

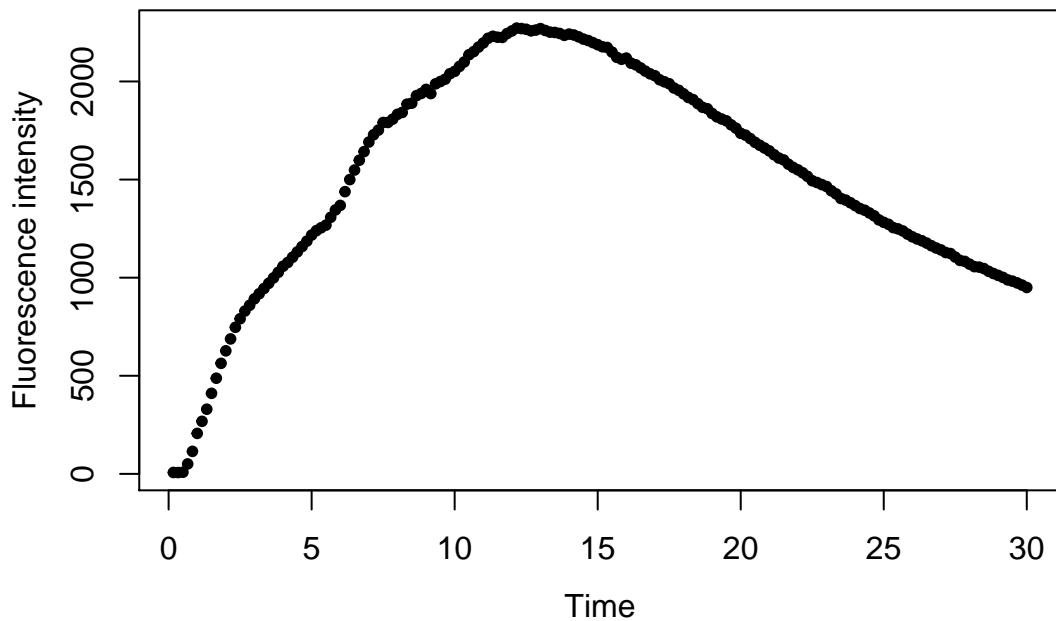
Analysis of individual stanfit objects

November 3, 2020

Dataset: experimental_data_d2eGFP, model type: ODE

Trajectory 1: no pathologies

Trajectory 1



| | mean | se_mean | sd | 5% | 50% | 95% | n_eff |
|----------------------|----------|---------|----------|---------|---------|----------|-------|
| theta[1] | 0.089 | 0.000 | 0.006 | 0.080 | 0.089 | 0.099 | 11812 |
| theta[2] | 1.861 | 0.020 | 2.207 | 0.074 | 0.997 | 6.566 | 11819 |
| theta[3] | 0.089 | 0.000 | 0.006 | 0.080 | 0.089 | 0.099 | 11638 |
| m0 | 234.743 | 1.914 | 211.900 | 10.356 | 176.446 | 656.029 | 12259 |
| sigma | 0.089 | 0.000 | 0.005 | 0.082 | 0.089 | 0.097 | 17795 |
| scale | 8.339 | 0.080 | 8.104 | 0.344 | 5.282 | 25.553 | 10271 |
| offset | 7.469 | 0.003 | 0.388 | 6.858 | 7.457 | 8.133 | 17557 |
| t0 | 0.584 | 0.000 | 0.008 | 0.570 | 0.584 | 0.597 | 17655 |
| prod_theta2_m0 | 316.784 | 6.108 | 625.235 | 18.869 | 91.254 | 1400.752 | 10478 |
| prod_theta2_scale | 10.073 | 0.253 | 21.958 | 0.737 | 2.734 | 46.677 | 7513 |
| prod_m0_scale | 1482.536 | 26.365 | 2545.934 | 73.786 | 484.244 | 6527.266 | 9325 |
| prod_theta2_m0_scale | 482.723 | 0.048 | 6.874 | 471.408 | 482.698 | 494.143 | 20502 |
| x2_sim[180] | 681.229 | 13.127 | 1344.353 | 40.623 | 196.452 | 3018.341 | 10488 |
| | Rhat | | | | | | |
| theta[1] | 1 | | | | | | |
| theta[2] | 1 | | | | | | |
| theta[3] | 1 | | | | | | |
| m0 | 1 | | | | | | |
| sigma | 1 | | | | | | |
| scale | 1 | | | | | | |

```
offset          1
t0             1
prod_theta2_m0 1
prod_theta2_scale 1
prod_m0_scale   1
prod_theta2_m0_scale 1
x2_sim[180]     1
```

Divergences:

0 of 20000 iterations ended with a divergence.

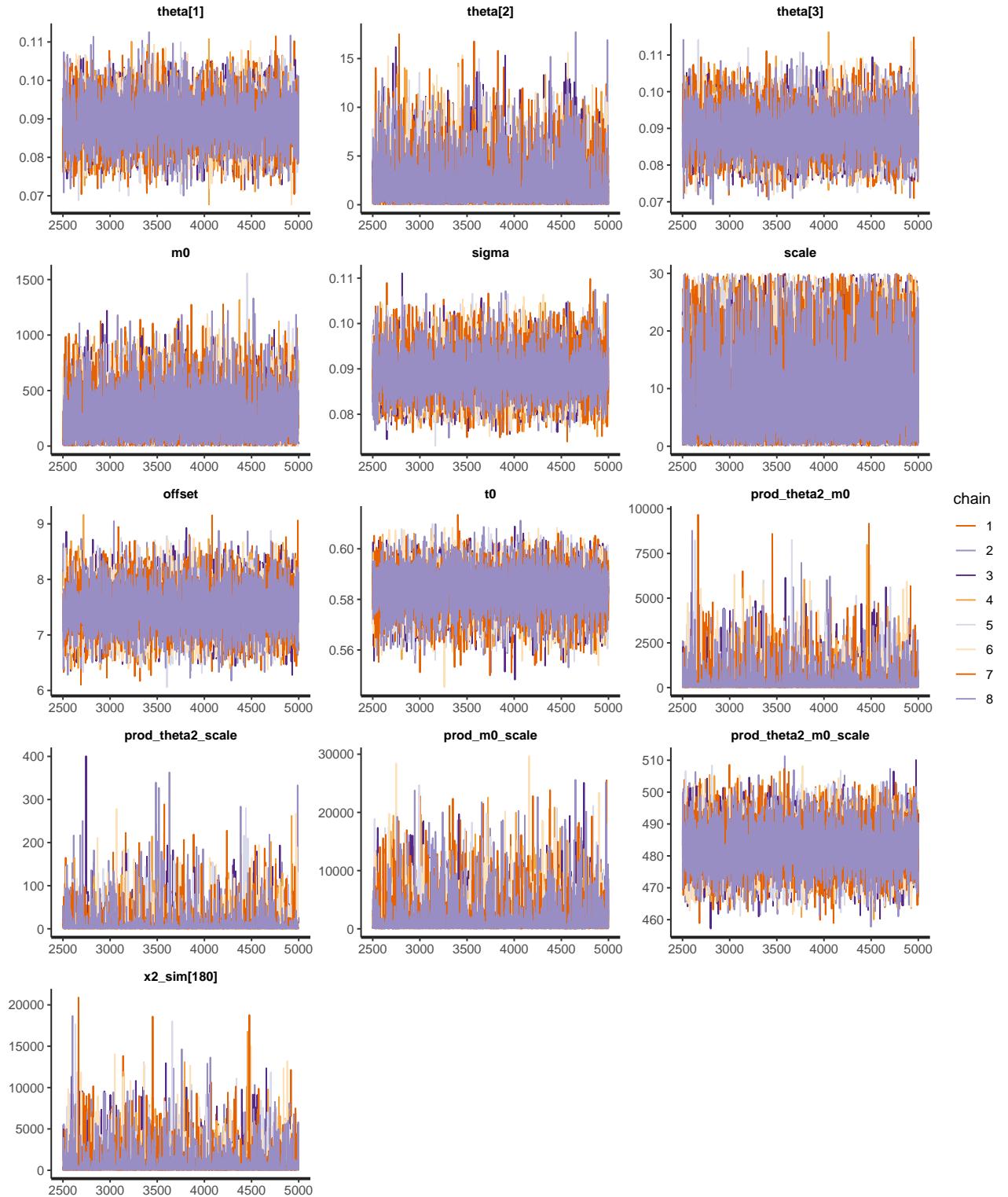
Tree depth:

0 of 20000 iterations saturated the maximum tree depth of 15.

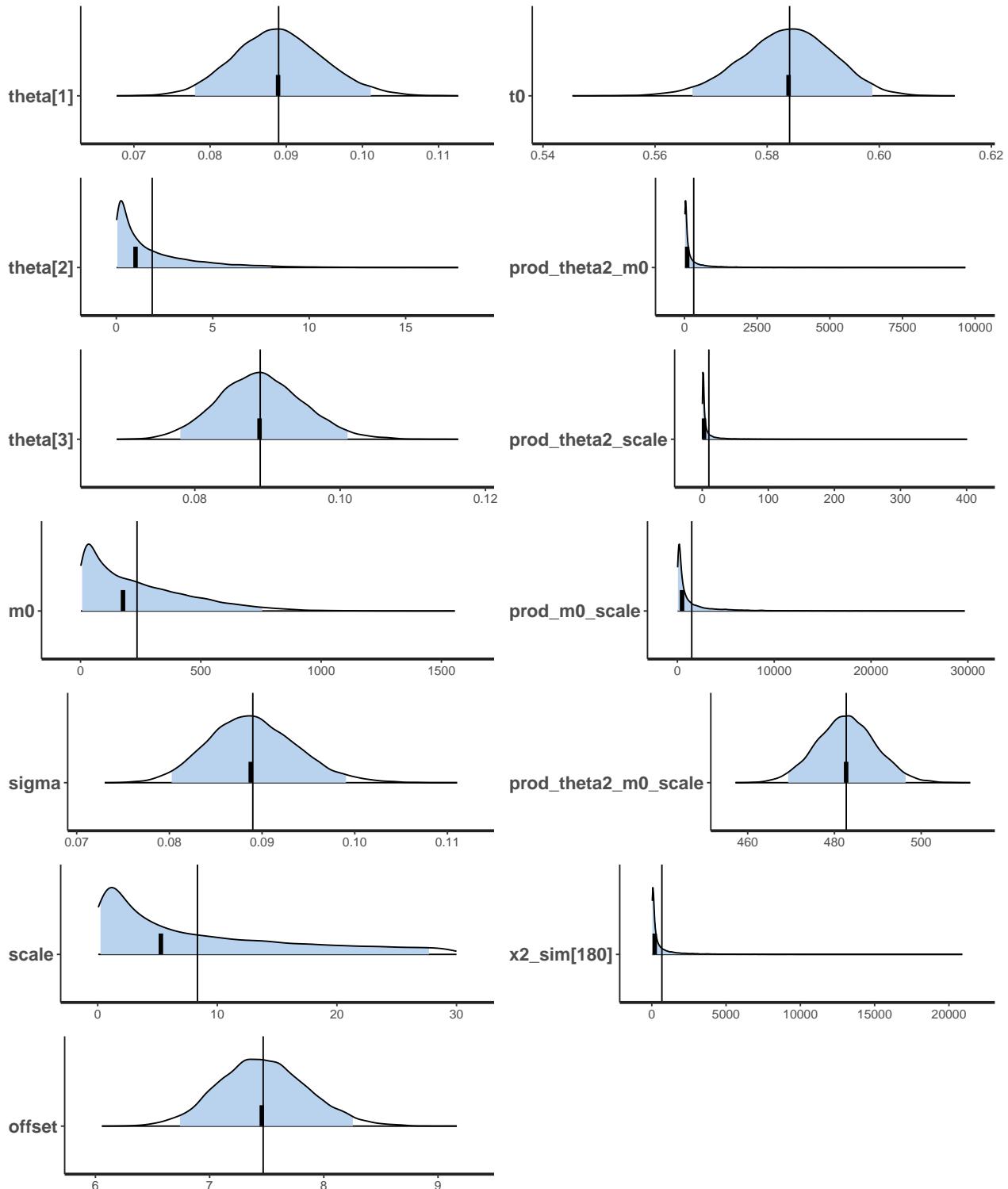
Energy:

E-BFMI indicated no pathological behavior.

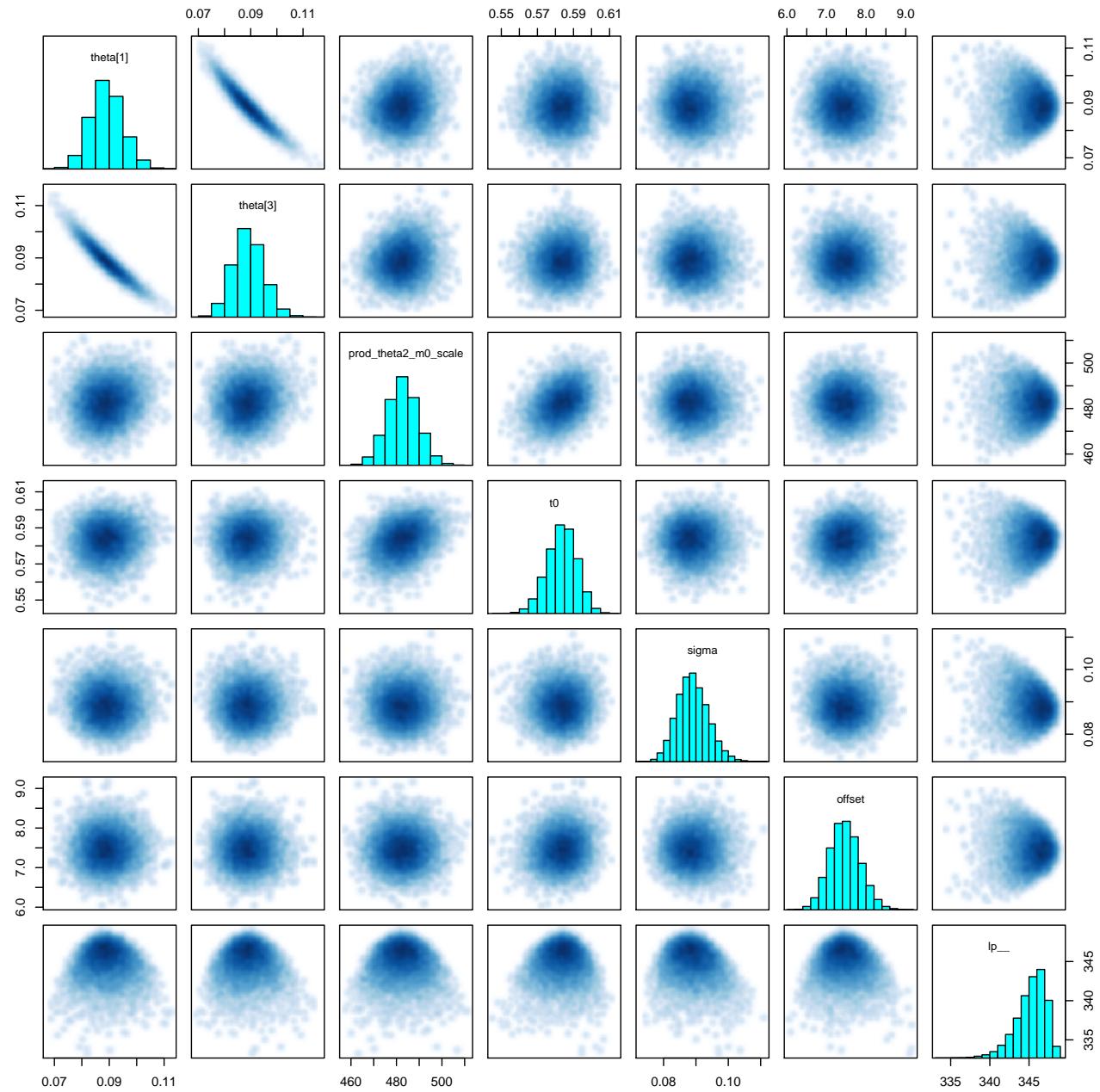
Traceplots

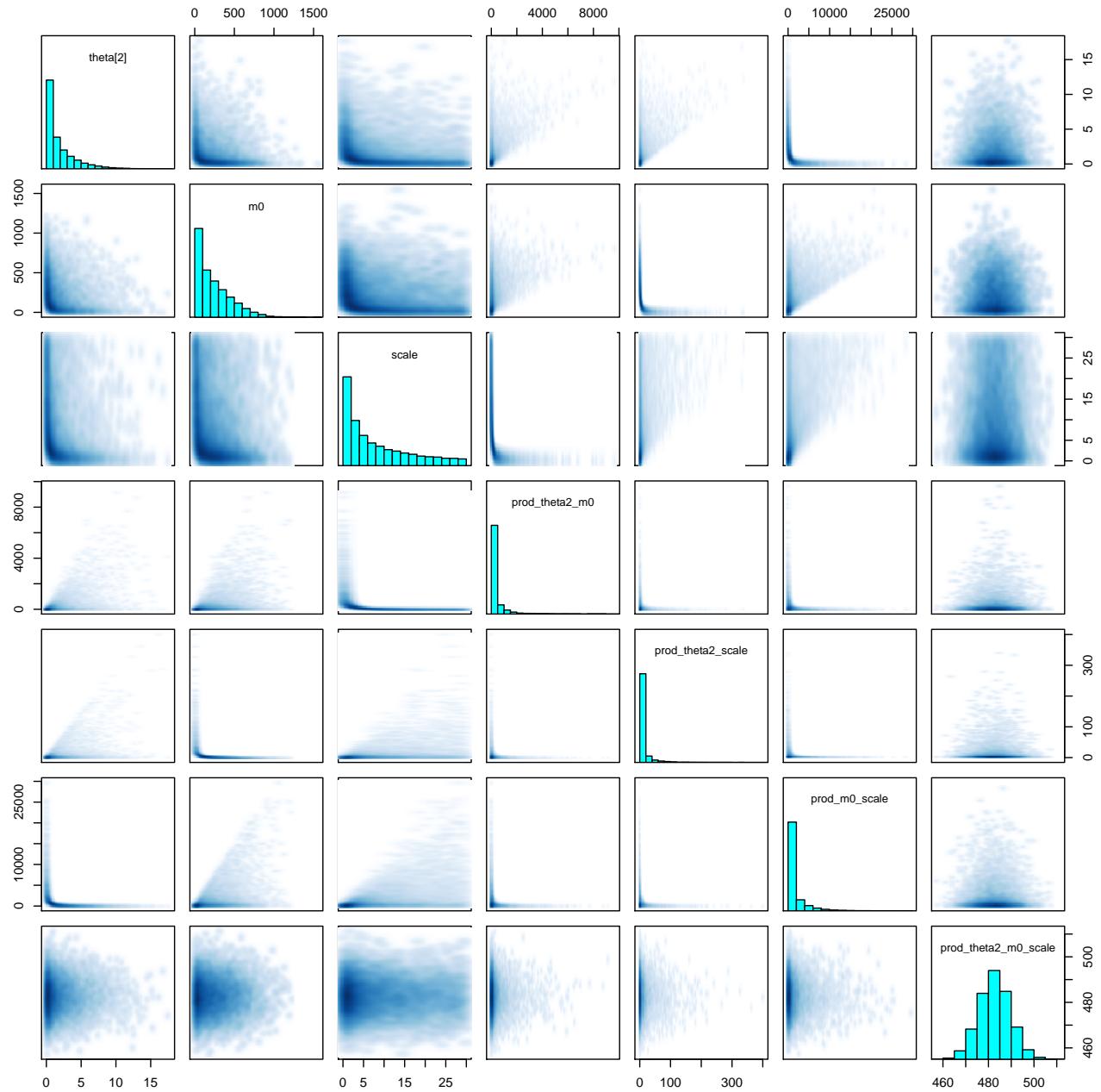


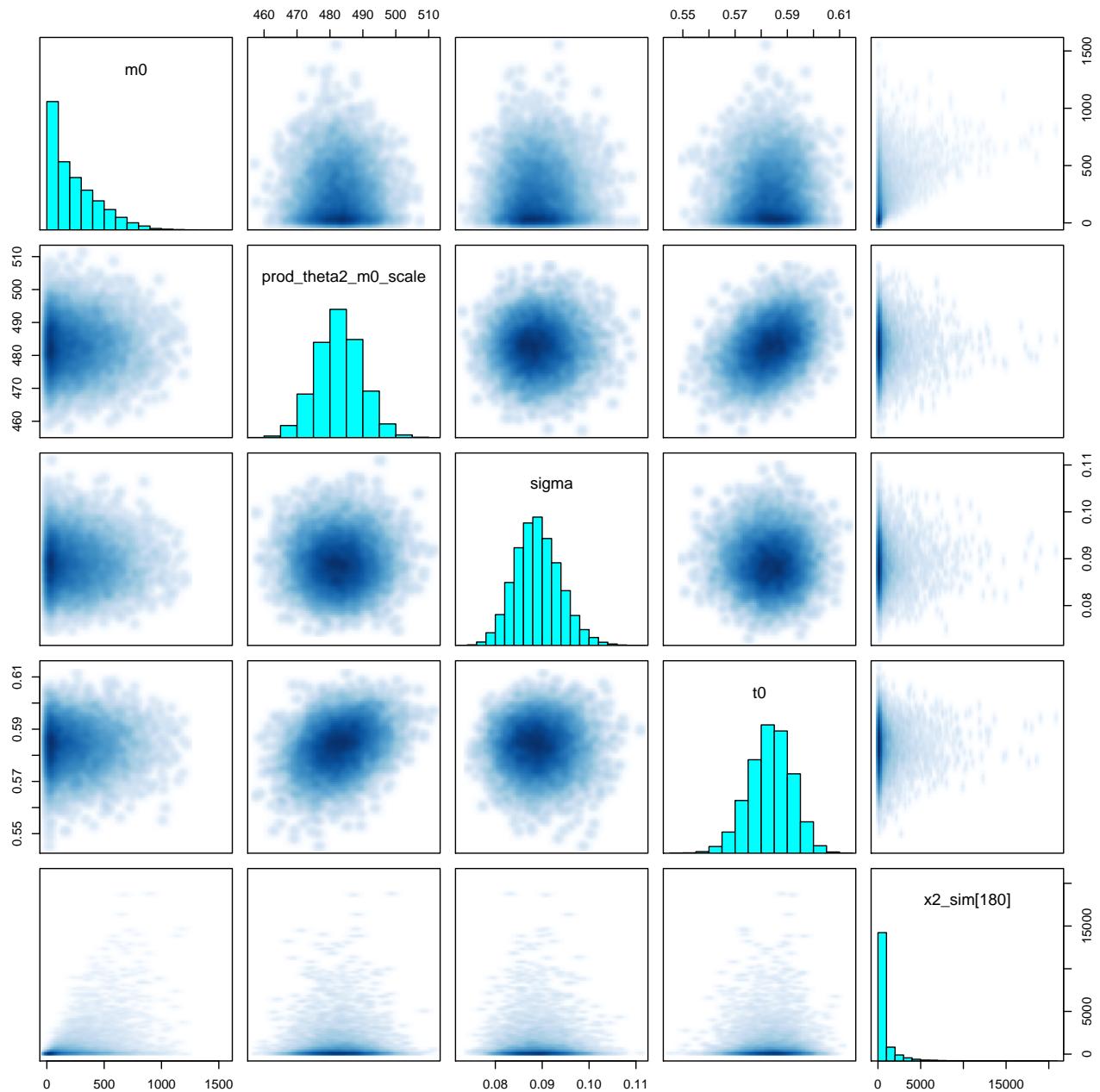
Density plots with 95% CI and median



Pair plots

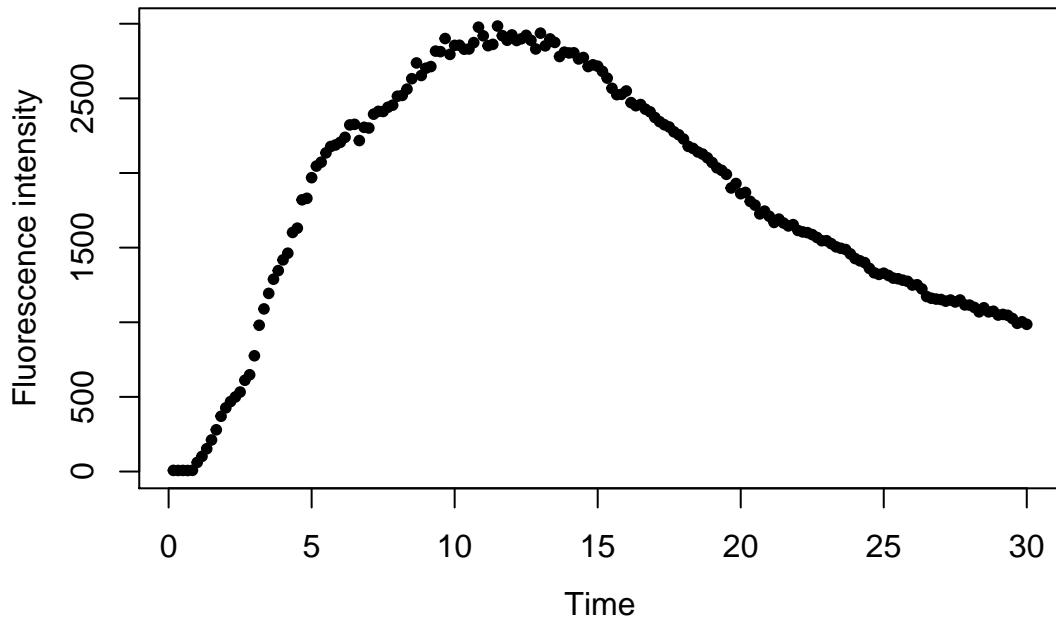






Trajectory 13: very high Rhat for m0 prod_m0_scale x[180,1]

Trajectory 13



| | mean | se_mean | sd | 5% | 50% | 95% | n_eff |
|----------------------|----------|---------|----------|---------|---------|----------|-------|
| theta[1] | 0.102 | 0.001 | 0.010 | 0.088 | 0.102 | 0.119 | 346 |
| theta[2] | 1.990 | 0.021 | 2.232 | 0.098 | 1.149 | 6.748 | 11360 |
| theta[3] | 0.102 | 0.000 | 0.010 | 0.088 | 0.101 | 0.119 | 615 |
| m0 | 242.805 | 2.094 | 212.339 | 12.970 | 186.571 | 660.096 | 10286 |
| sigma | 0.177 | 0.009 | 0.021 | 0.151 | 0.170 | 0.212 | 6 |
| scale | 8.865 | 0.088 | 8.259 | 0.451 | 5.904 | 26.015 | 8717 |
| offset | 8.725 | 0.746 | 1.705 | 6.717 | 7.982 | 11.621 | 5 |
| t0 | 1.002 | 0.031 | 0.067 | 0.937 | 0.957 | 1.101 | 5 |
| prod_theta2_m0 | 356.664 | 6.785 | 663.855 | 26.366 | 116.879 | 1517.365 | 9572 |
| prod_theta2_scale | 11.877 | 0.279 | 24.090 | 1.036 | 3.676 | 52.726 | 7467 |
| prod_m0_scale | 1642.655 | 29.252 | 2647.717 | 101.665 | 597.669 | 7045.565 | 8193 |
| prod_theta2_m0_scale | 687.813 | 9.581 | 27.973 | 647.572 | 684.092 | 738.240 | 9 |
| x2_sim[180] | 542.251 | 10.291 | 1007.392 | 40.075 | 177.005 | 2329.456 | 9582 |
| | Rhat | | | | | | |
| theta[1] | 1.019 | | | | | | |
| theta[2] | 1.000 | | | | | | |
| theta[3] | 1.015 | | | | | | |
| m0 | 1.001 | | | | | | |
| sigma | 1.992 | | | | | | |
| scale | 1.001 | | | | | | |
| offset | 2.190 | | | | | | |
| t0 | 3.384 | | | | | | |
| prod_theta2_m0 | 1.000 | | | | | | |
| prod_theta2_scale | 1.001 | | | | | | |
| prod_m0_scale | 1.001 | | | | | | |
| prod_theta2_m0_scale | 1.388 | | | | | | |
| x2_sim[180] | 1.000 | | | | | | |

Divergences:

0 of 20000 iterations ended with a divergence.

Tree depth:

0 of 20000 iterations saturated the maximum tree depth of 15.

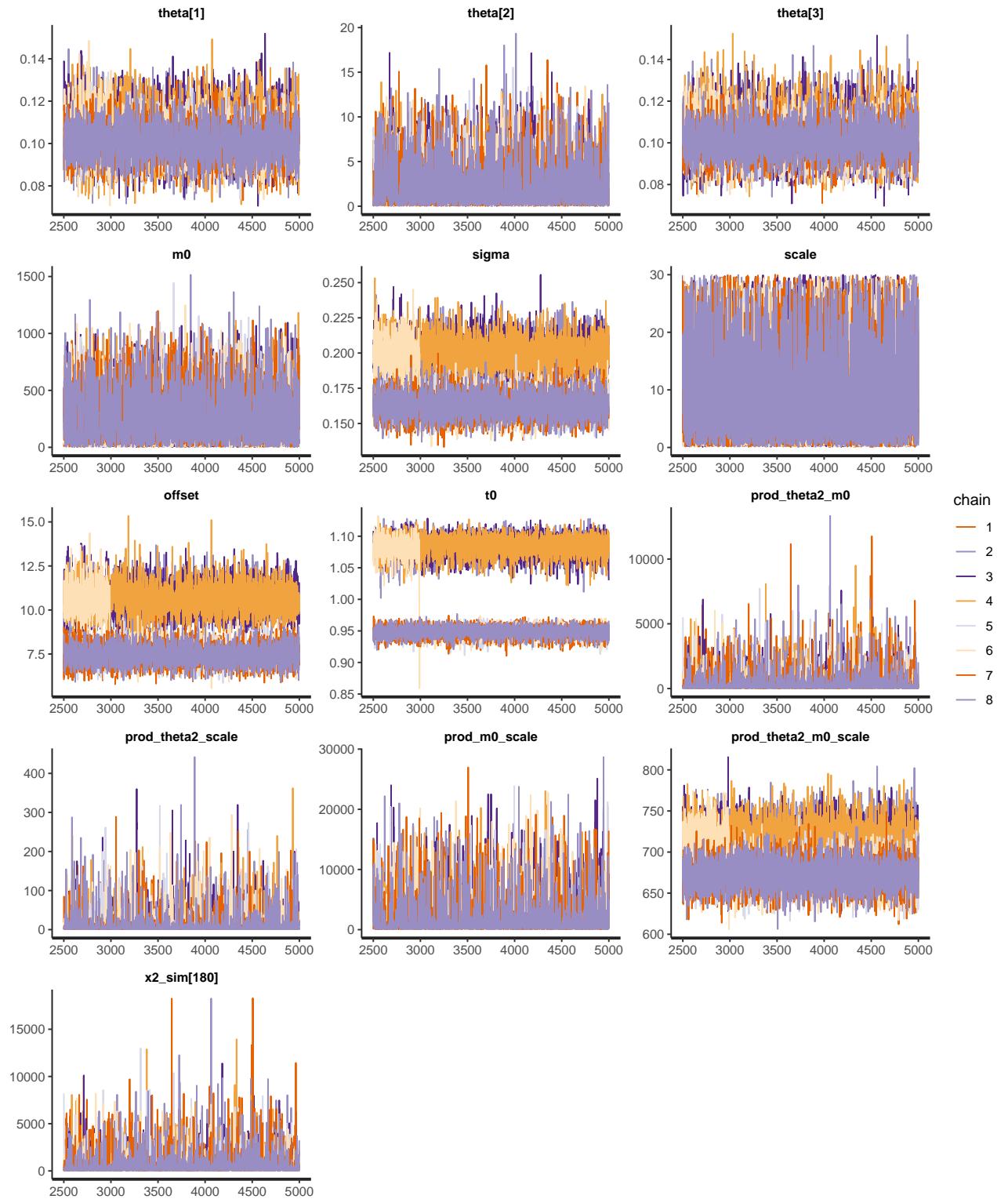
Energy:

E-BFMI indicated possible pathological behavior:

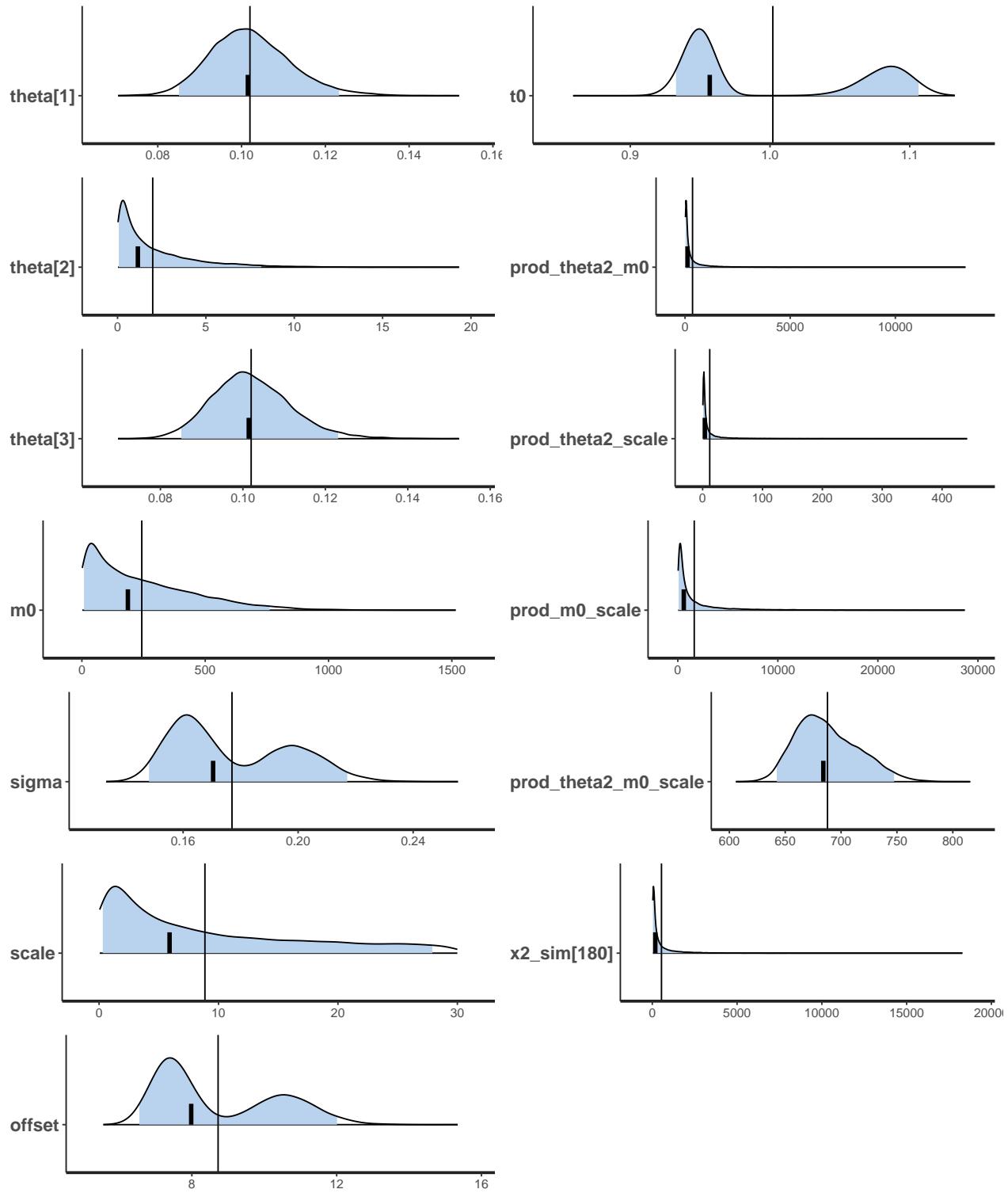
Chain 6: E-BFMI = 0.039

E-BFMI below 0.2 indicates you may need to reparameterize your model.

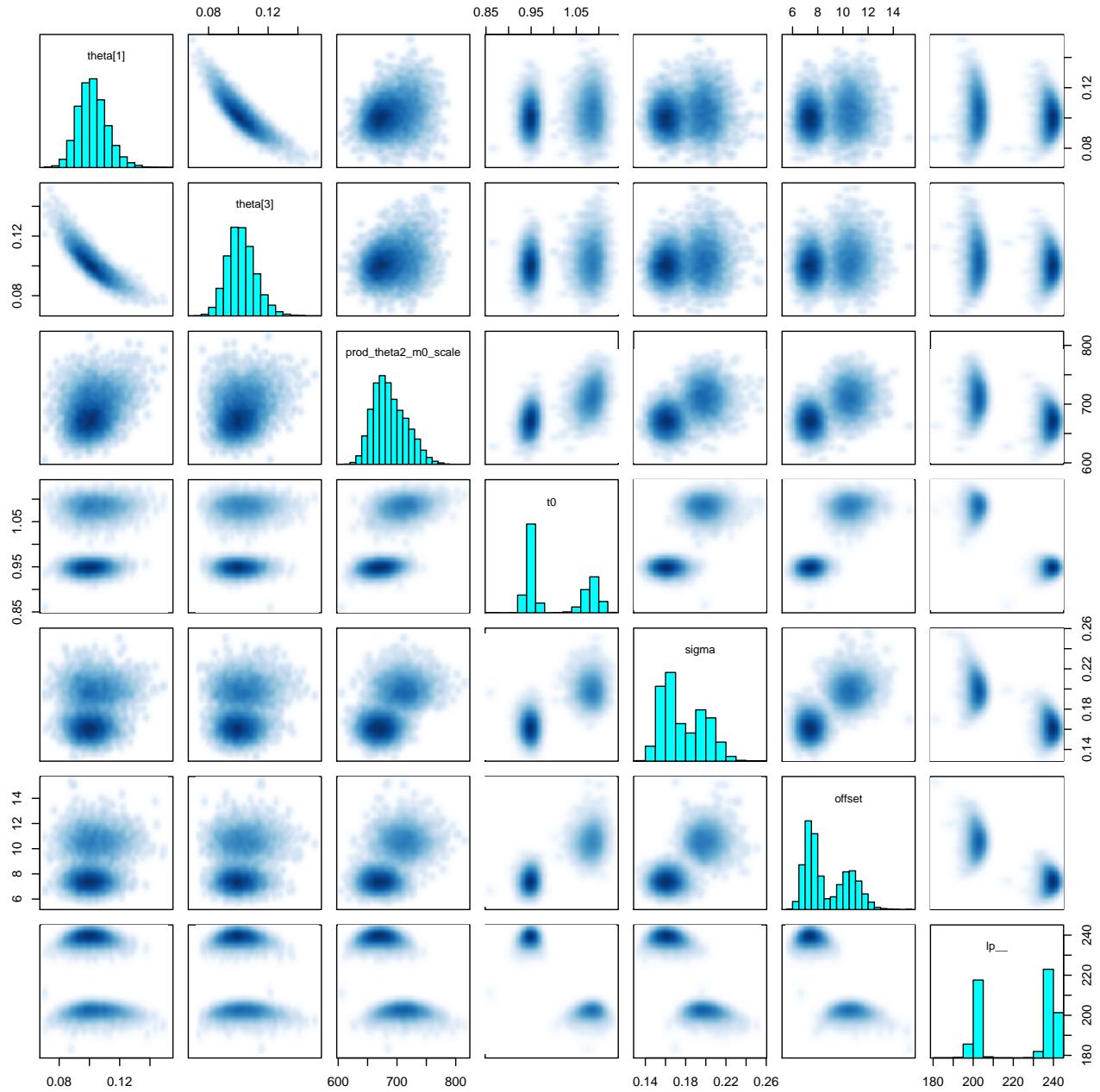
Traceplots

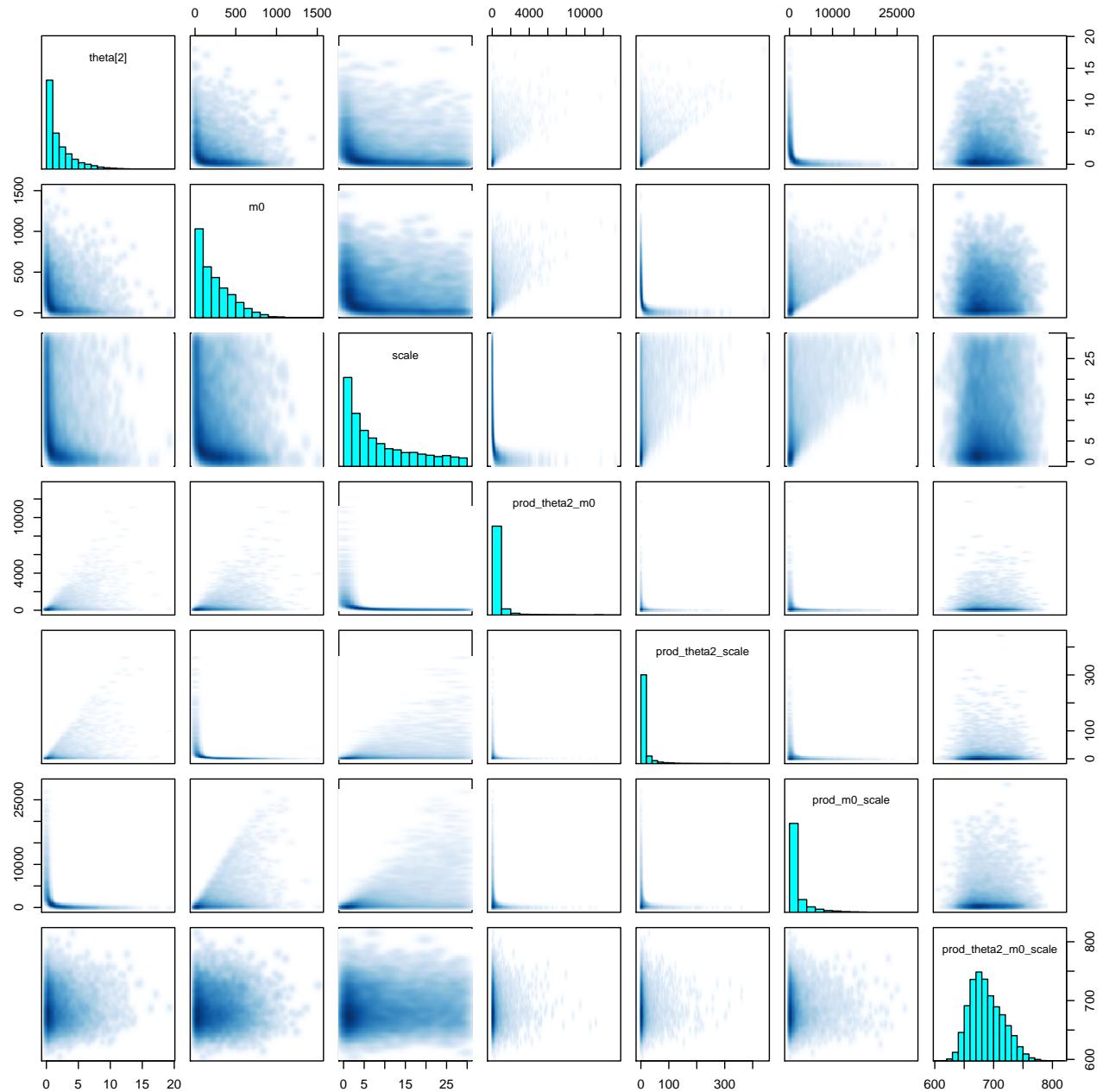


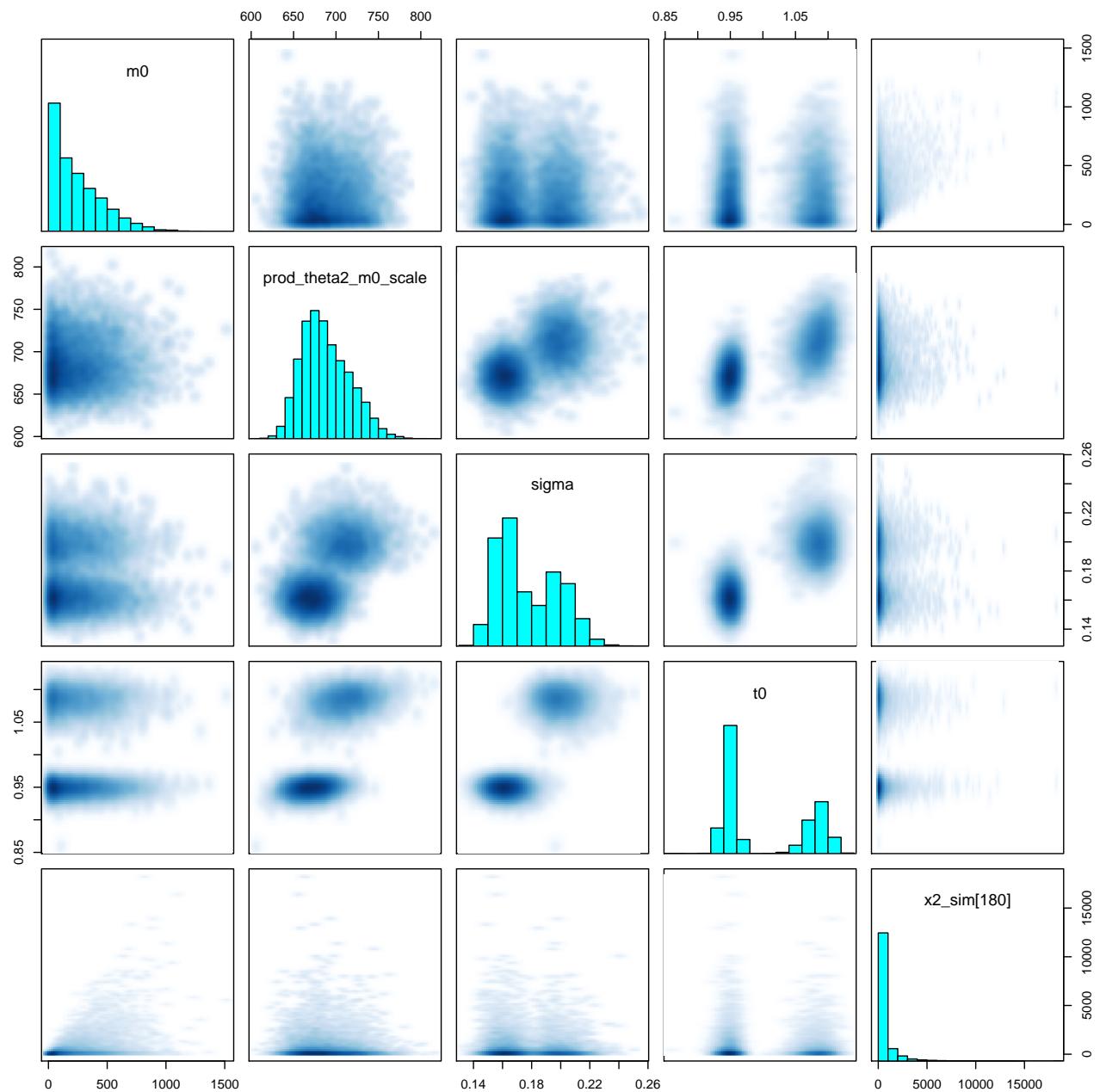
Density plots with 95% CI and median



Pair plots

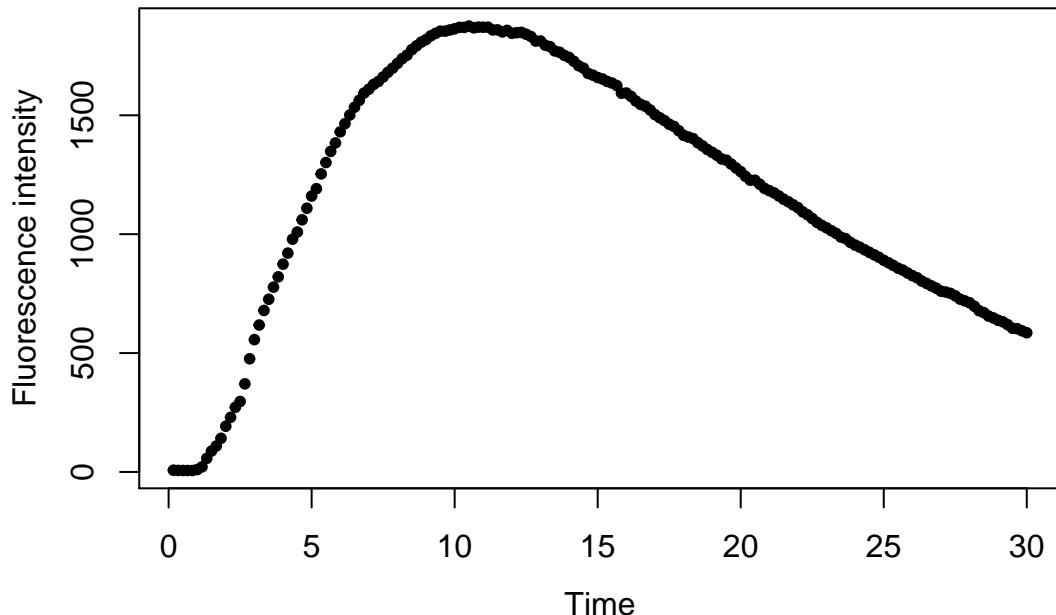






Trajectory 79: some divergent transitions

Trajectory 79



| | mean | se_mean | sd | 5% | 50% | 95% | n_eff |
|----------------------|----------|---------|----------|---------|---------|----------|-------|
| theta[1] | 0.104 | 0.000 | 0.009 | 0.090 | 0.104 | 0.119 | 445 |
| theta[2] | 1.841 | 0.020 | 2.180 | 0.070 | 0.989 | 6.496 | 11381 |
| theta[3] | 0.104 | 0.000 | 0.009 | 0.090 | 0.104 | 0.119 | 853 |
| m0 | 233.303 | 1.982 | 212.911 | 10.051 | 173.665 | 660.596 | 11540 |
| sigma | 0.167 | 0.002 | 0.009 | 0.152 | 0.166 | 0.183 | 37 |
| scale | 8.279 | 0.086 | 8.126 | 0.329 | 5.160 | 25.590 | 8916 |
| offset | 7.901 | 0.269 | 0.735 | 6.559 | 7.980 | 9.009 | 7 |
| t0 | 1.239 | 0.027 | 0.055 | 1.140 | 1.266 | 1.286 | 4 |
| prod_theta2_m0 | 307.675 | 5.875 | 599.815 | 17.880 | 88.481 | 1396.301 | 10424 |
| prod_theta2_scale | 9.782 | 0.247 | 20.859 | 0.691 | 2.642 | 45.413 | 7111 |
| prod_m0_scale | 1466.135 | 28.055 | 2564.227 | 70.299 | 463.337 | 6517.378 | 8354 |
| prod_theta2_m0_scale | 457.825 | 6.075 | 16.987 | 427.010 | 459.636 | 483.063 | 8 |
| x2_sim[180] | 449.658 | 8.660 | 877.471 | 26.204 | 129.341 | 2020.372 | 10267 |
| | Rhat | | | | | | |
| theta[1] | 1.017 | | | | | | |
| theta[2] | 1.001 | | | | | | |
| theta[3] | 1.015 | | | | | | |
| m0 | 1.000 | | | | | | |
| sigma | 1.070 | | | | | | |
| scale | 1.000 | | | | | | |
| offset | 1.459 | | | | | | |
| t0 | 5.676 | | | | | | |
| prod_theta2_m0 | 1.001 | | | | | | |
| prod_theta2_scale | 1.001 | | | | | | |
| prod_m0_scale | 1.000 | | | | | | |
| prod_theta2_m0_scale | 1.420 | | | | | | |
| x2_sim[180] | 1.001 | | | | | | |

Divergences:

1 of 20000 iterations ended with a divergence (0.005%).

Try increasing 'adapt_delta' to remove the divergences.

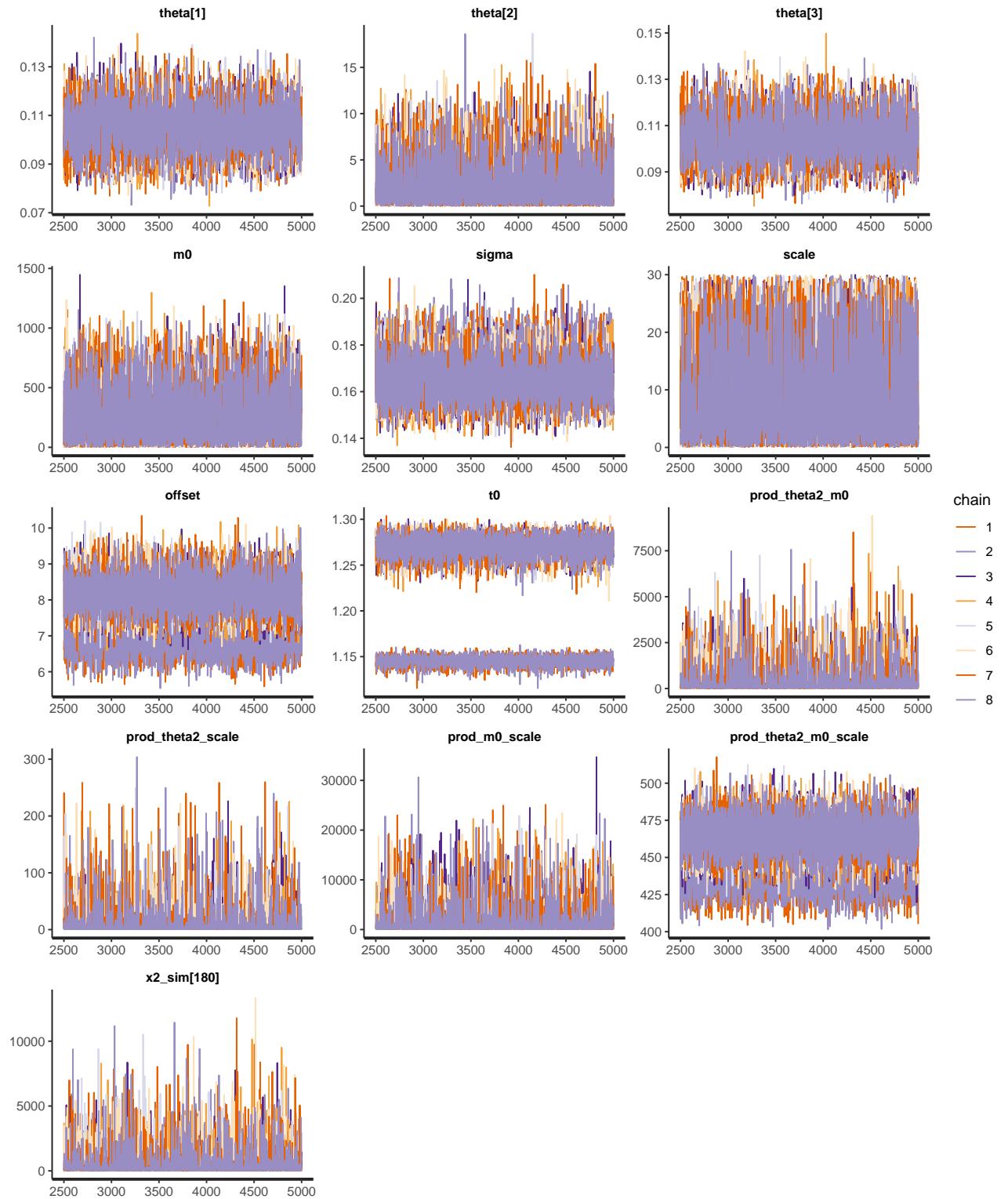
Tree depth:

0 of 20000 iterations saturated the maximum tree depth of 15.

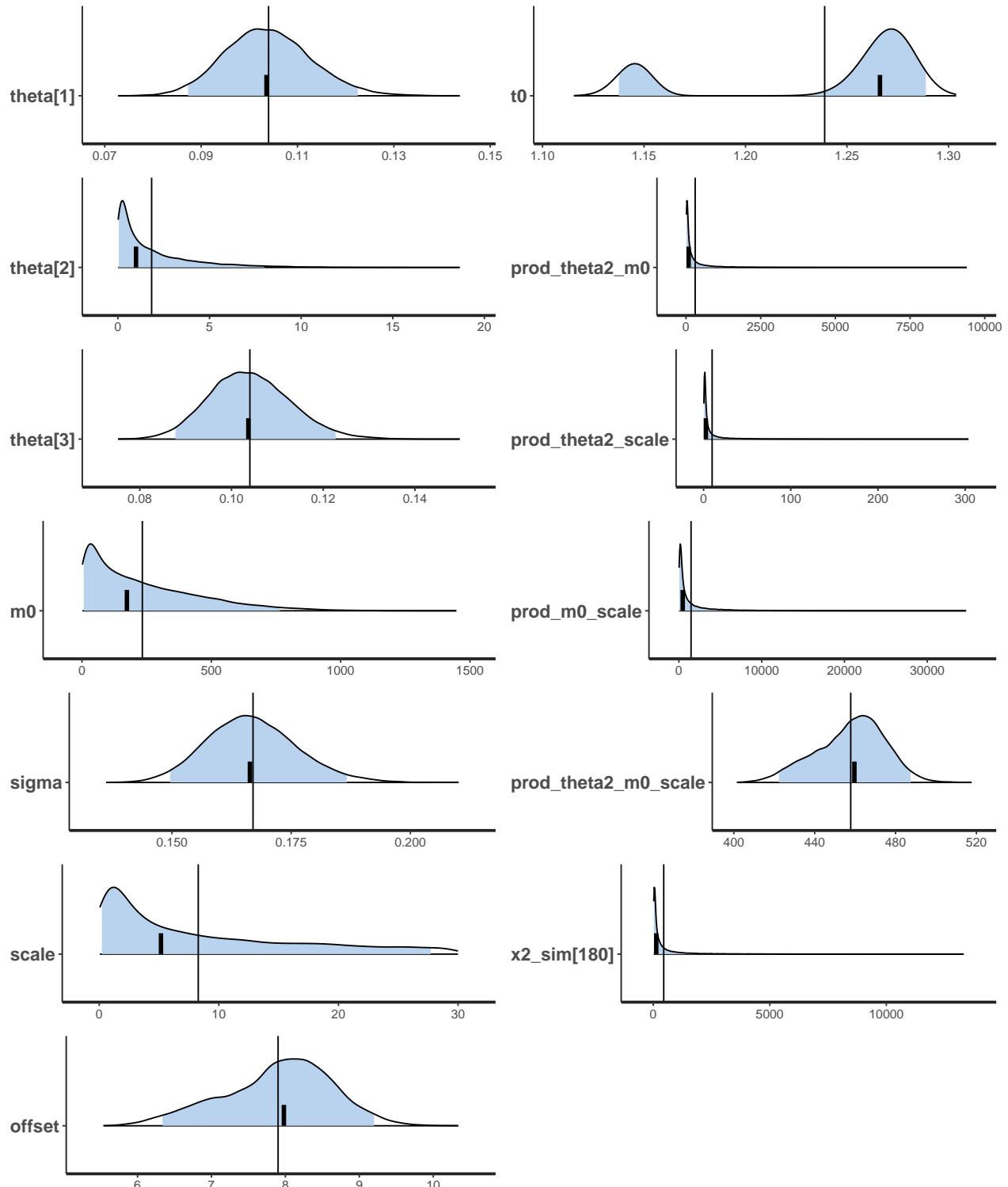
Energy:

E-BFMI indicated no pathological behavior.

Traceplots



Density plots with 95% CI and median



Pair plots

