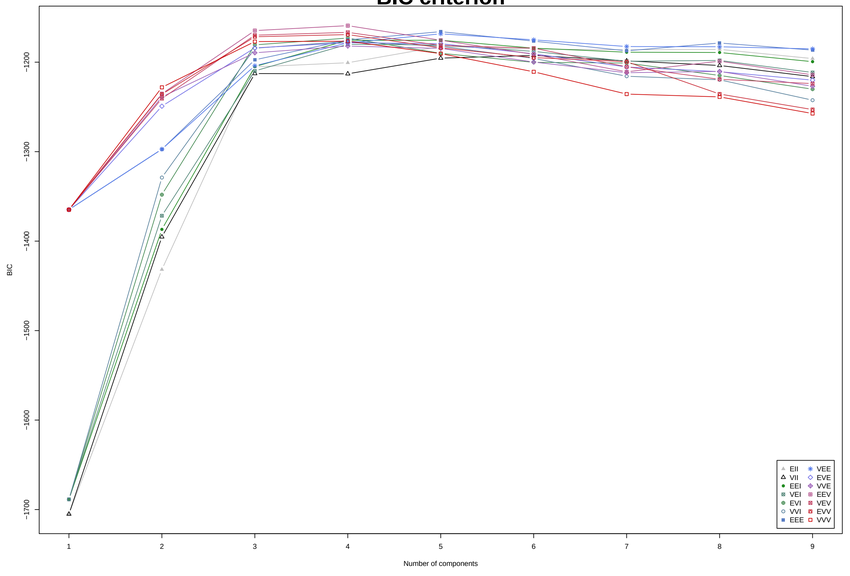



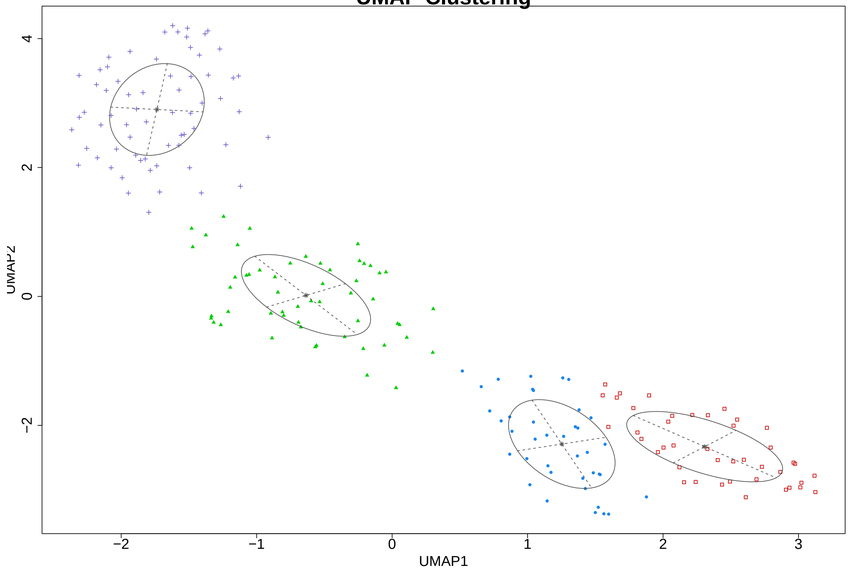



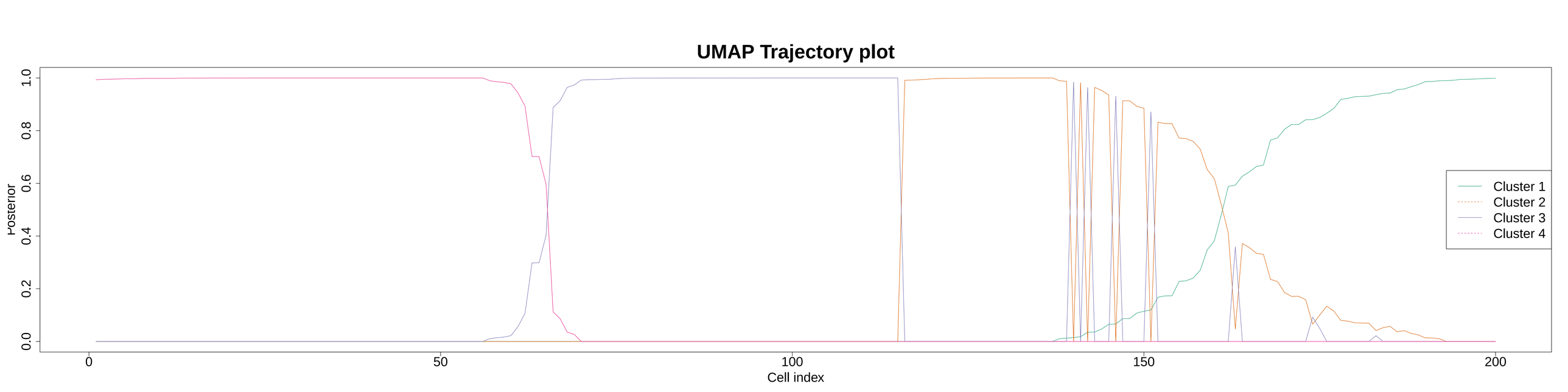

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 10 | dist = 0.05

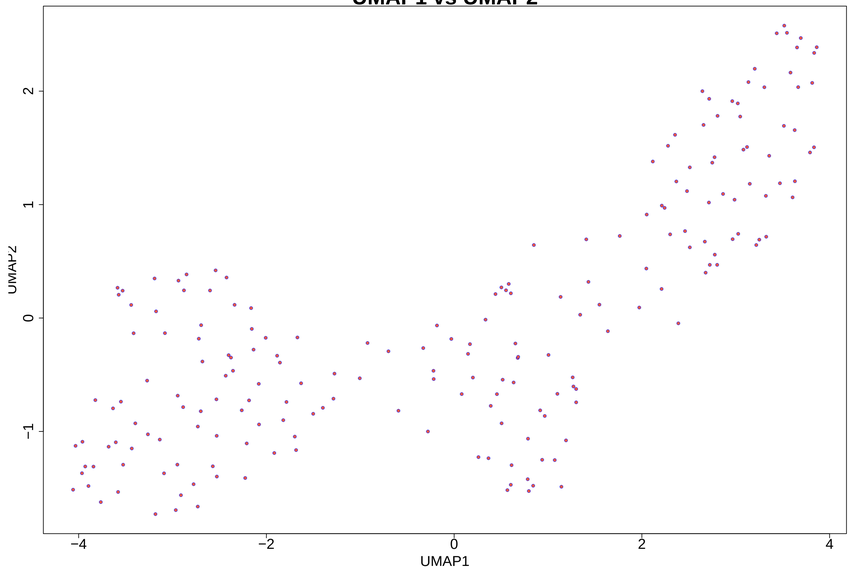


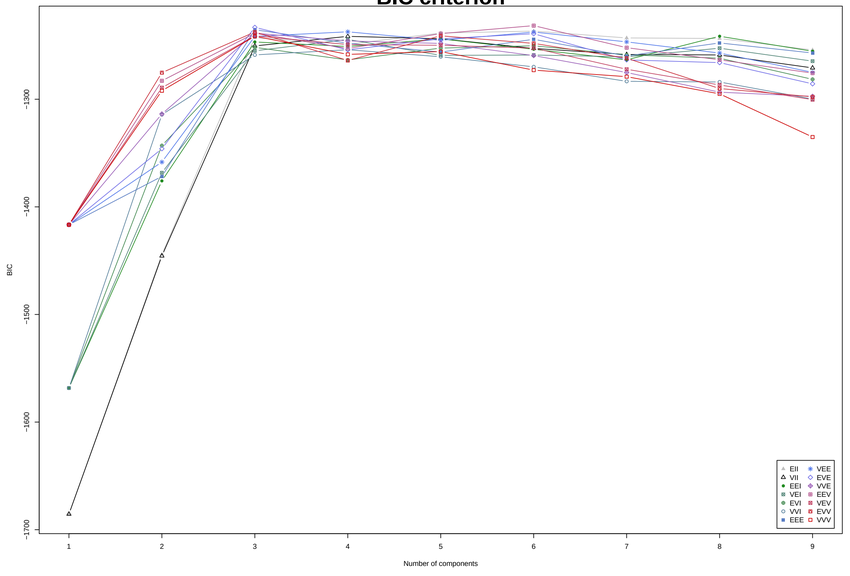



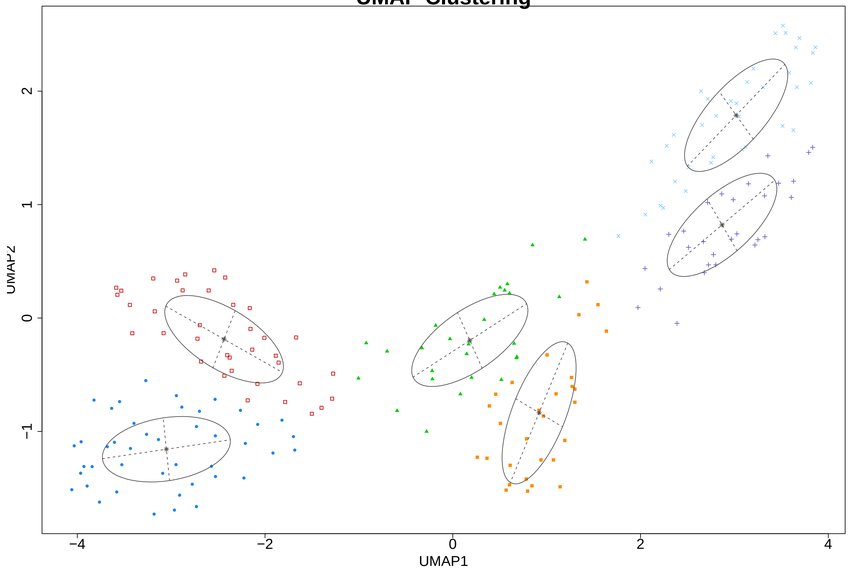



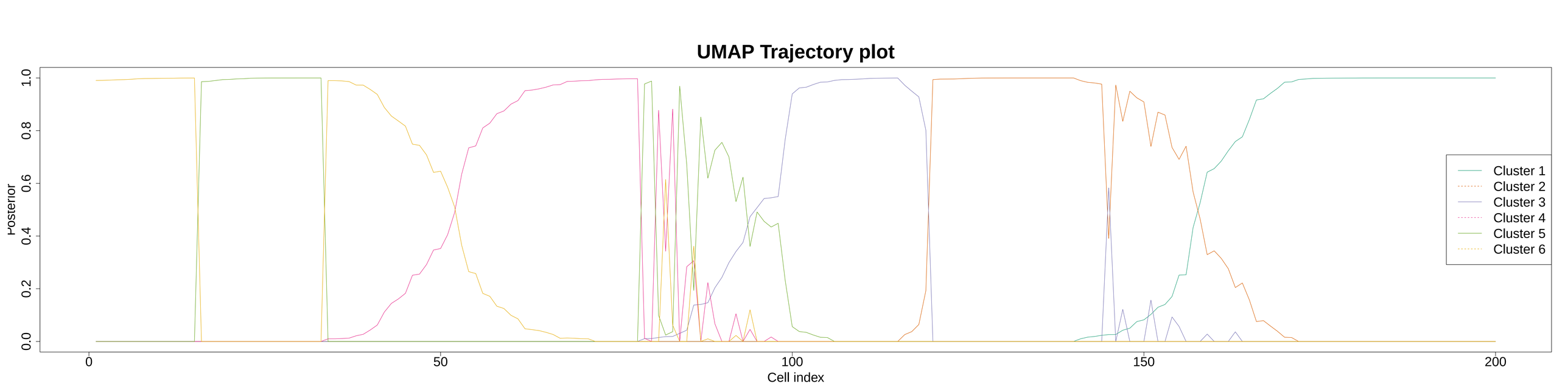

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

# Clustering: UMAP
# n = 10 | dist = 0.1

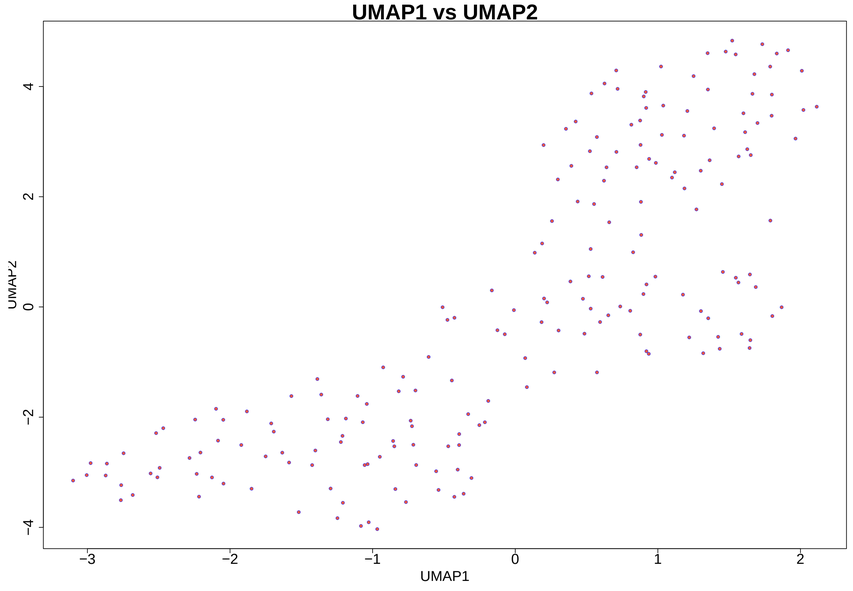


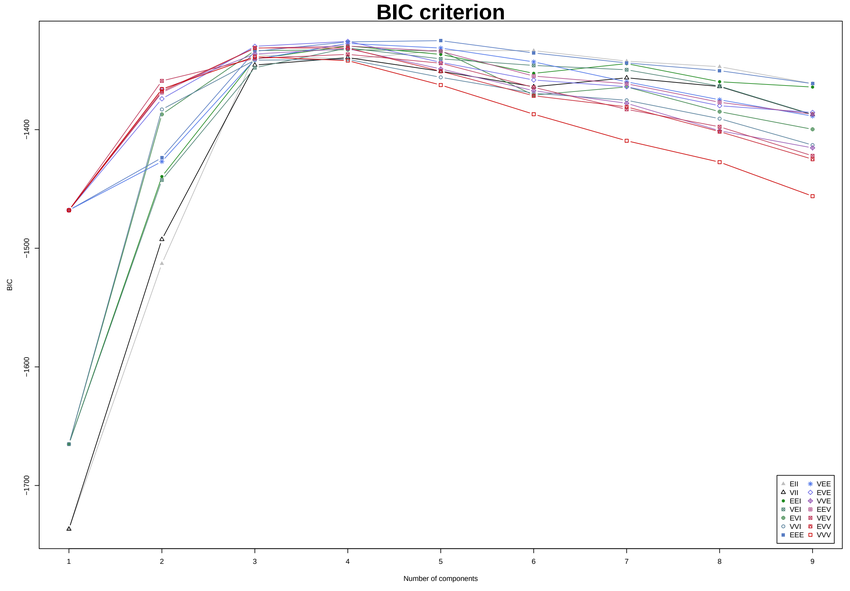



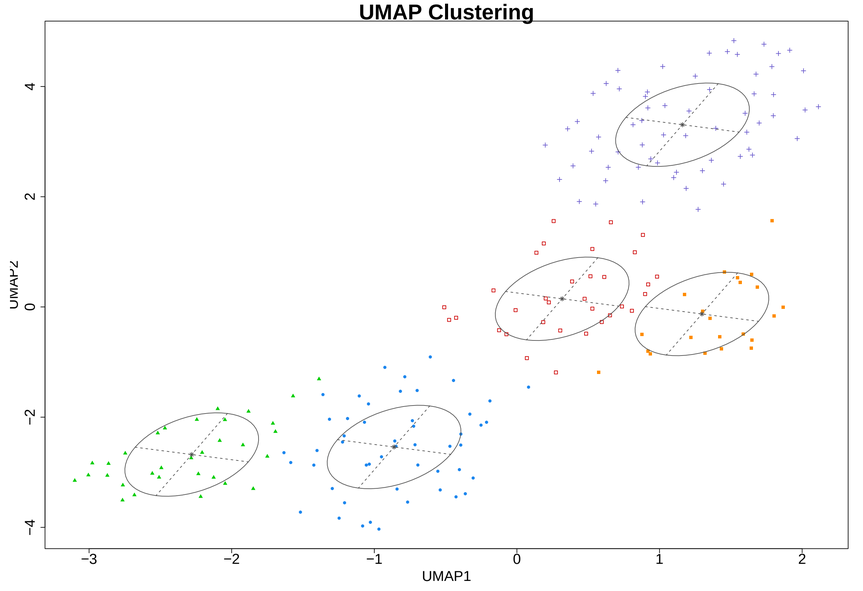



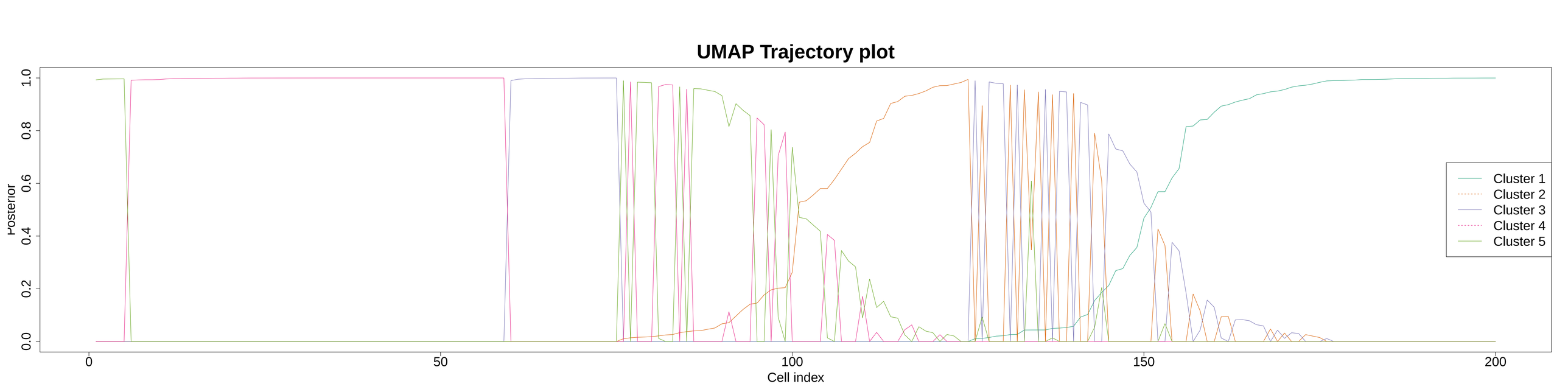

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5
Cluster 6

# Clustering: UMAP
# n = 10 | dist = 0.2

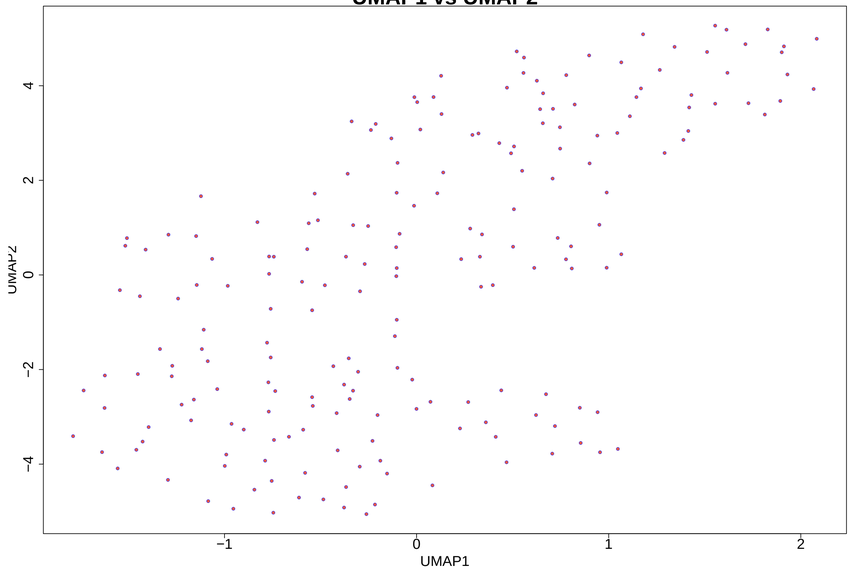


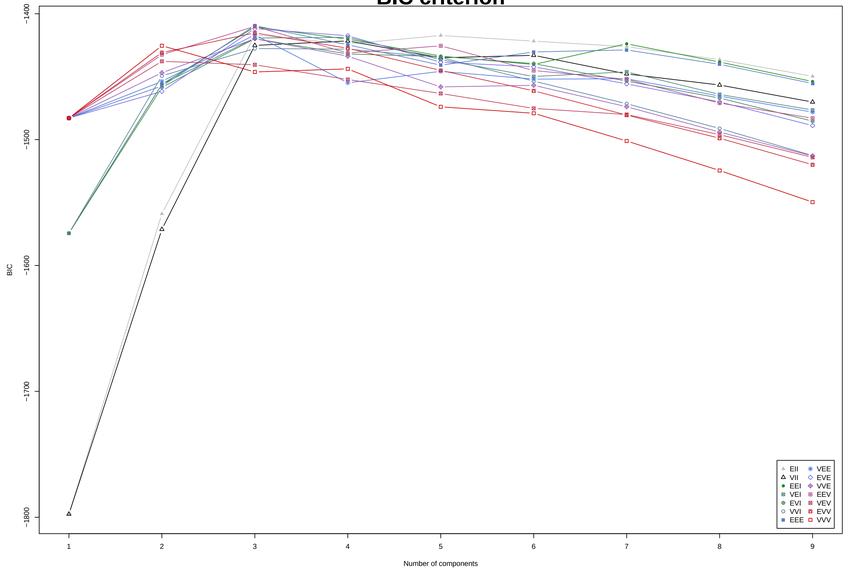



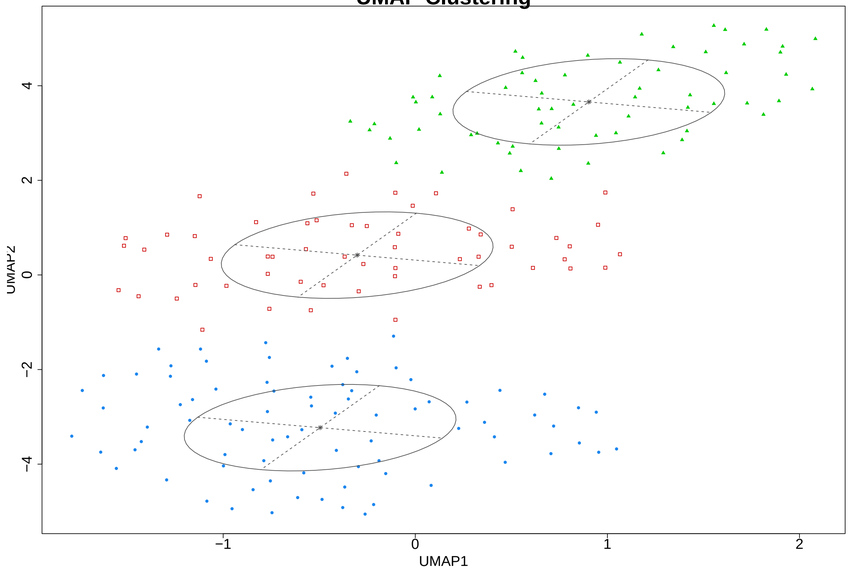



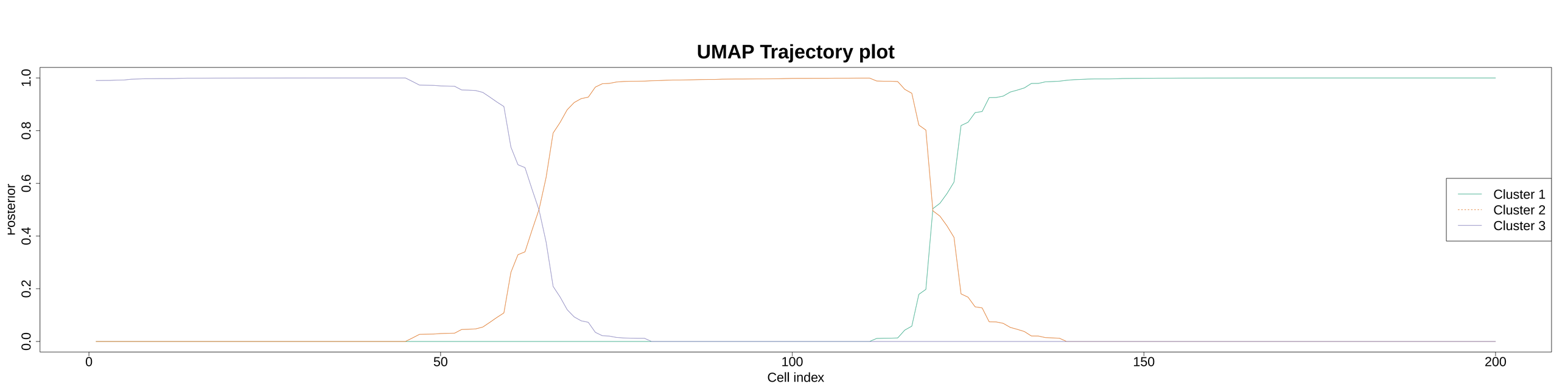

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5

# Clustering: UMAP
# n = 10 | dist = 0.3

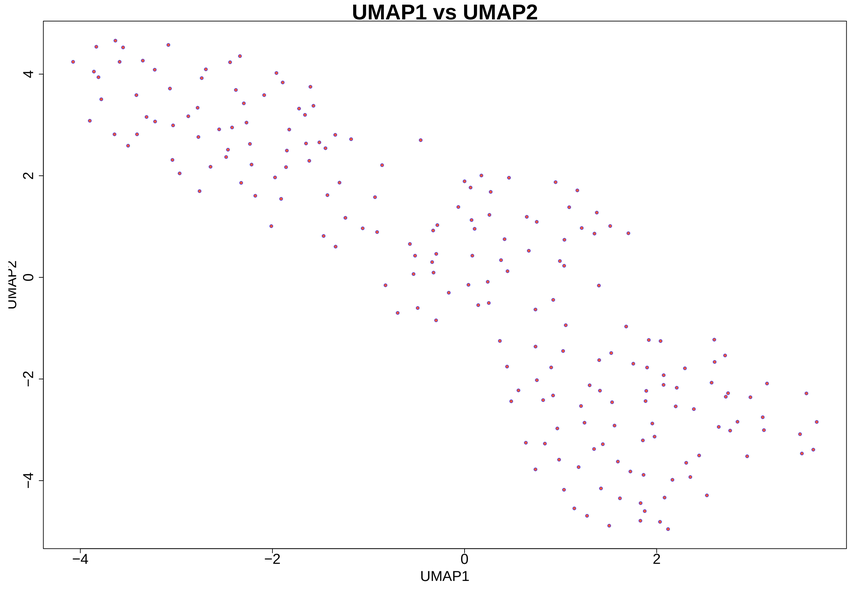


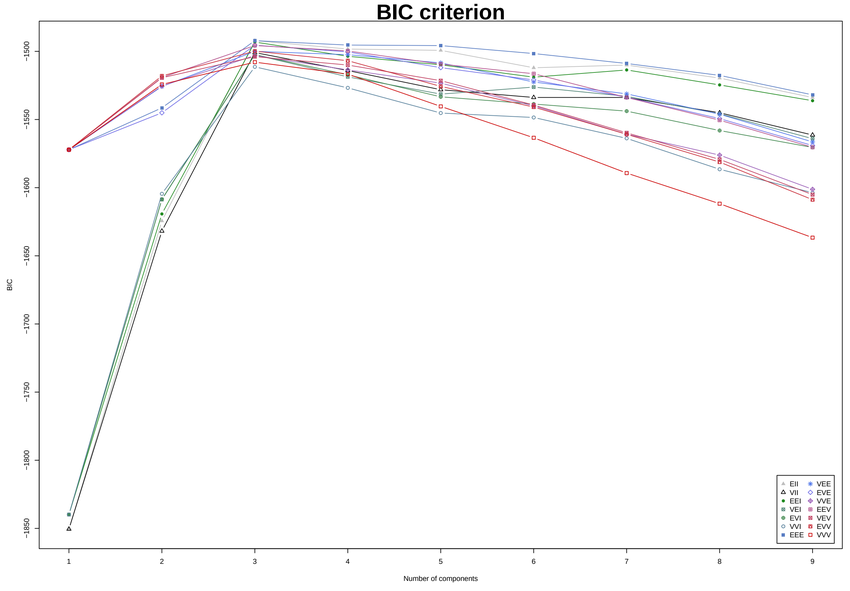



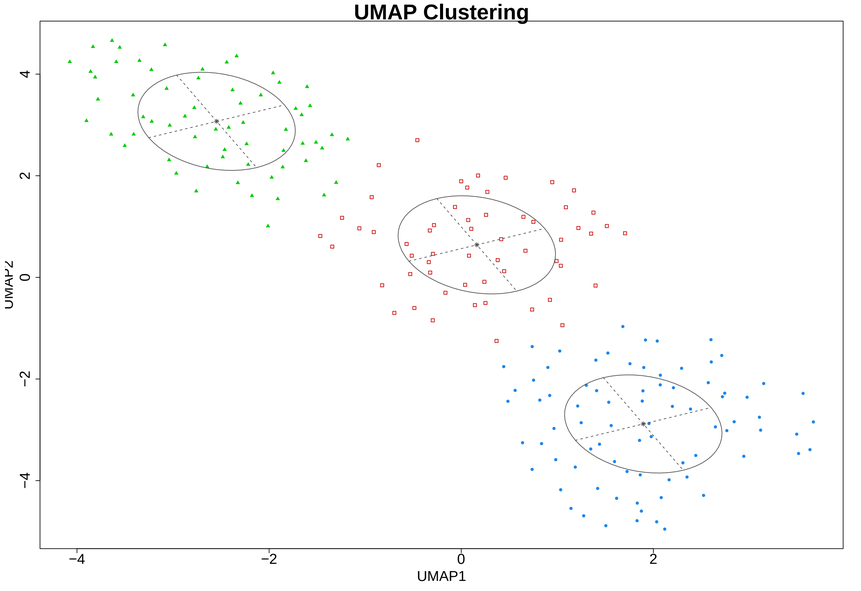



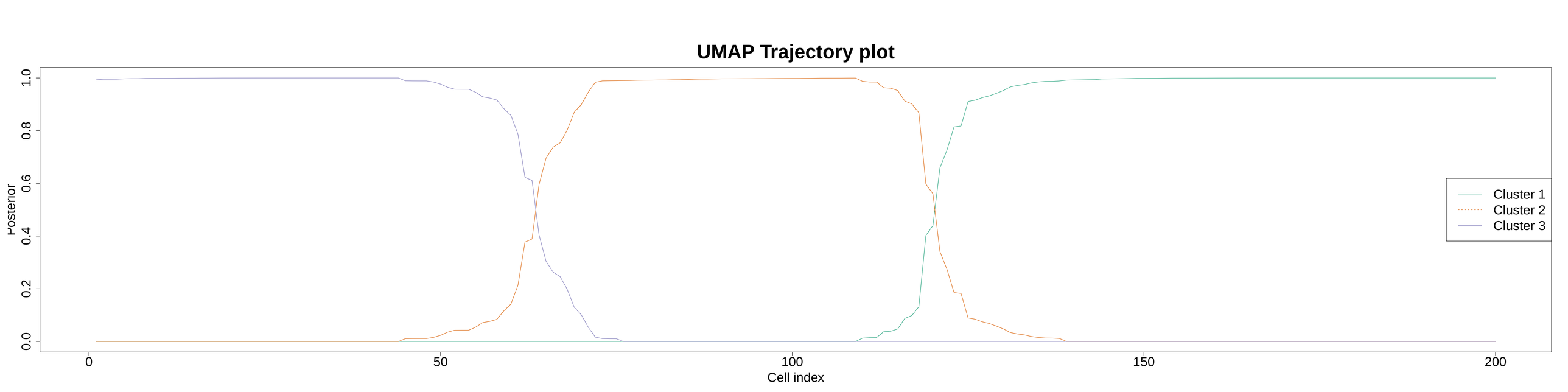

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
## n = 10 | dist = 0.4

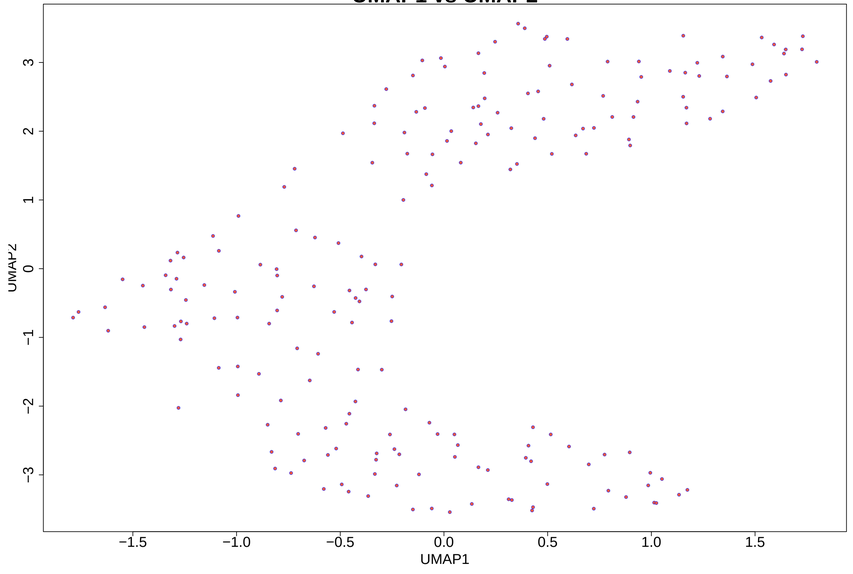


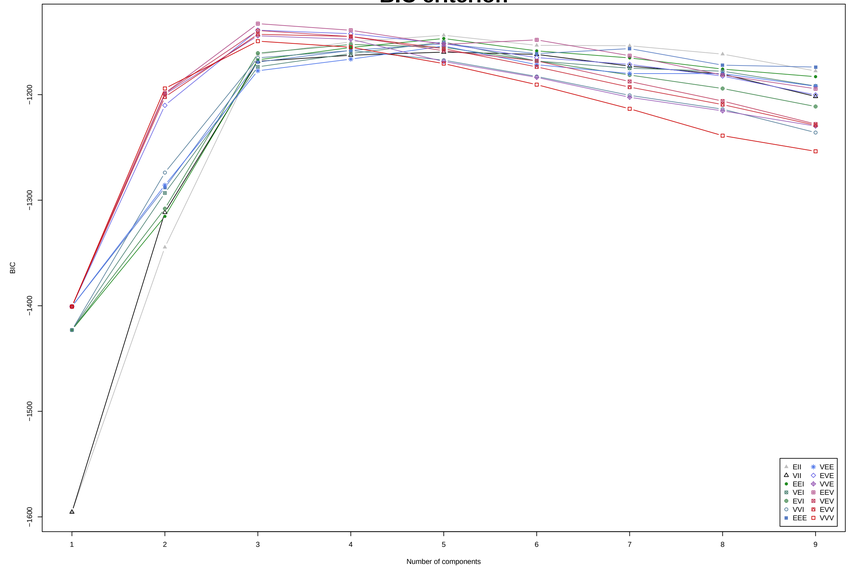



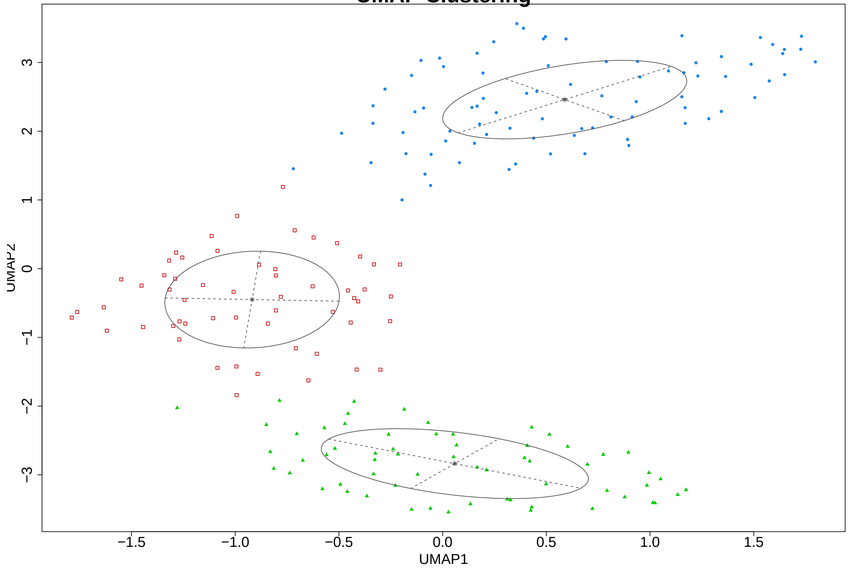



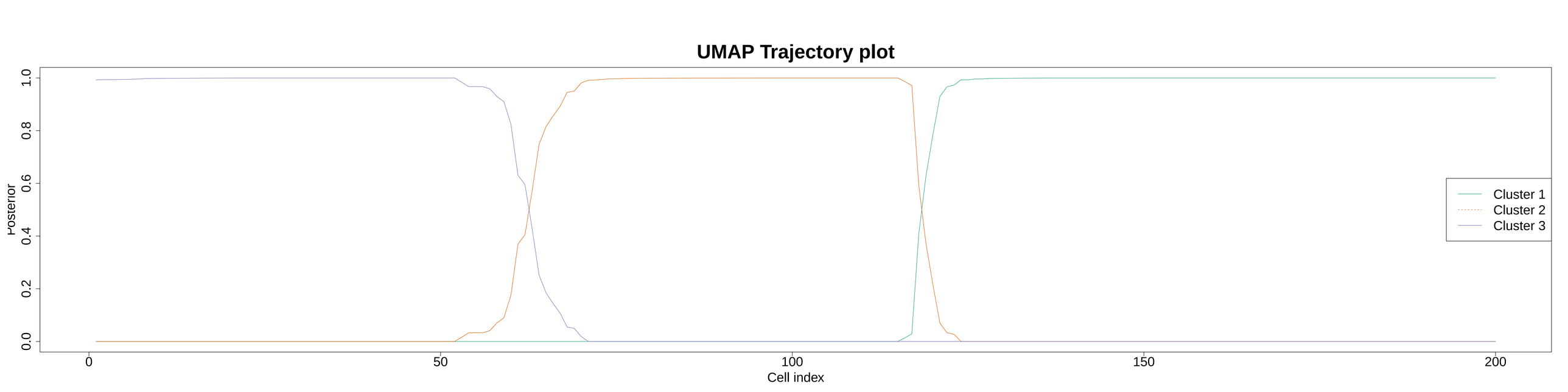

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

Clustering: UMAP
n = 15 | dist = 0.05

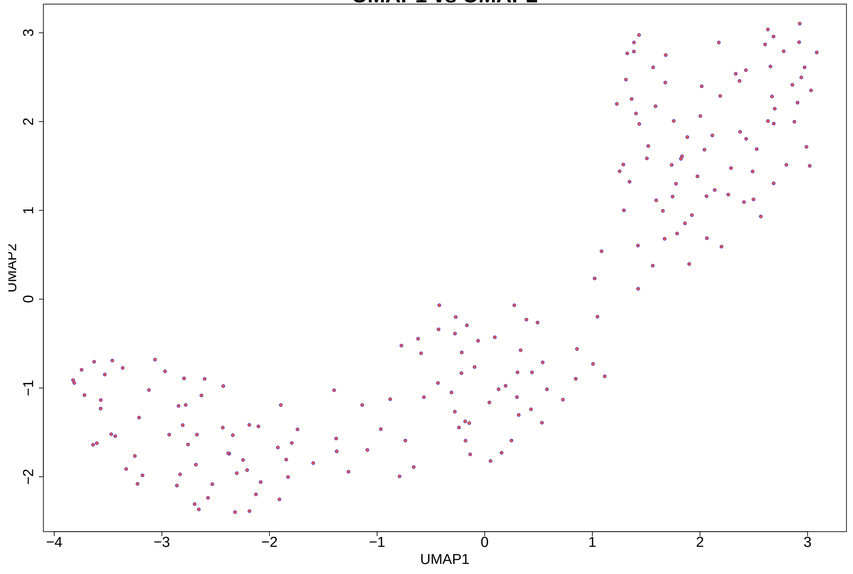


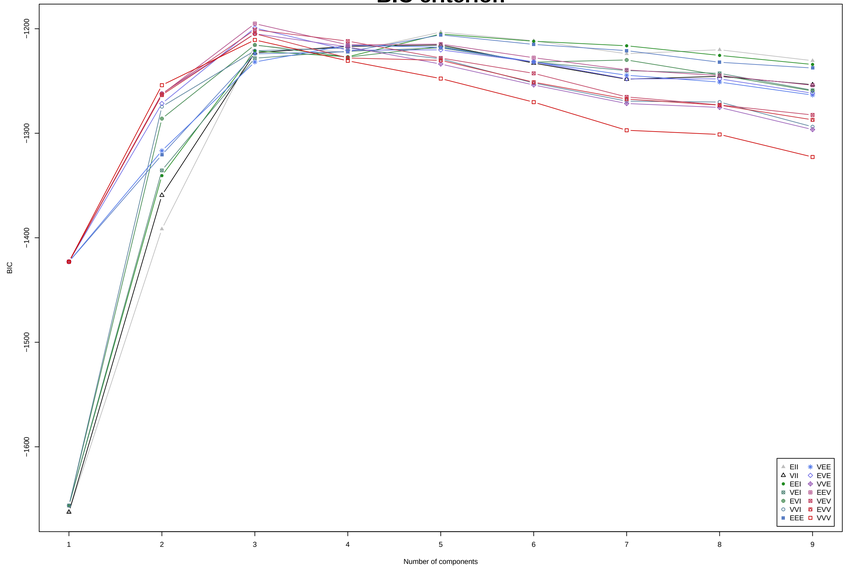



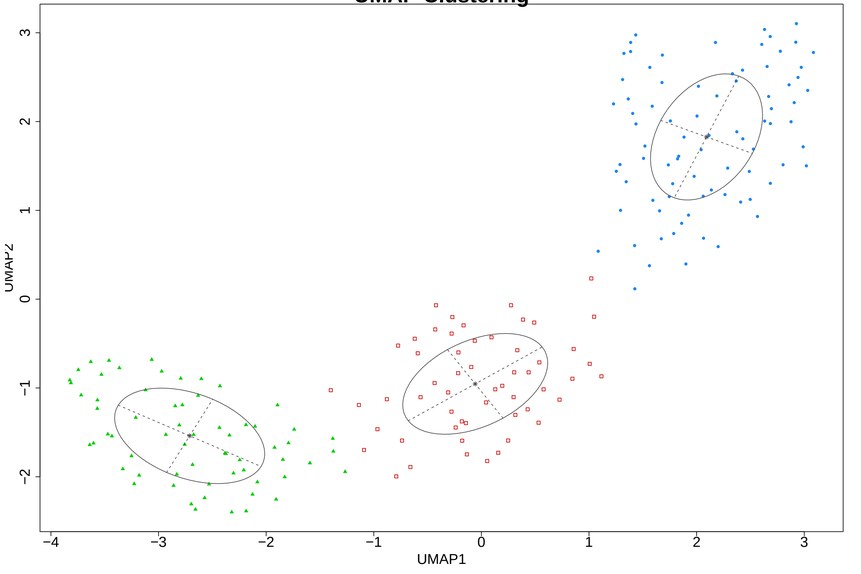



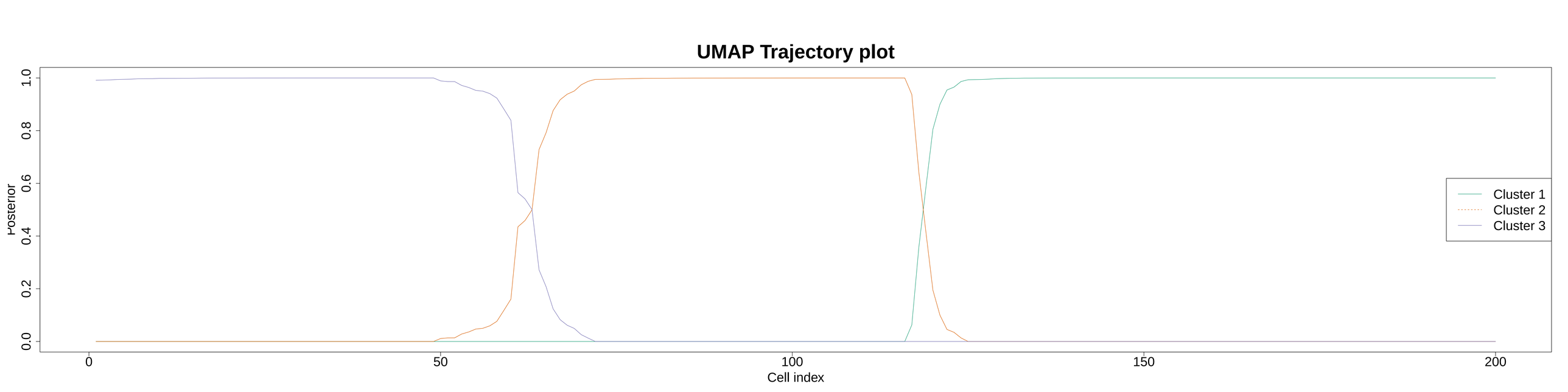

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 15 | dist = 0.1

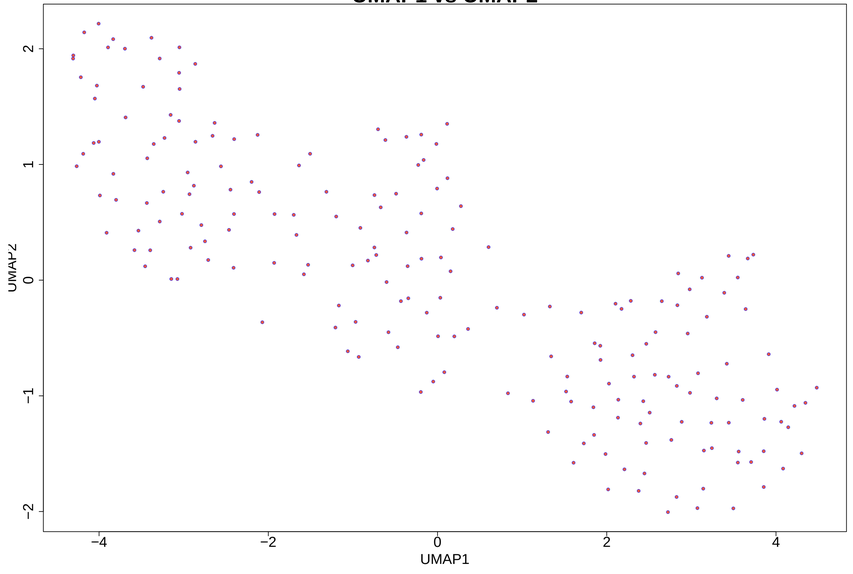


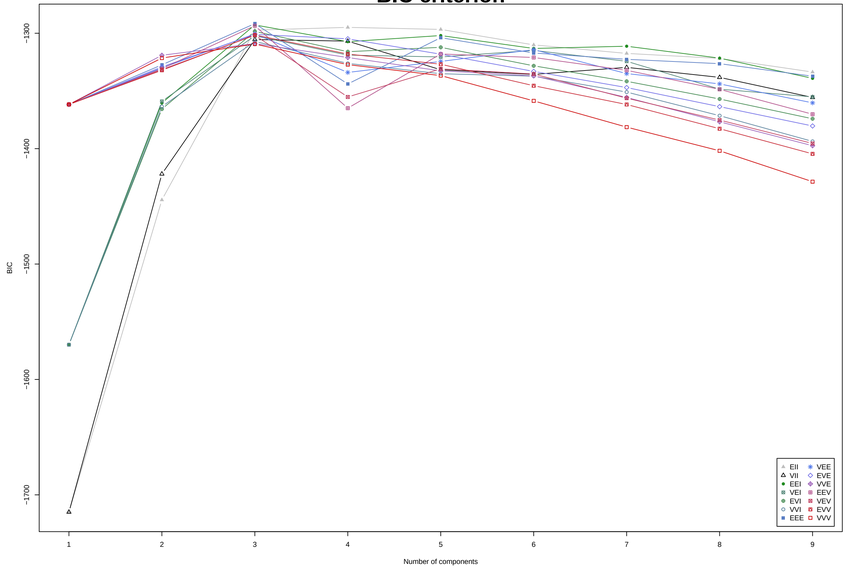



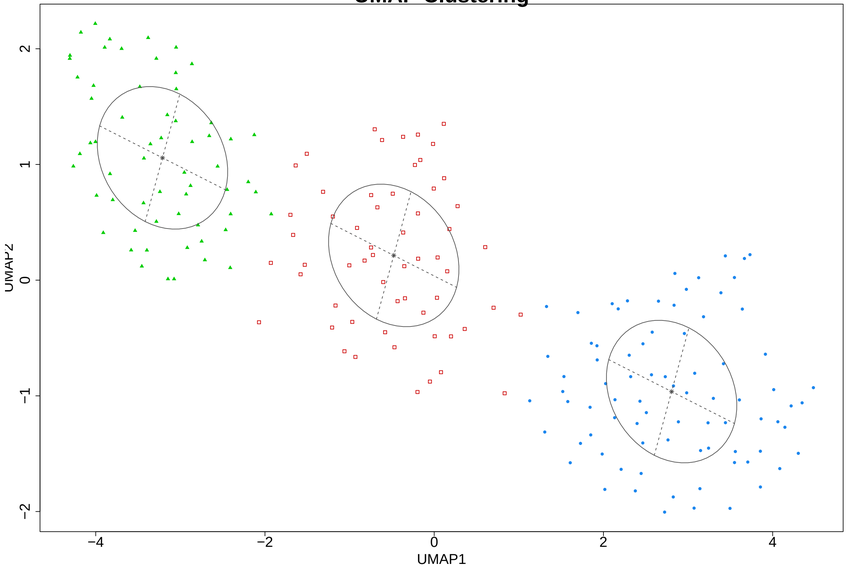



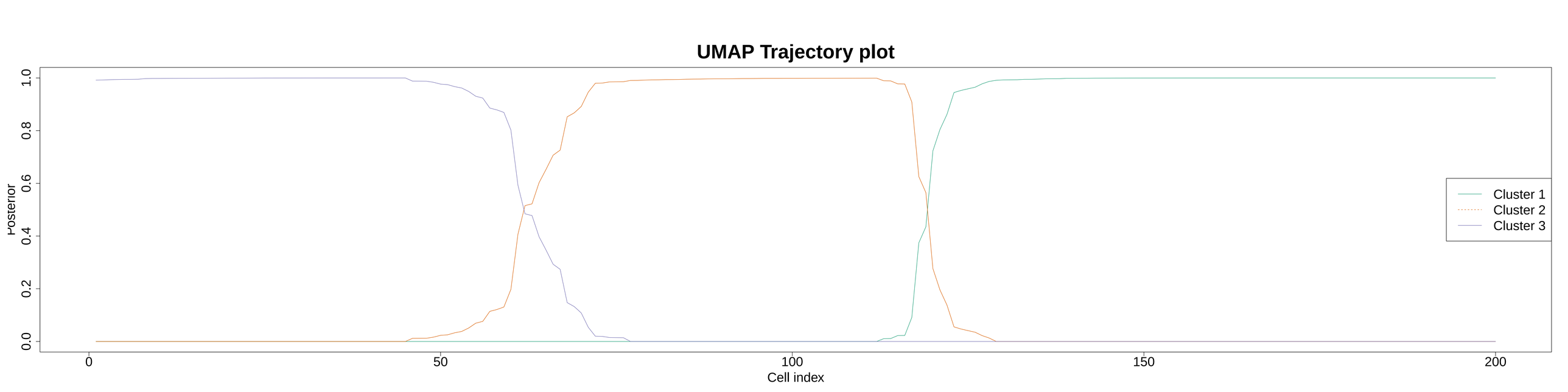

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 15 | dist = 0.2

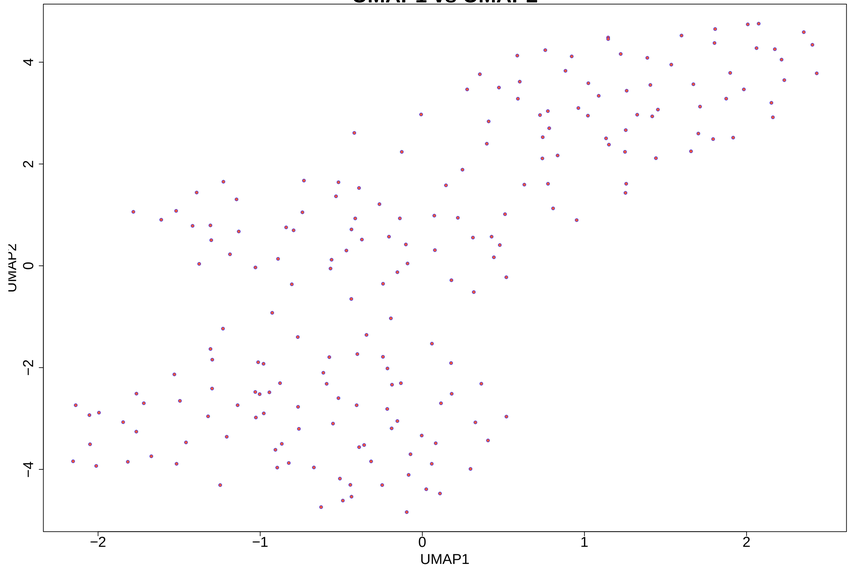


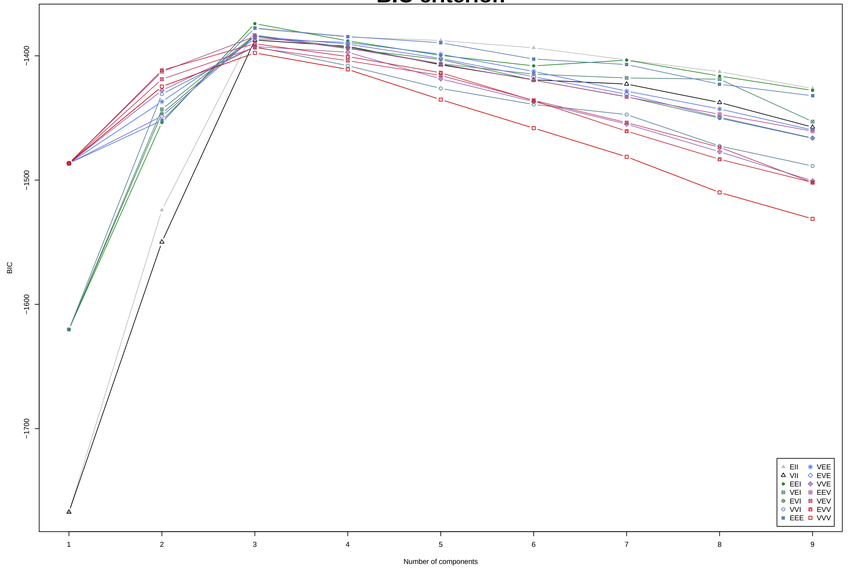



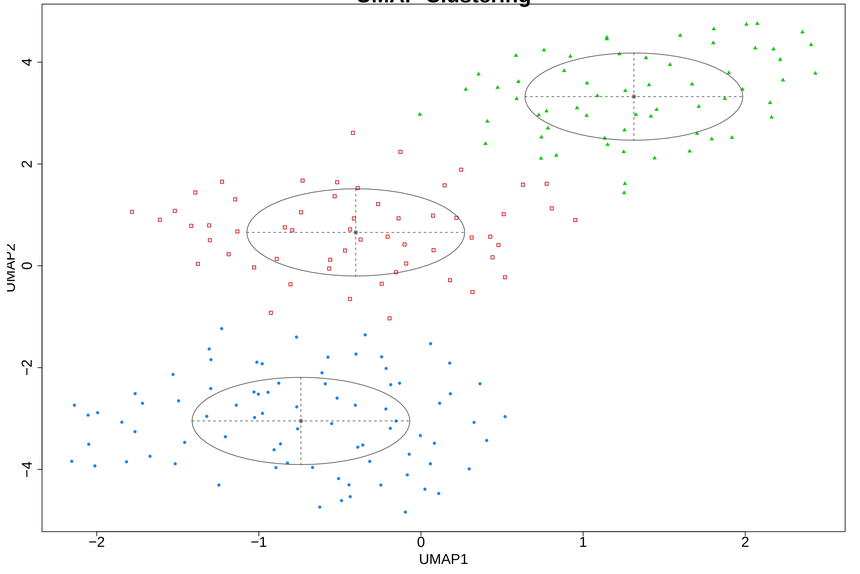



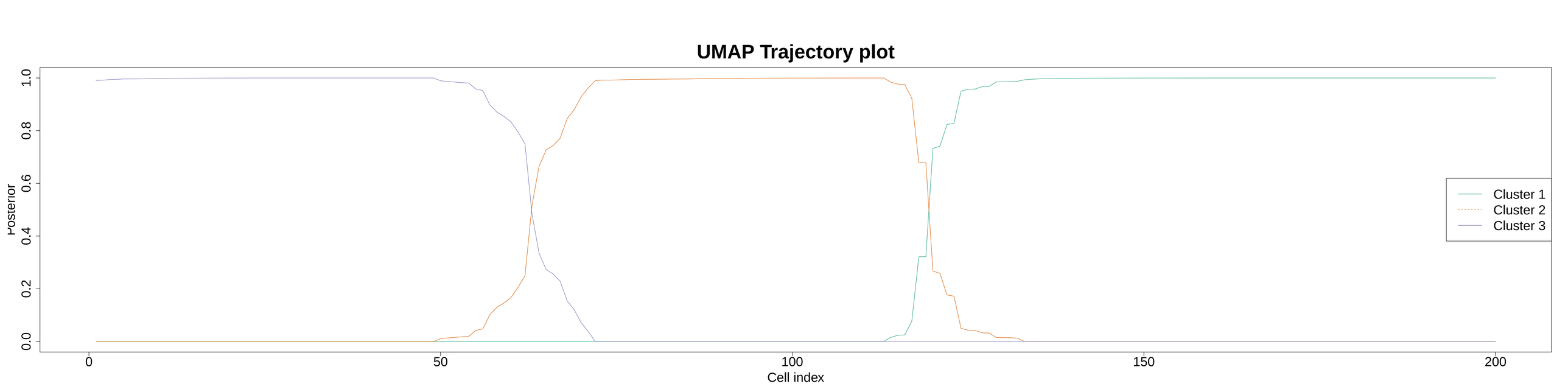

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 15 | dist = 0.3

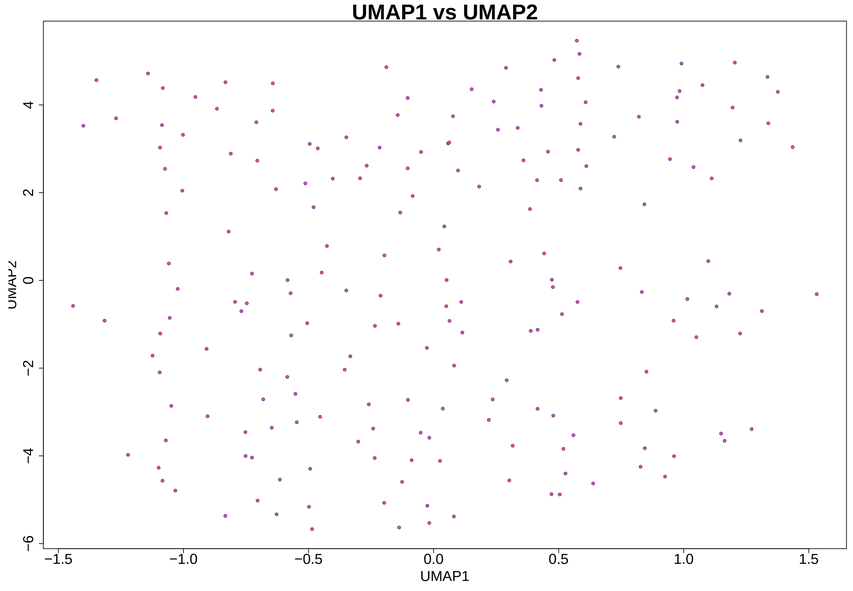


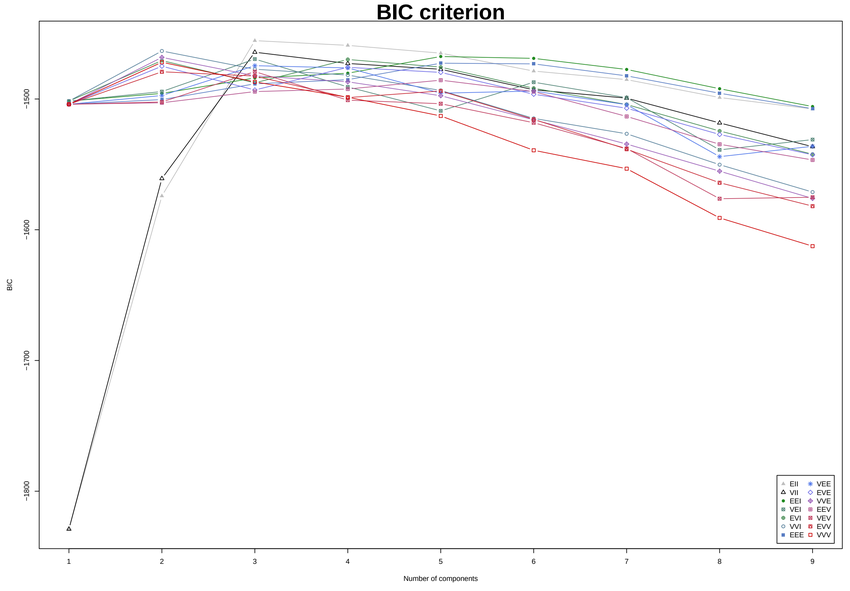



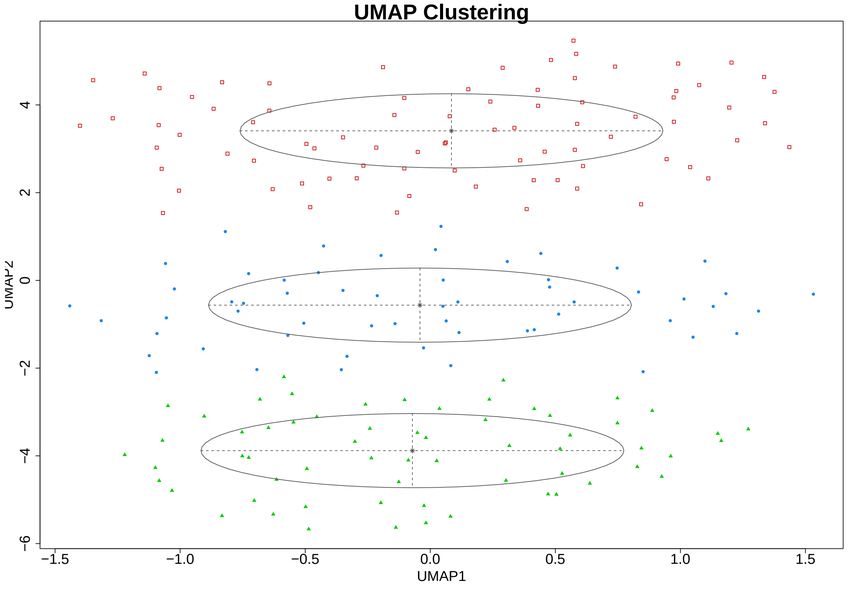



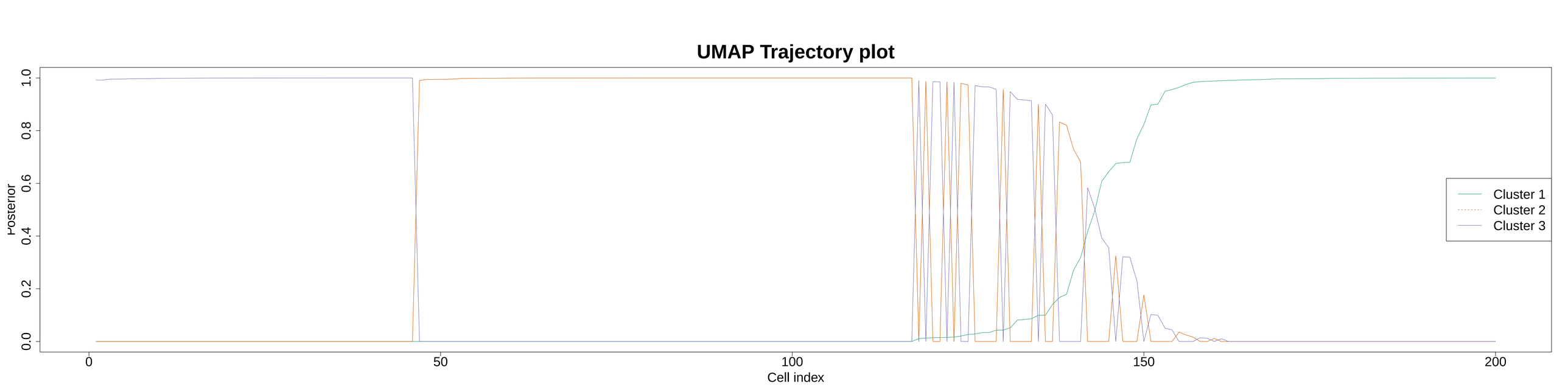

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

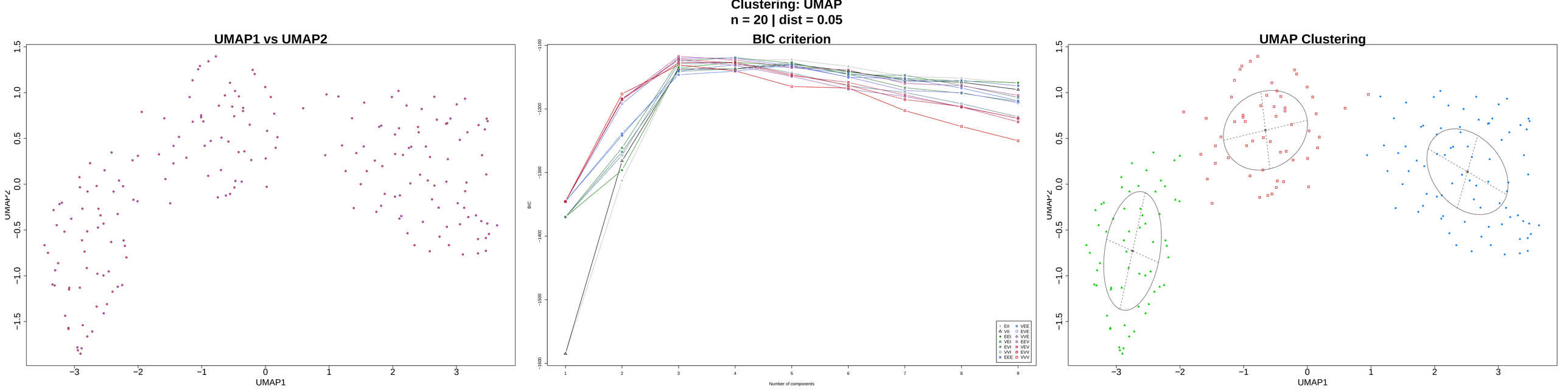
# Clustering: UMAP
## n = 15 | dist = 0.4

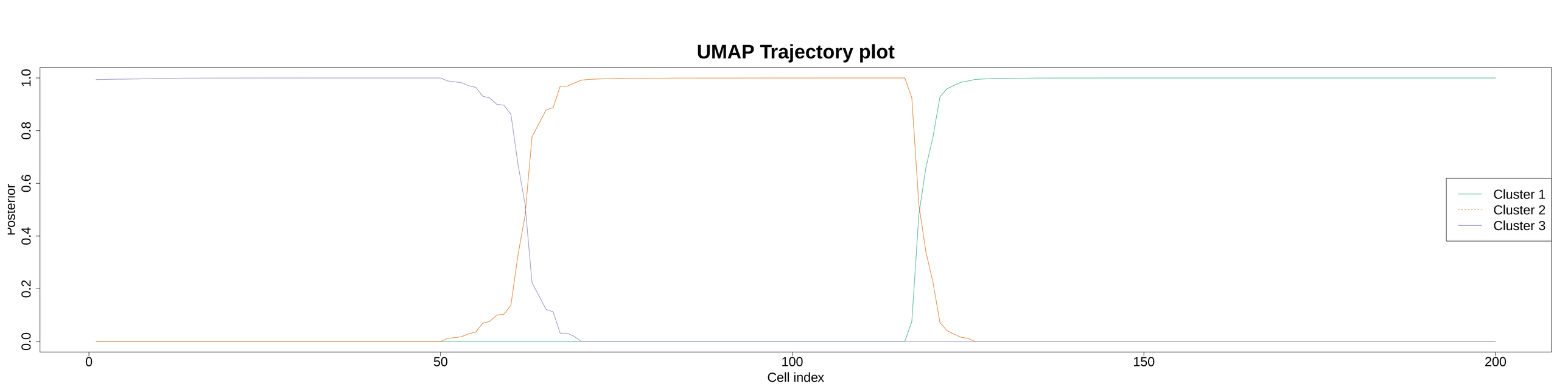


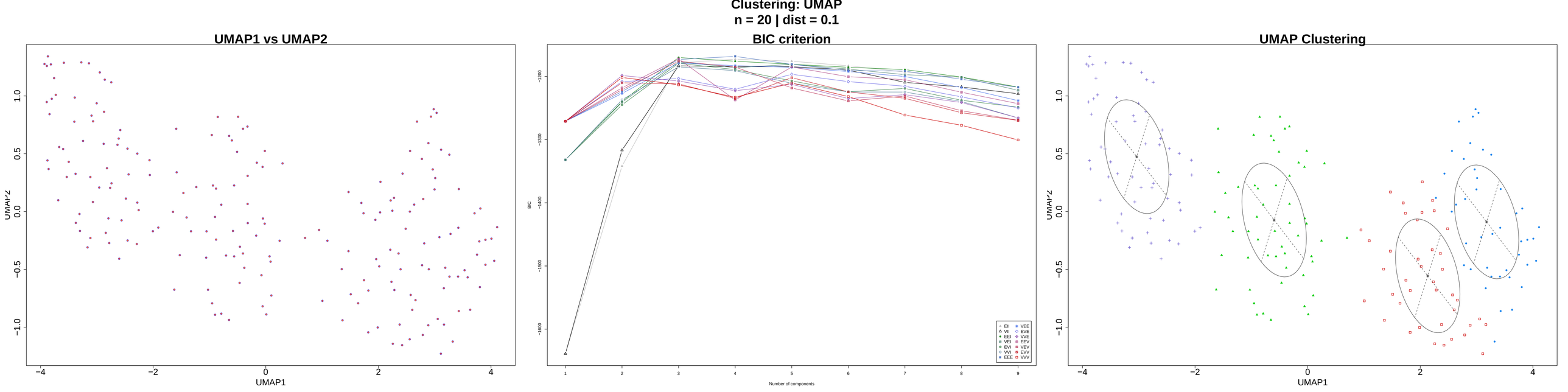



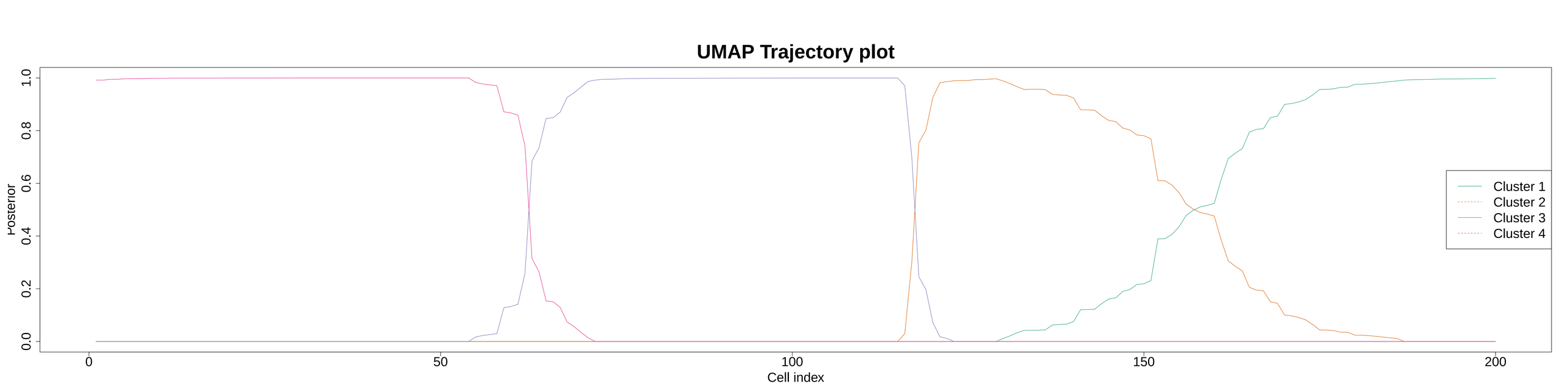




UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

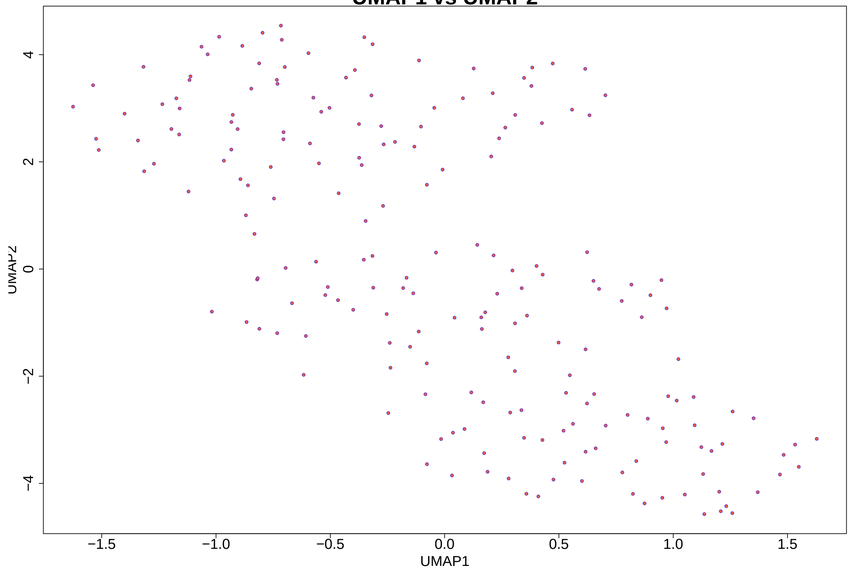

Clustering: UMAP
n = 20 | dist = 0.05
UMAP1 vs UMAP2
UMAP2
UMAP1
BIC criterion
BIC
Number of components
EII
VII
EEI
VEI
EVI
VVI
EEE
VEE
EVE
VVE
EEV
VEV
EVV
VVV
UMAP Clustering
UMAP2
UMAP1

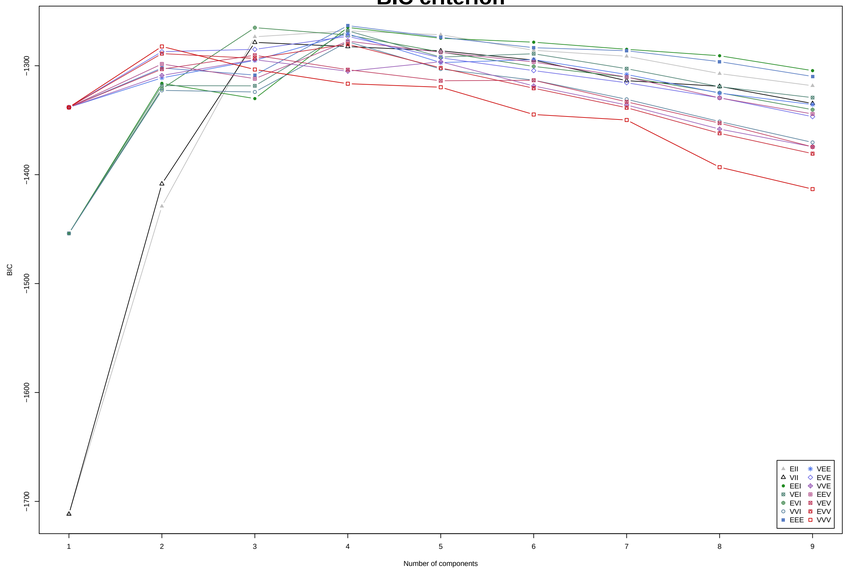

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

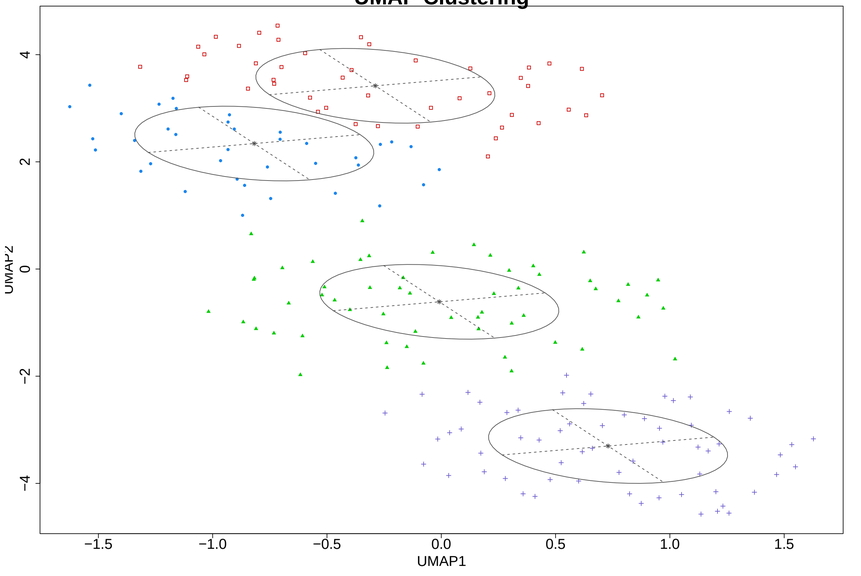

Clustering: UMAP
n = 20 | dist = 0.1
UMAP1 vs UMAP2
UMAP1
UMAP2
BIC criterion
BIC
Number of components
EII
VII
EEI
VEI
EVI
VVI
EEE
VEE
EVE
VVE
EEV
VEV
EVV
VVV
UMAP Clustering
UMAP1
UMAP2

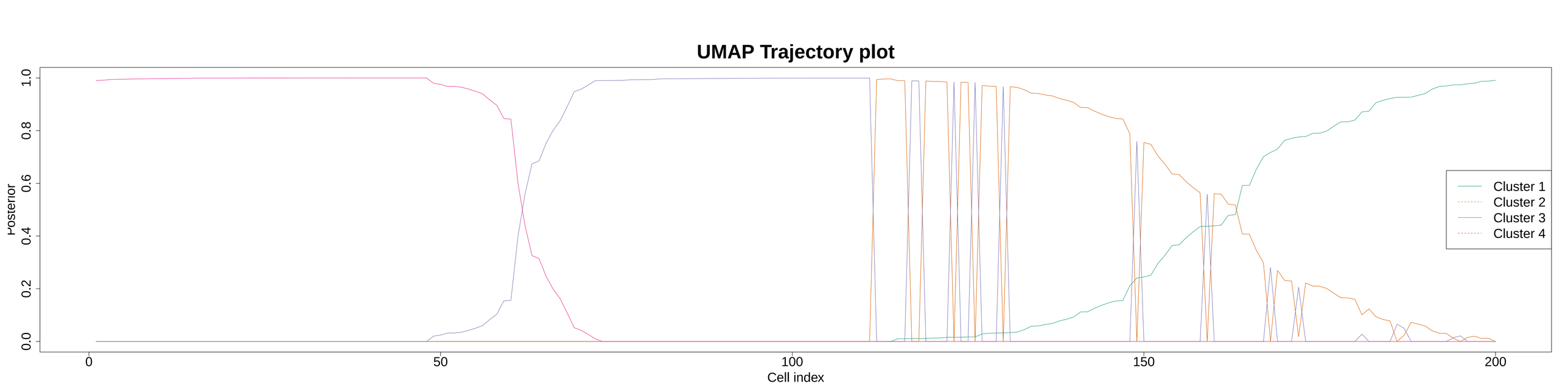

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

# Clustering: UMAP
# n = 20 | dist = 0.2

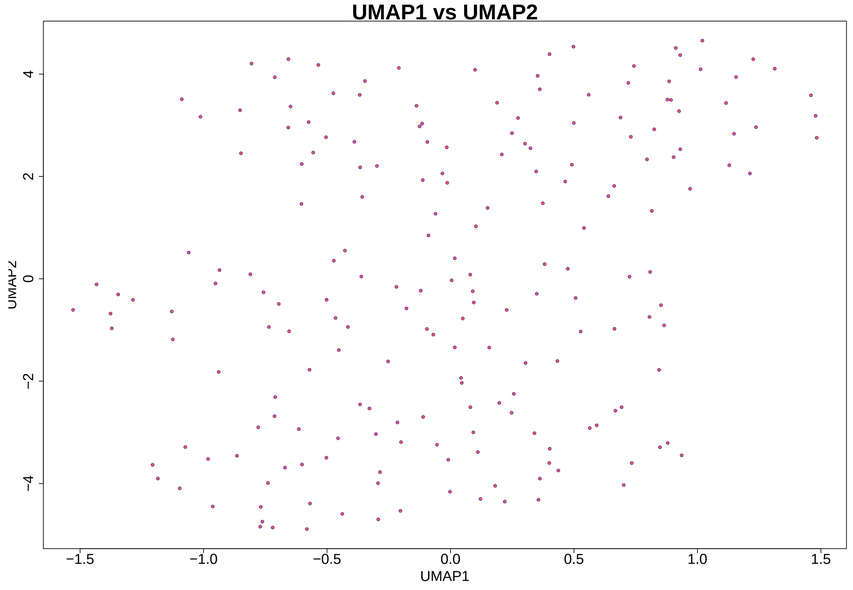


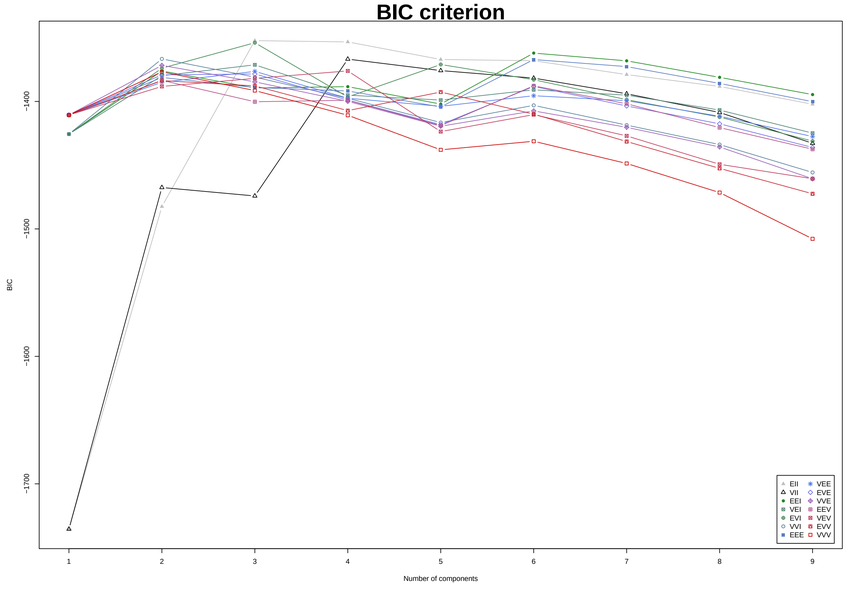



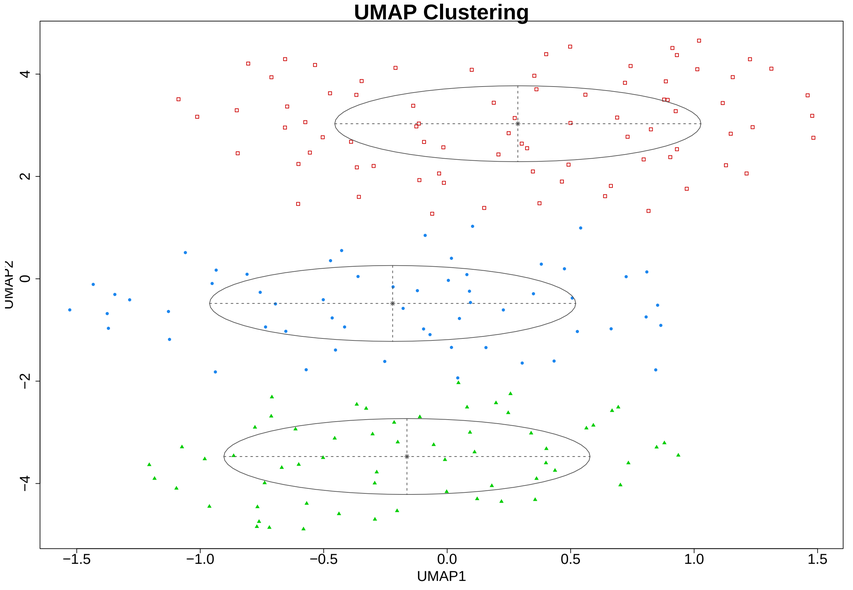



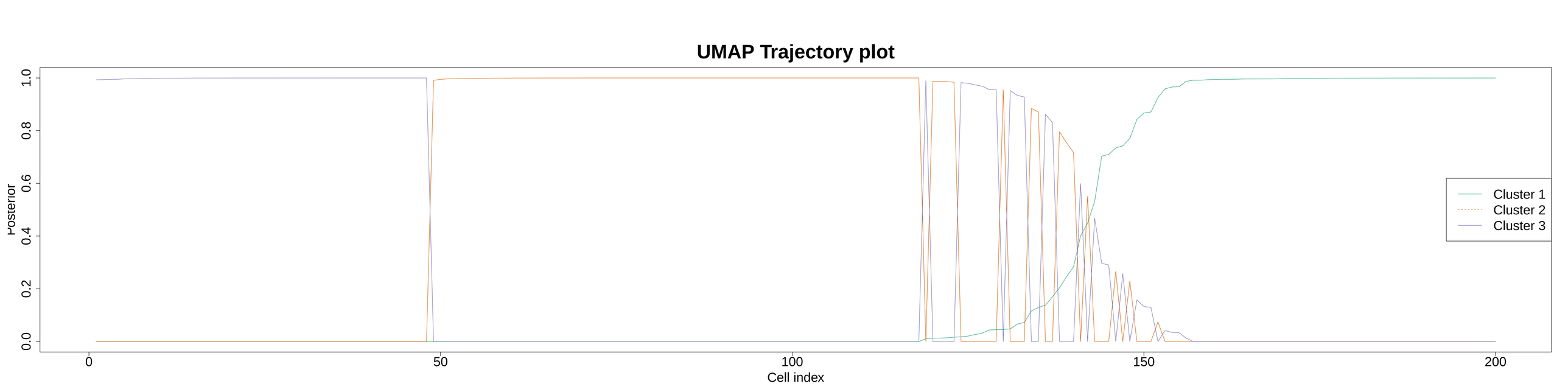

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

# Clustering: UMAP
# n = 20 | dist = 0.3

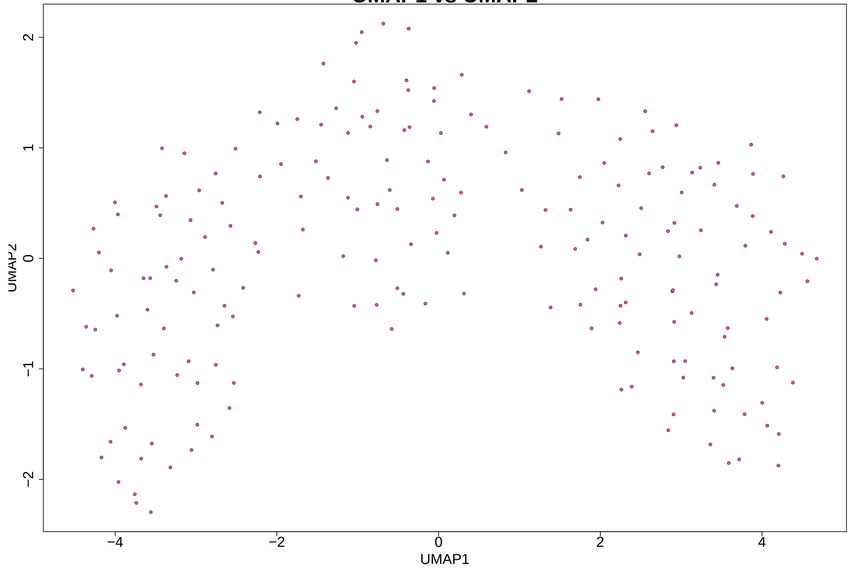


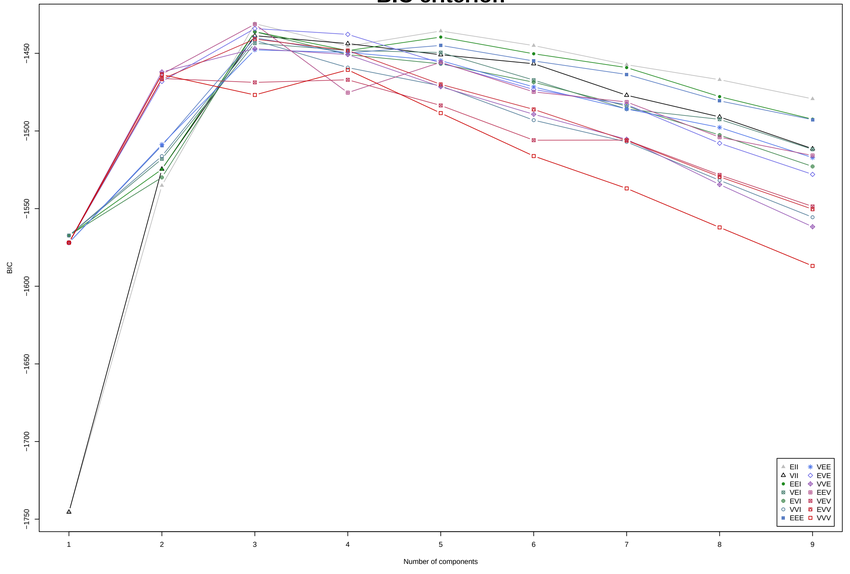



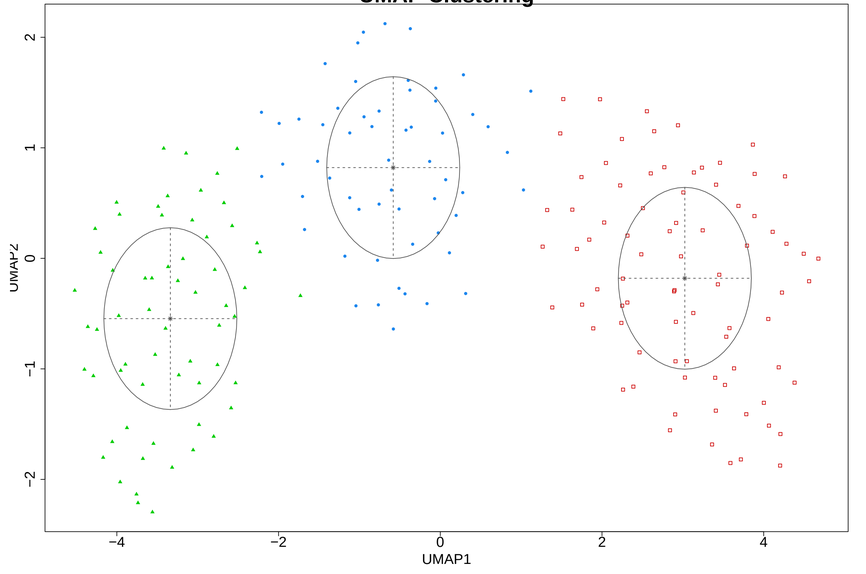



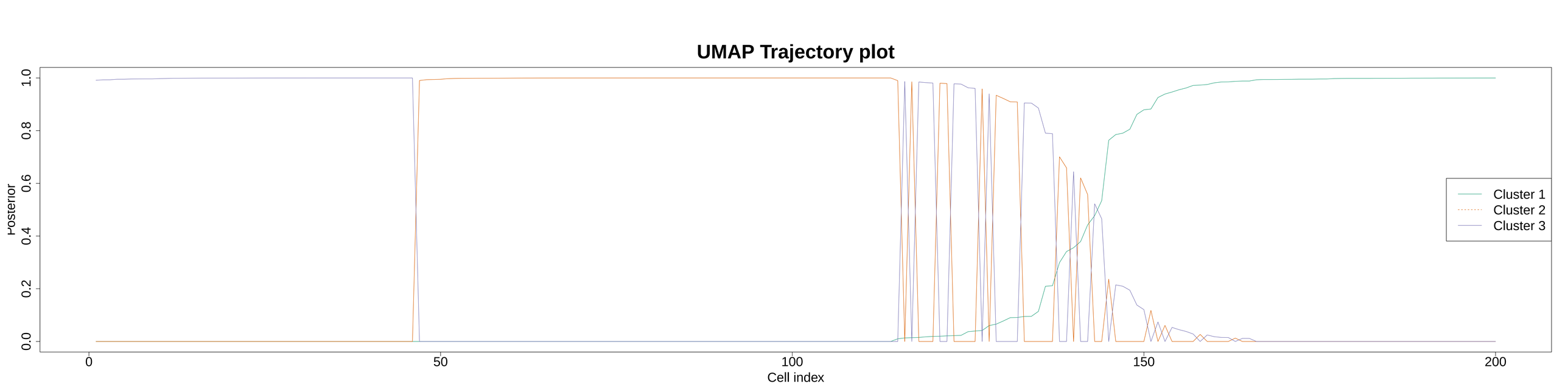

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 20 | dist = 0.4

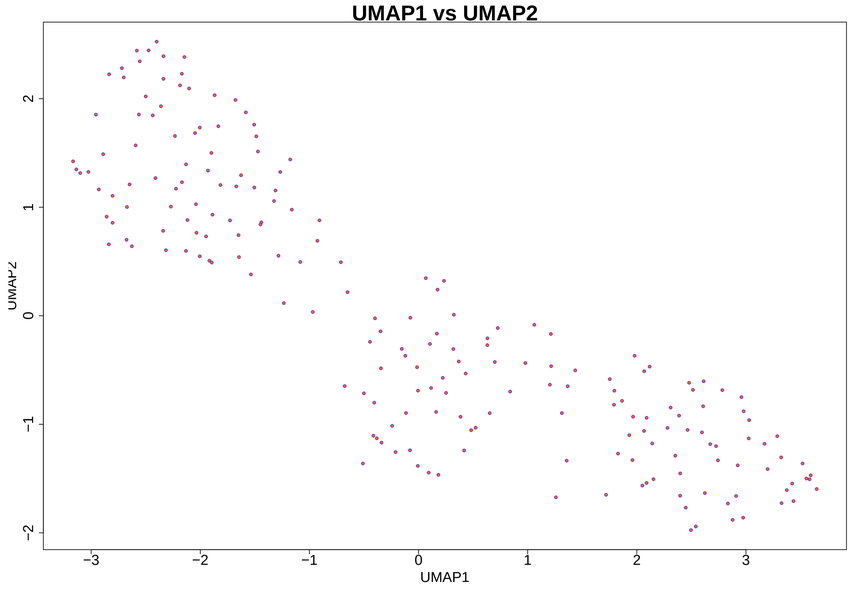


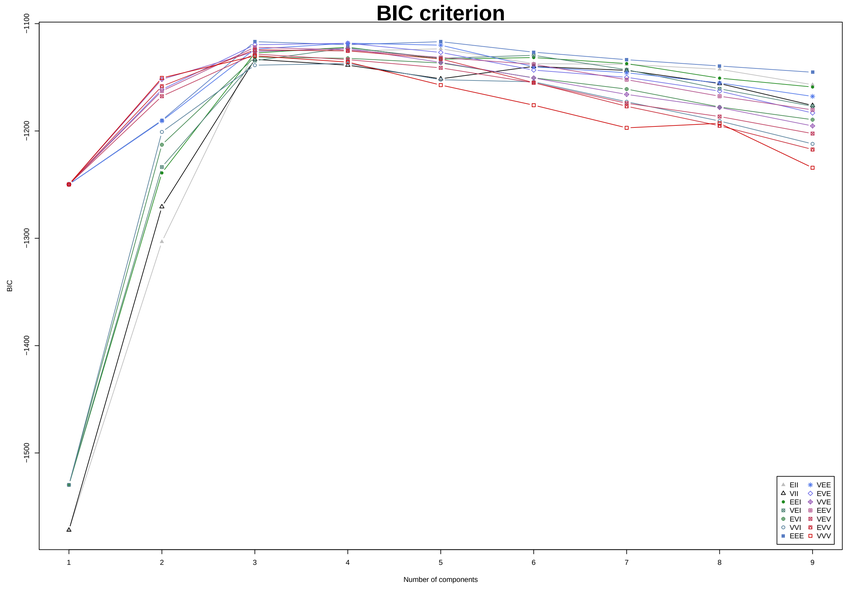



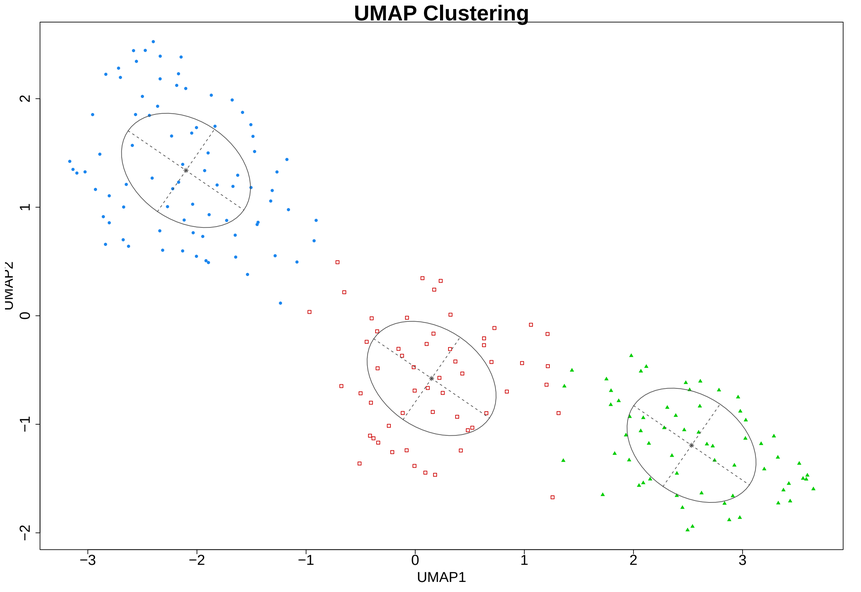



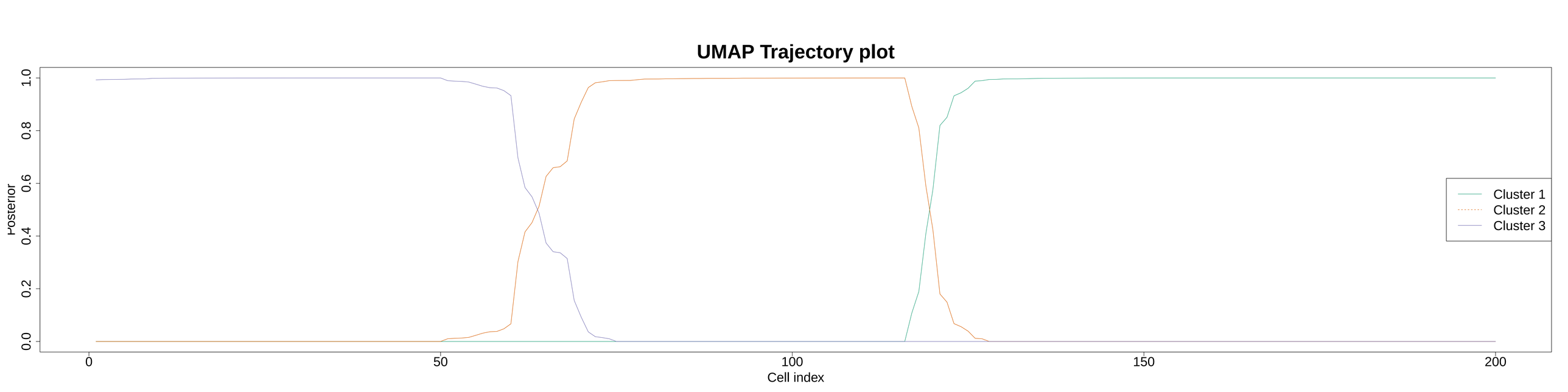

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 25 | dist = 0.05

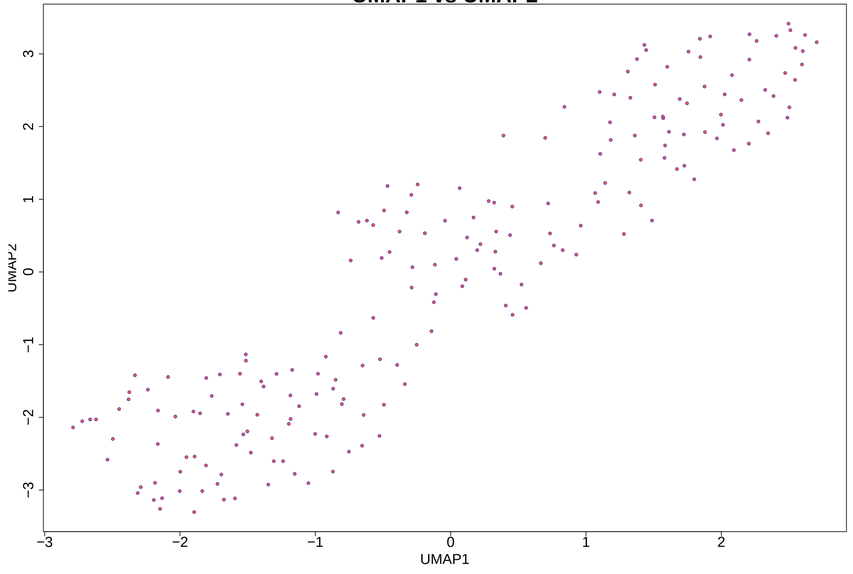


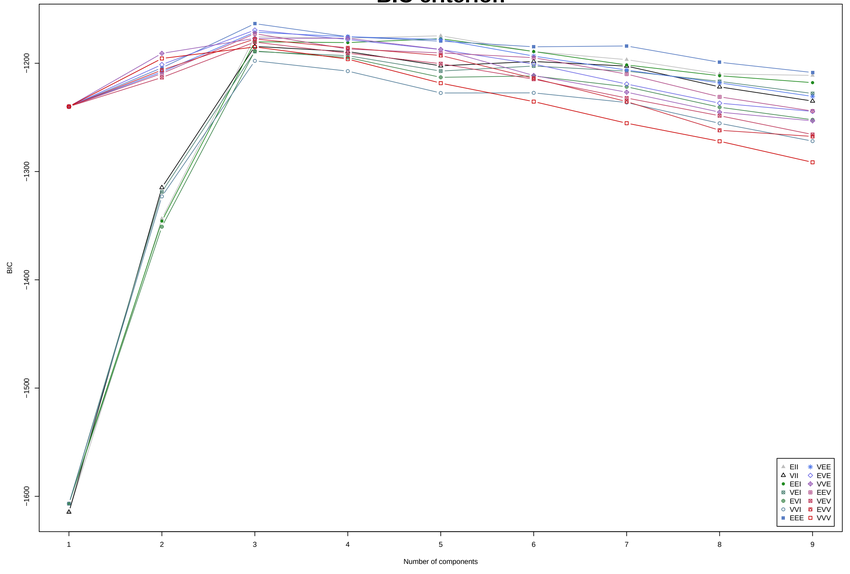



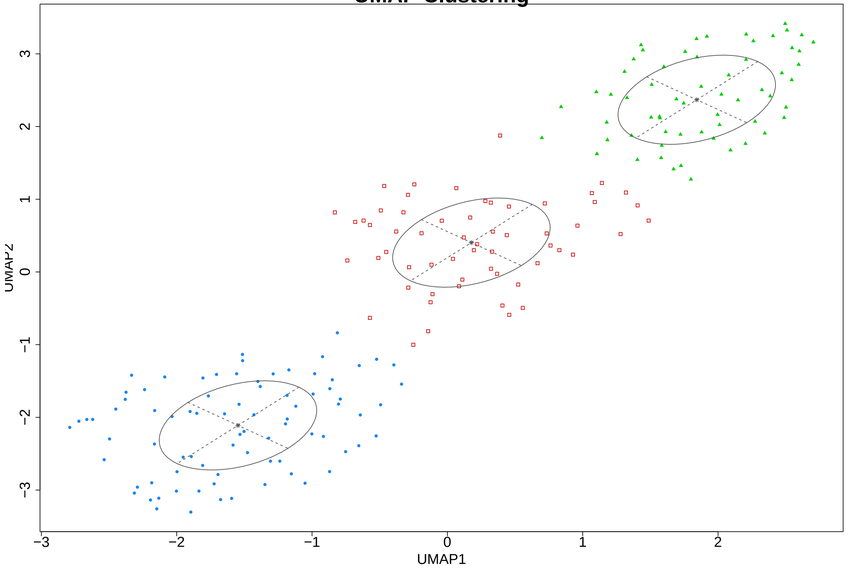



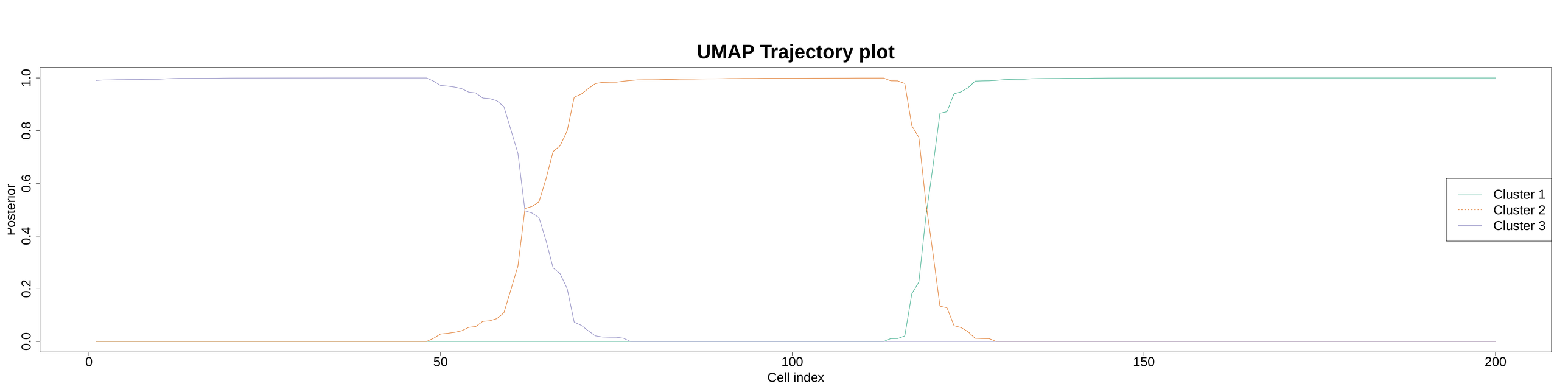

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

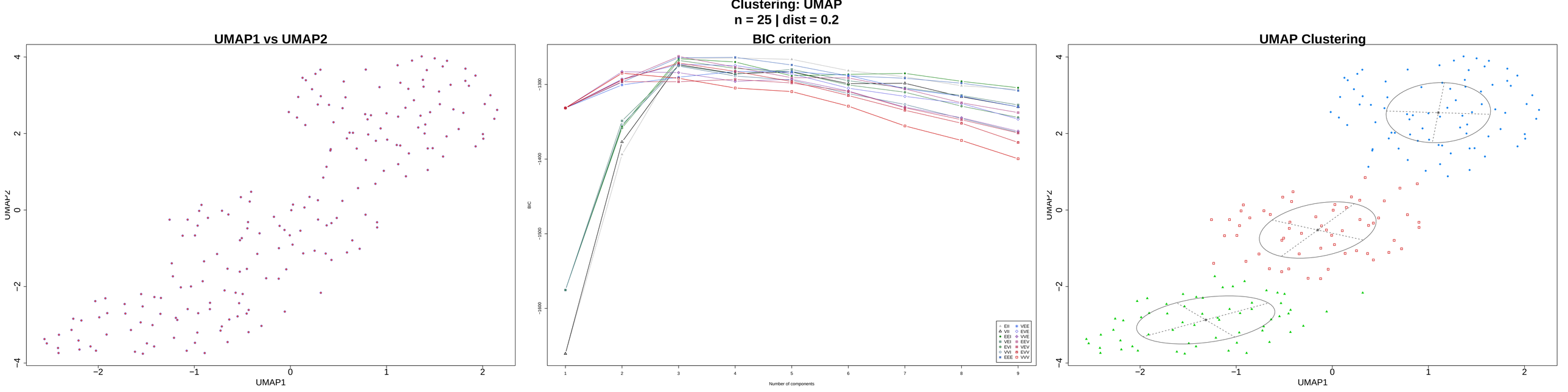
# Clustering: UMAP
# n = 25 | dist = 0.1

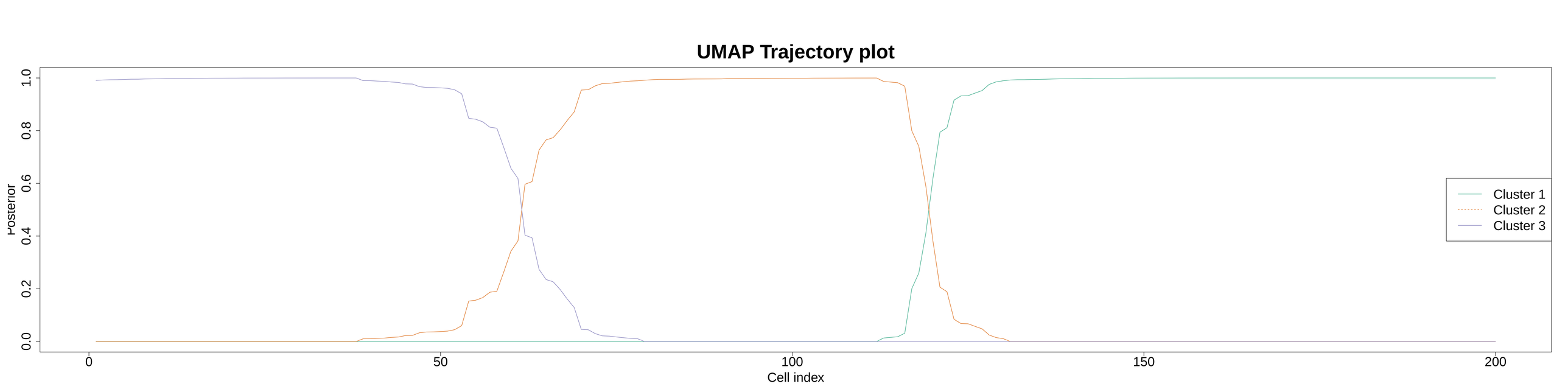


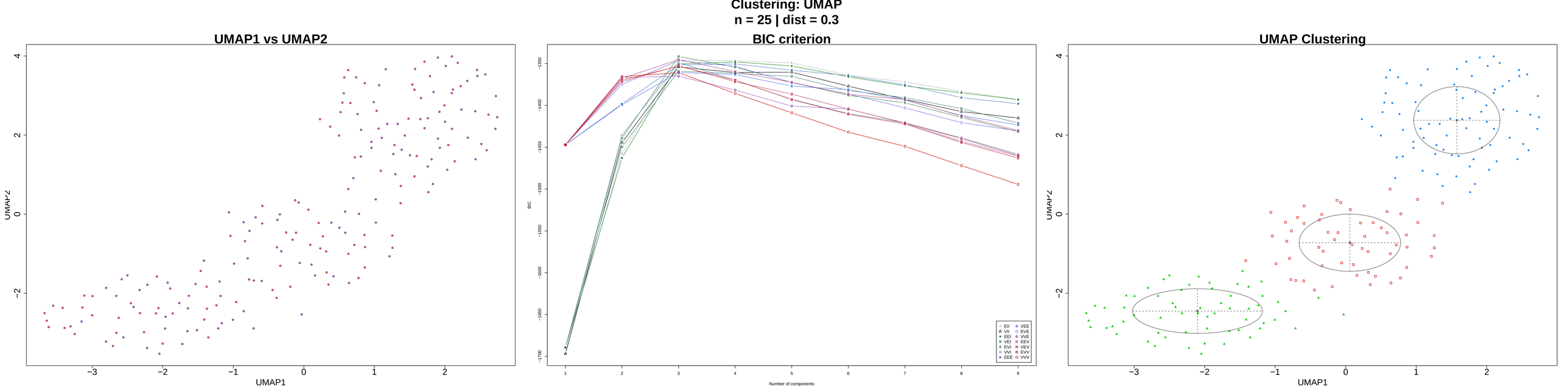



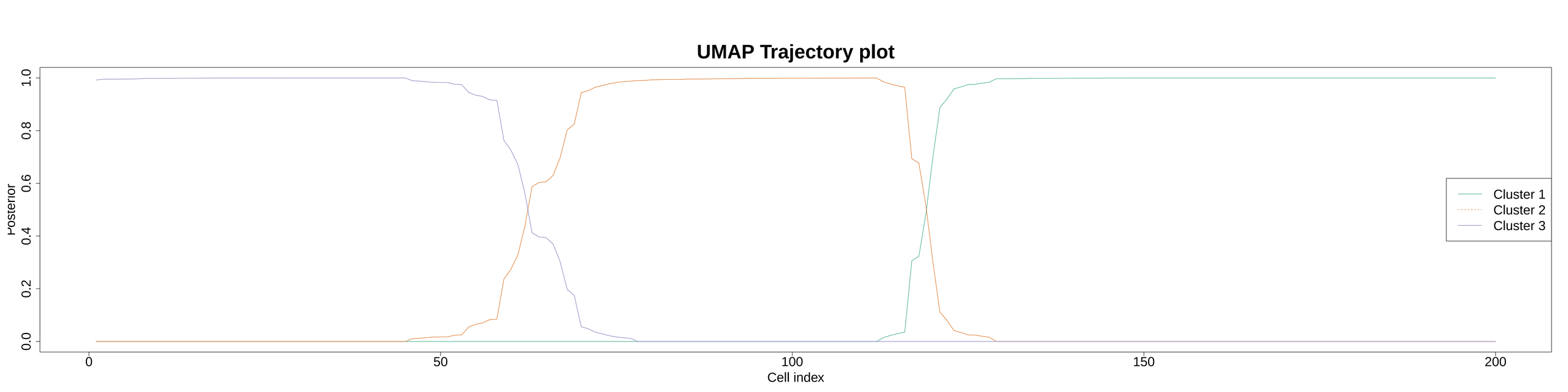




UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

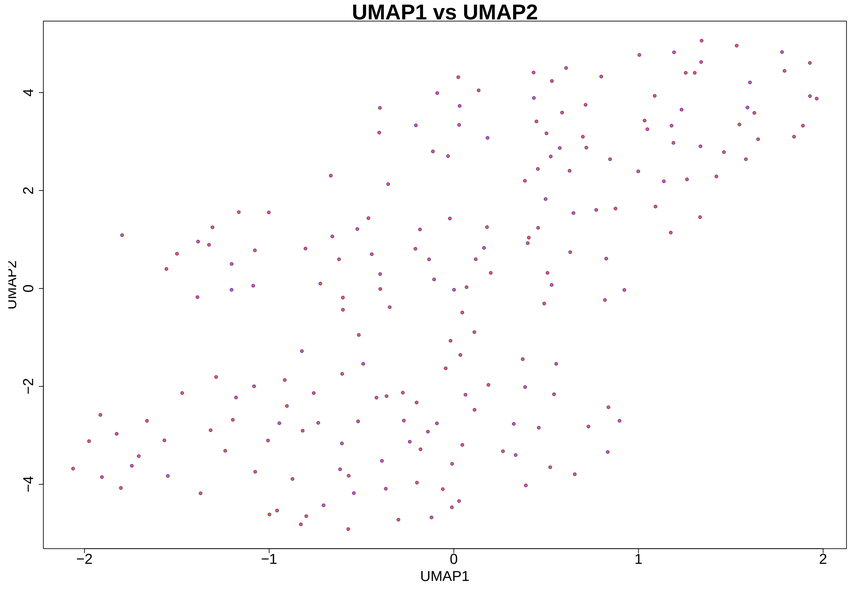

Clustering: UMAP
n = 25 | dist = 0.2
UMAP1 vs UMAP2
UMAP1
UMAP2
BIC criterion
BIC
Number of components
EII
VII
EEI
VEI
EVI
VVI
EEE
VEE
EVE
VVE
EEV
VEV
EVV
VVV
UMAP Clustering
UMAP1
UMAP2

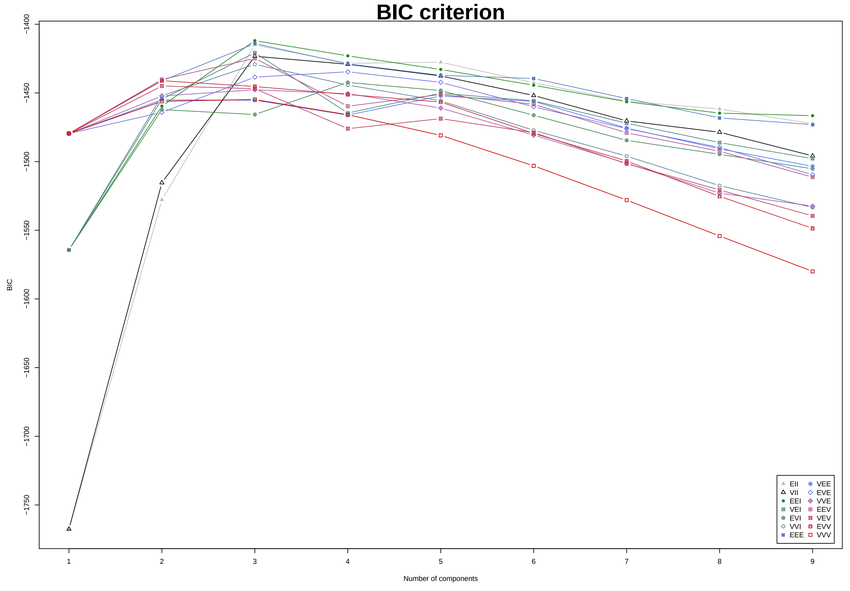

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

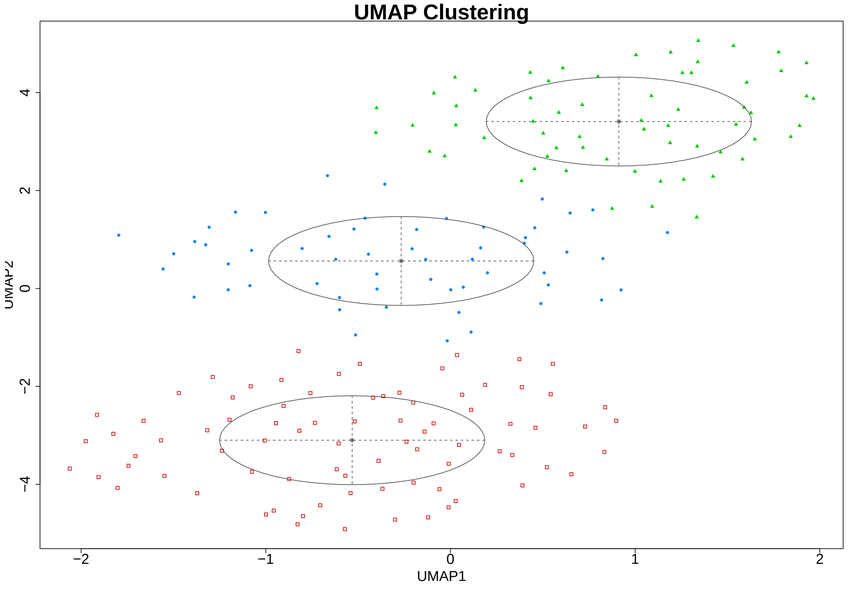

Clustering: UMAP
n = 25 | dist = 0.3
UMAP1 vs UMAP2
UMAP1
UMAP2
BIC criterion
BIC
Number of components
EII
VII
EEI
VEI
EVI
VVI
EEE
VEE
EVE
VVE
EEV
VEV
EVV
VVV
UMAP Clustering
UMAP1
UMAP2

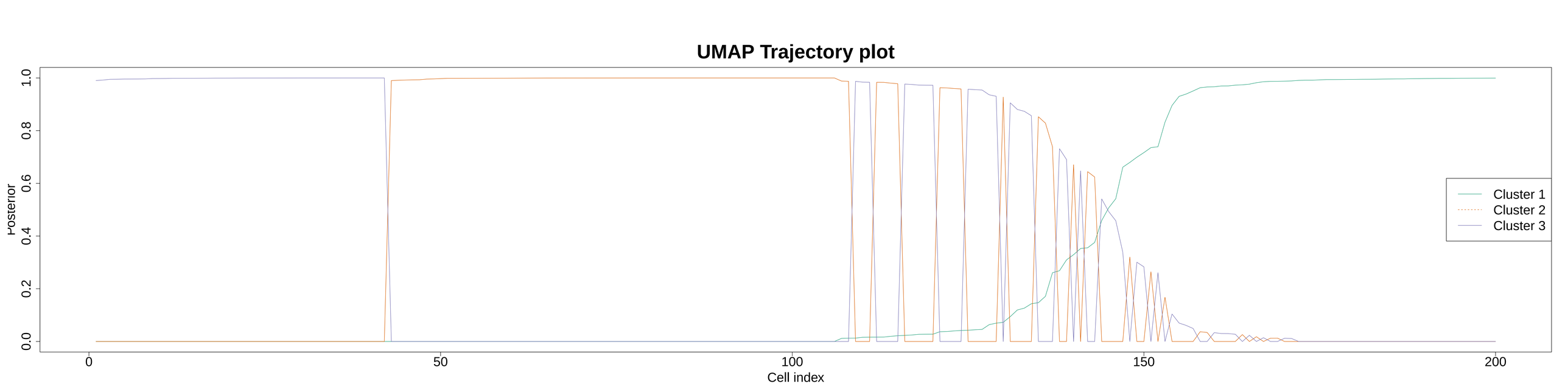

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

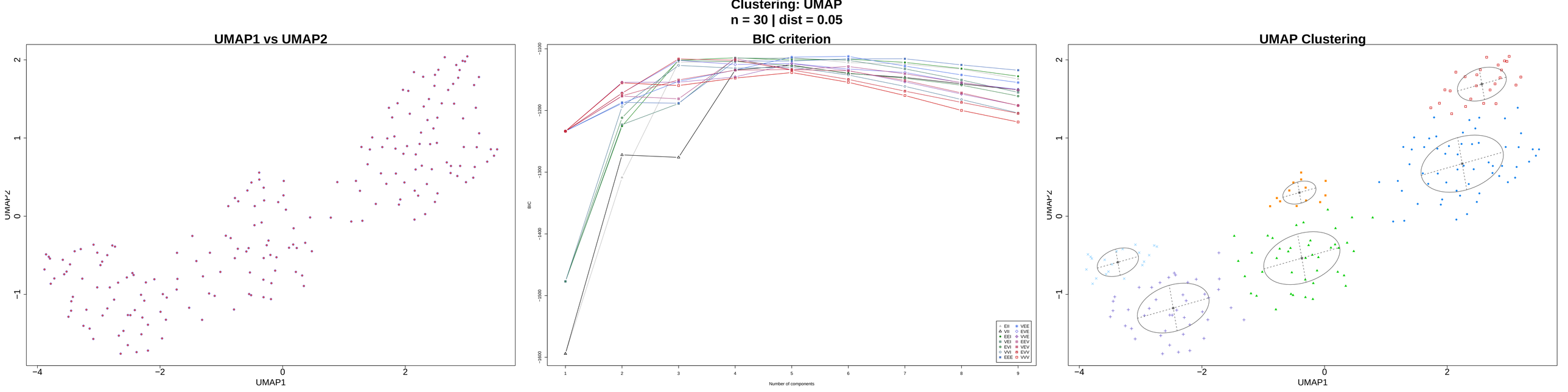
**Clustering: UMAP**
**n = 25 | dist = 0.4**

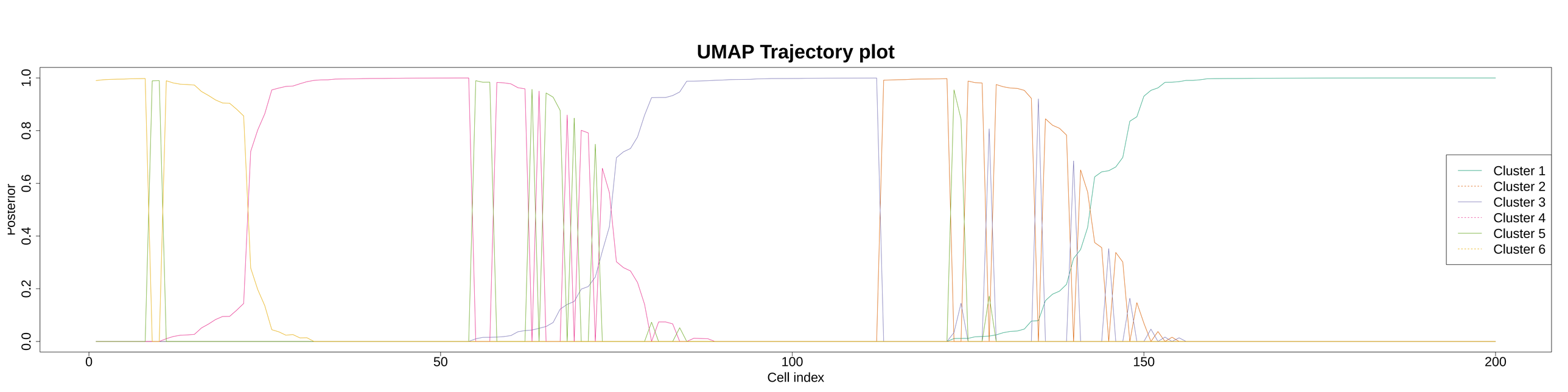


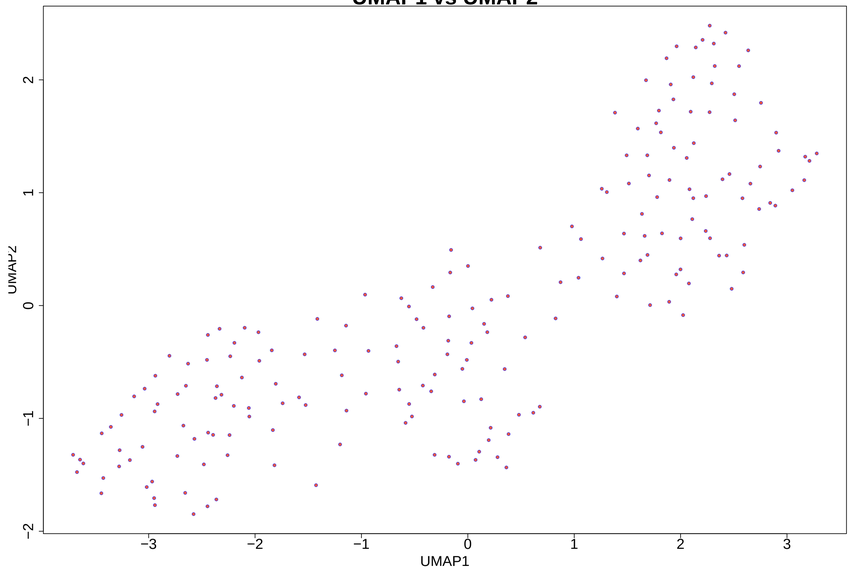



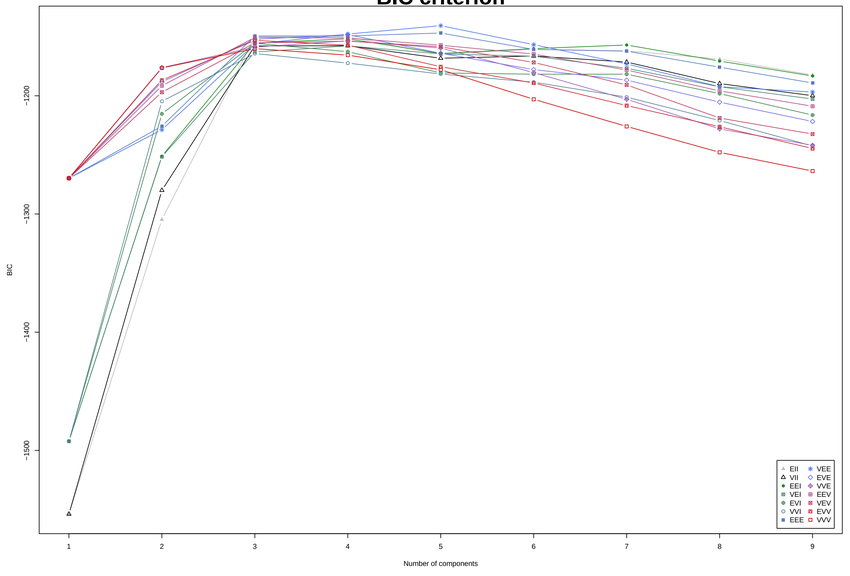

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

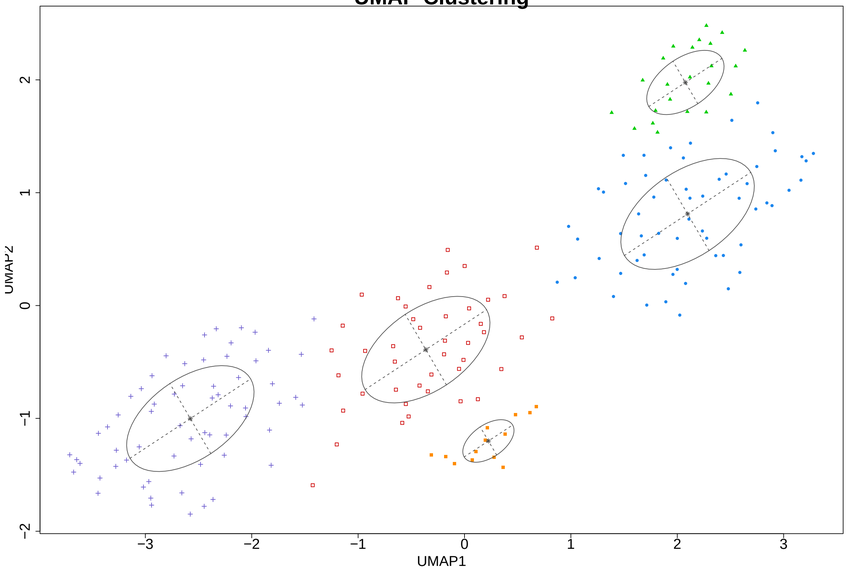

Clustering: UMAP
n = 30 | dist = 0.05
UMAP1 vs UMAP2
UMAP2
UMAP1
BIC criterion
BIC
Number of components
EII
VII
EEI
VEI
EVI
VVI
EEE
VEE
EVE
VVE
EEV
VEV
EVV
VVV
UMAP Clustering
UMAP2
UMAP1

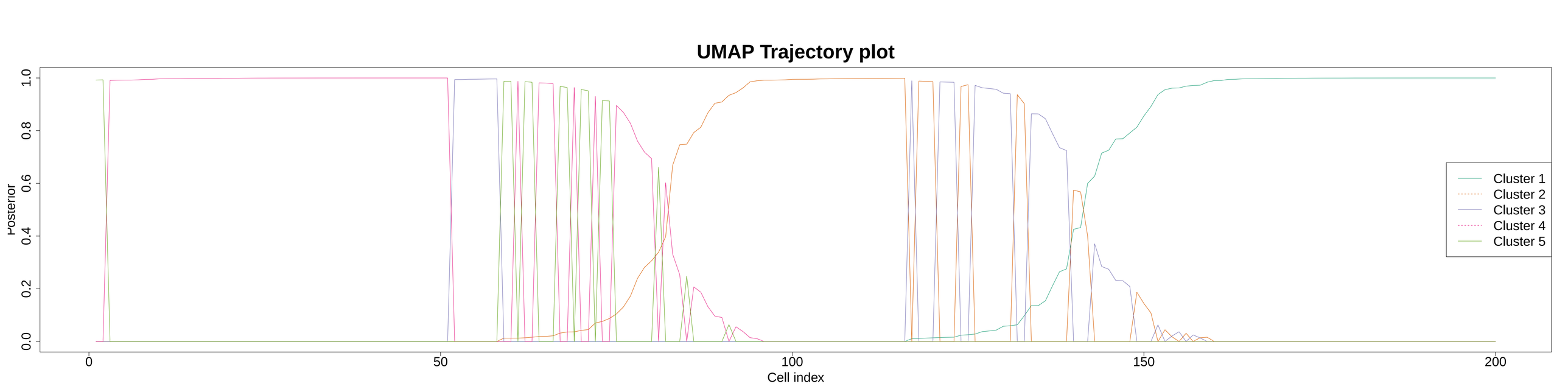

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5
Cluster 6

# Clustering: UMAP
# n = 30 | dist = 0.1

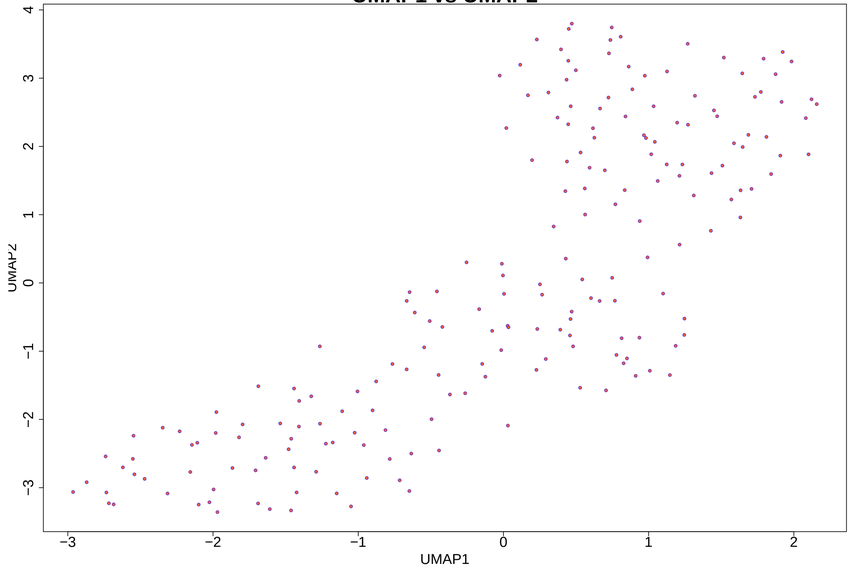


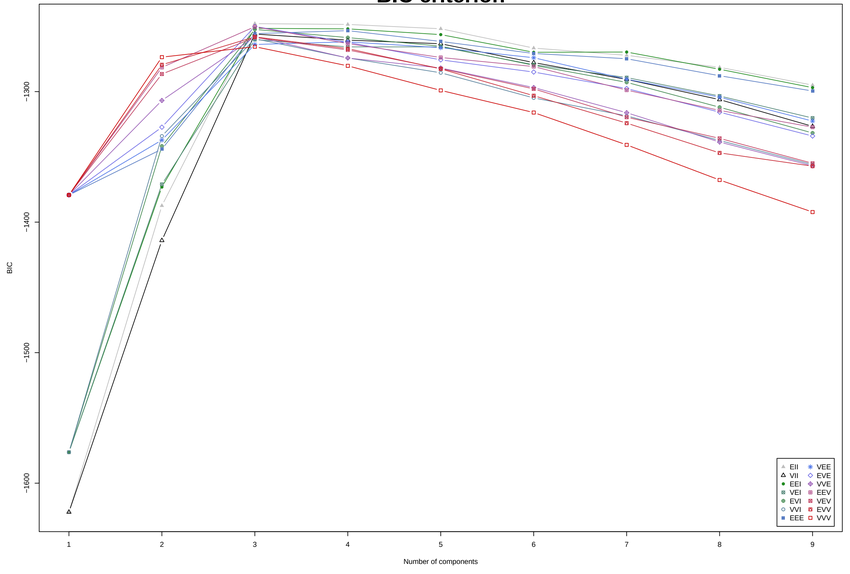



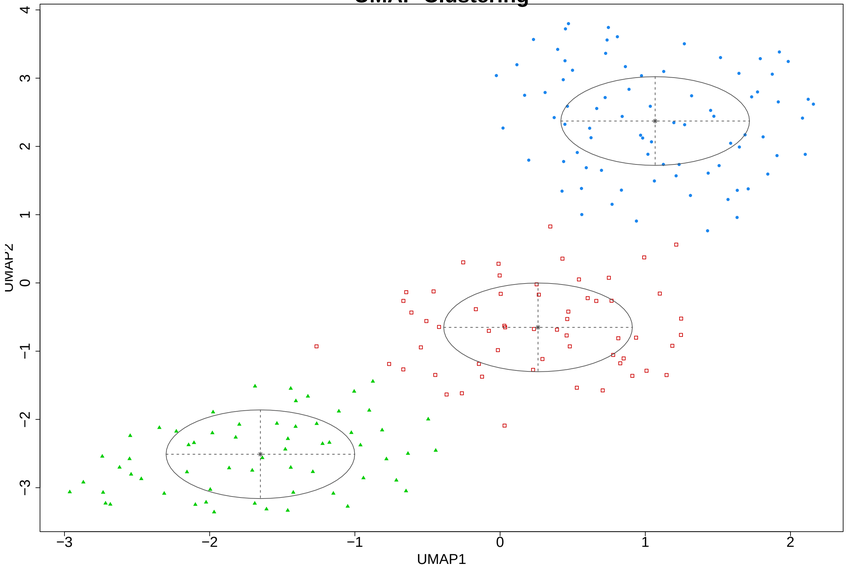



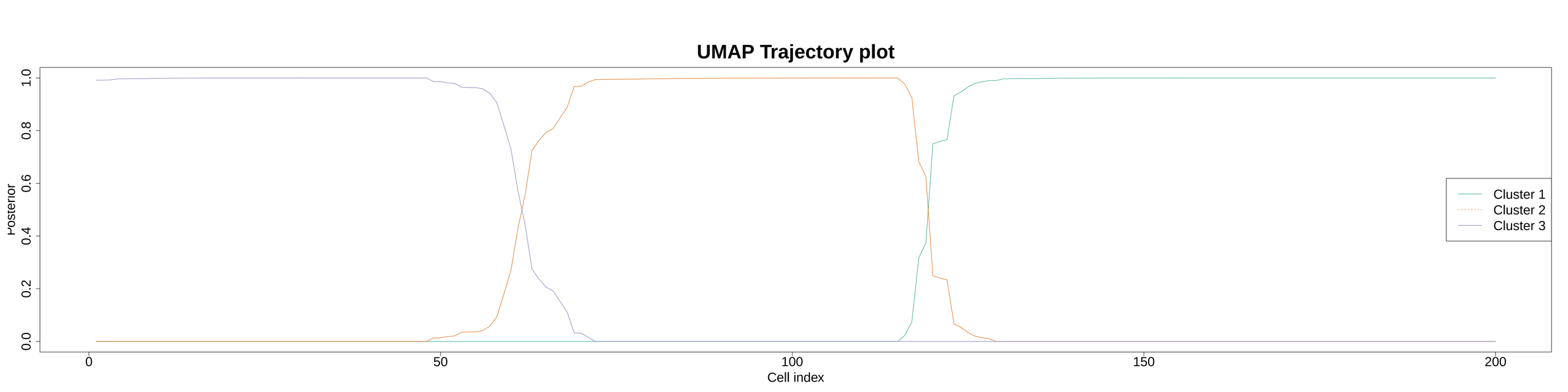

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4
Cluster 5

# Clustering: UMAP
# n = 30 | dist = 0.2

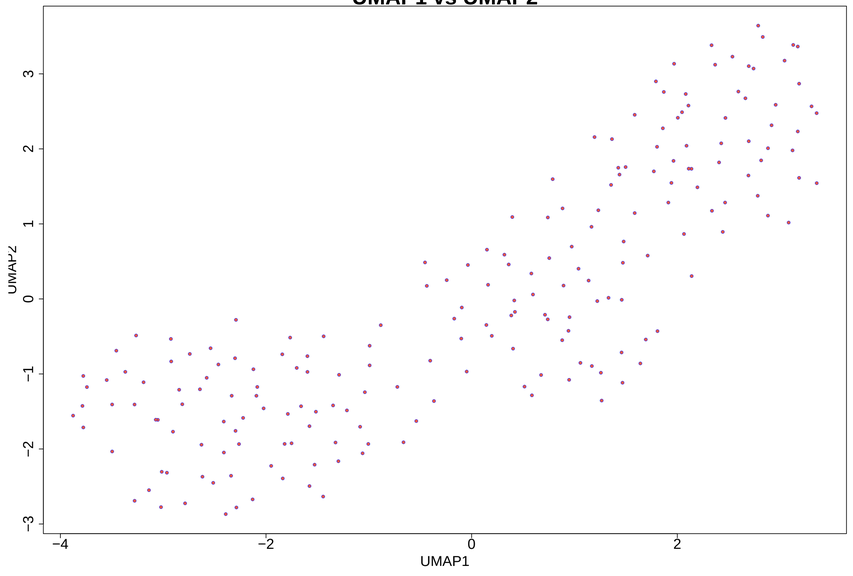


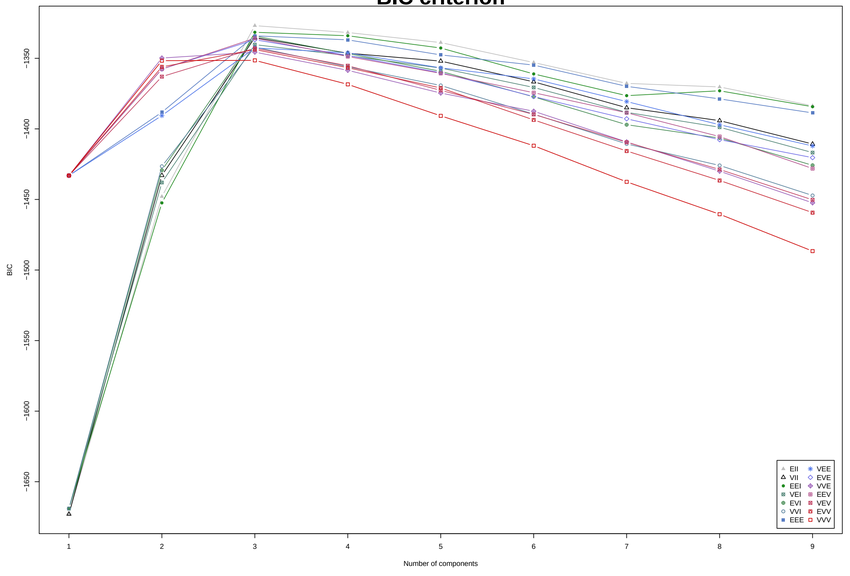



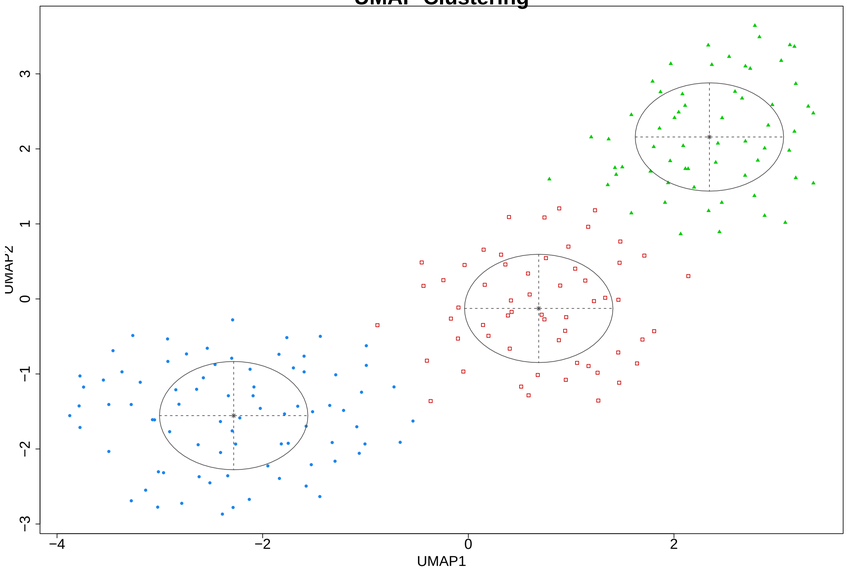



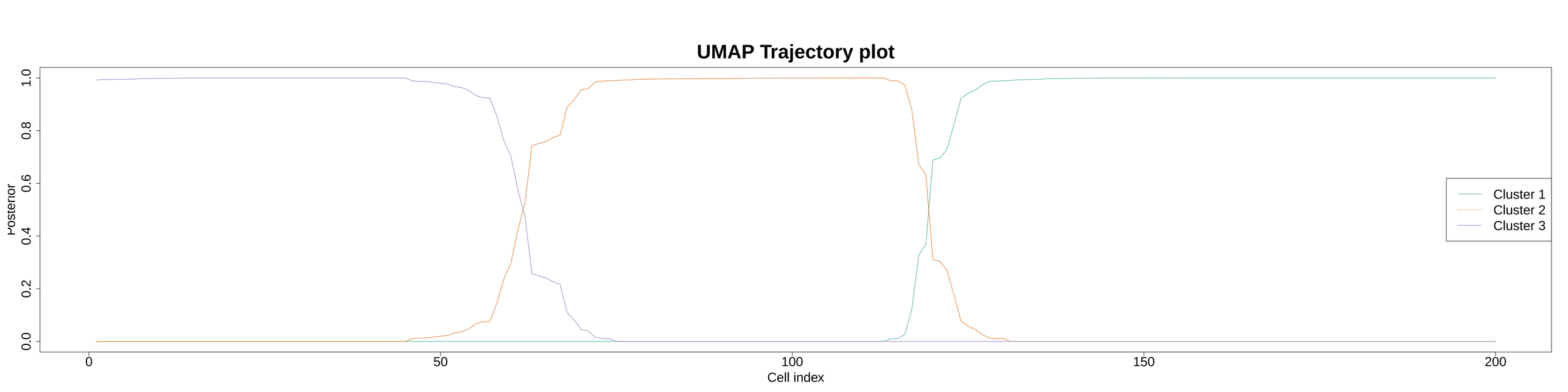

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 30 | dist = 0.3

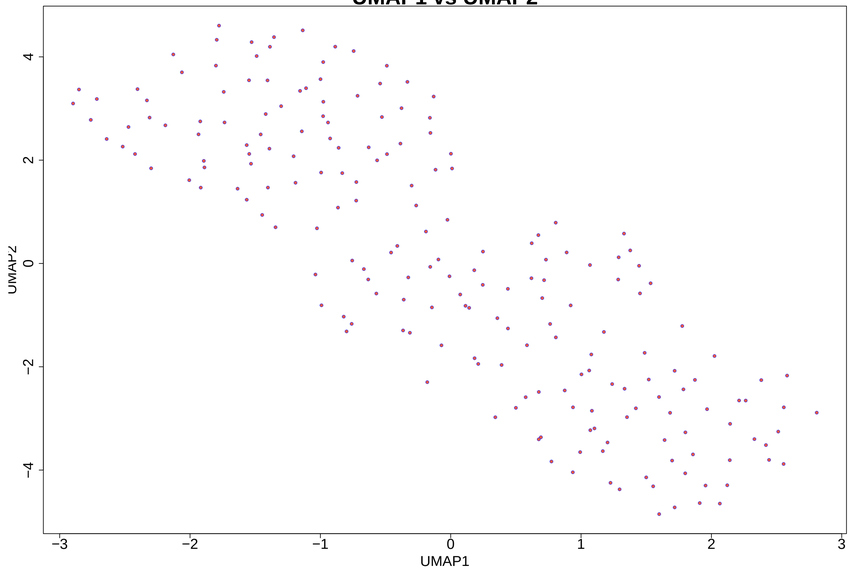


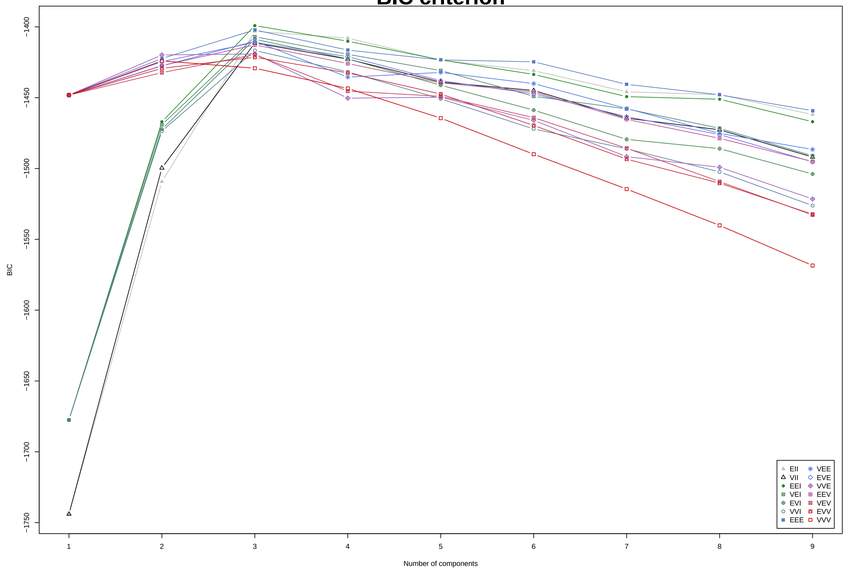



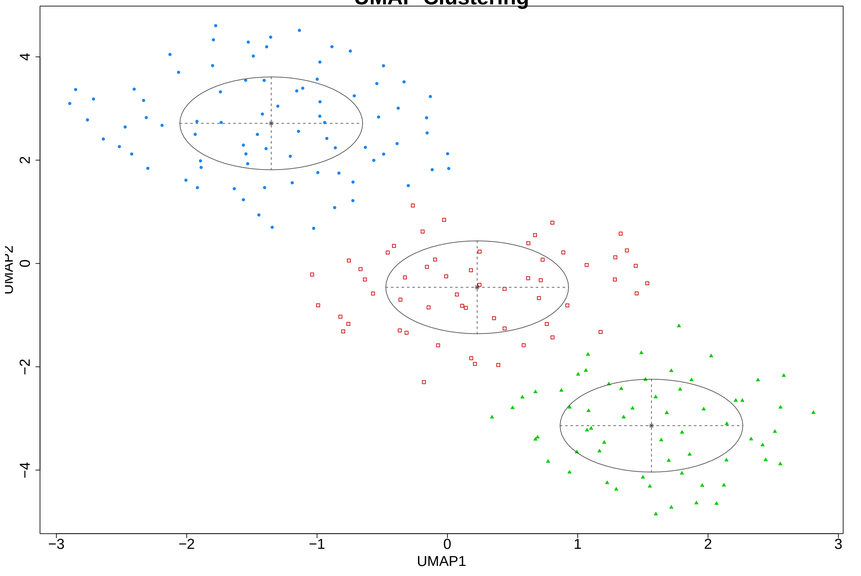



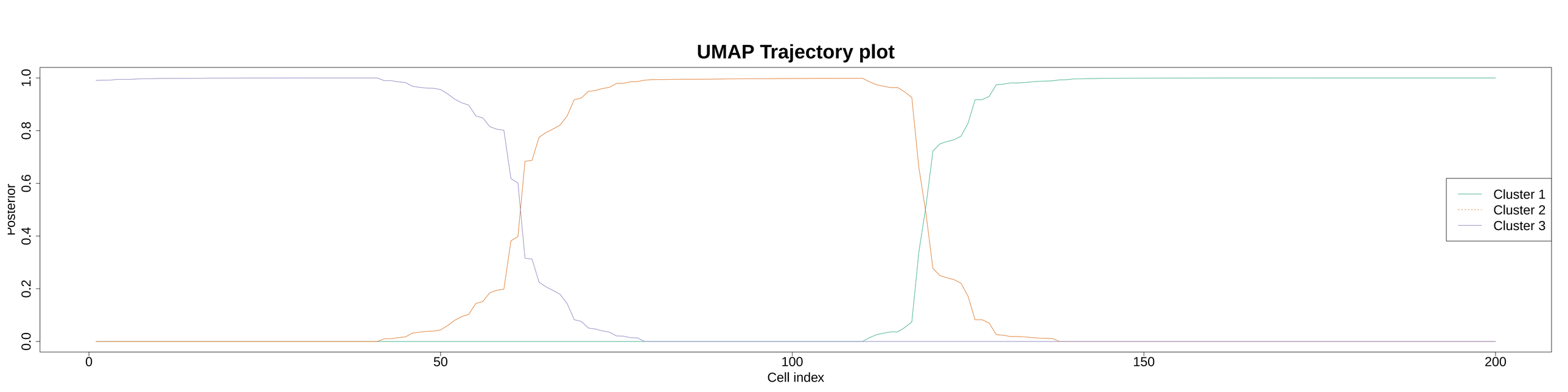

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 30 | dist = 0.4

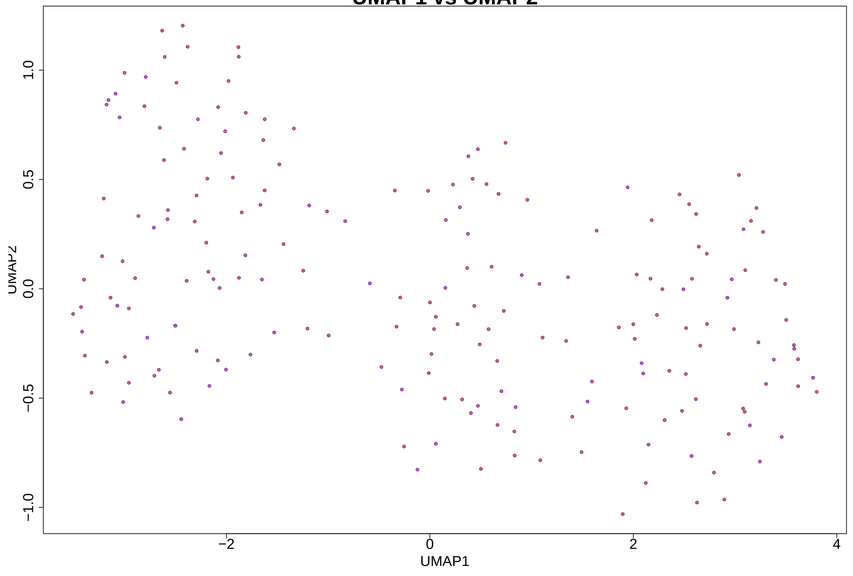


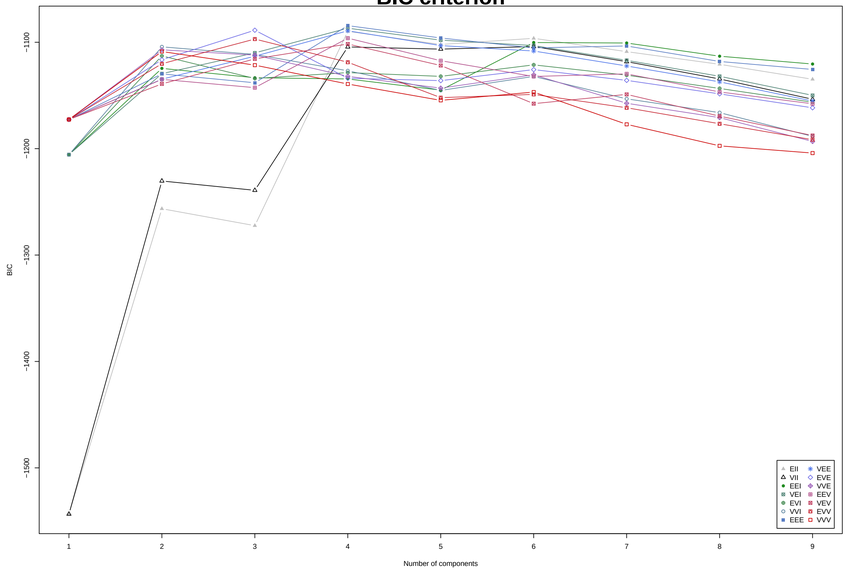



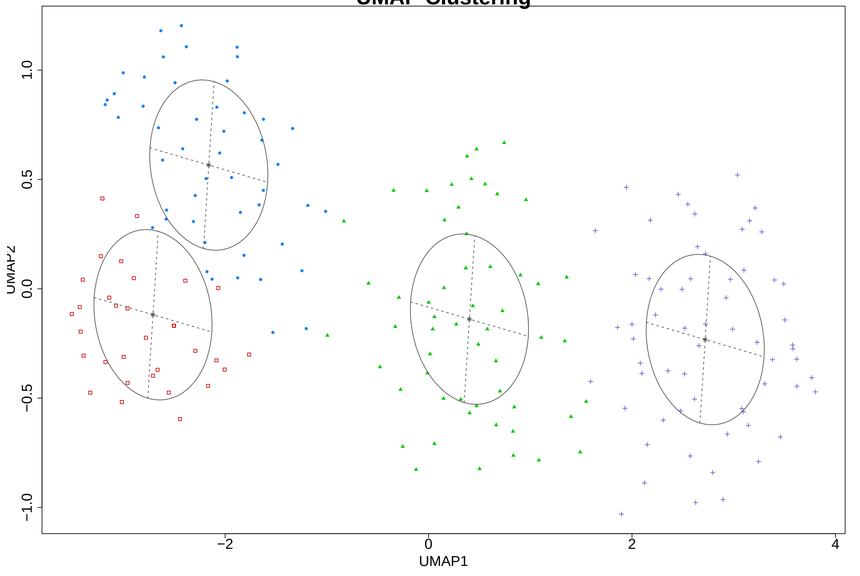



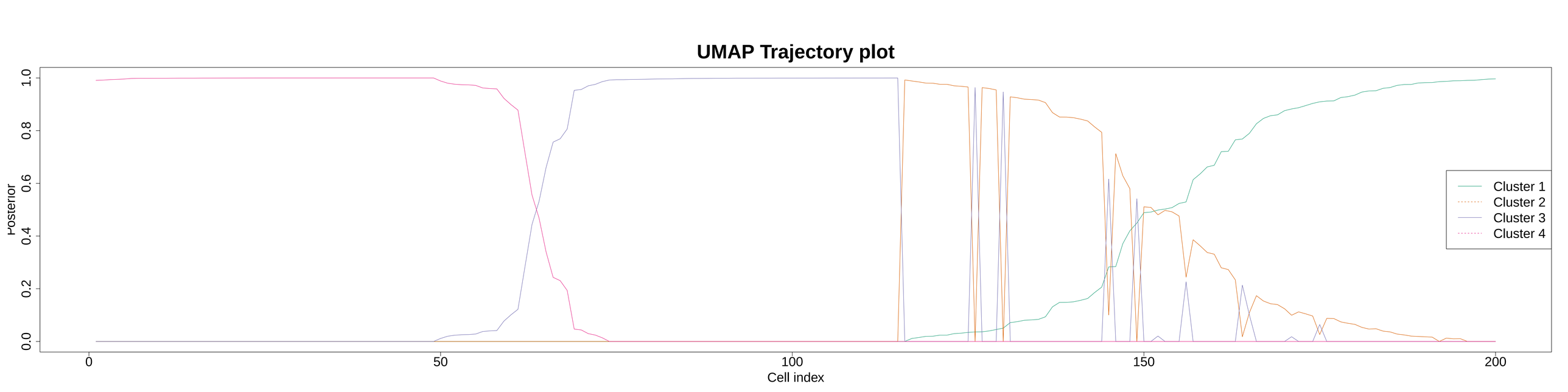

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 35 | dist = 0.05

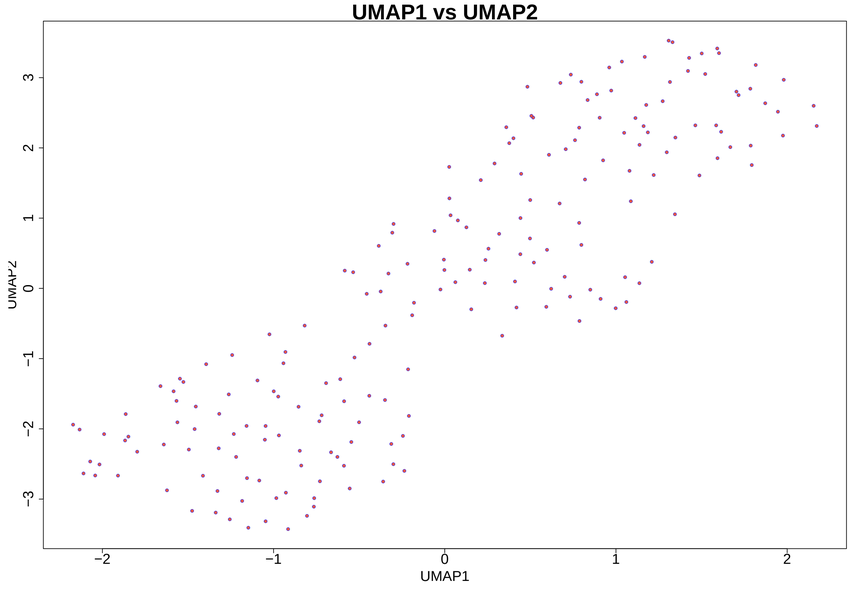


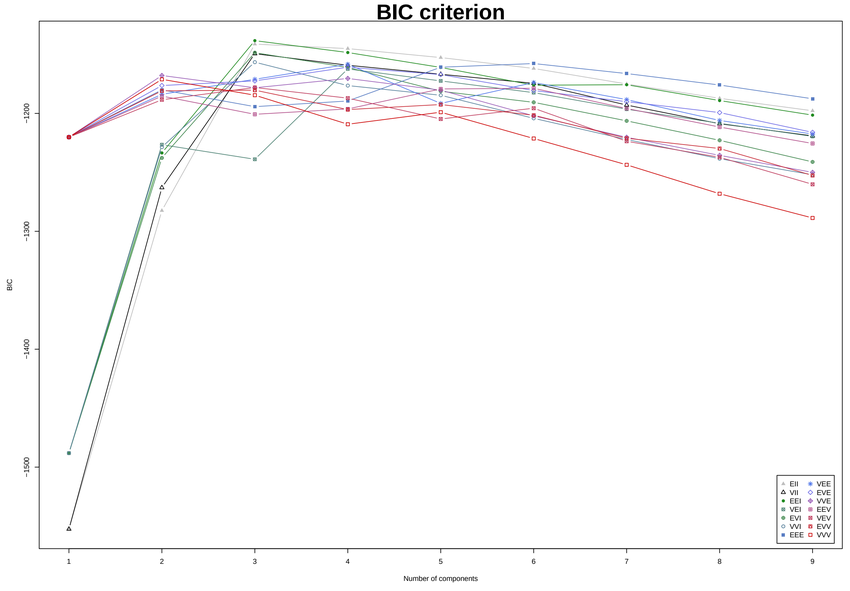



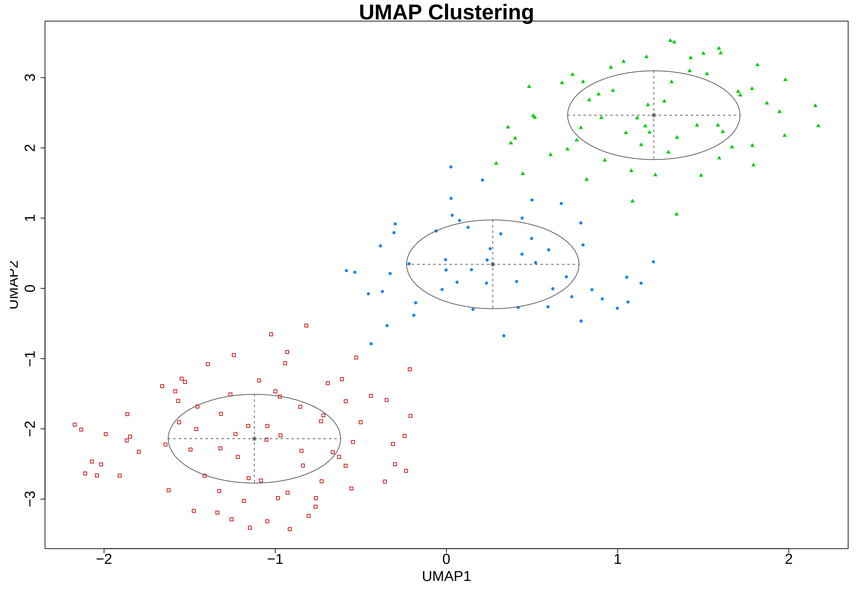



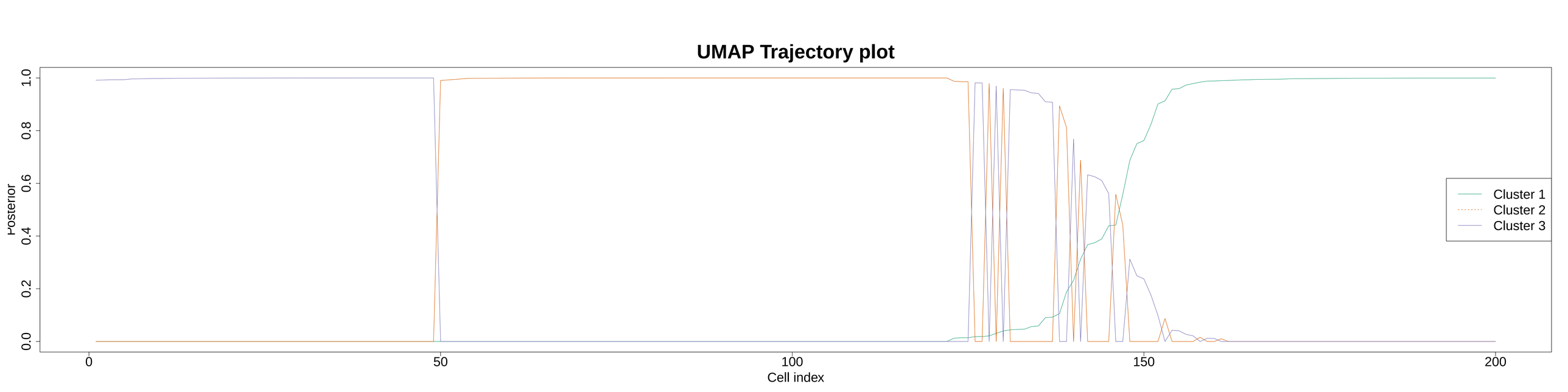

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

Clustering: UMAP
n = 35 | dist = 0.1

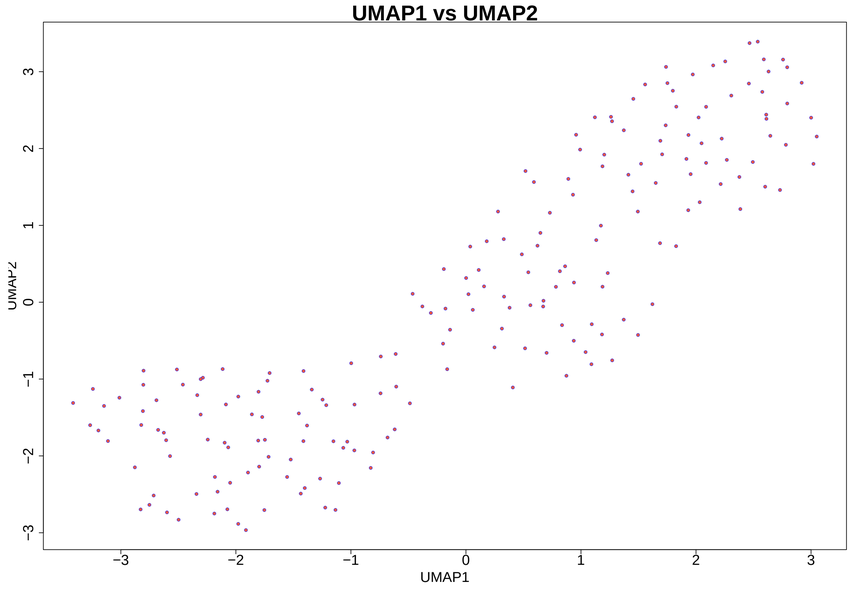


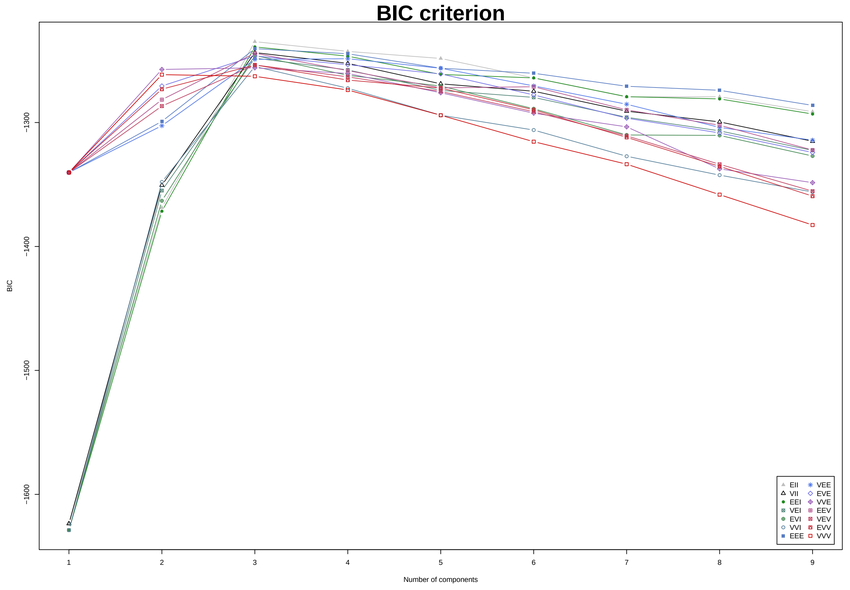



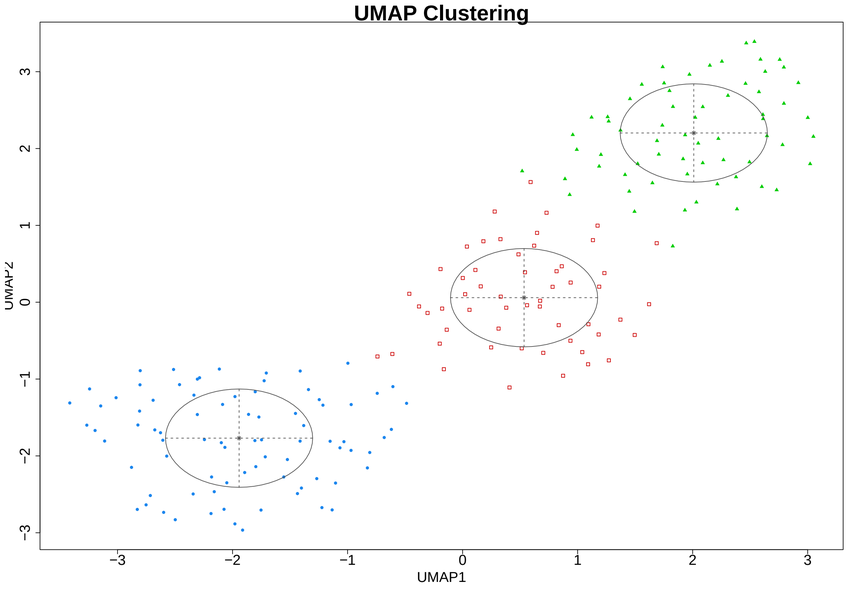



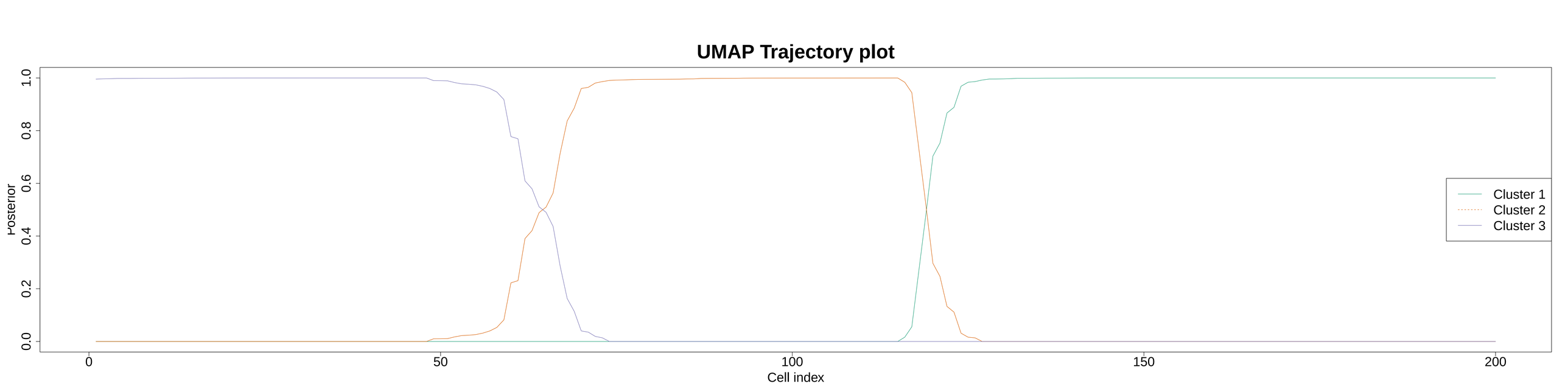

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 35 | dist = 0.2

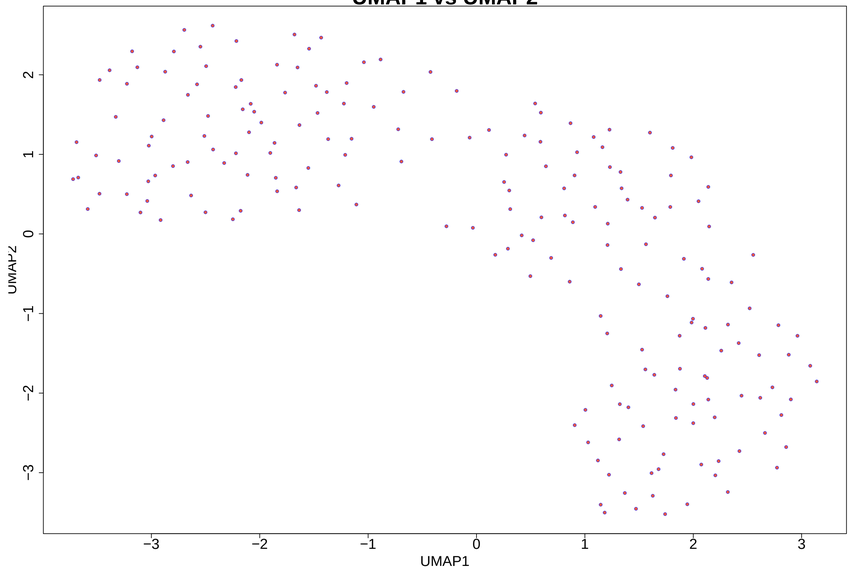


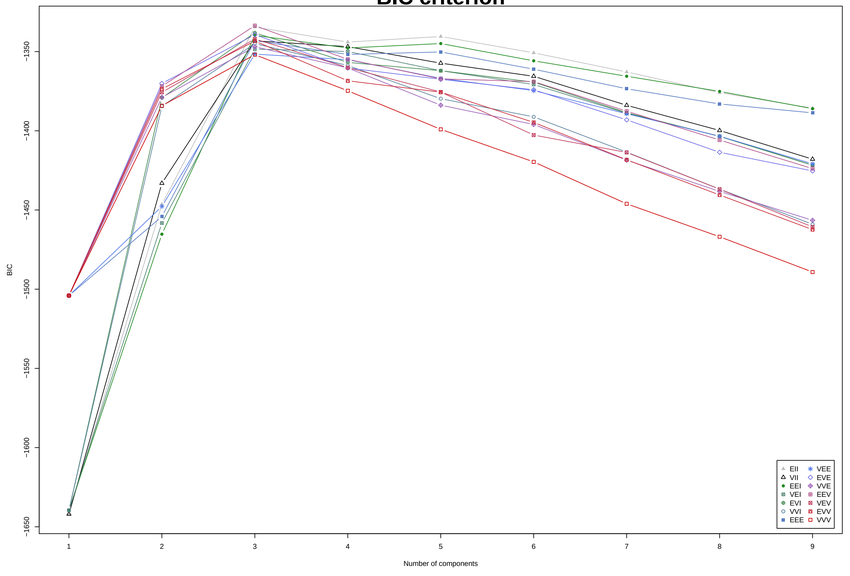



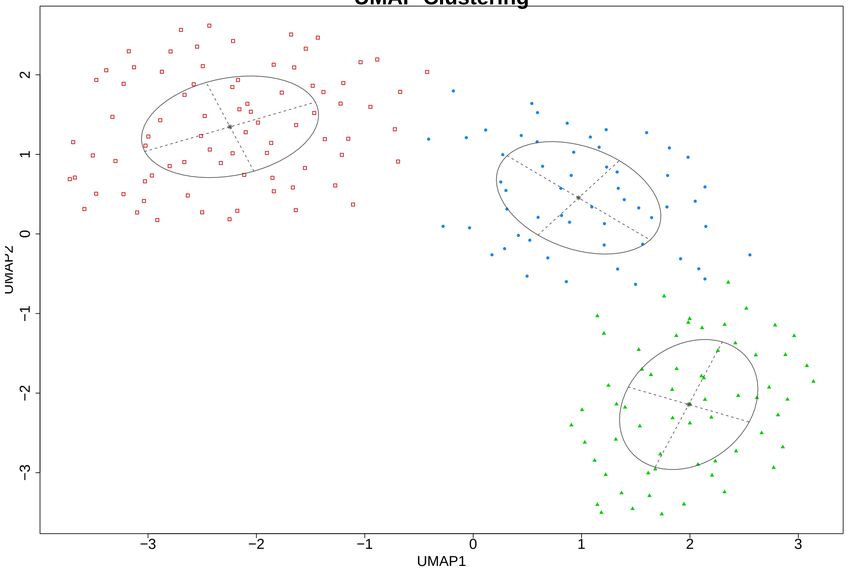



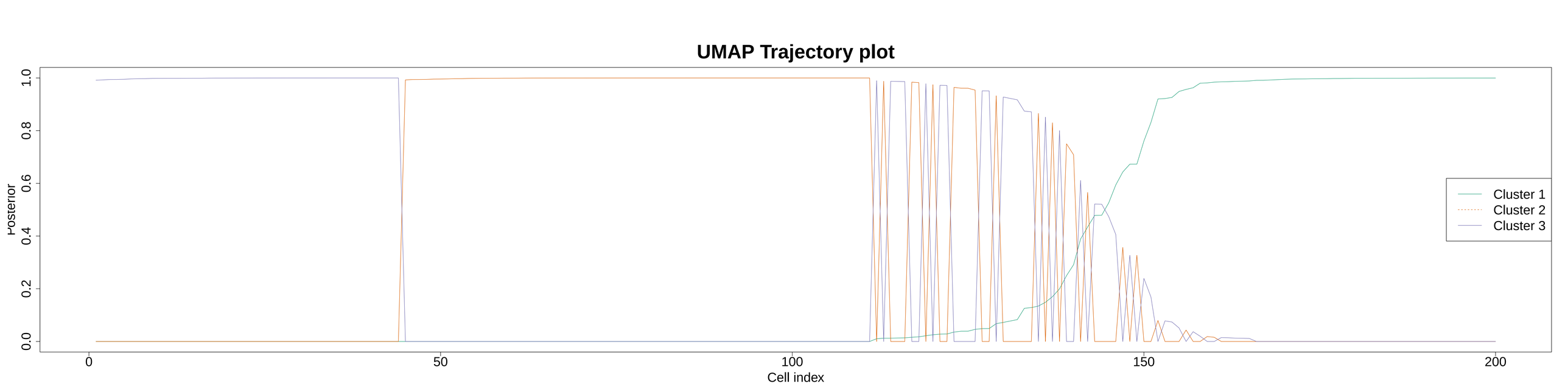

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 35 | dist = 0.3

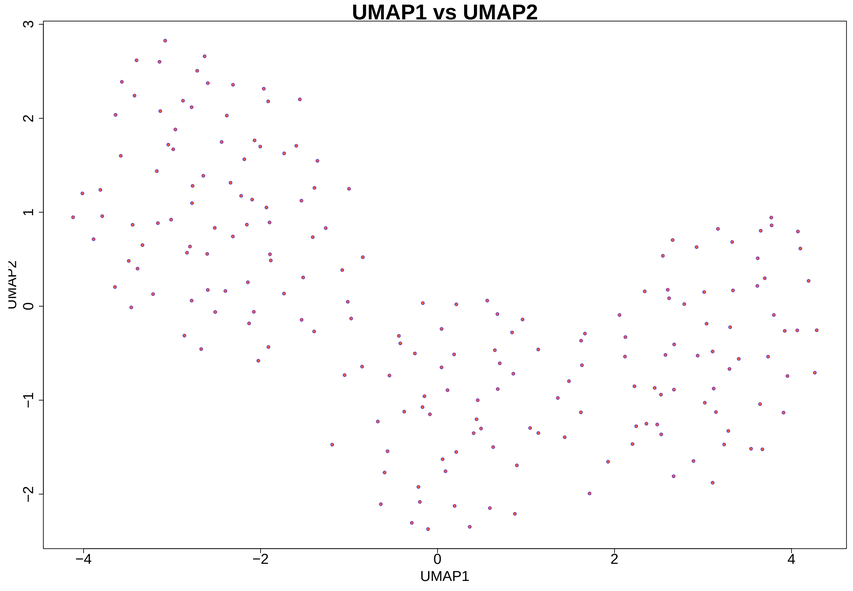


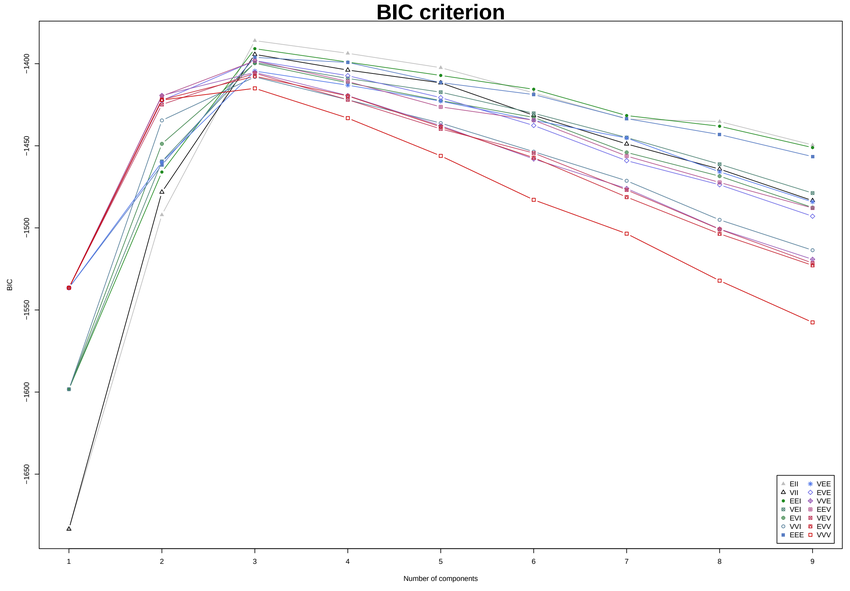



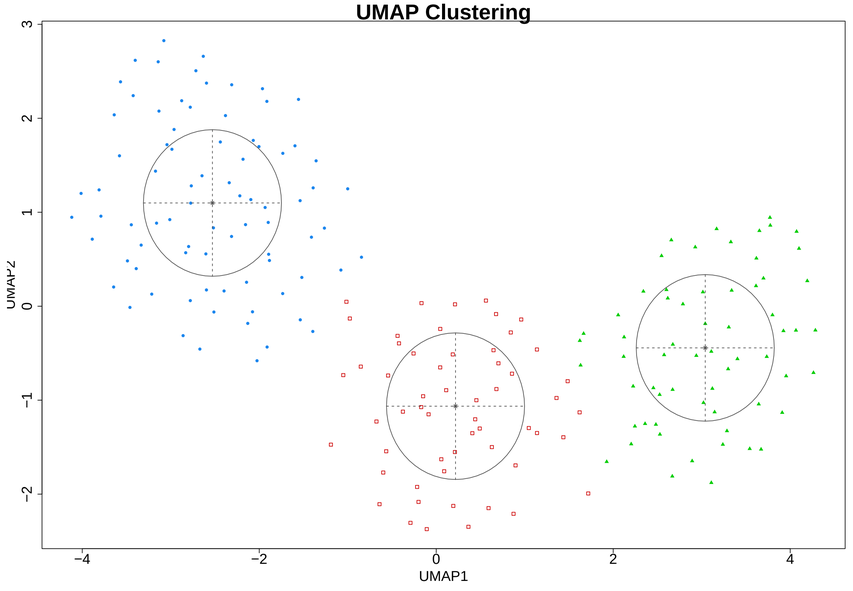



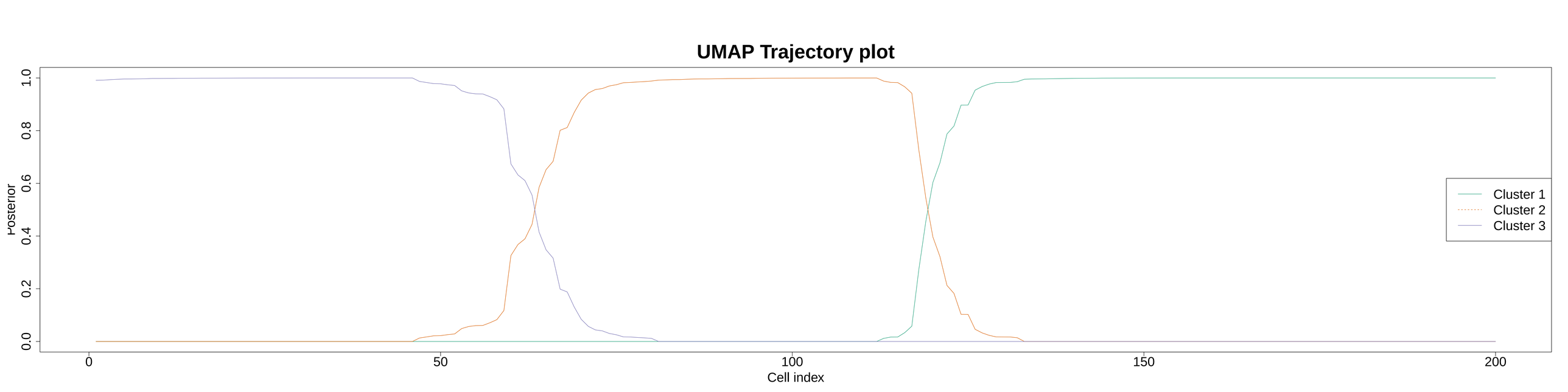

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 35 | dist = 0.4

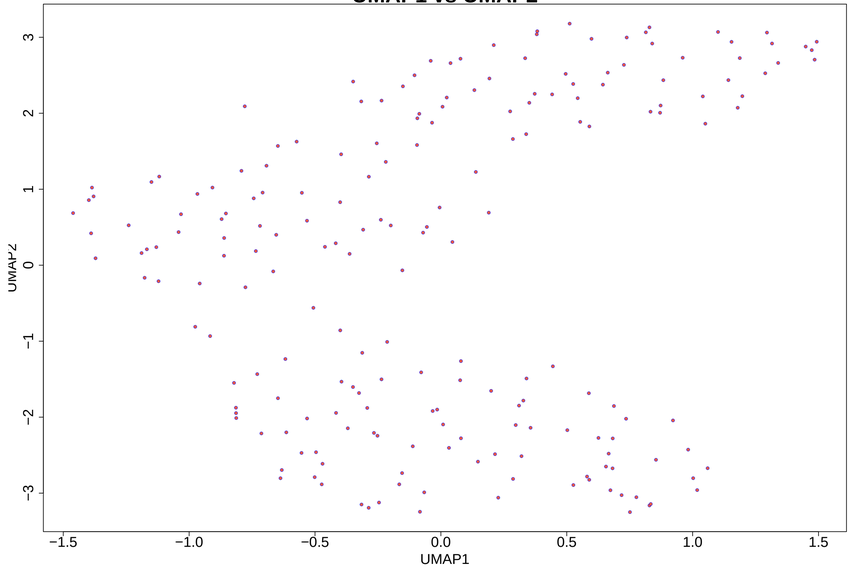


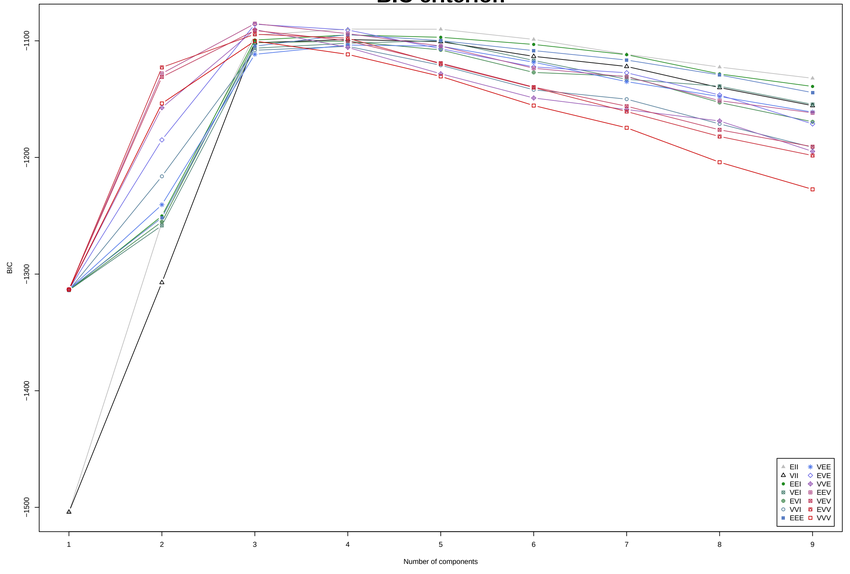



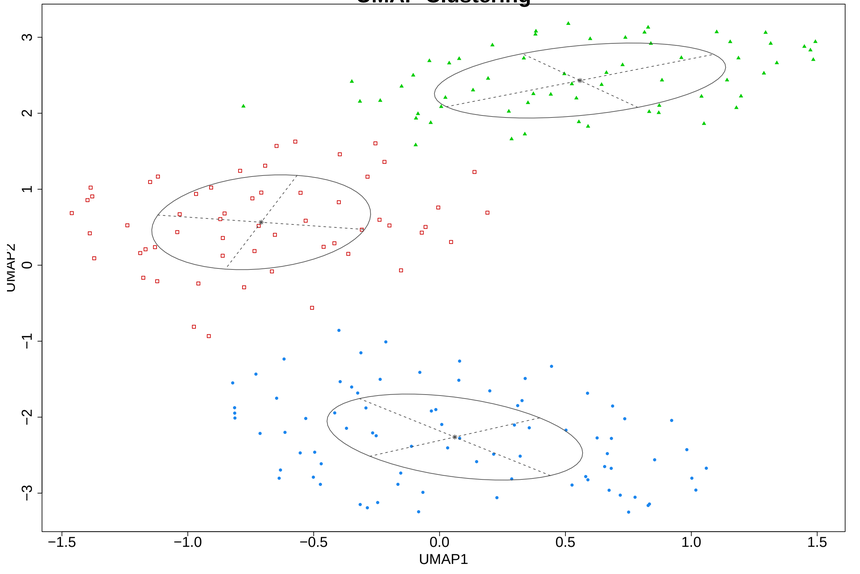



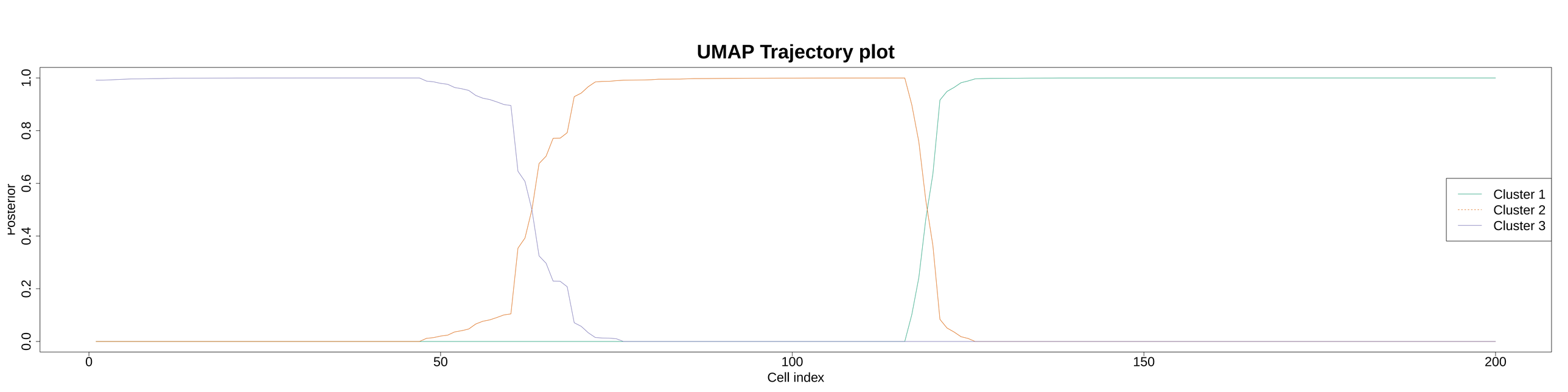

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
## n = 40 | dist = 0.05

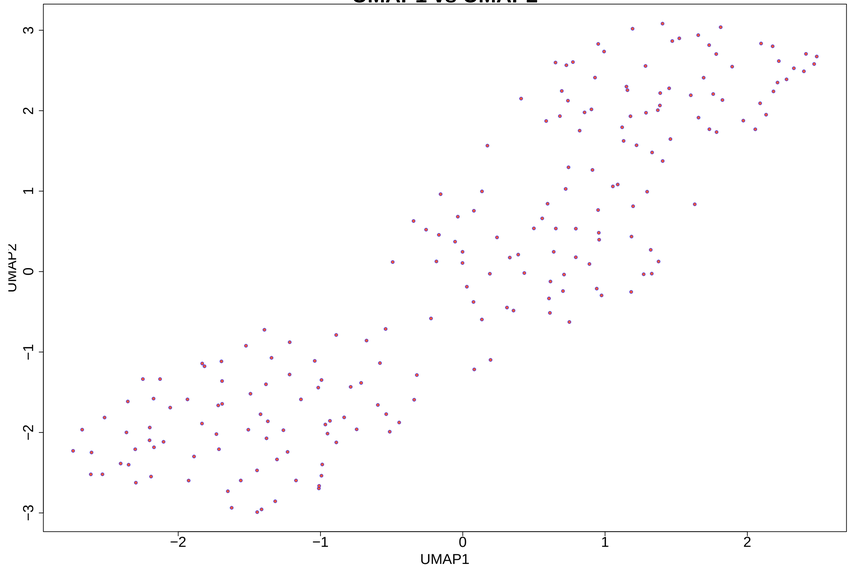


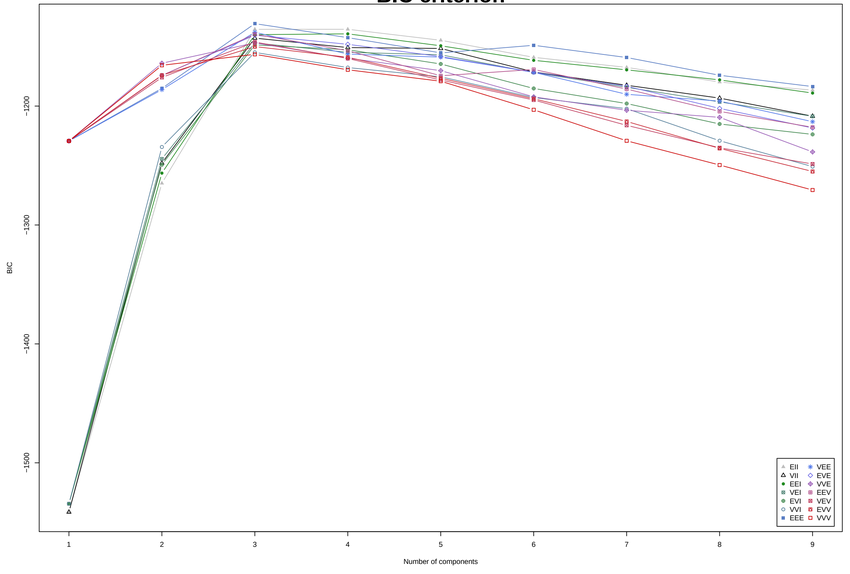



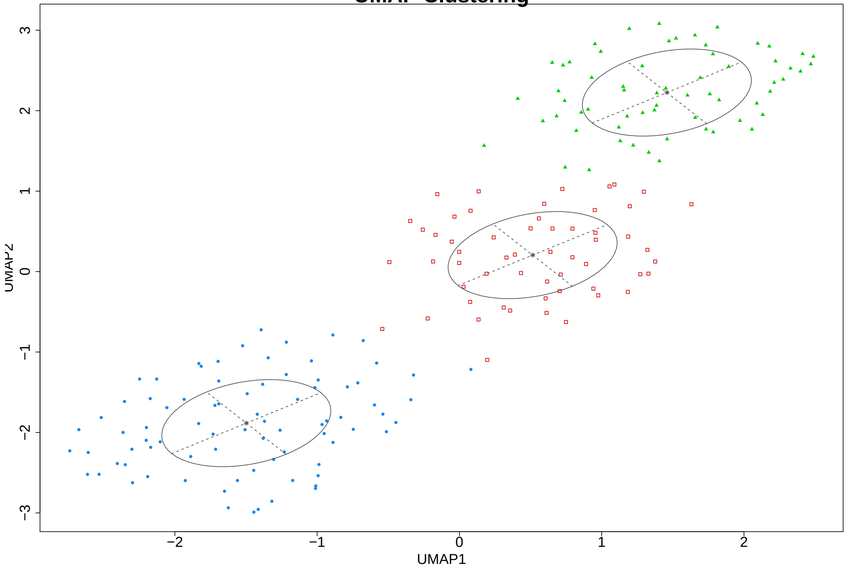



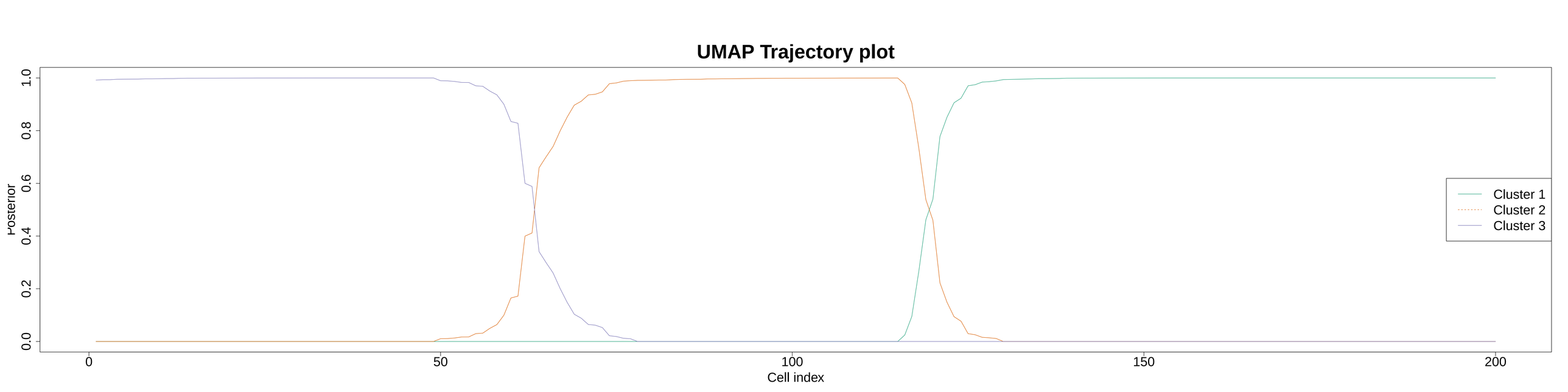

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 40 | dist = 0.1

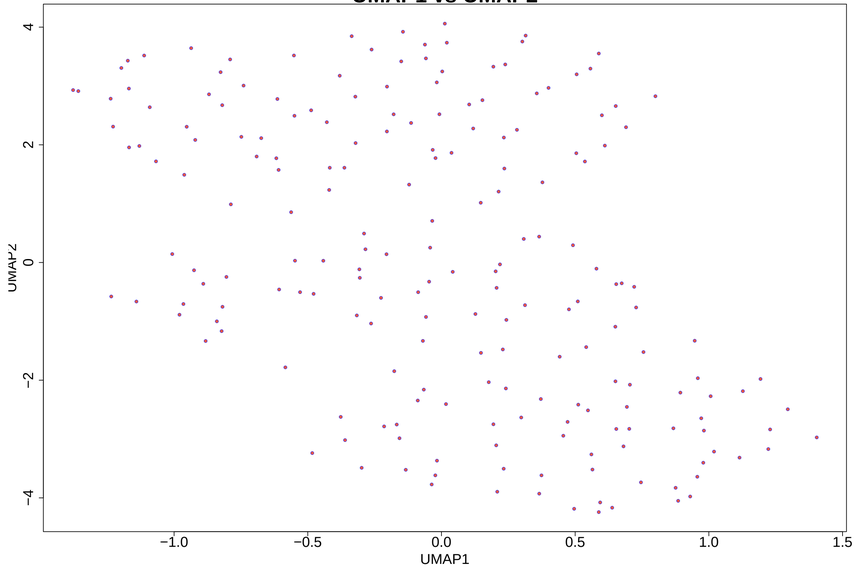


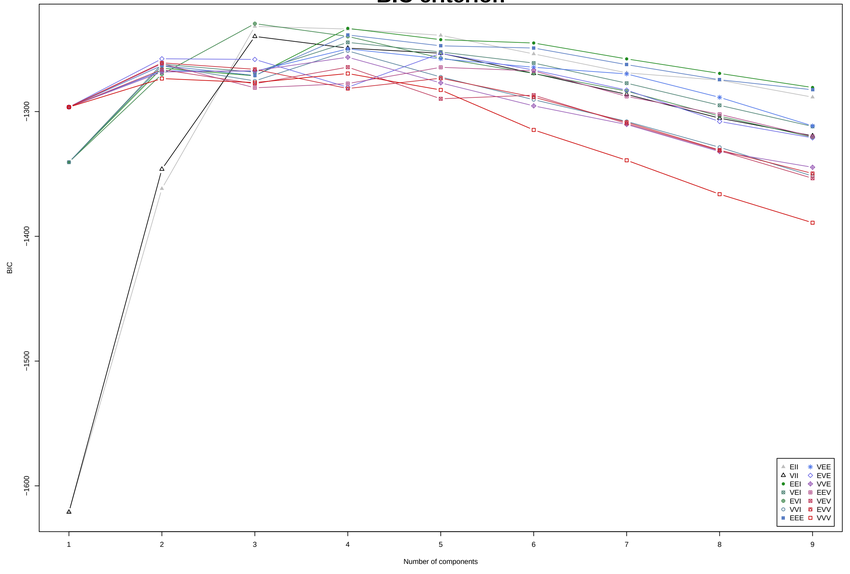



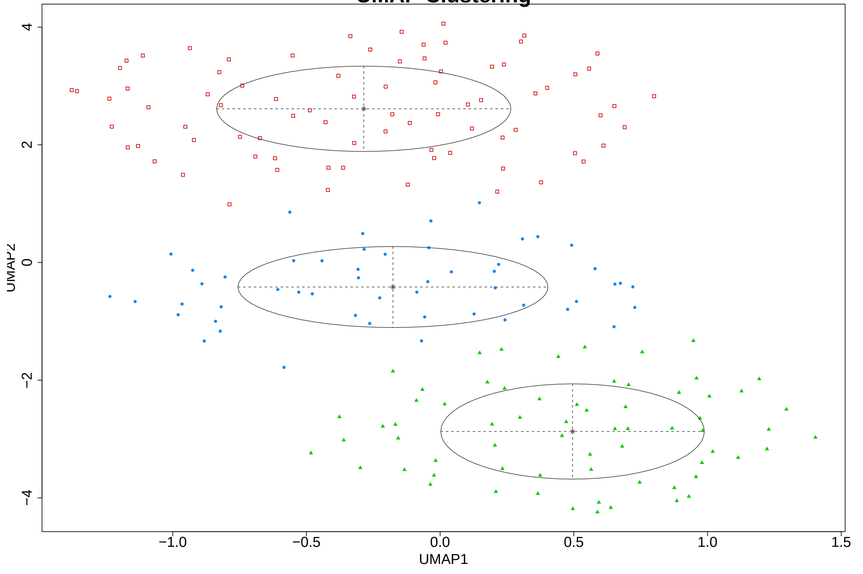



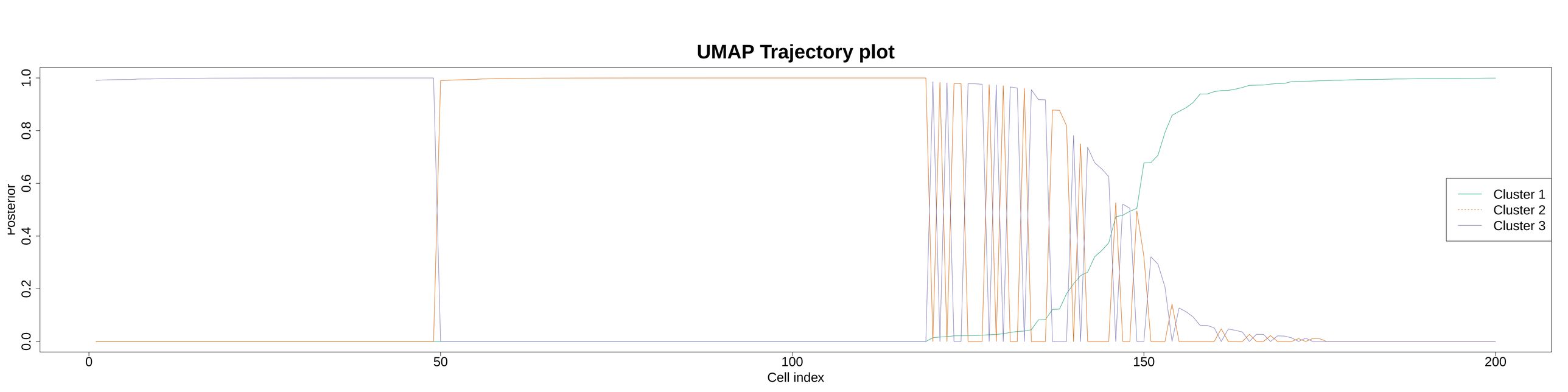

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 40 | dist = 0.2

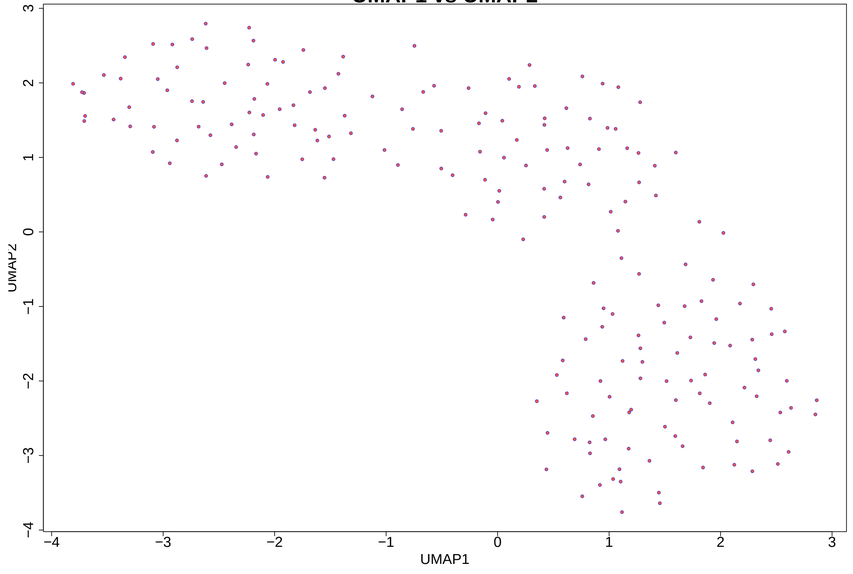


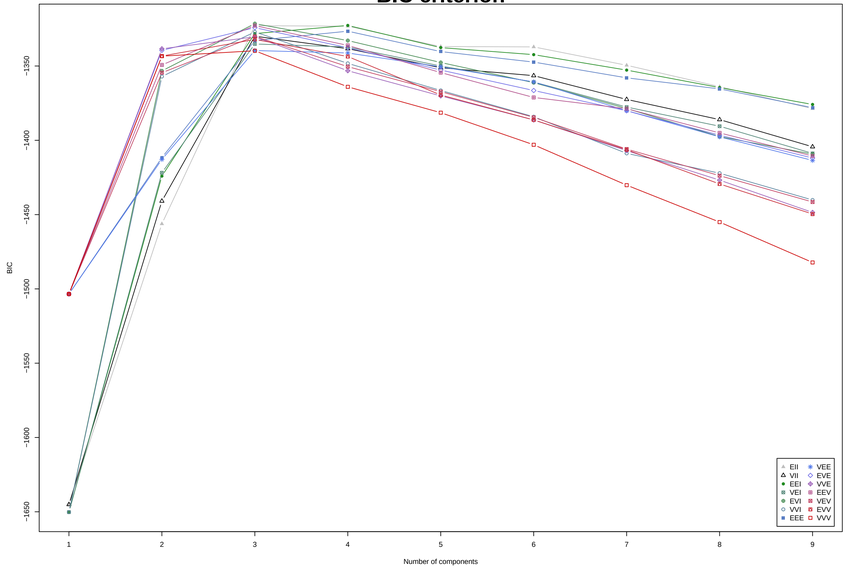



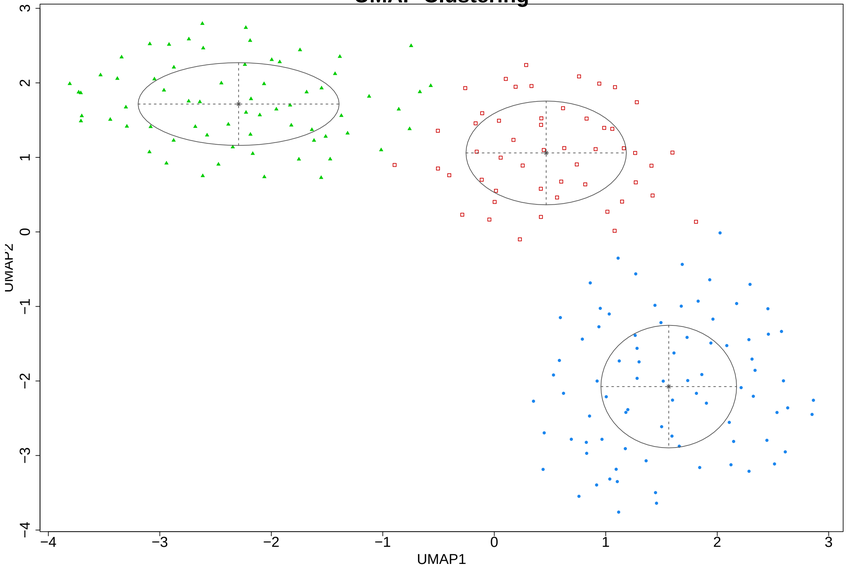



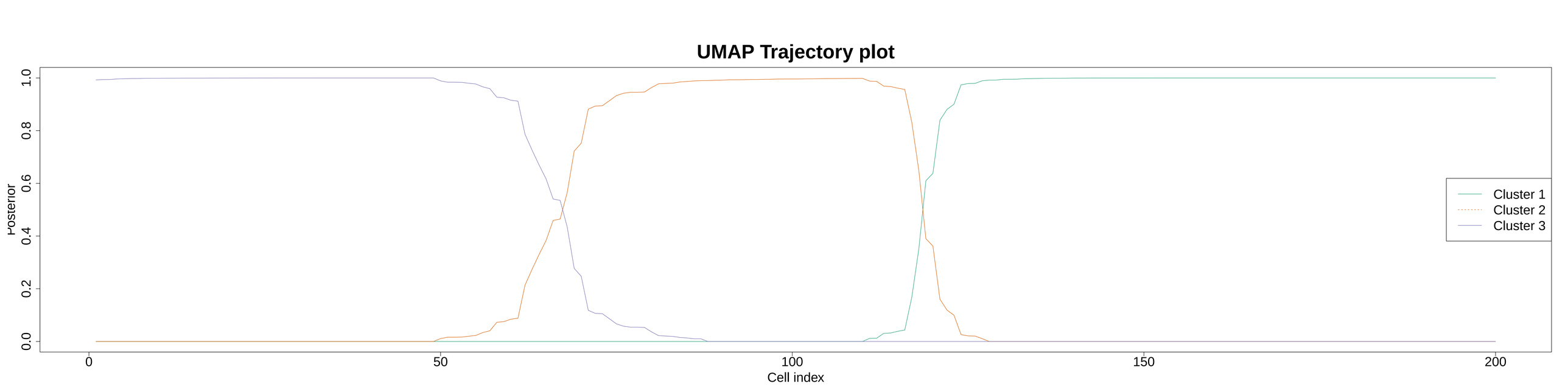

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
## n = 40 | dist = 0.3

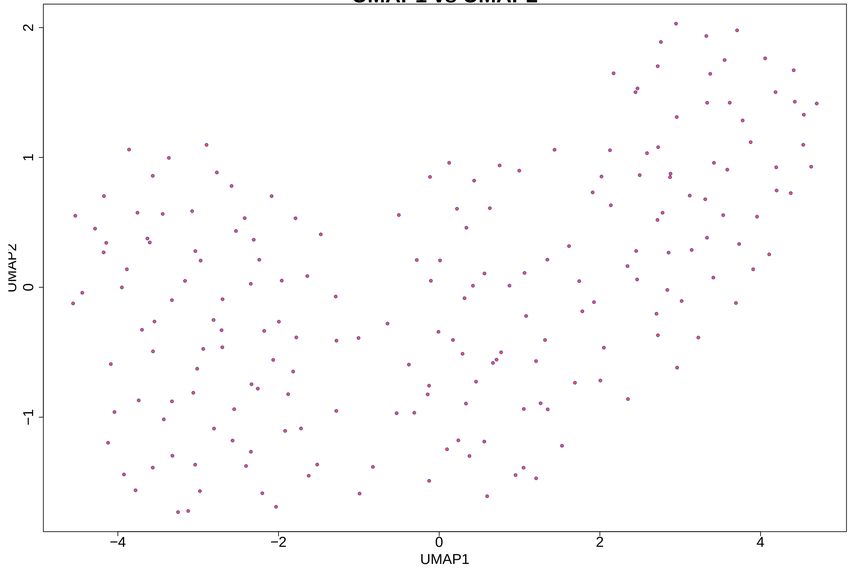


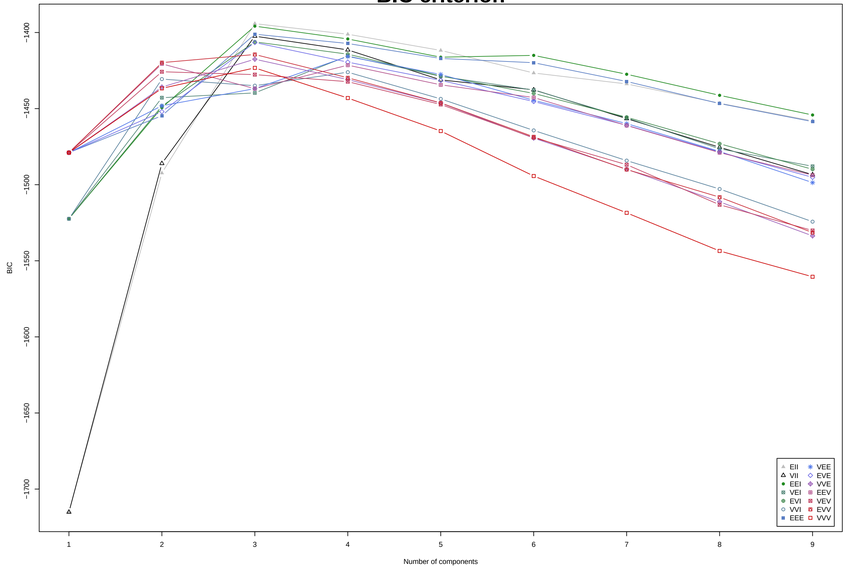



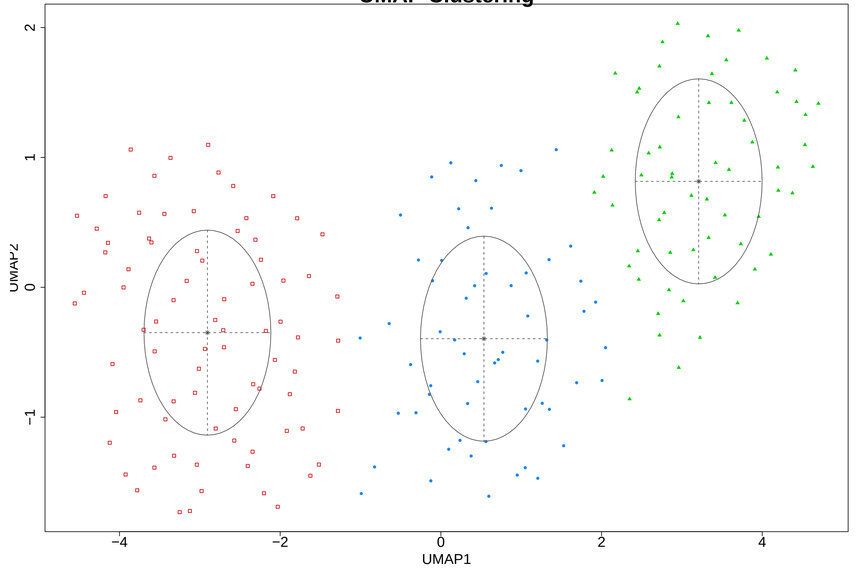



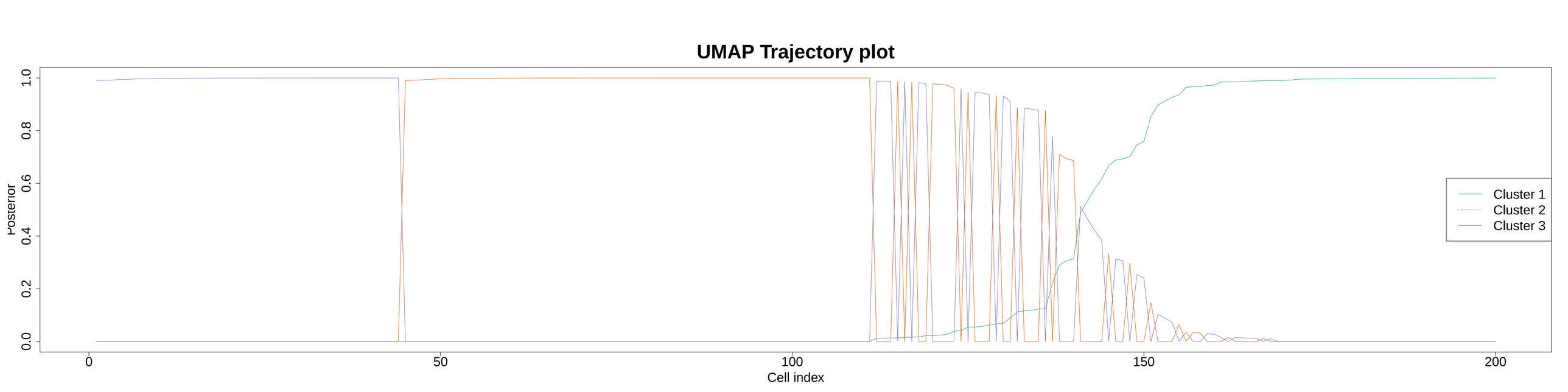

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
## n = 40 | dist = 0.4

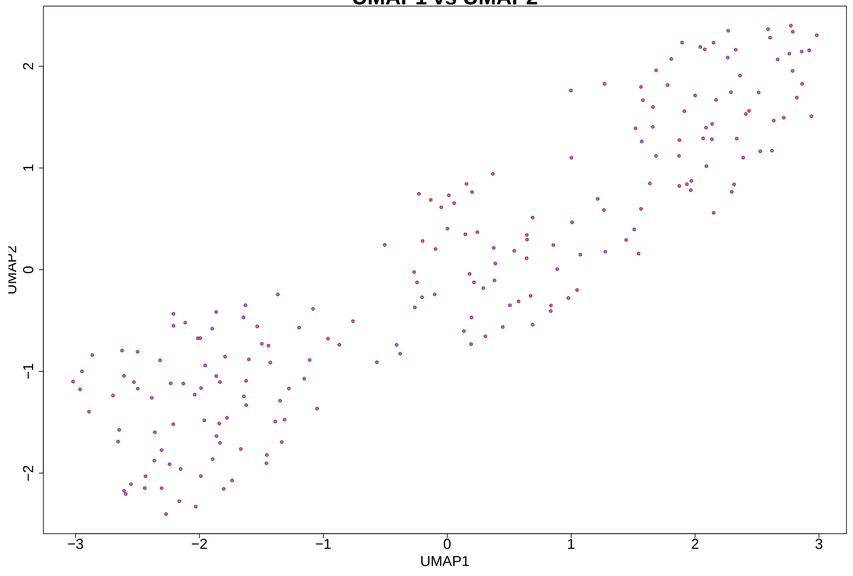


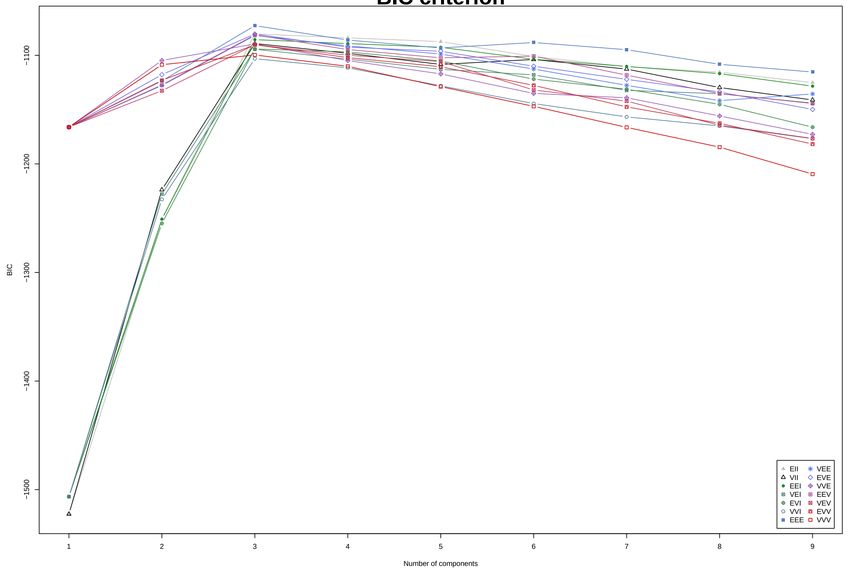



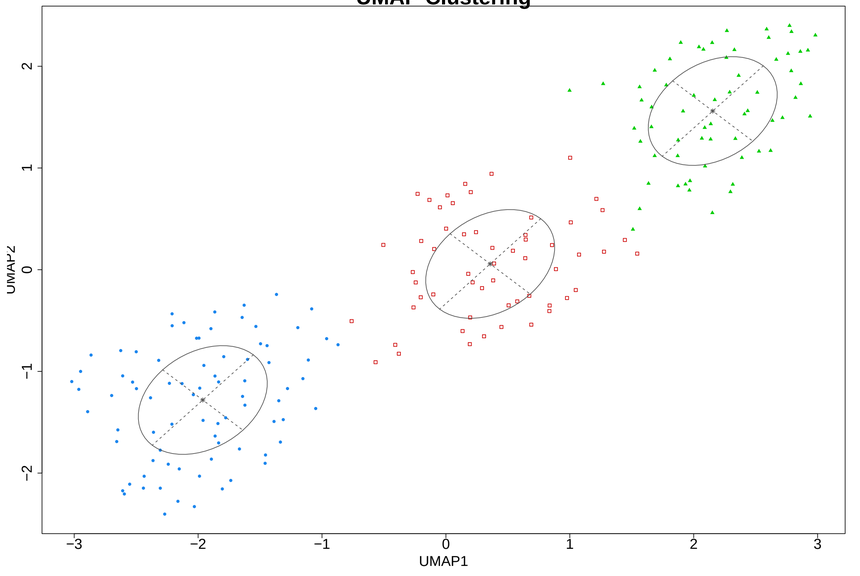



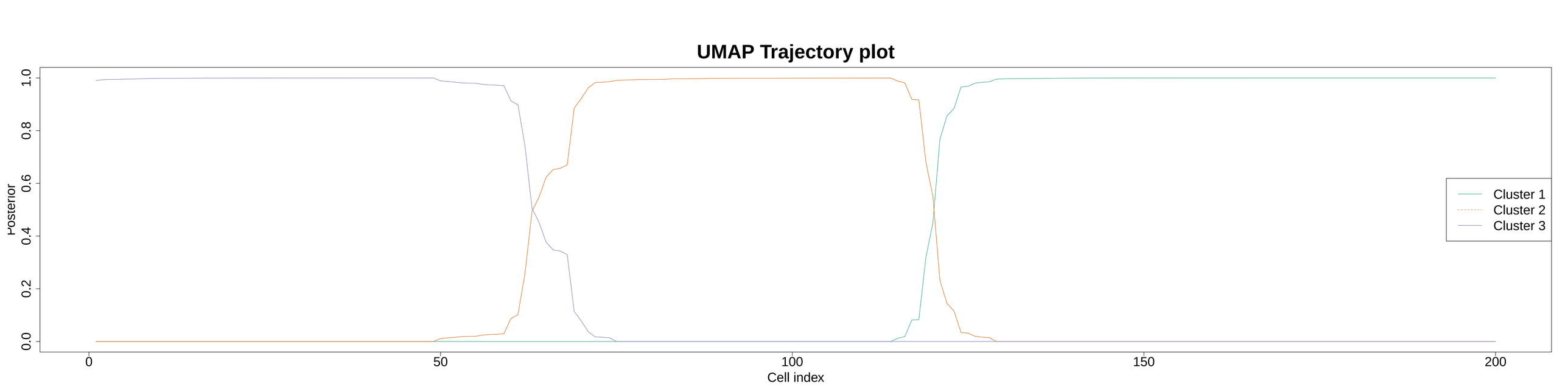

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 45 | dist = 0.05

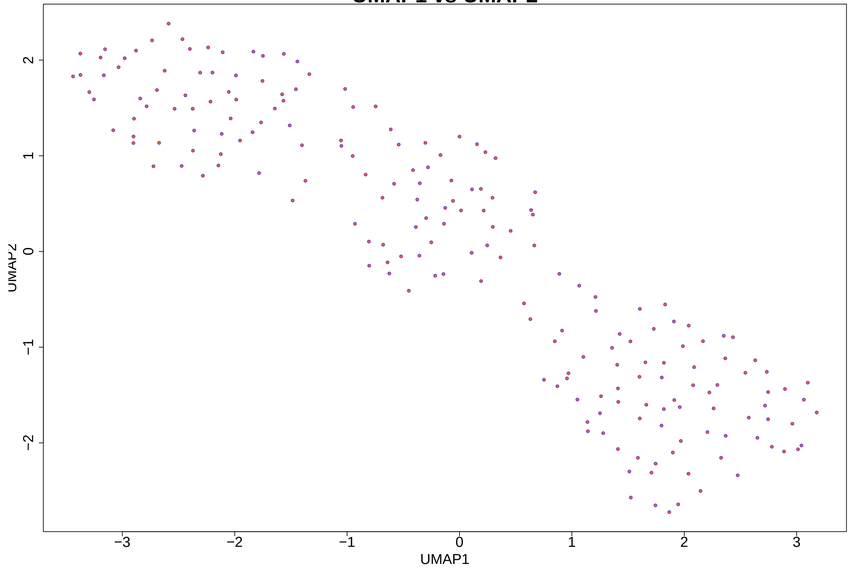


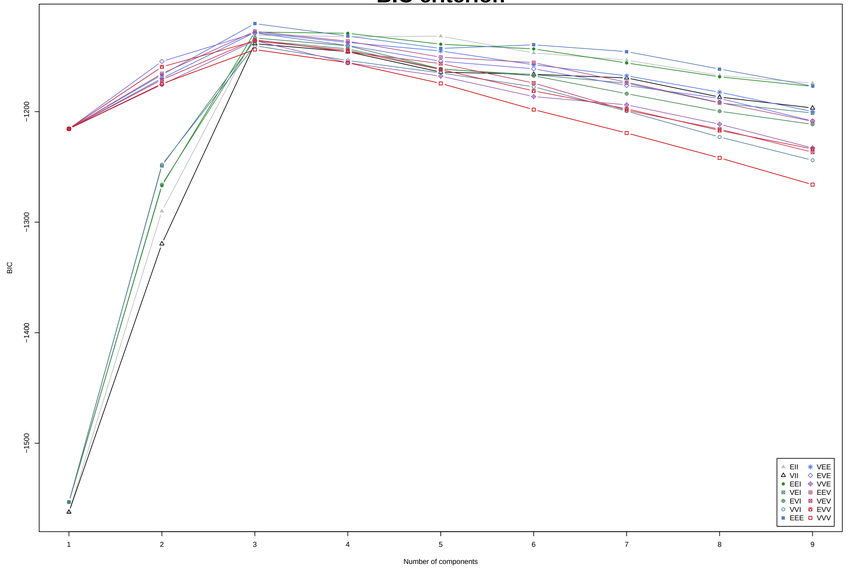



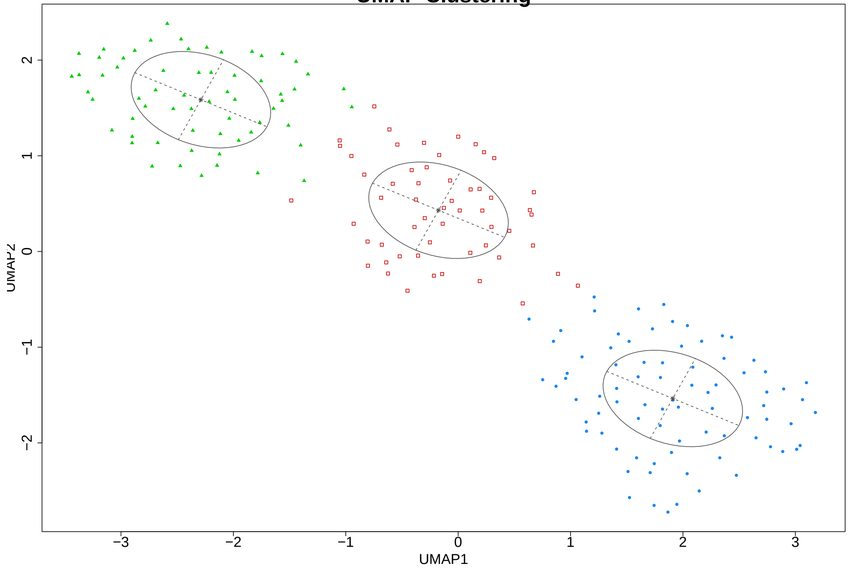



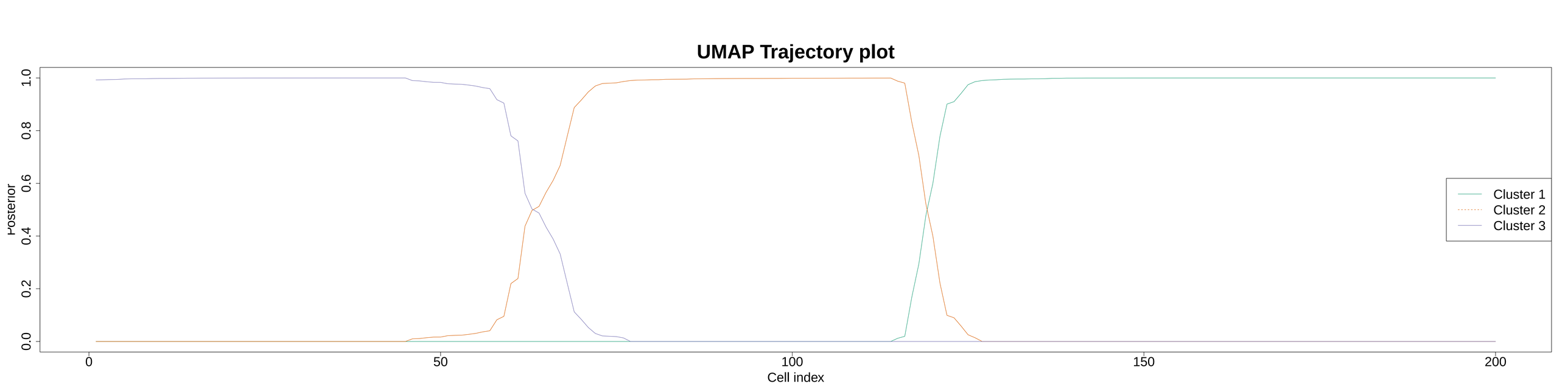

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 45 | dist = 0.1

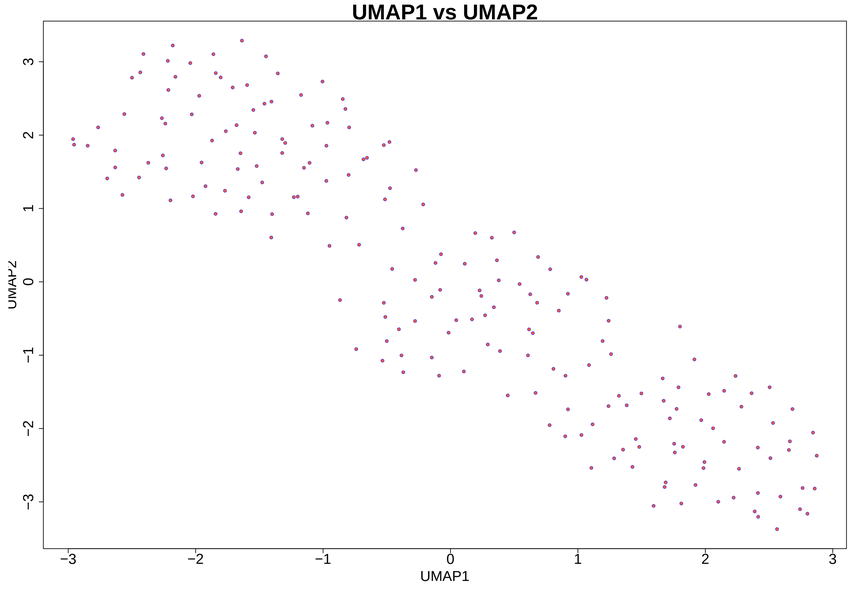


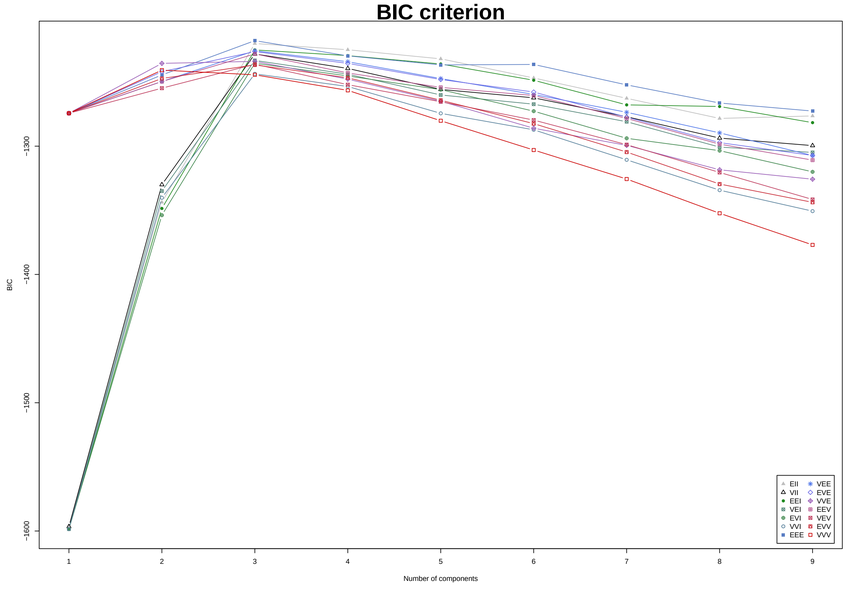



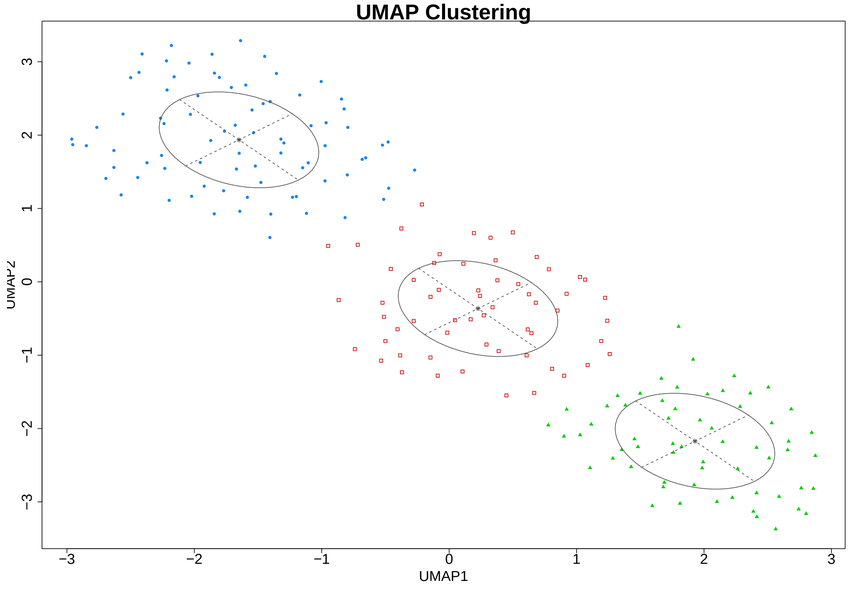



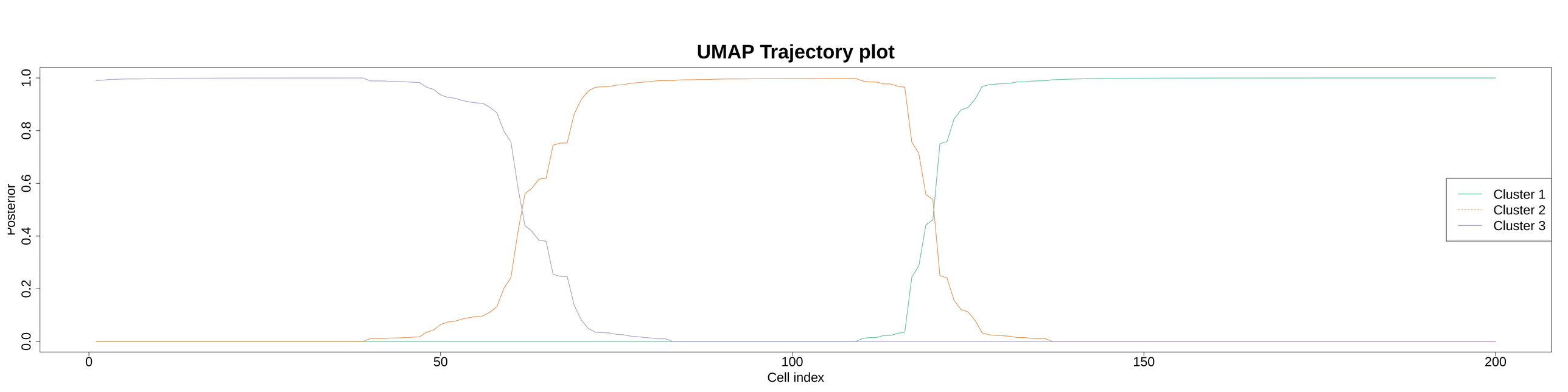

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 45 | dist = 0.2

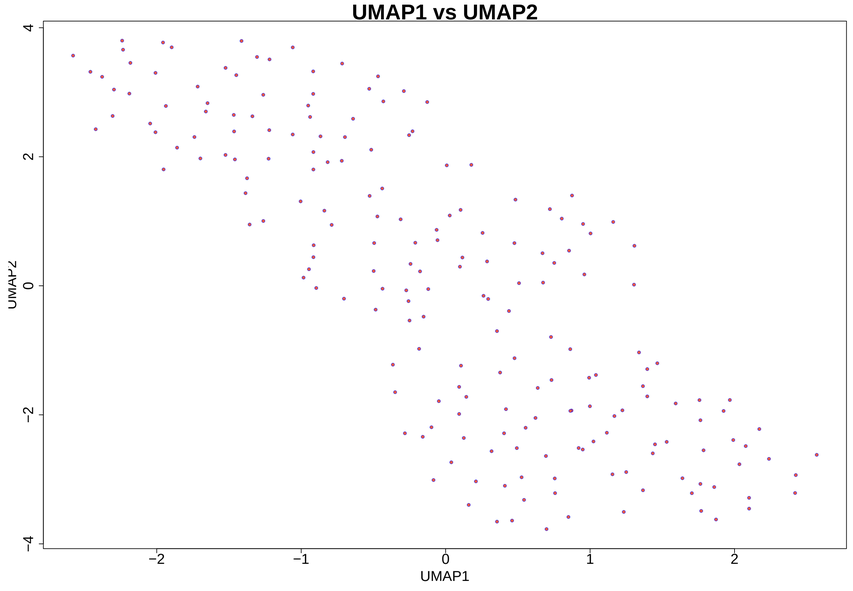


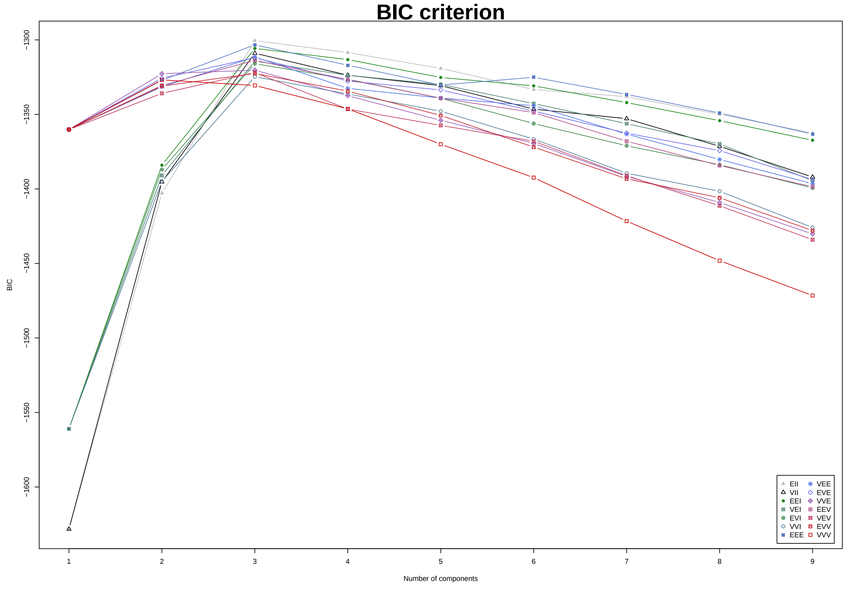



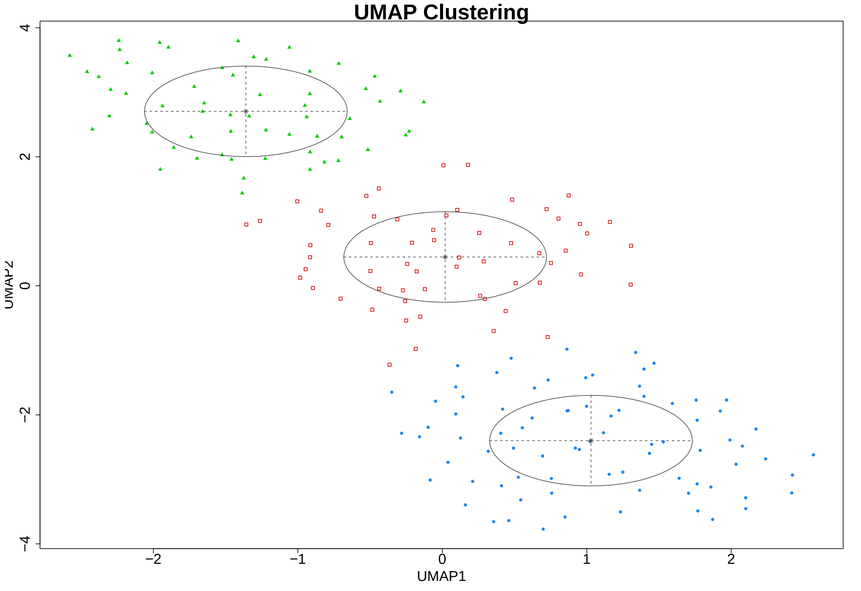



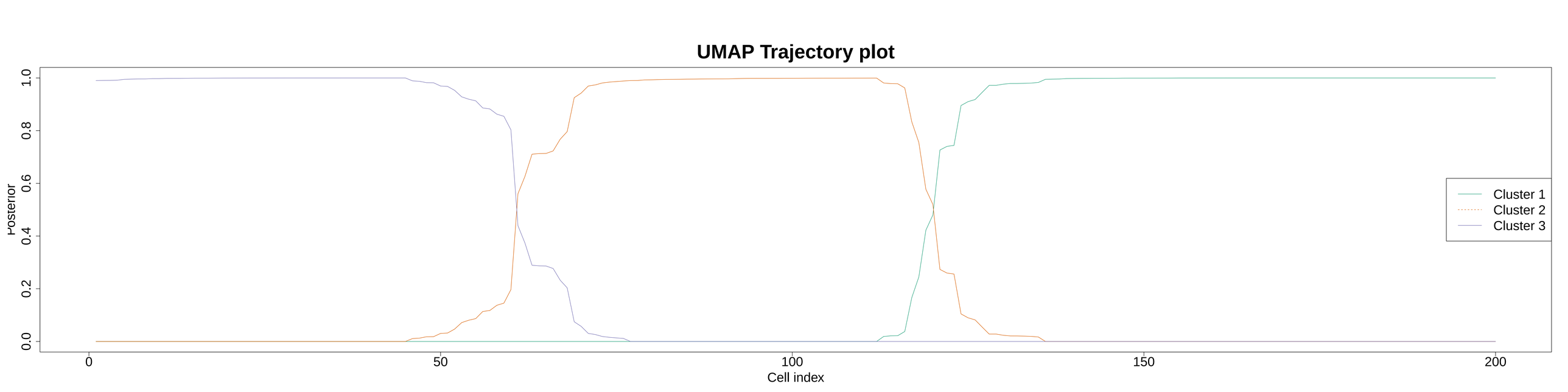

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 45 | dist = 0.3

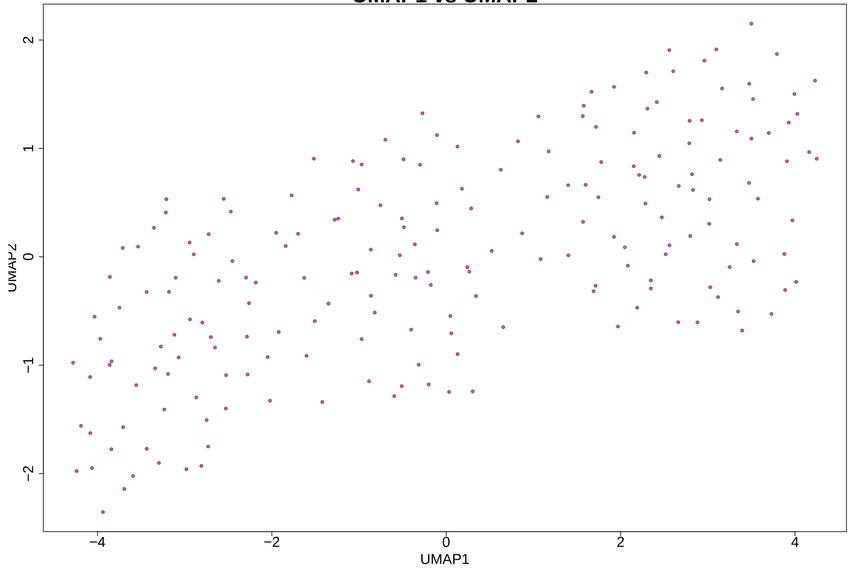


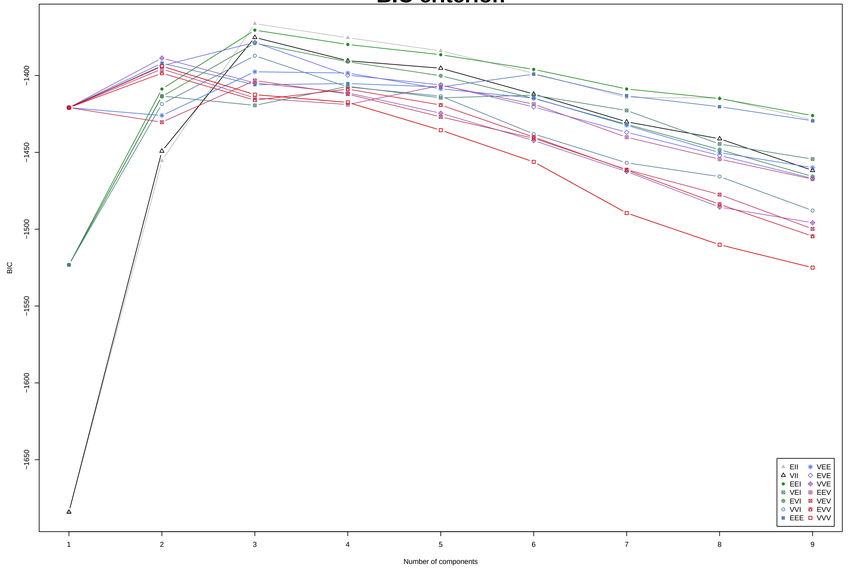



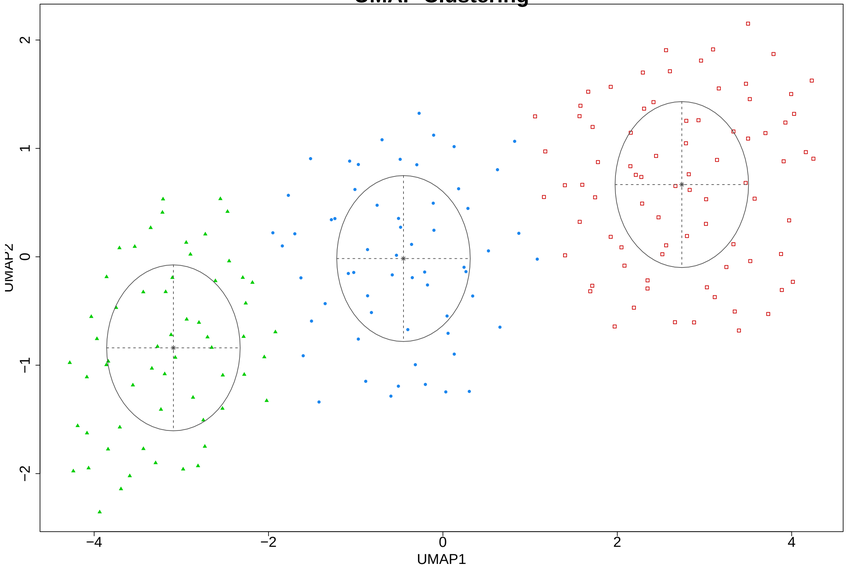



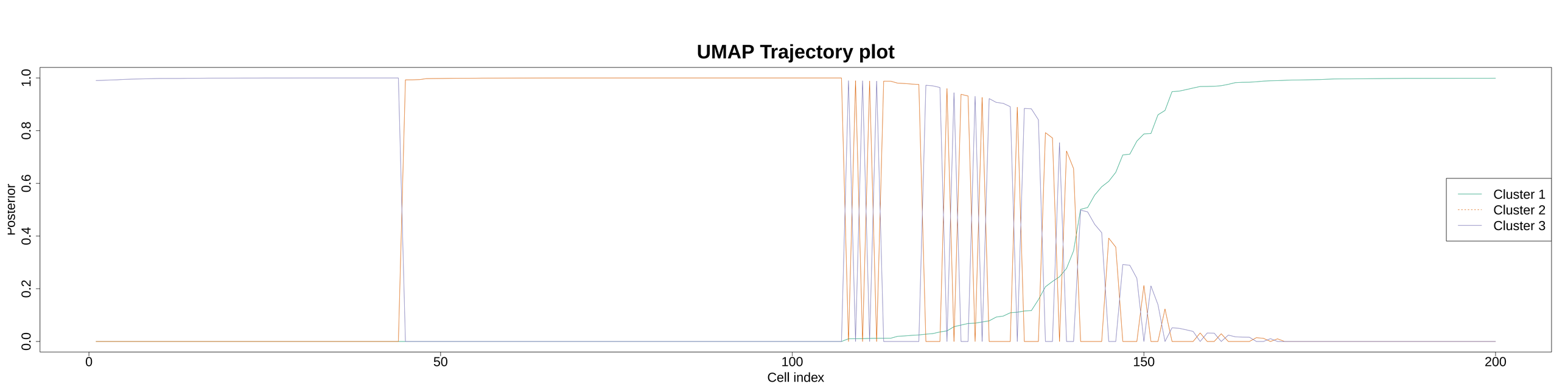

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

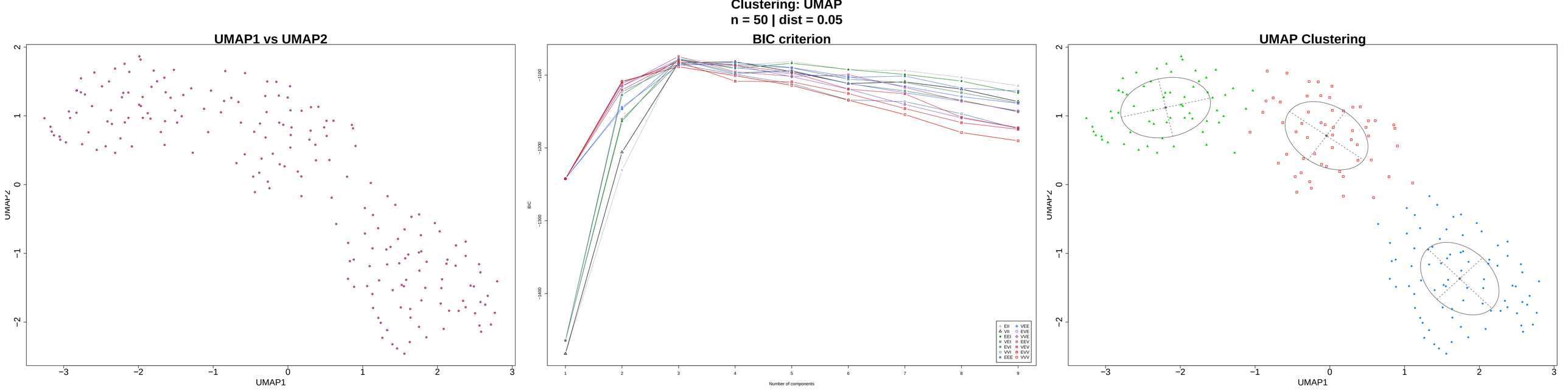
# Clustering: UMAP
# n = 45 | dist = 0.4

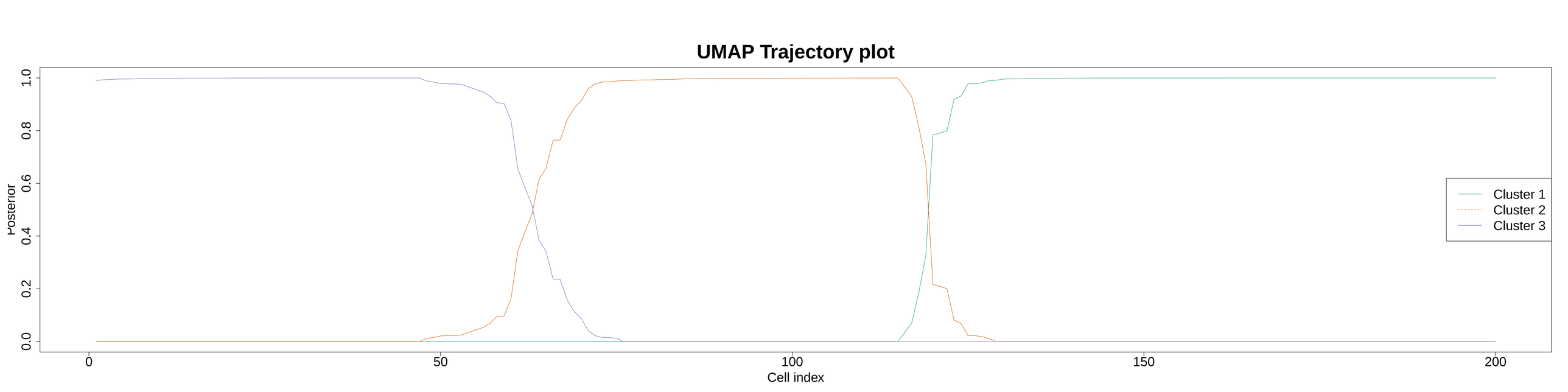


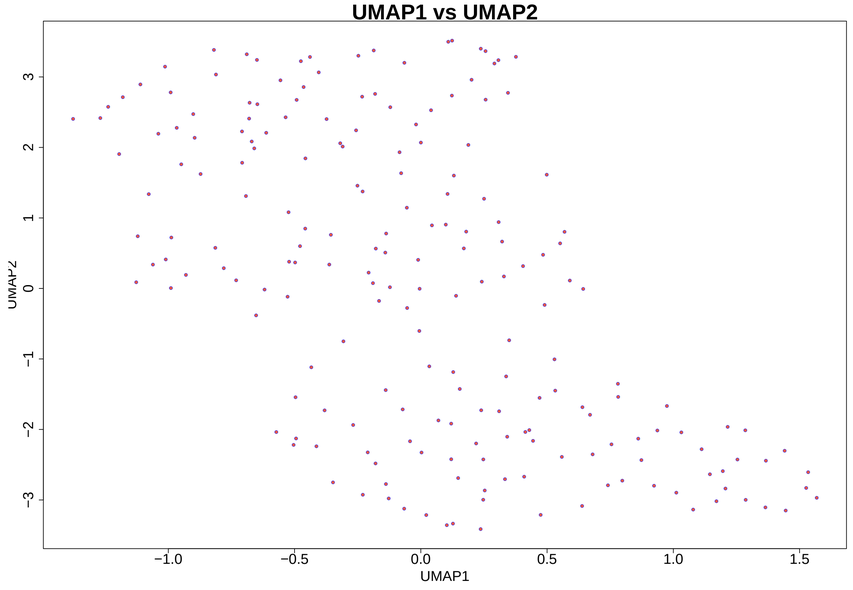



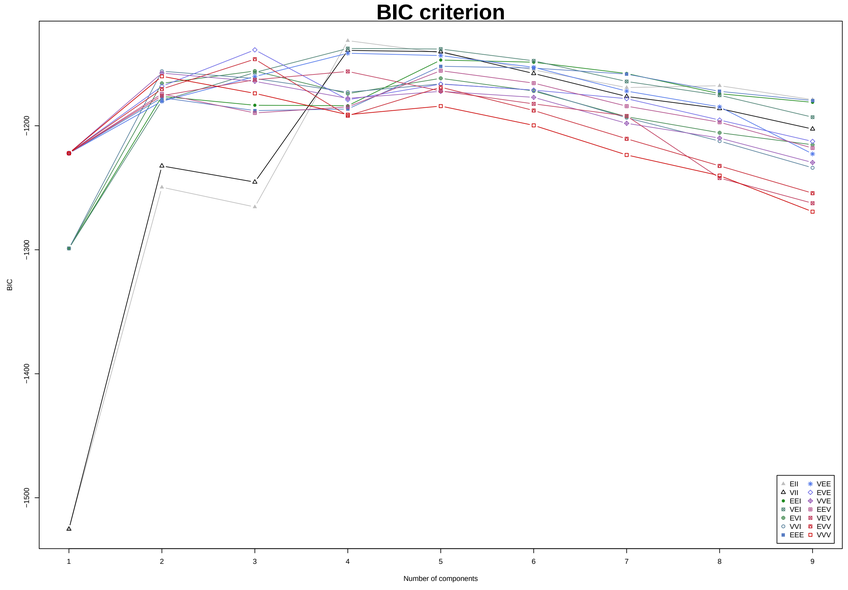

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

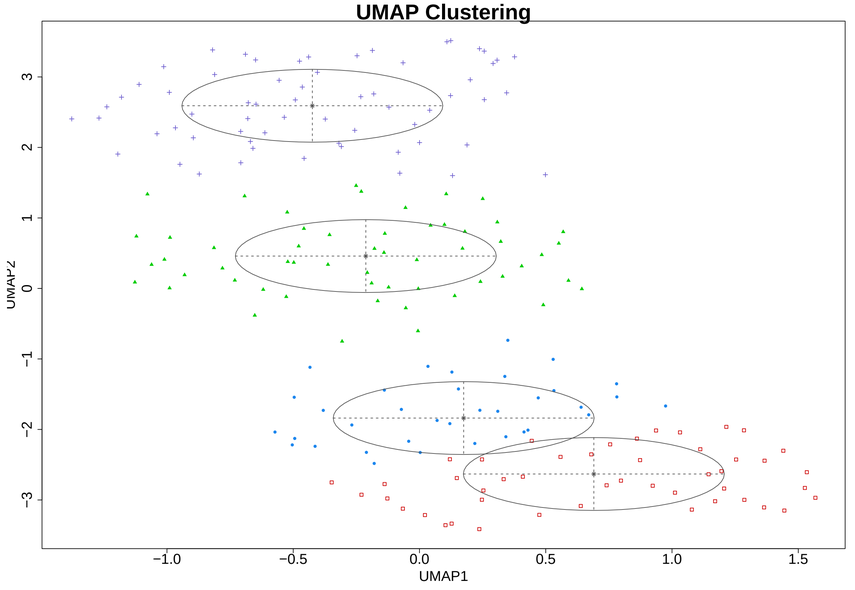

Clustering: UMAP
n = 50 | dist = 0.05
UMAP1 vs UMAP2
UMAP1
UMAP2
BIC criterion
BIC
Number of components
EII
VII
EEI
VEI
EVI
VVI
EEE
VEE
EVE
VVE
EEV
VEV
EVV
VVV
UMAP Clustering
UMAP1
UMAP2

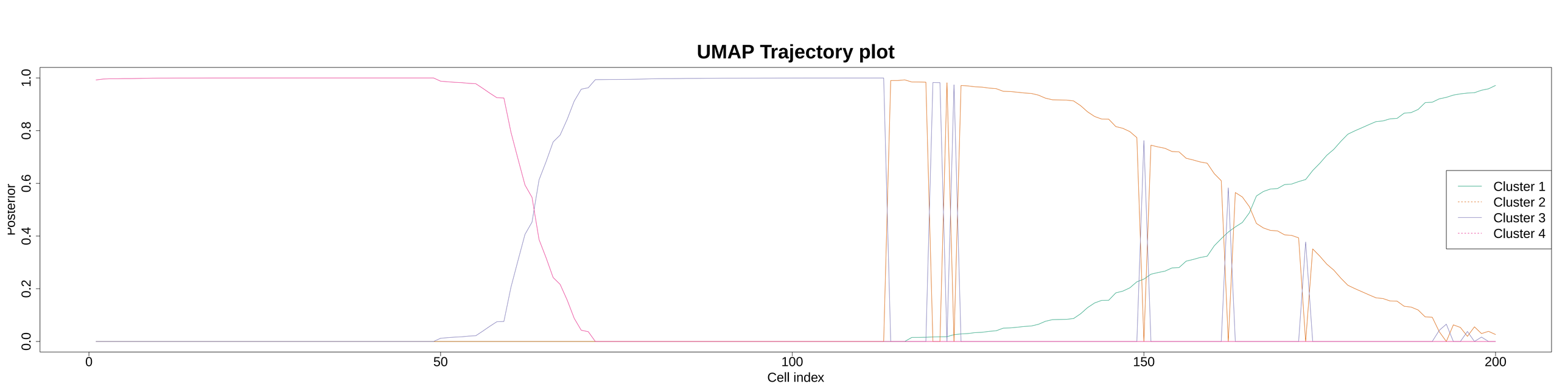

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 50 | dist = 0.1

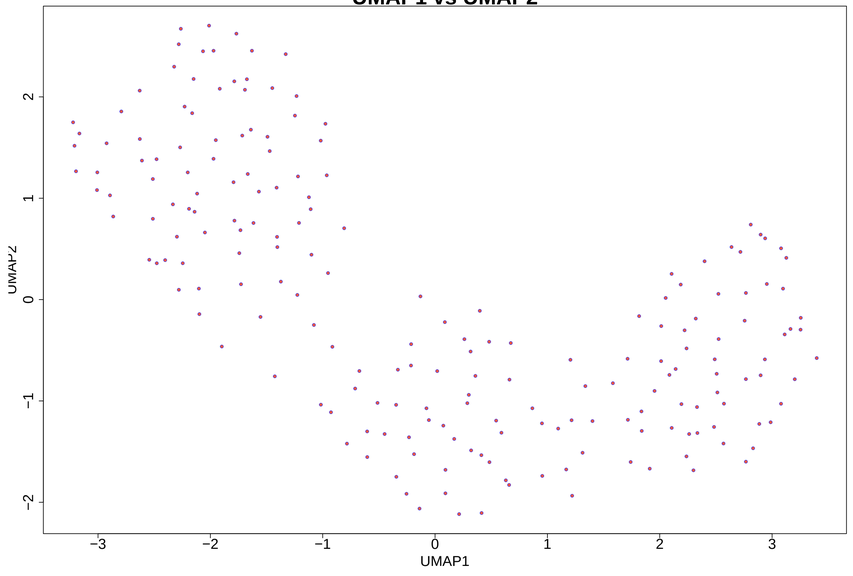


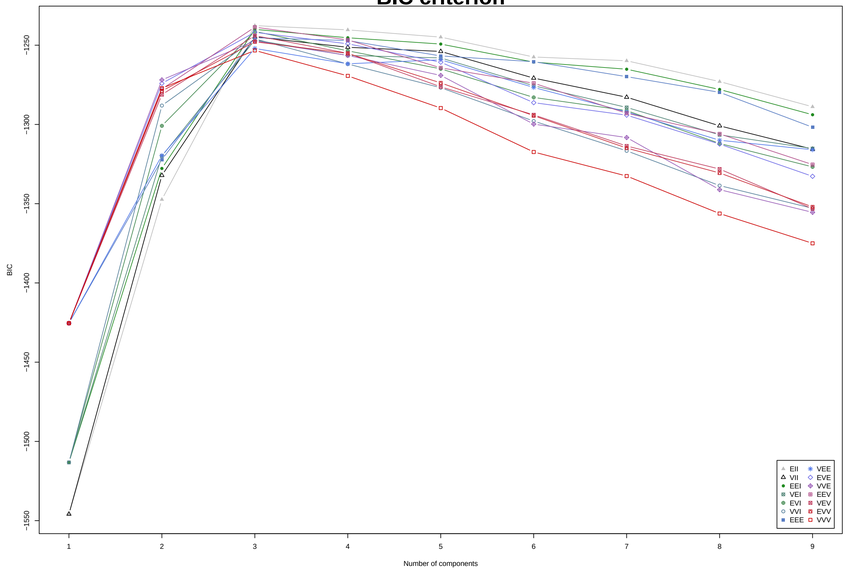



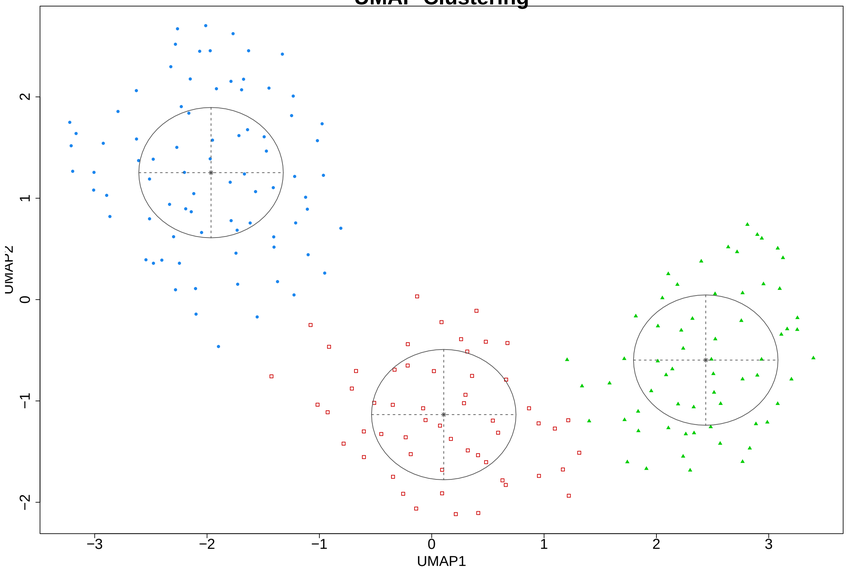



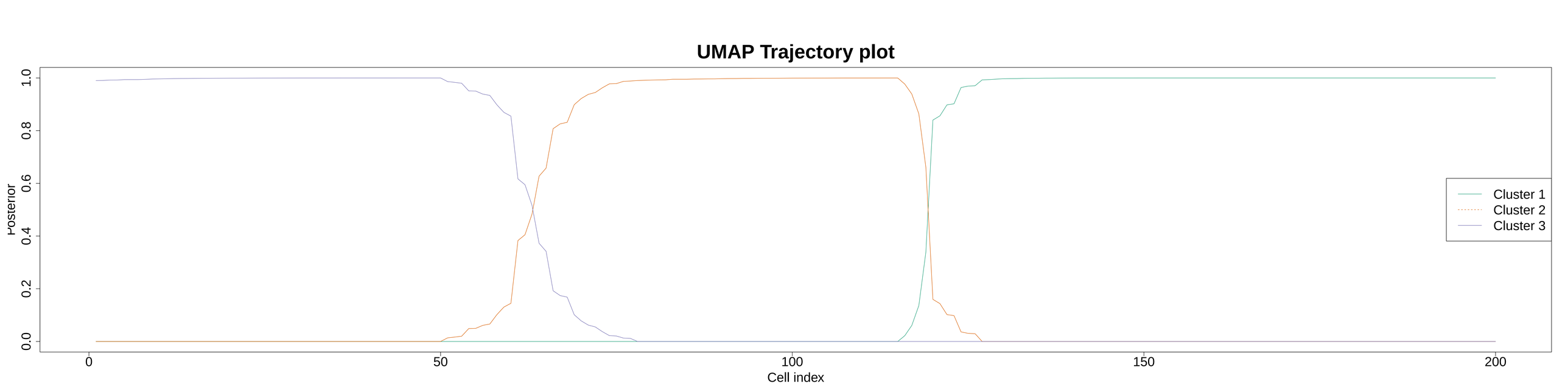

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

# Clustering: UMAP
# n = 50 | dist = 0.2

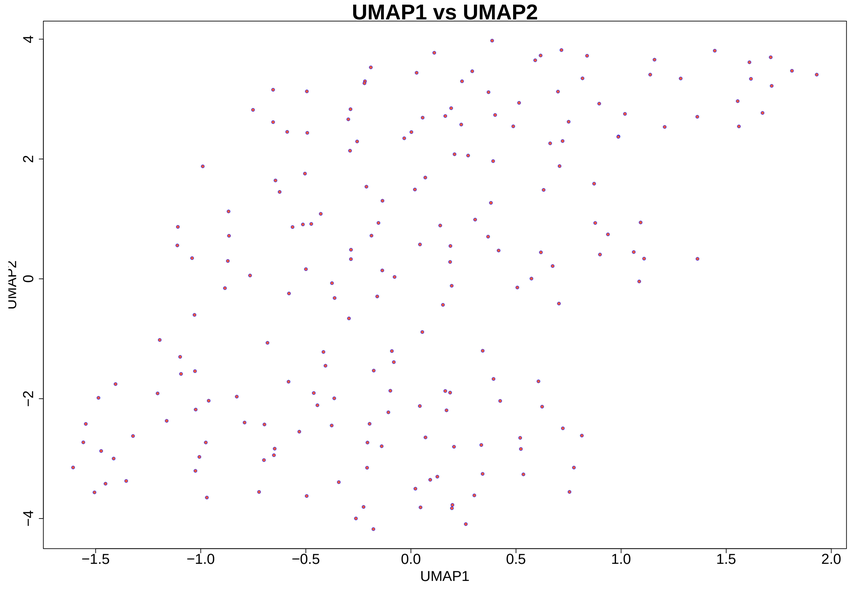


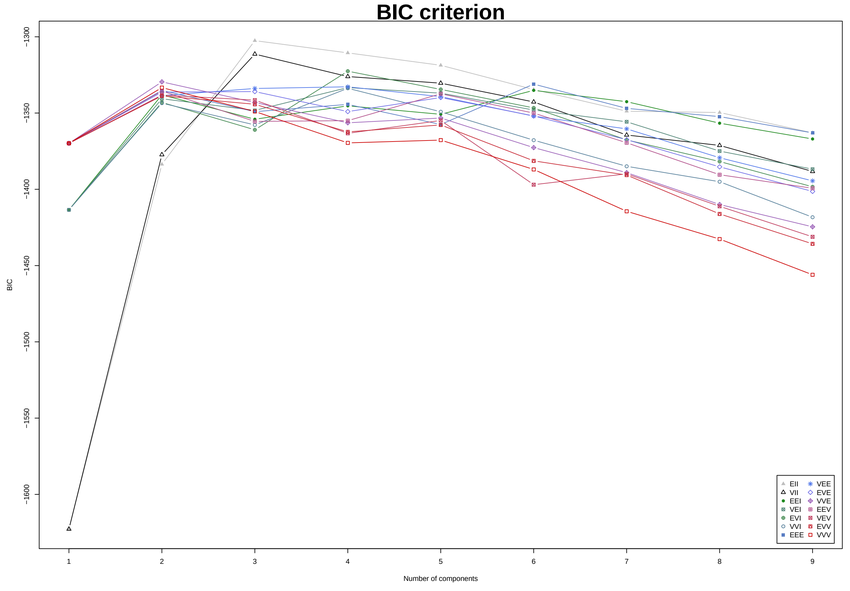



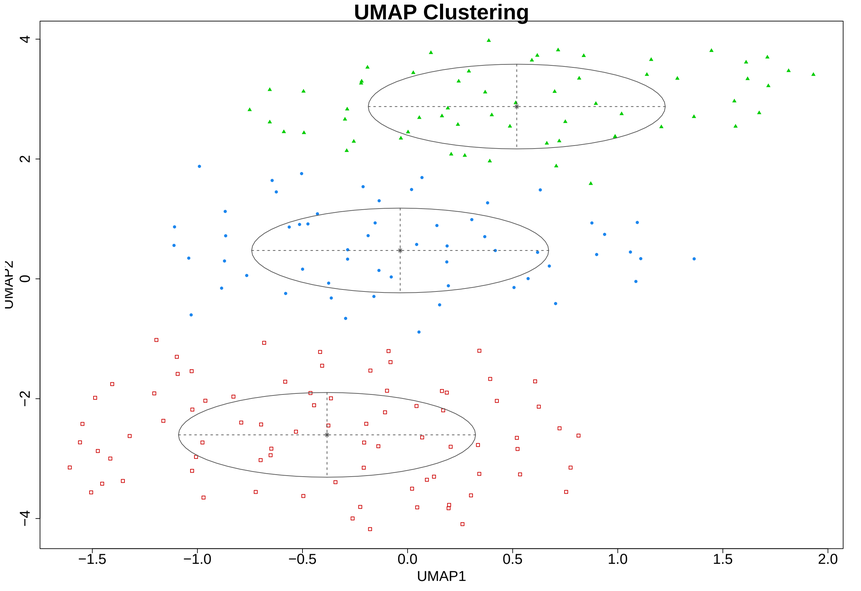



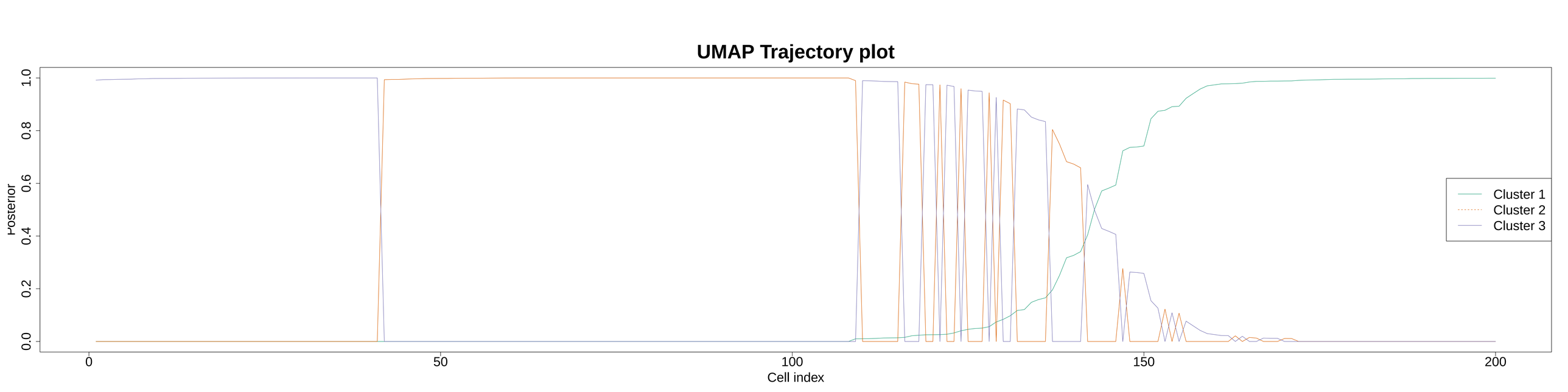

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 50 | dist = 0.3

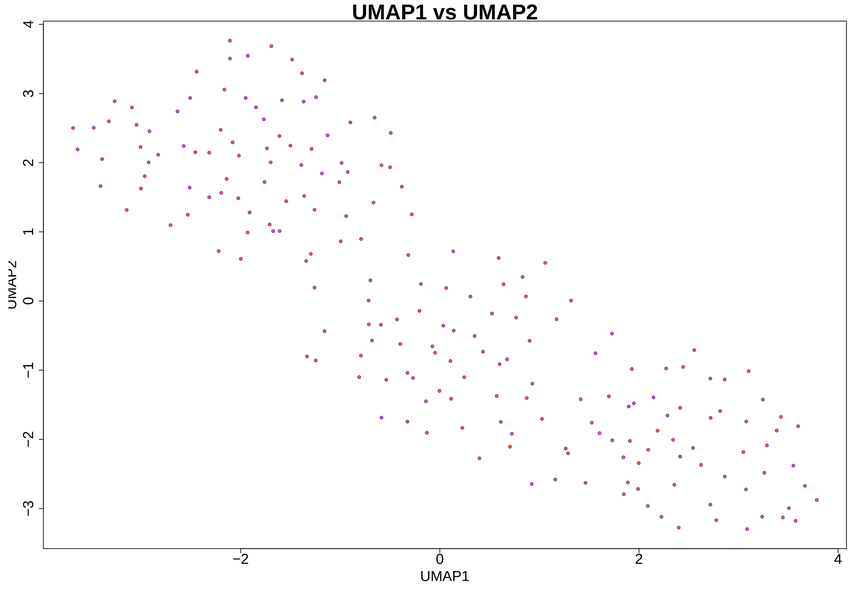


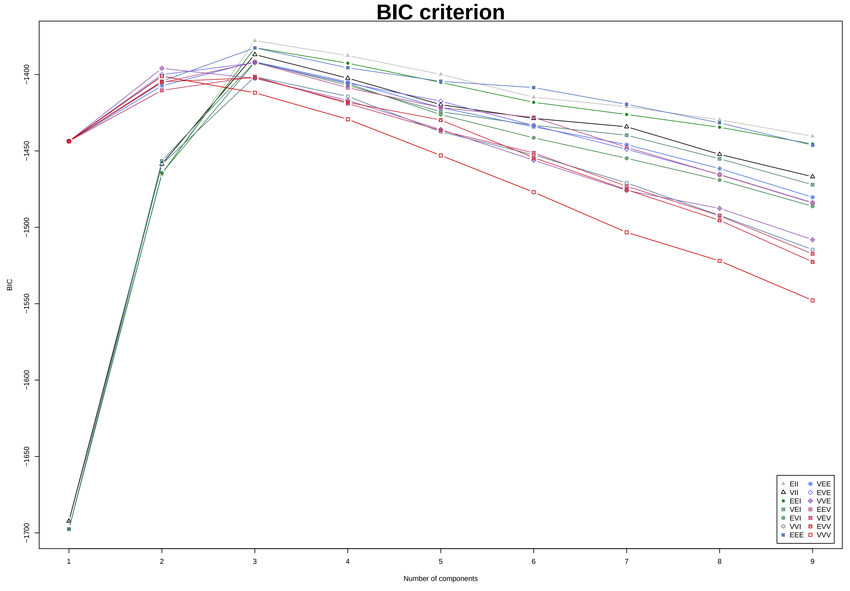



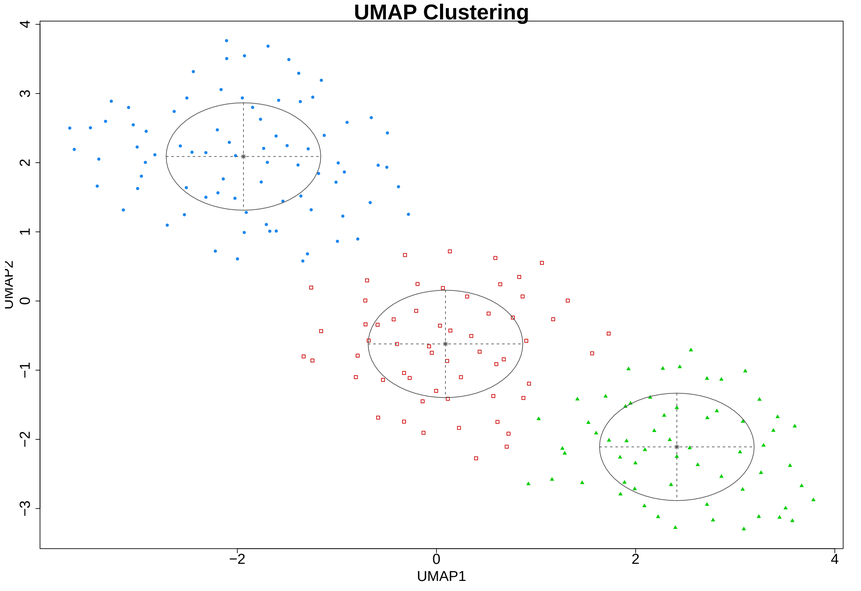



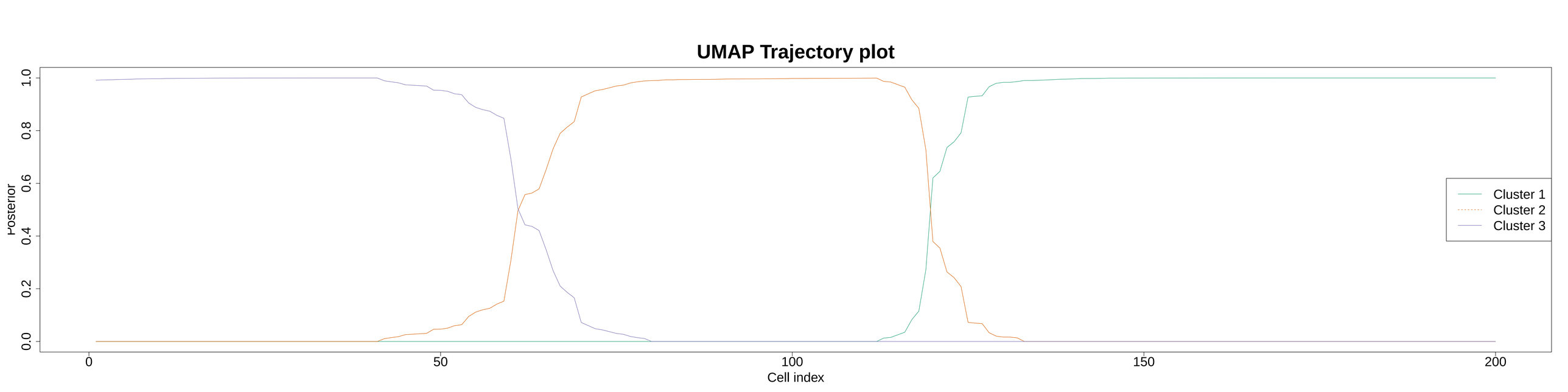

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 50 | dist = 0.4

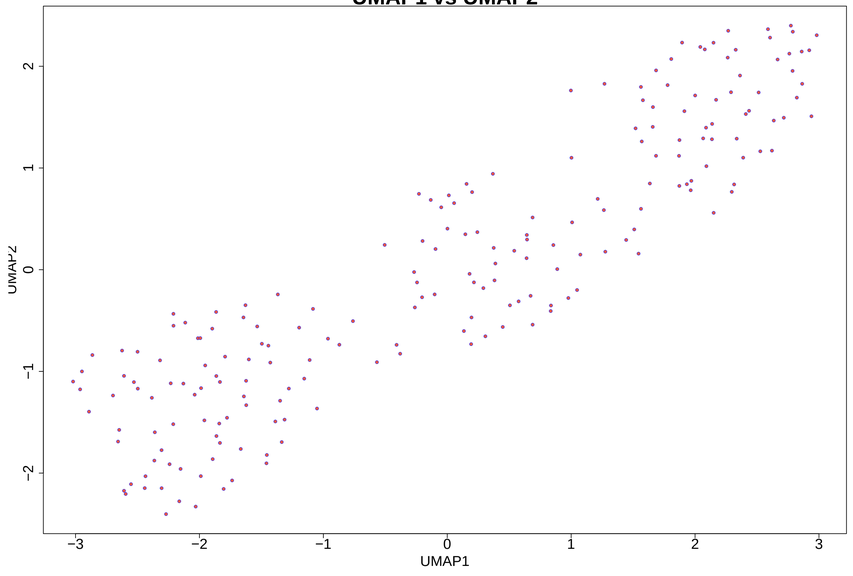


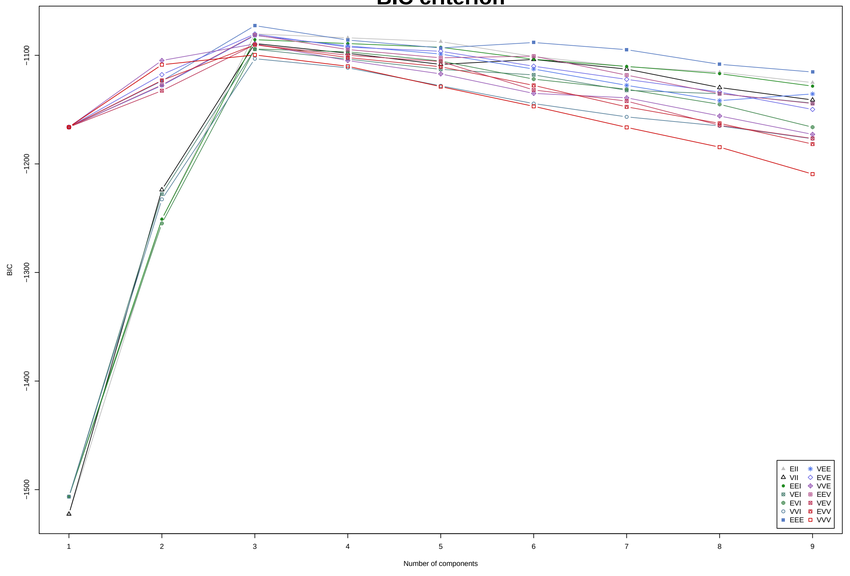



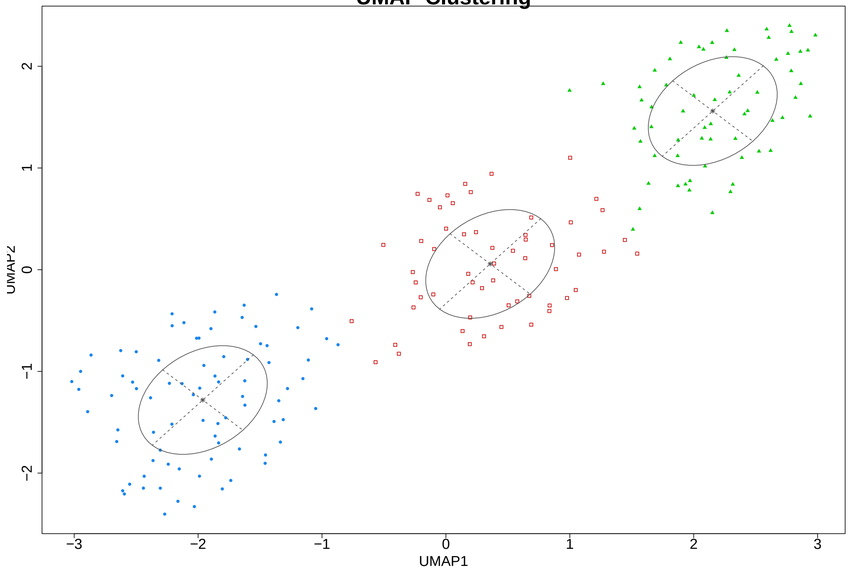



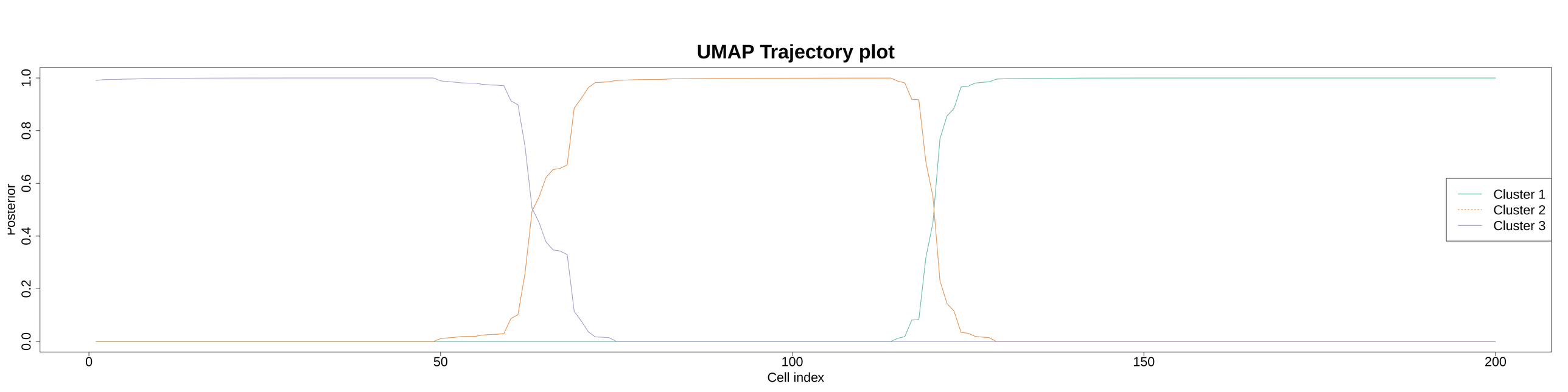

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

# Clustering: UMAP
# n = 45 | dist = 0.05

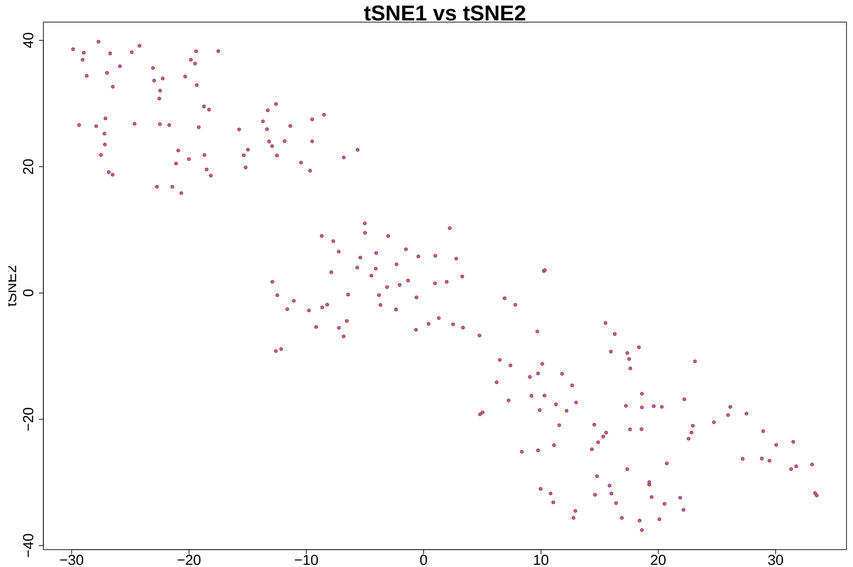


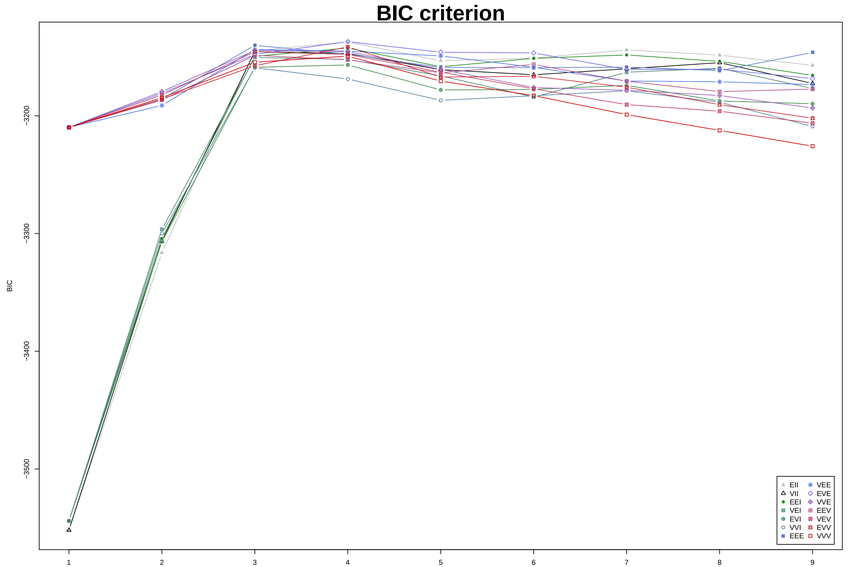



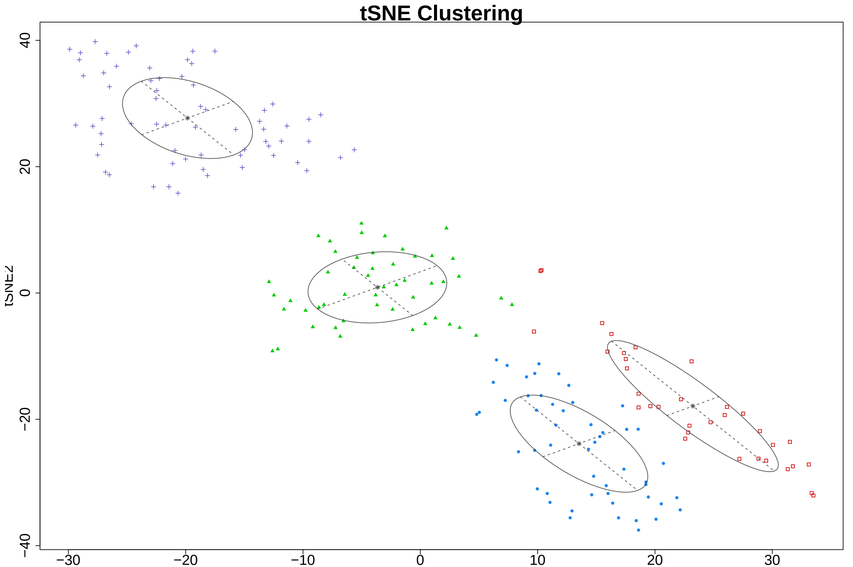



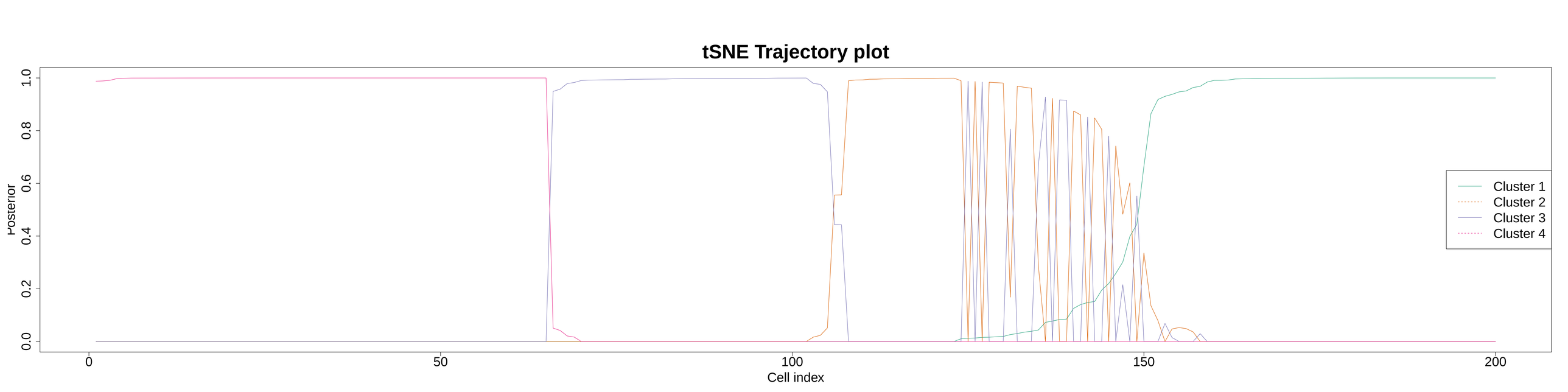

UMAP Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

clustering: tSNE
perp = 5 | iter = 5000

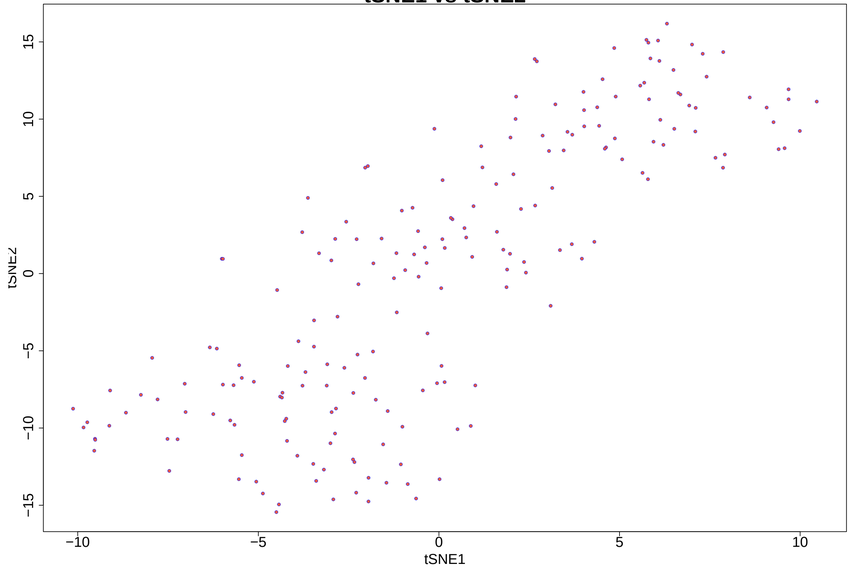


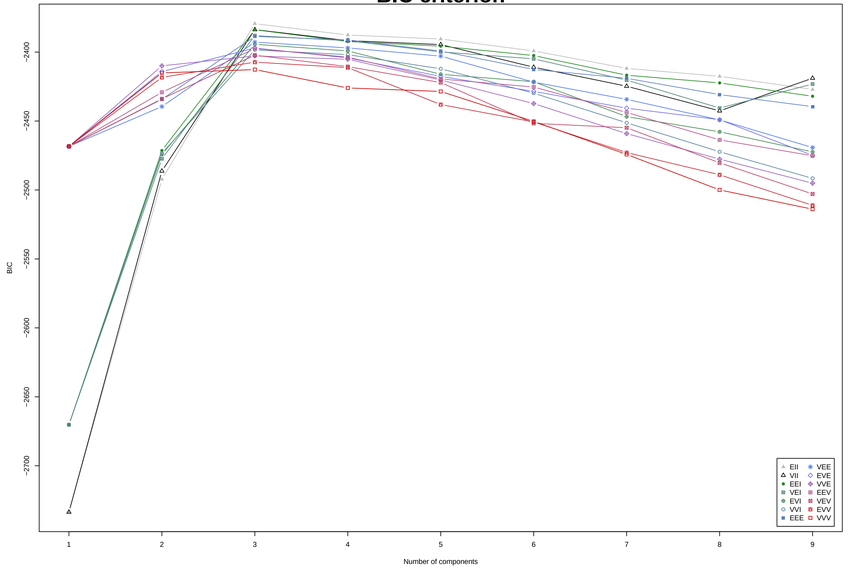



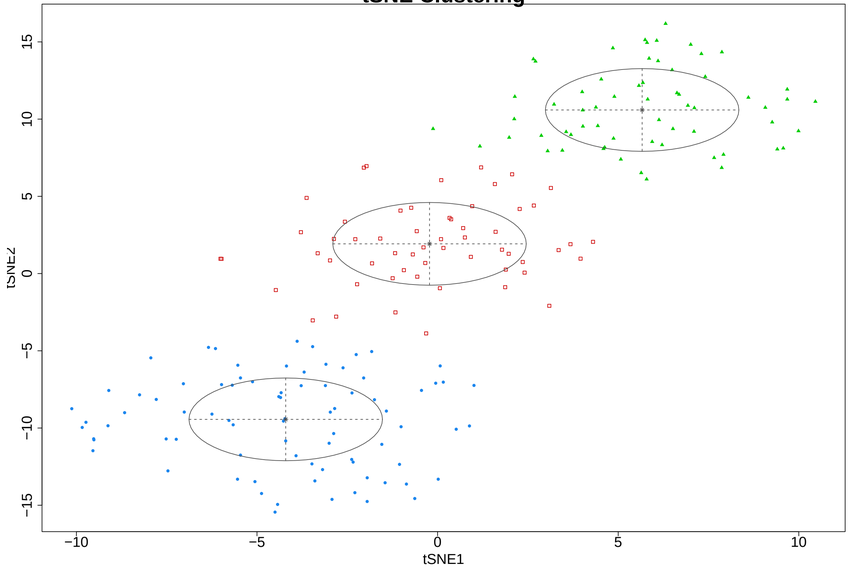



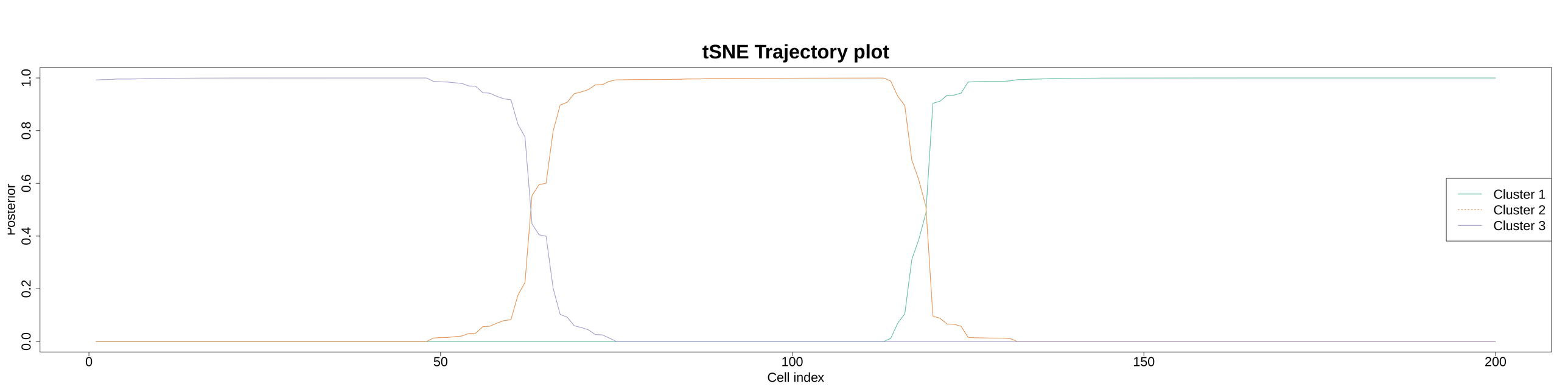

tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

clustering: tSNE
perp = 14 | iter = 5000

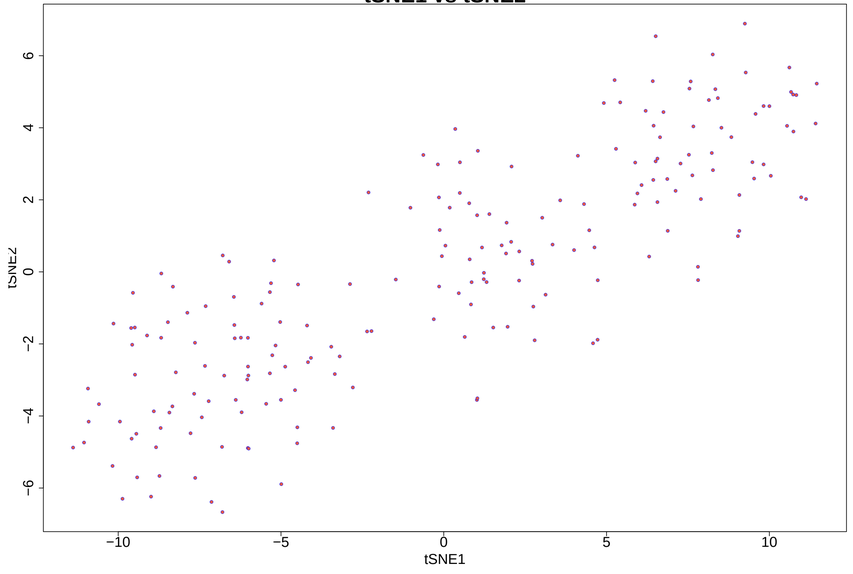


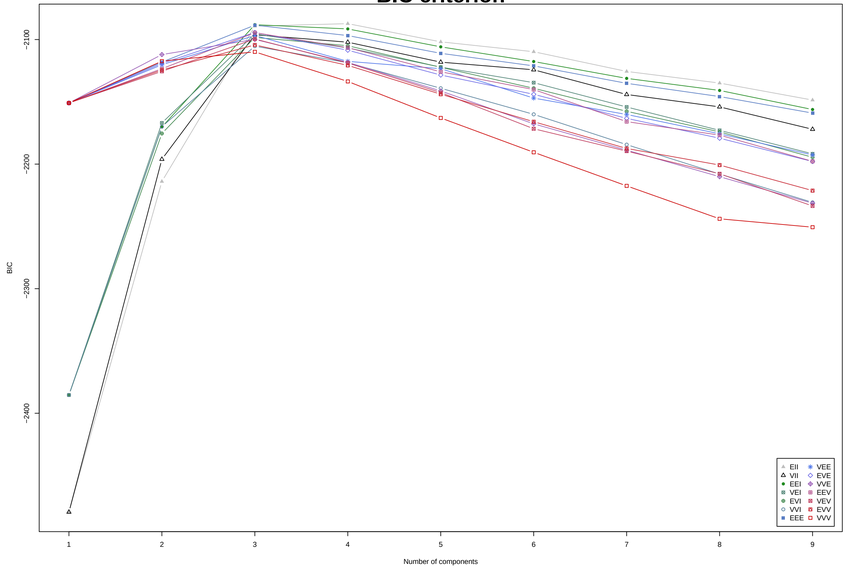



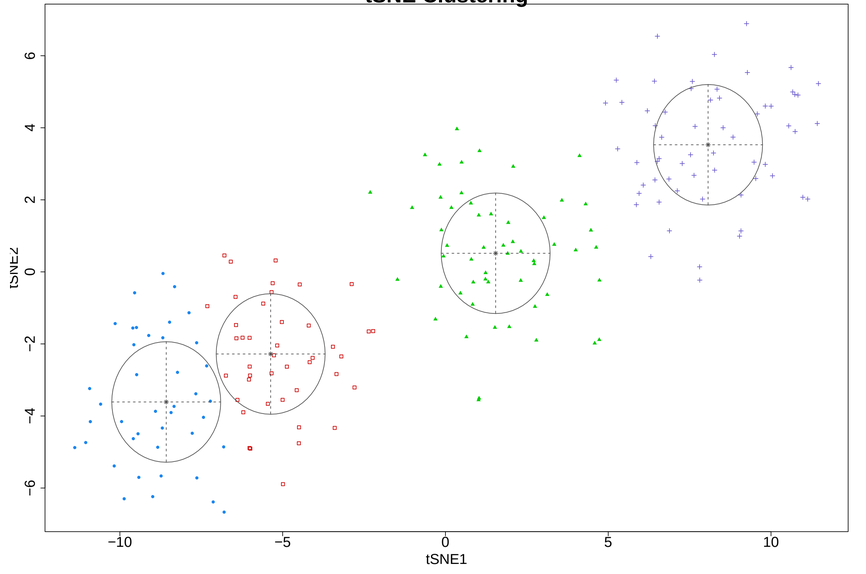



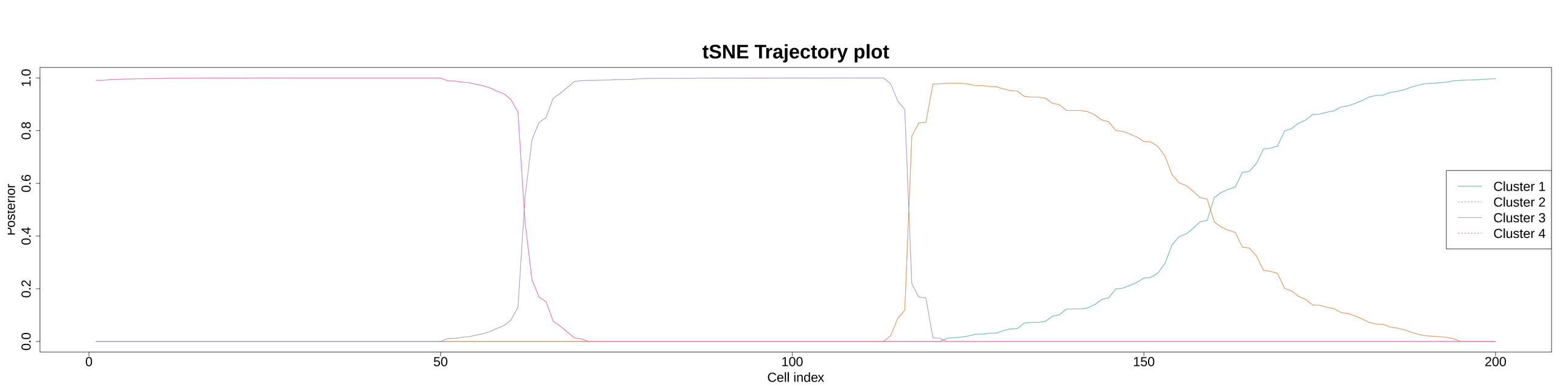

tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

clustering: tSNE
perp = 23 | iter = 5000

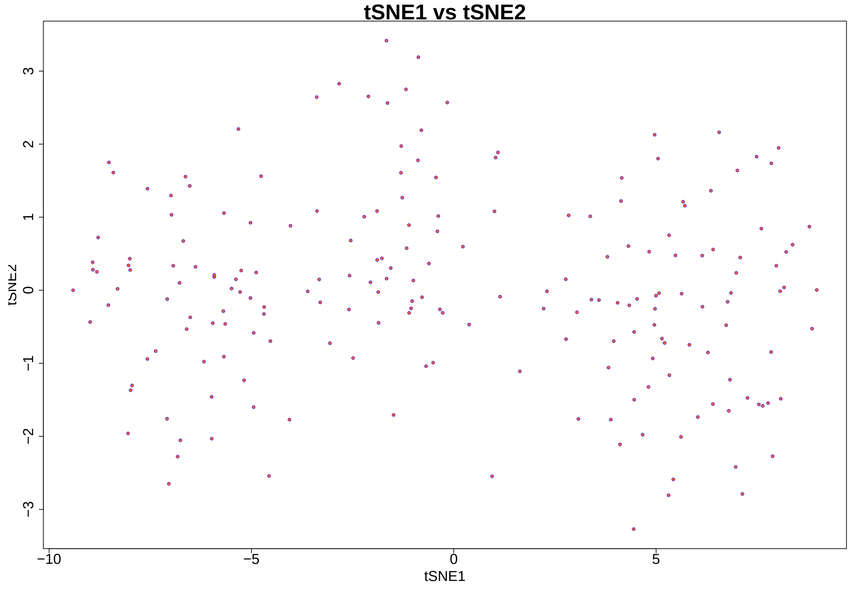


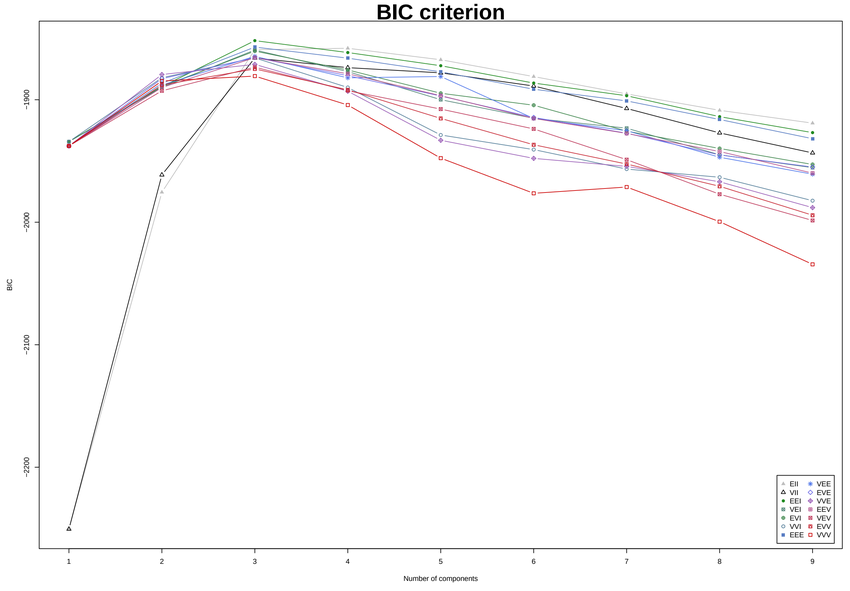



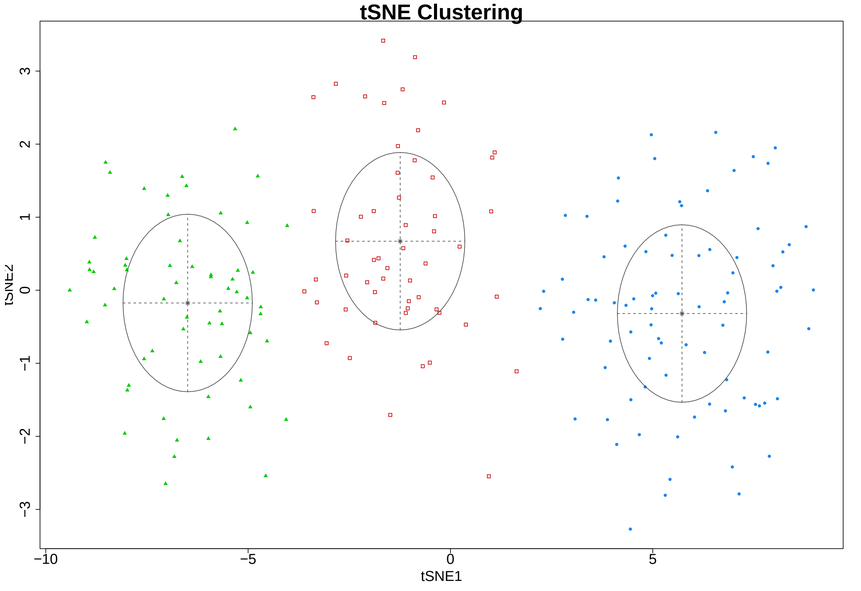



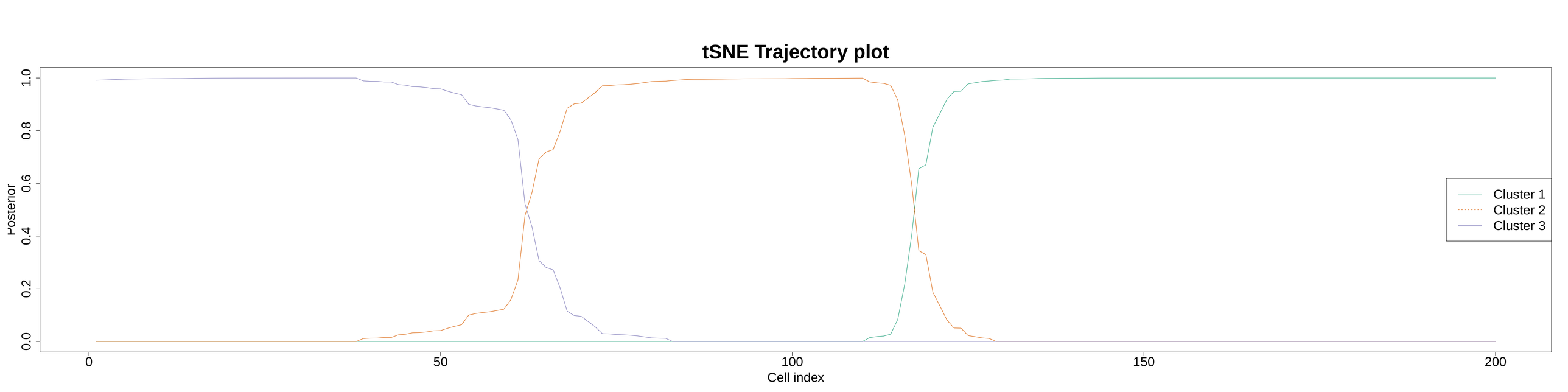

tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3
Cluster 4

clustering: tSNE
perp = 32 | iter = 5000

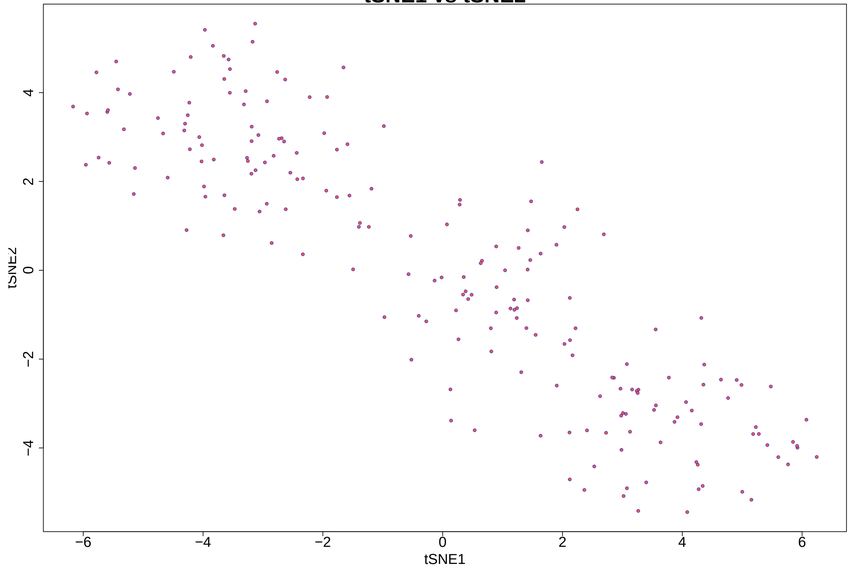


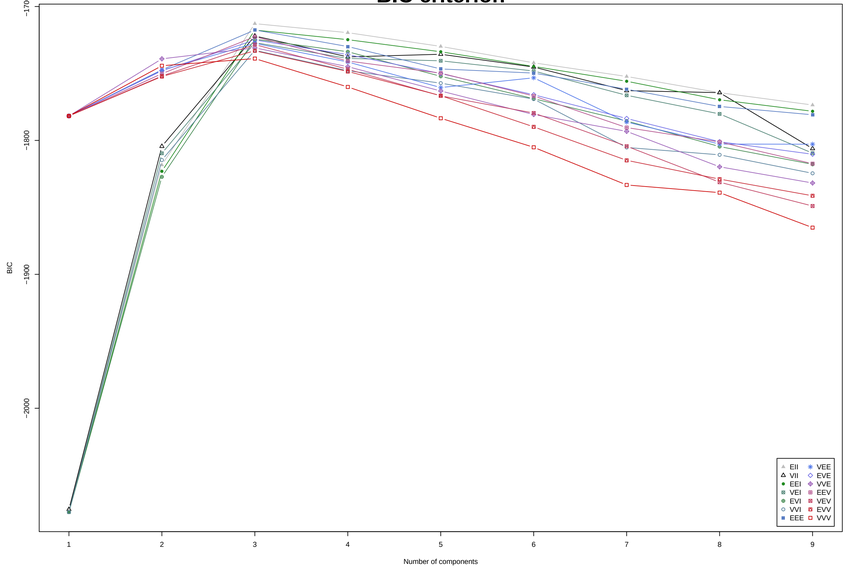



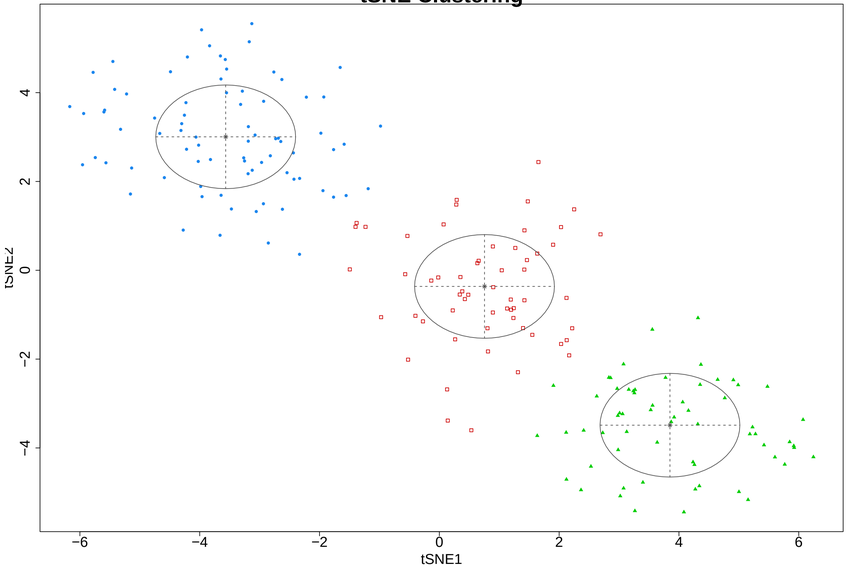



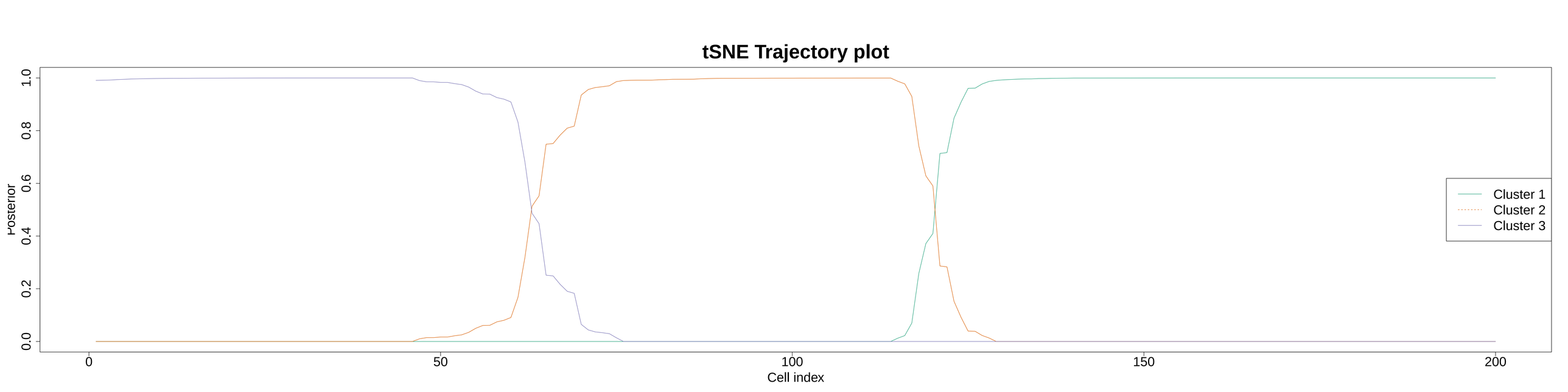

tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

clustering: tSNE
perp = 41 | iter = 5000

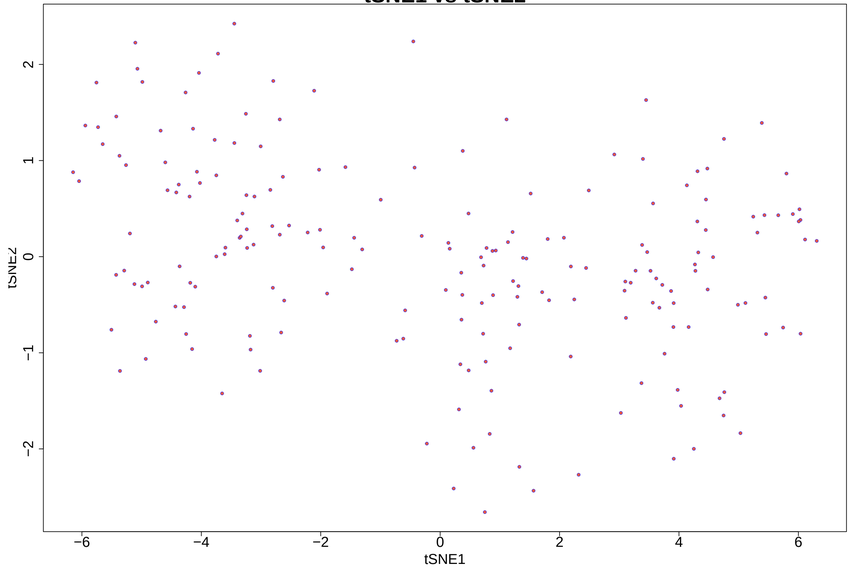


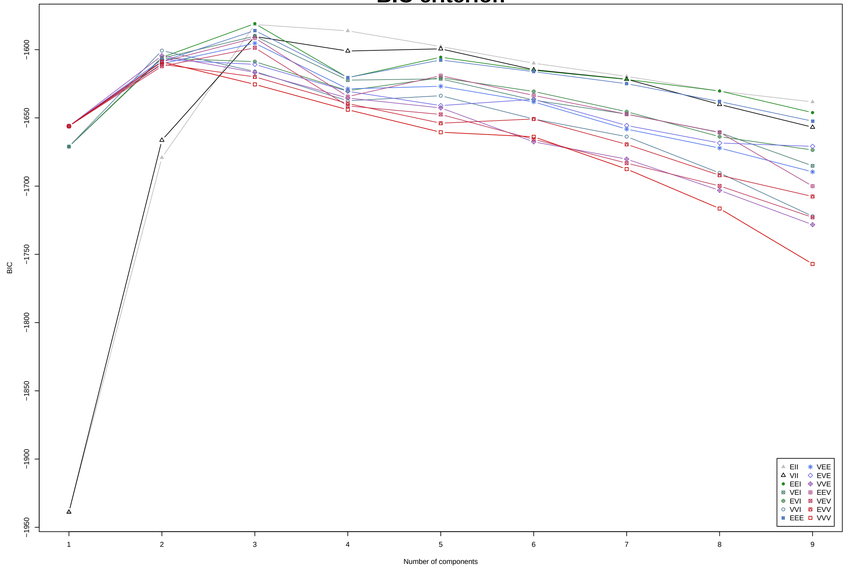



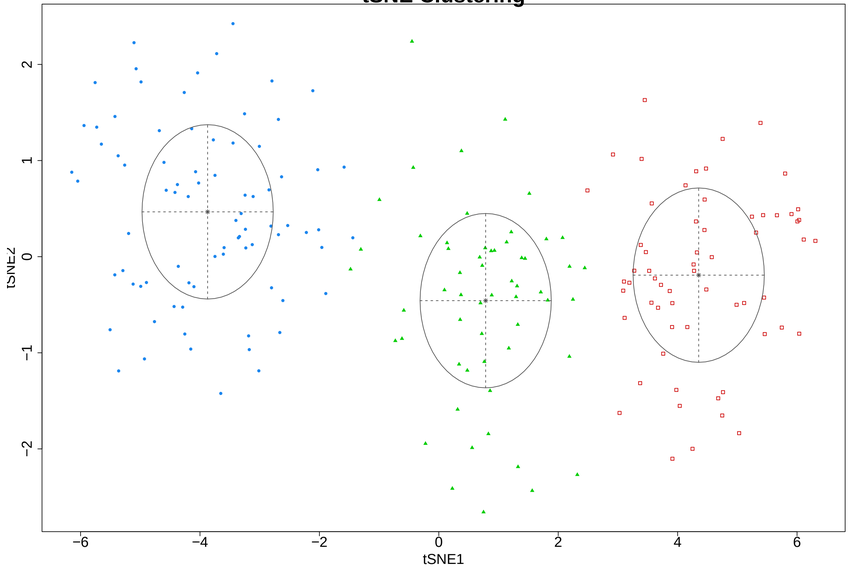



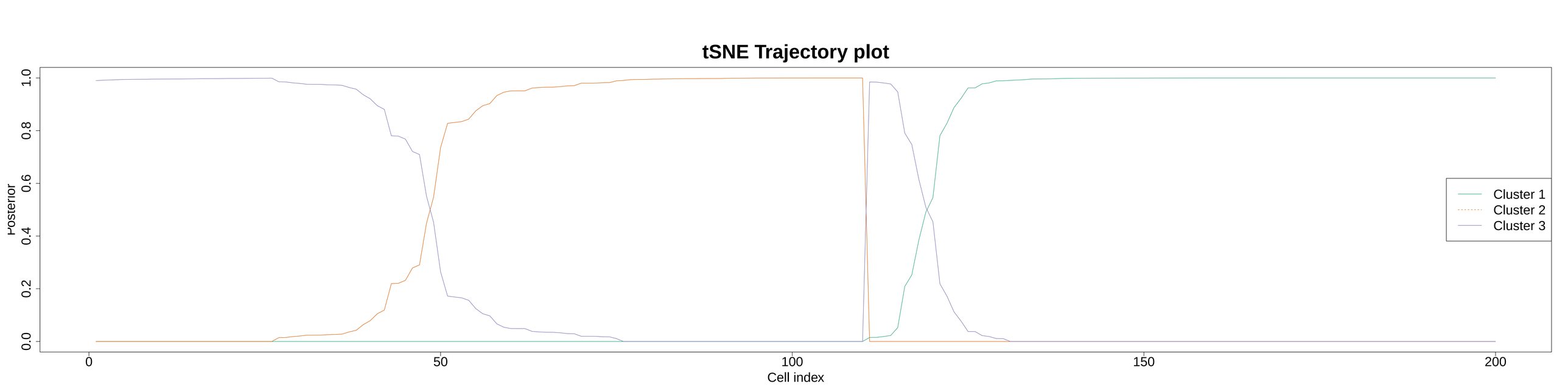

tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

clustering: tSNE
perp = 50 | iter = 5000

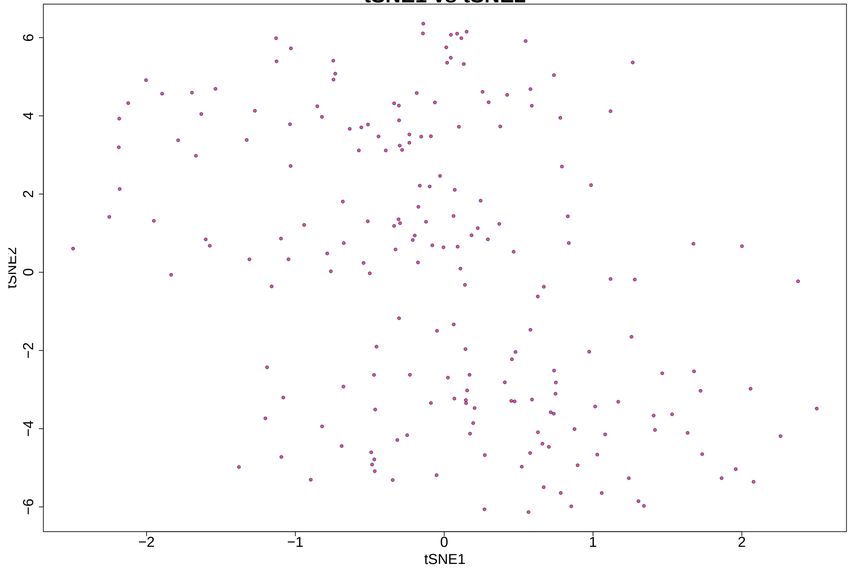


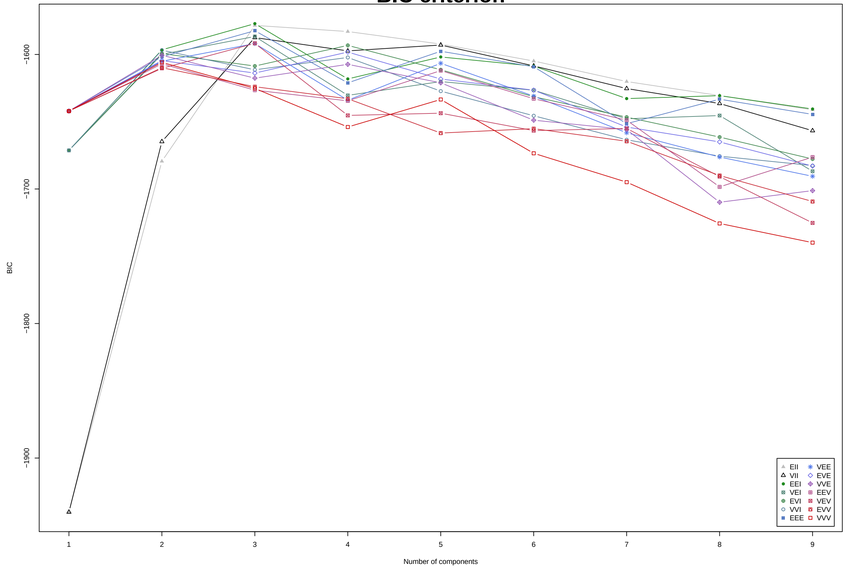



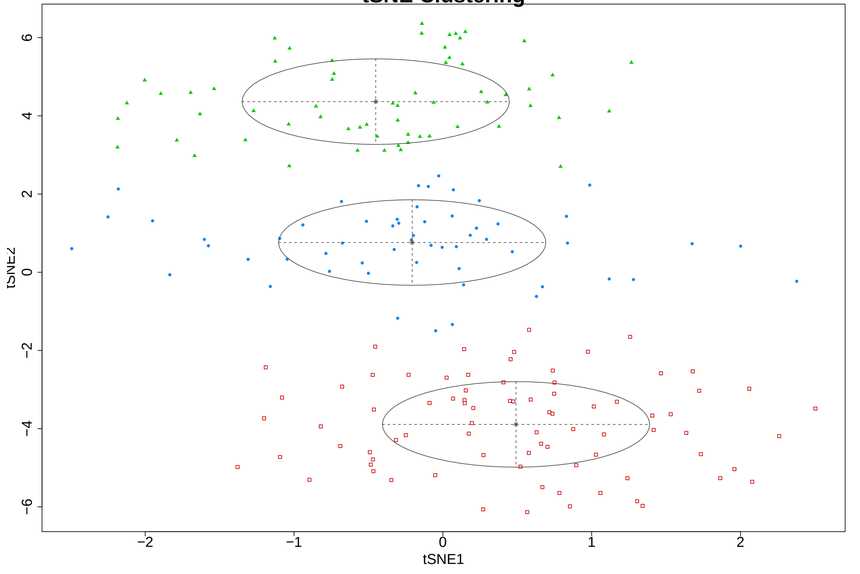



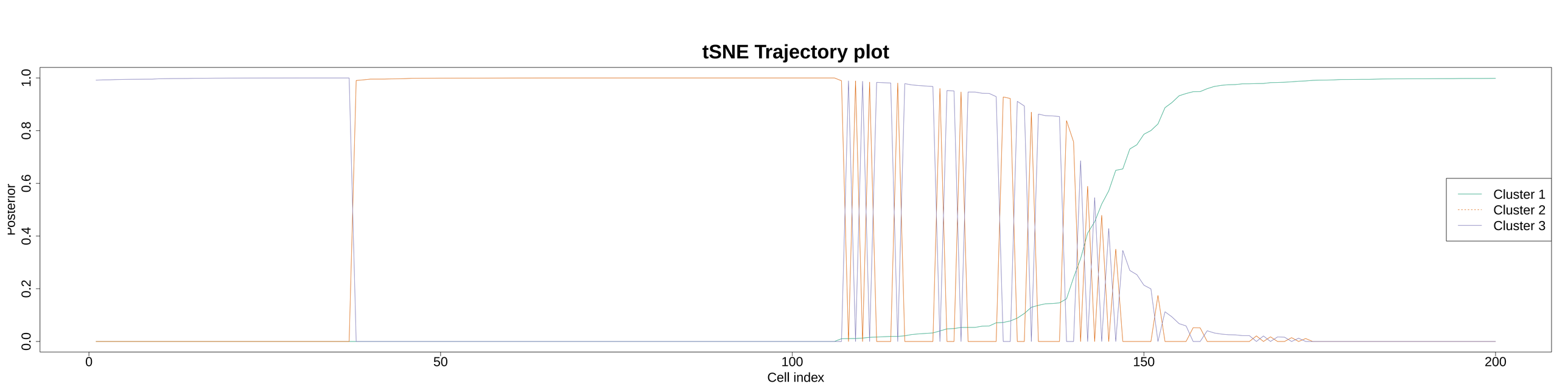

tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3

clustering: tSNE
perp = 50 | iter = 5000




tSNE Trajectory plot
Posterior
0.0
0.2
0.4
0.6
0.8
1.0
0
50
100
150
200
Cell index
Cluster 1
Cluster 2
Cluster 3