

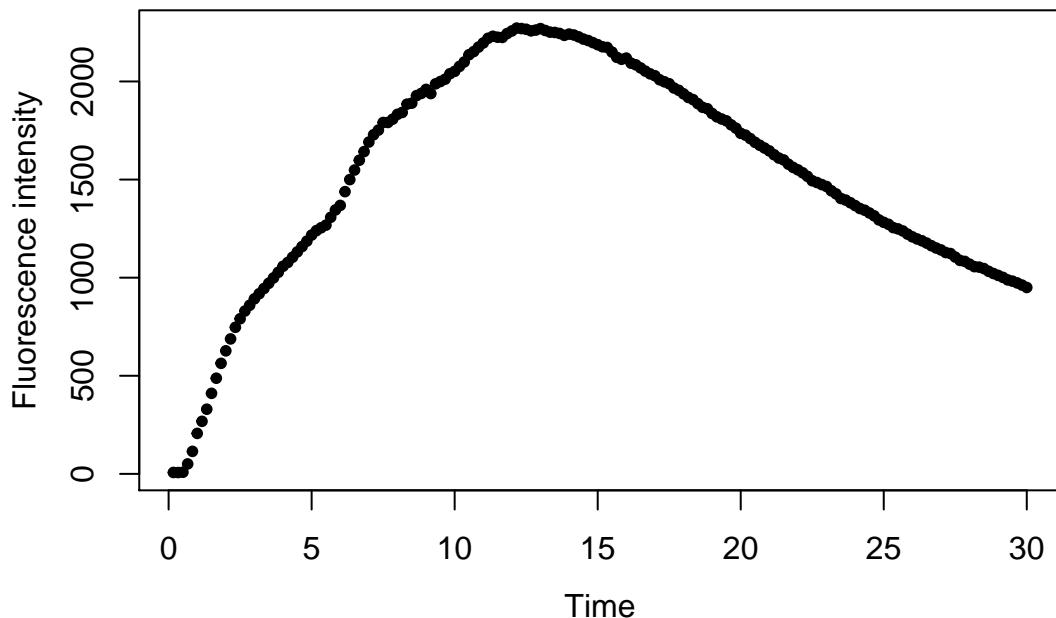
# Analysis of individual stanfit objects

November 3, 2020

Dataset: experimental\_data\_d2eGFP, model type: SDE

Trajectory 1: no pathologies

Trajectory 1



	mean	se_mean	sd	5%	50%	95%	n_eff
theta[1]	0.149	0.001	0.032	0.100	0.146	0.206	1609
theta[2]	10.709	0.100	3.198	5.727	10.568	16.296	1027
theta[3]	0.068	0.000	0.007	0.060	0.068	0.080	695
m0	22.253	0.243	6.637	13.371	21.312	34.095	744
sigma	0.015	0.000	0.001	0.014	0.015	0.017	12351
scale	2.250	0.024	0.579	1.468	2.167	3.319	564
offset	7.449	0.000	0.064	7.343	7.448	7.554	22855
prod_theta2_m0	225.767	2.378	60.389	138.219	219.737	333.672	645
prod_theta2_scale	23.111	0.232	6.394	14.161	22.345	34.573	759
prod_m0_scale	49.220	0.601	18.518	28.853	45.121	82.452	951
prod_theta2_m0_scale	476.487	0.324	37.510	416.537	475.073	540.036	13372
x[180,1]	0.354	0.013	0.359	0.019	0.249	1.038	812
x[180,2]	446.525	4.585	110.746	284.217	435.694	644.230	583
		Rhat					
theta[1]		1.005					
theta[2]		1.006					
theta[3]		1.016					
m0		1.008					
sigma		1.001					
scale		1.017					

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offset           1.000
prod_theta2_m0   1.014
prod_theta2_scale 1.008
prod_m0_scale    1.007
prod_theta2_m0_scale 1.000
x[180,1]         1.010
x[180,2]         1.017
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Divergences:

0 of 20000 iterations ended with a divergence.

Tree depth:

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

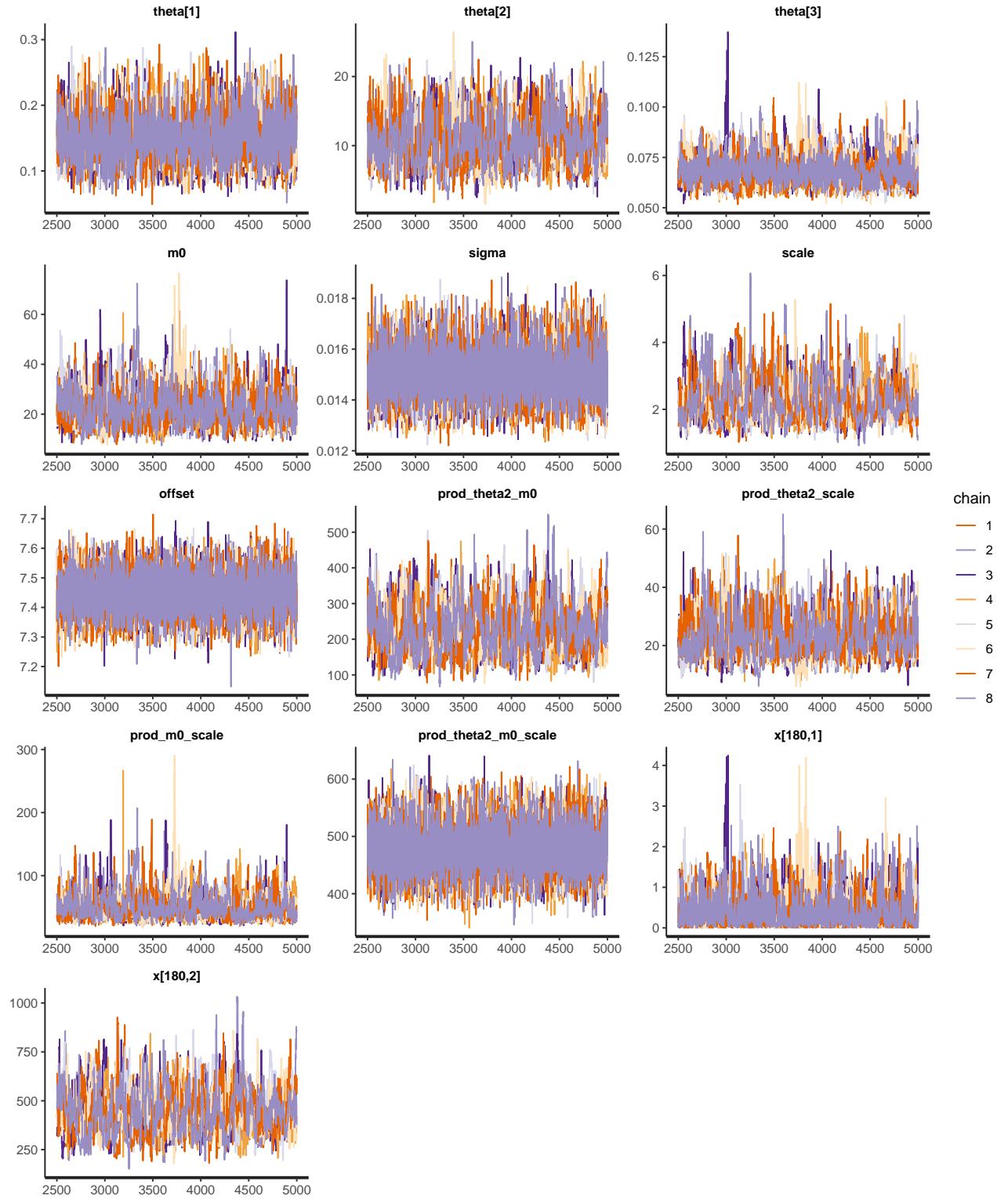
Energy:

E-BFMI indicated possible pathological behavior:

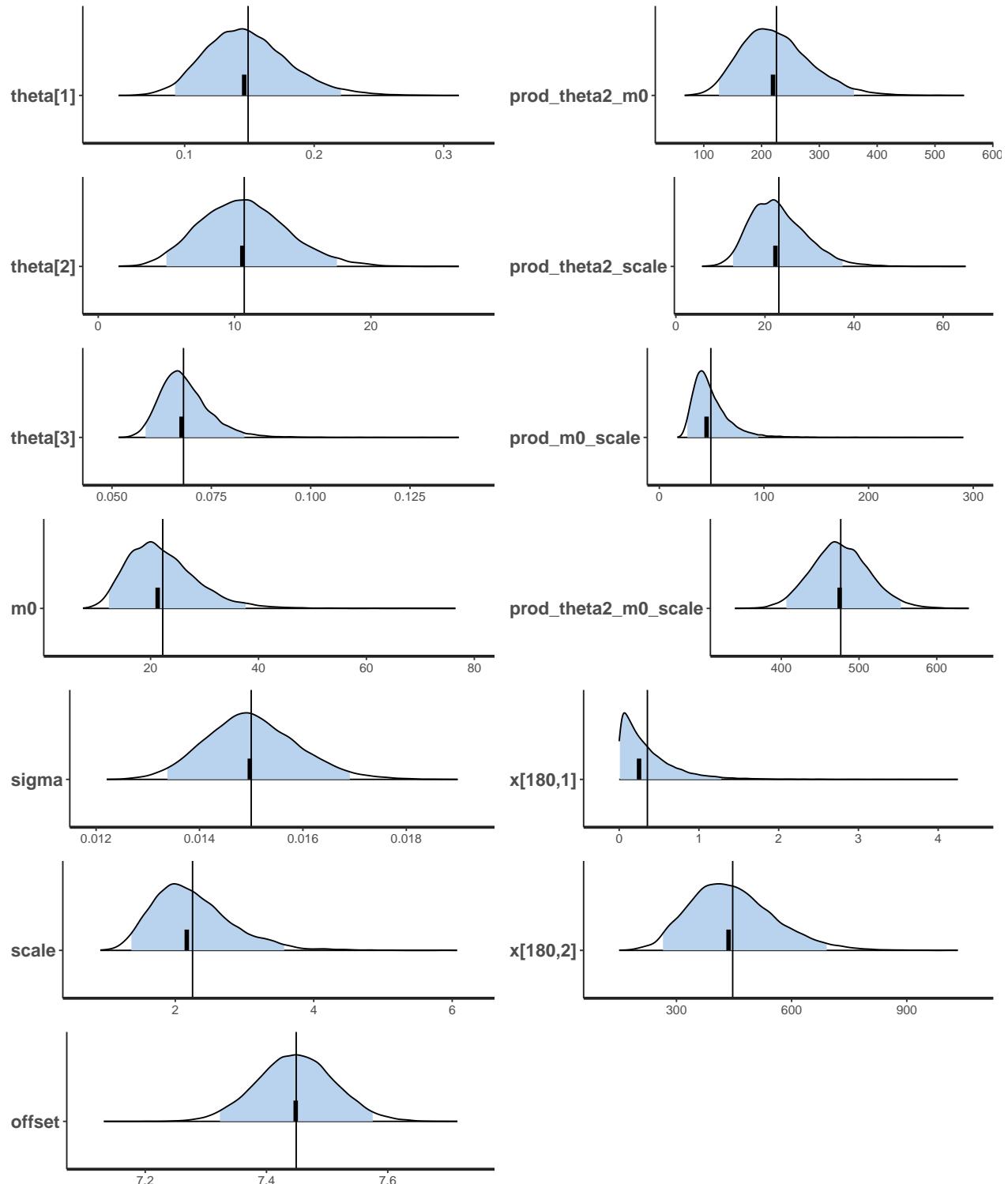
Chain 1: E-BFMI = 0.173  
Chain 2: E-BFMI = 0.170  
Chain 3: E-BFMI = 0.175  
Chain 5: E-BFMI = 0.157  
Chain 6: E-BFMI = 0.142  
Chain 7: E-BFMI = 0.181

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

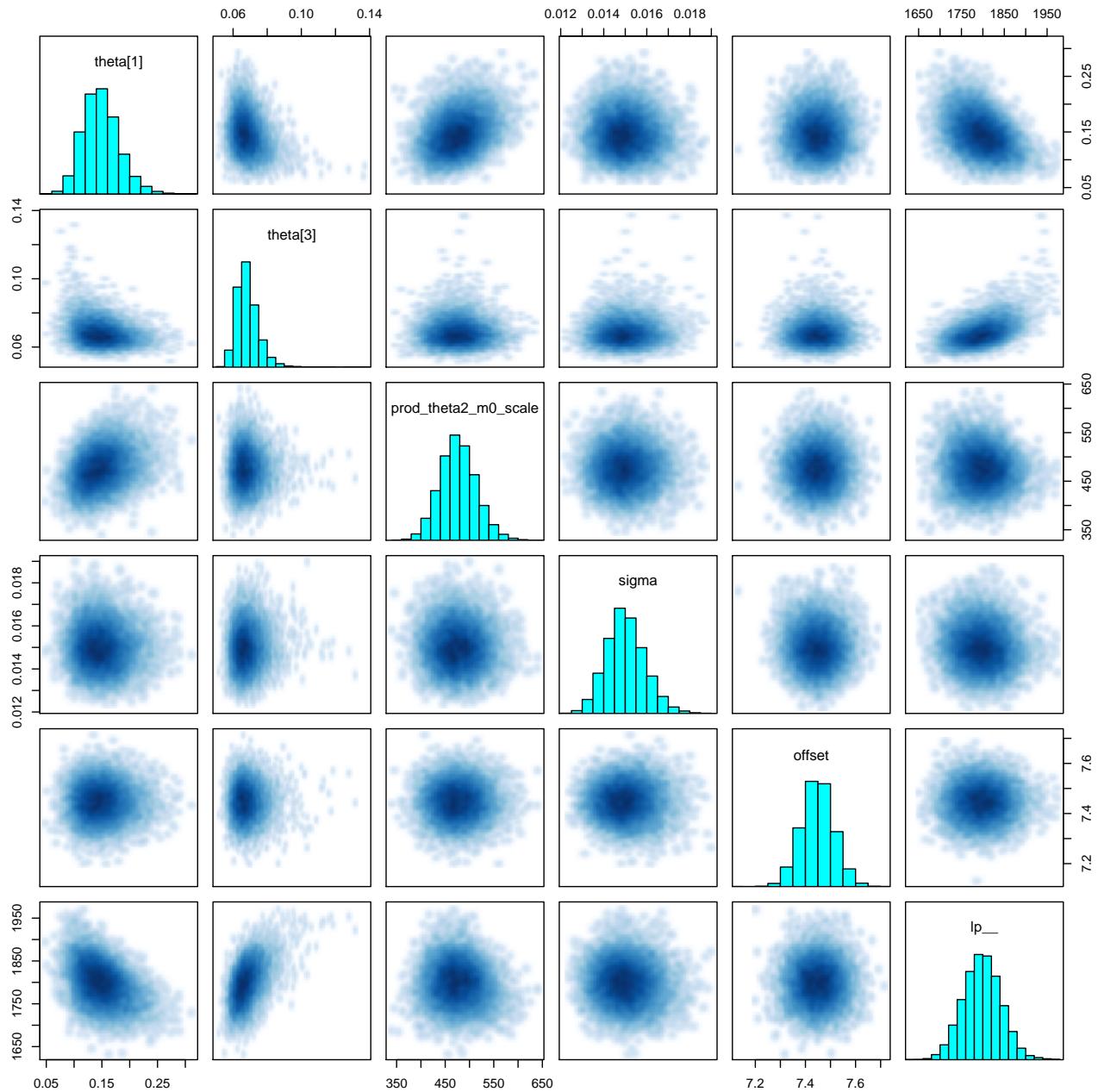
## Traceplots

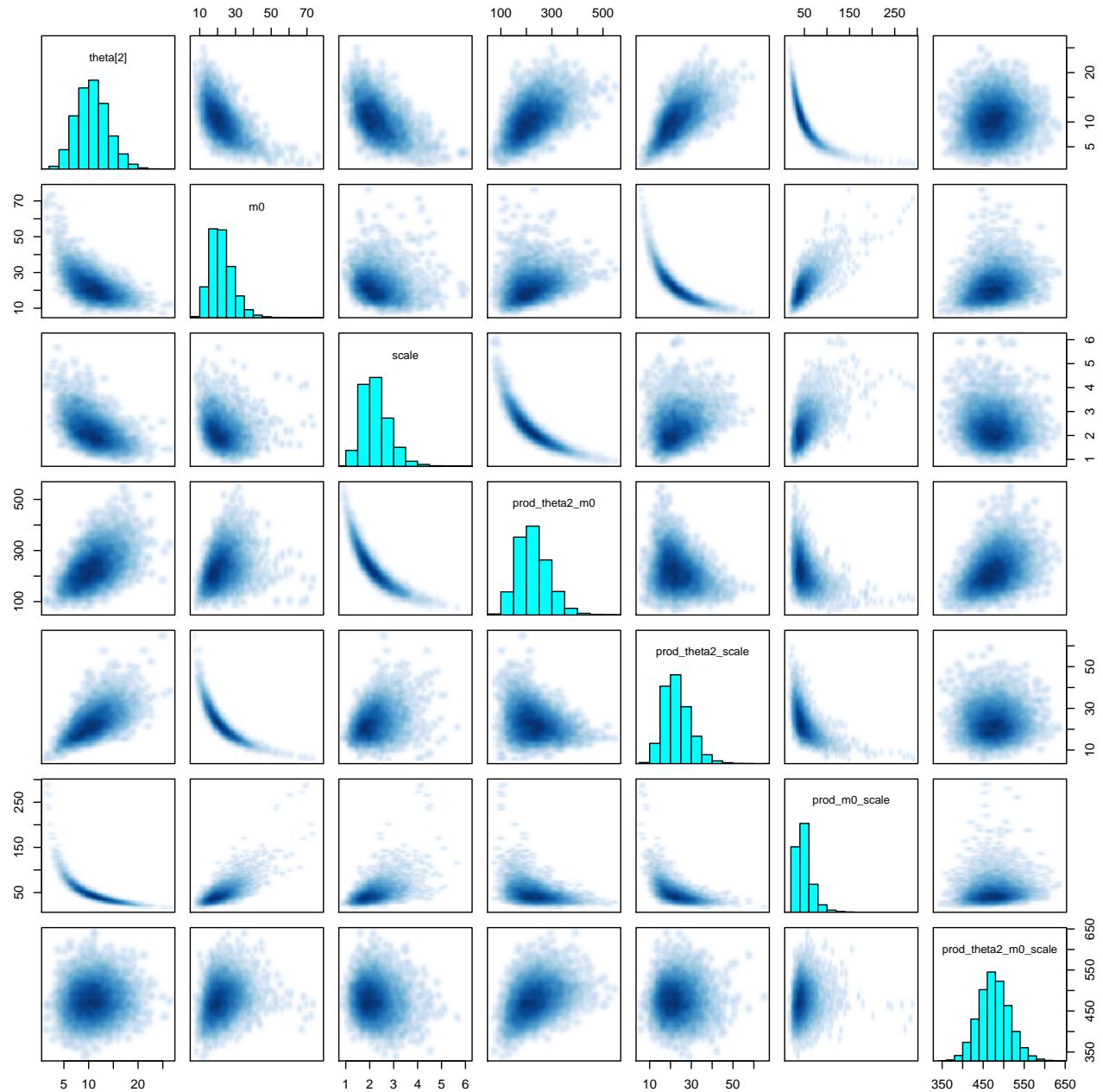


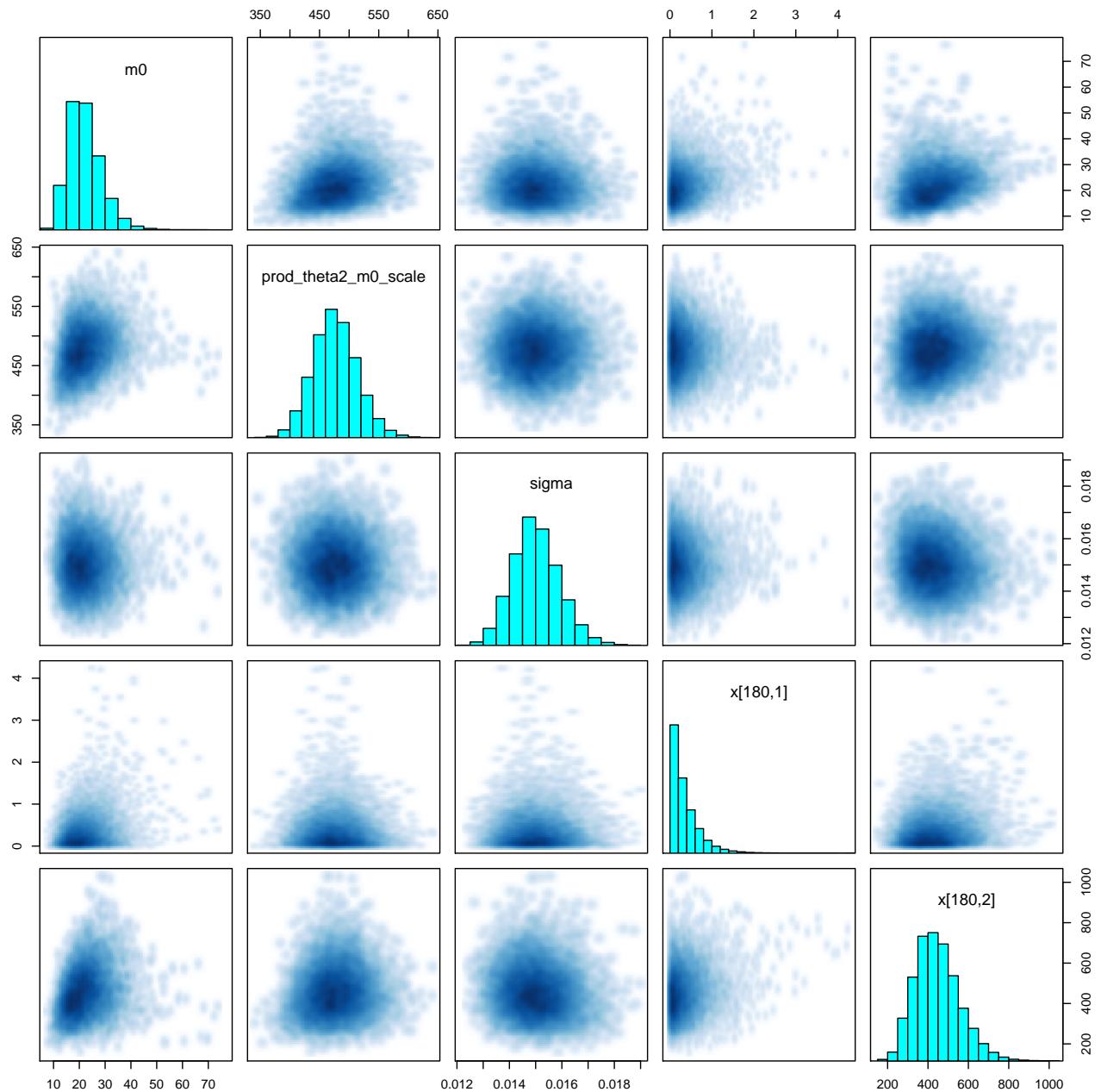
### Density plots with 95% CI and median



## Pair plots

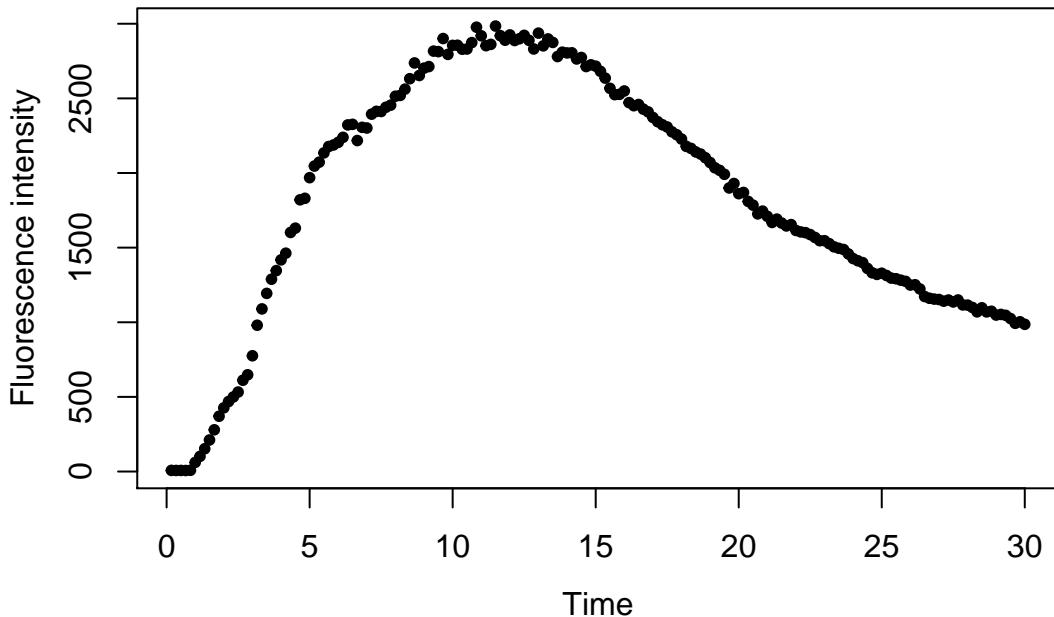






## Trajectory 13: very high Rhat for m0 prod\_m0\_scale x[180,1]

### Trajectory 13



	mean	se_mean	sd	5%	50%	95%	n_eff
theta[1]	0.105	0.001	0.032	0.059	0.103	0.160	1085
theta[2]	3.053	0.283	2.927	0.111	2.175	8.831	107
theta[3]	0.097	0.001	0.022	0.069	0.093	0.139	667
m0	64.198	15.835	111.161	5.229	20.294	310.604	49
sigma	0.154	0.000	0.009	0.141	0.154	0.169	14249
scale	15.809	0.443	6.430	6.319	15.069	27.215	211
offset	10.588	0.005	0.671	9.526	10.566	11.730	15669
prod_theta2_m0	47.041	1.721	25.762	22.528	40.995	90.649	224
prod_theta2_scale	37.155	2.868	32.737	2.275	29.612	99.150	130
prod_m0_scale	1251.863	325.990	2507.776	58.248	281.693	6326.954	59
prod_theta2_m0_scale	616.817	7.824	100.846	462.389	610.992	791.075	166
x[180,1]	2.767	0.870	5.951	0.057	0.827	12.849	47
x[180,2]	76.289	3.331	46.361	35.735	64.420	152.439	194
	Rhat						
theta[1]	1.006						
theta[2]	1.072						
theta[3]	1.016						
m0	1.157						
sigma	1.000						
scale	1.047						
offset	1.000						
prod_theta2_m0	1.041						
prod_theta2_scale	1.065						
prod_m0_scale	1.135						
prod_theta2_m0_scale	1.044						
x[180,1]	1.166						
x[180,2]	1.050						

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 1: E-BFMI = 0.035

Chain 2: E-BFMI = 0.044

Chain 3: E-BFMI = 0.049

Chain 4: E-BFMI = 0.049

Chain 5: E-BFMI = 0.019

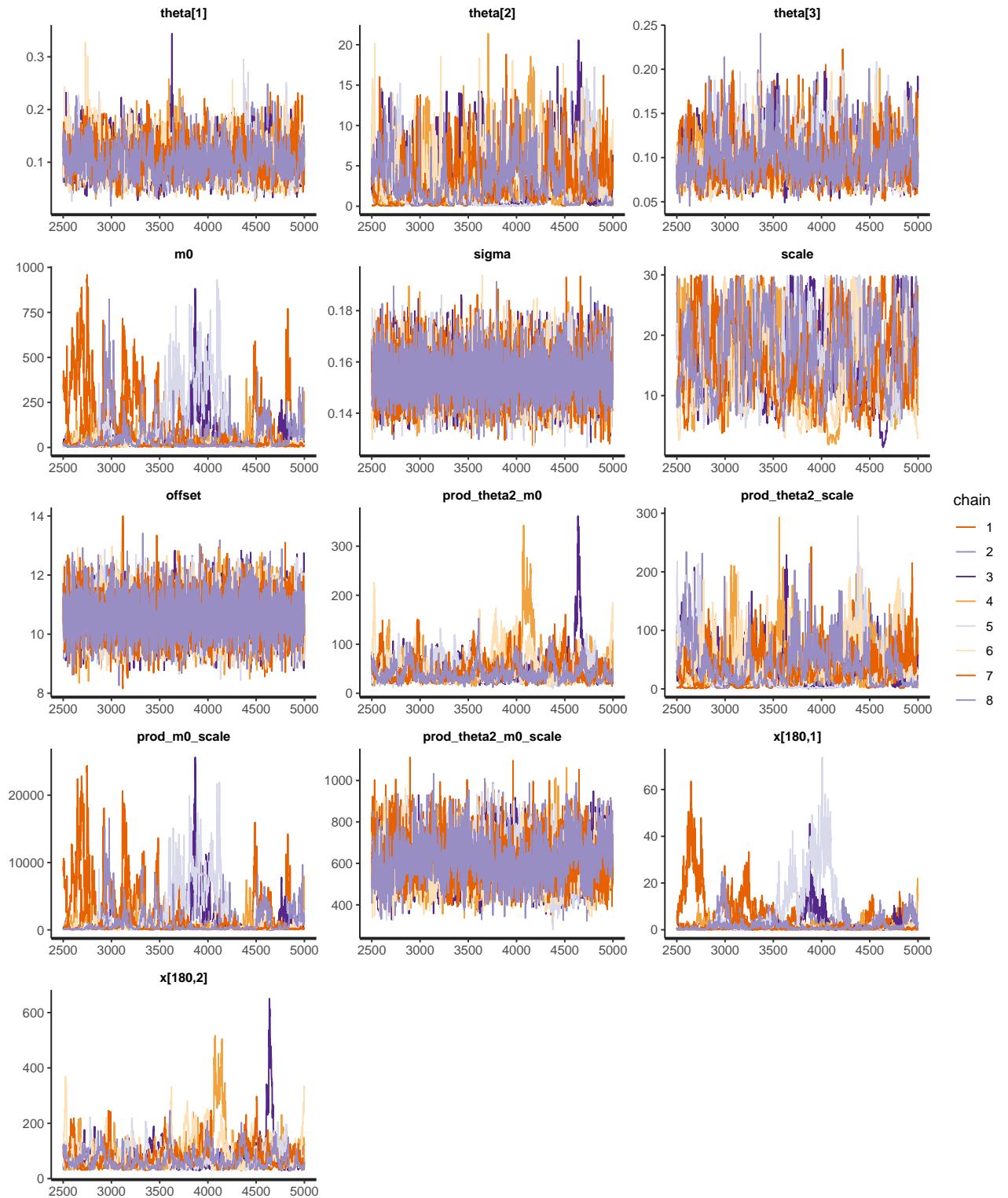
Chain 6: E-BFMI = 0.065

Chain 7: E-BFMI = 0.085

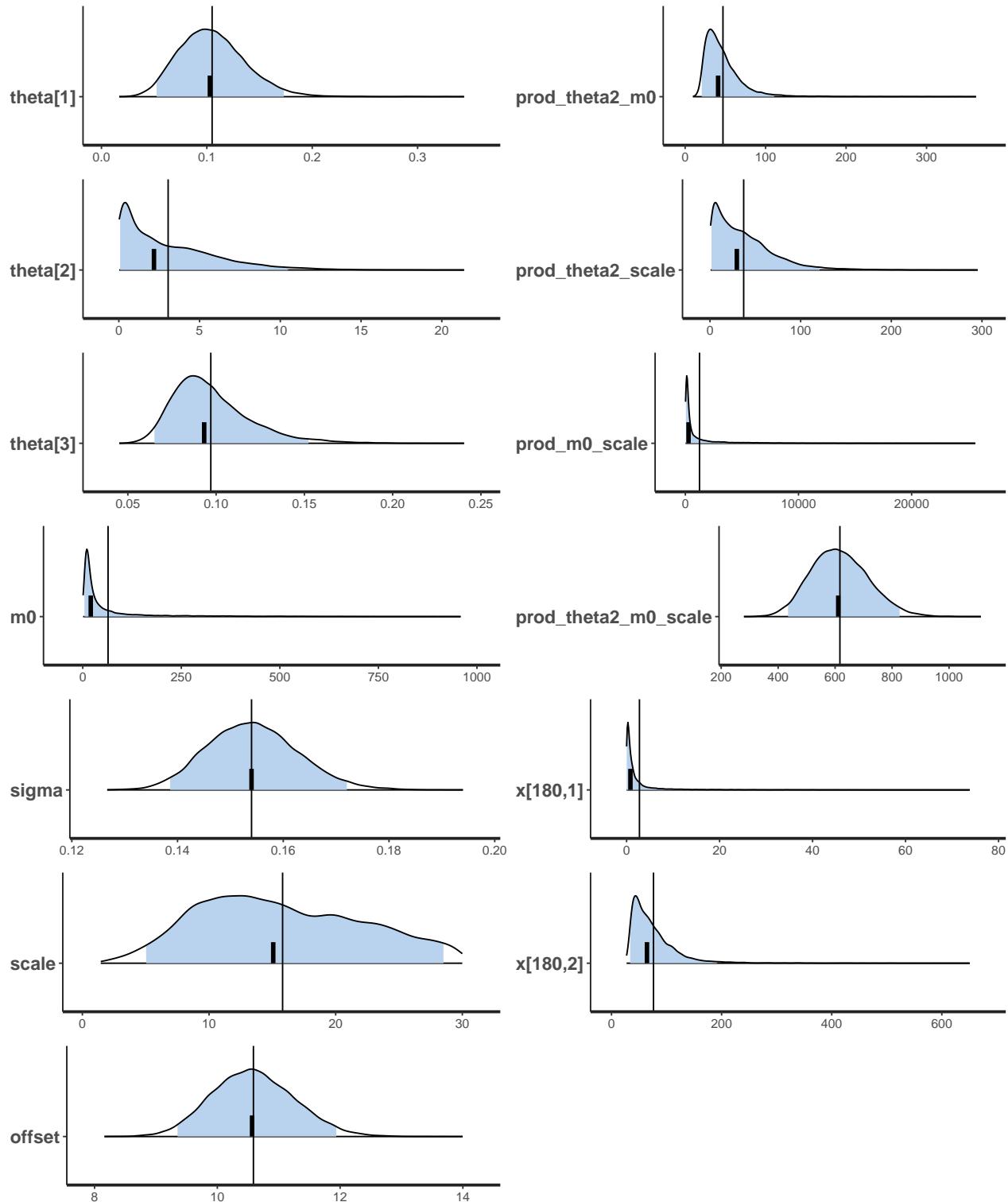
Chain 8: E-BFMI = 0.054

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

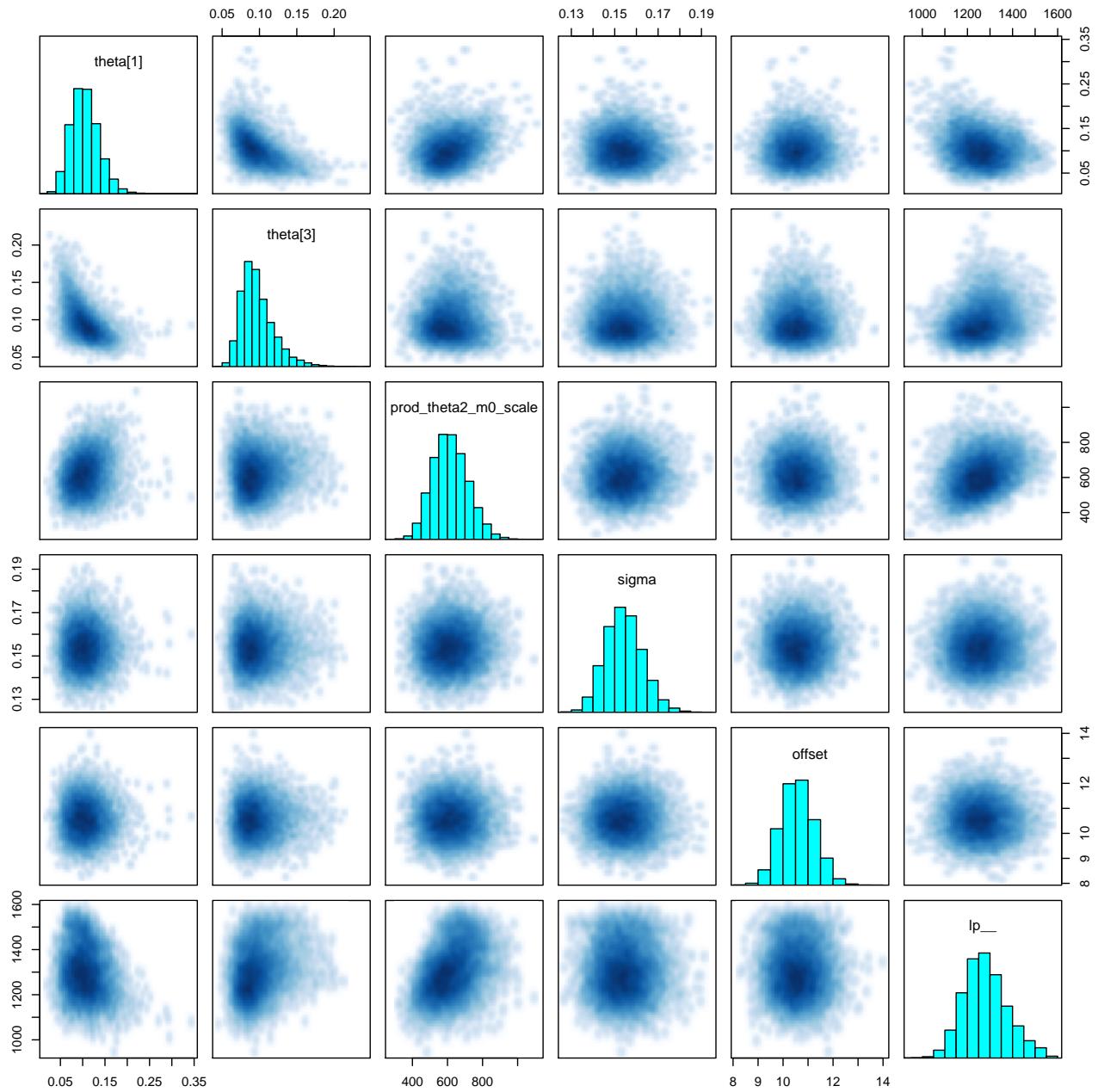
## Traceplots

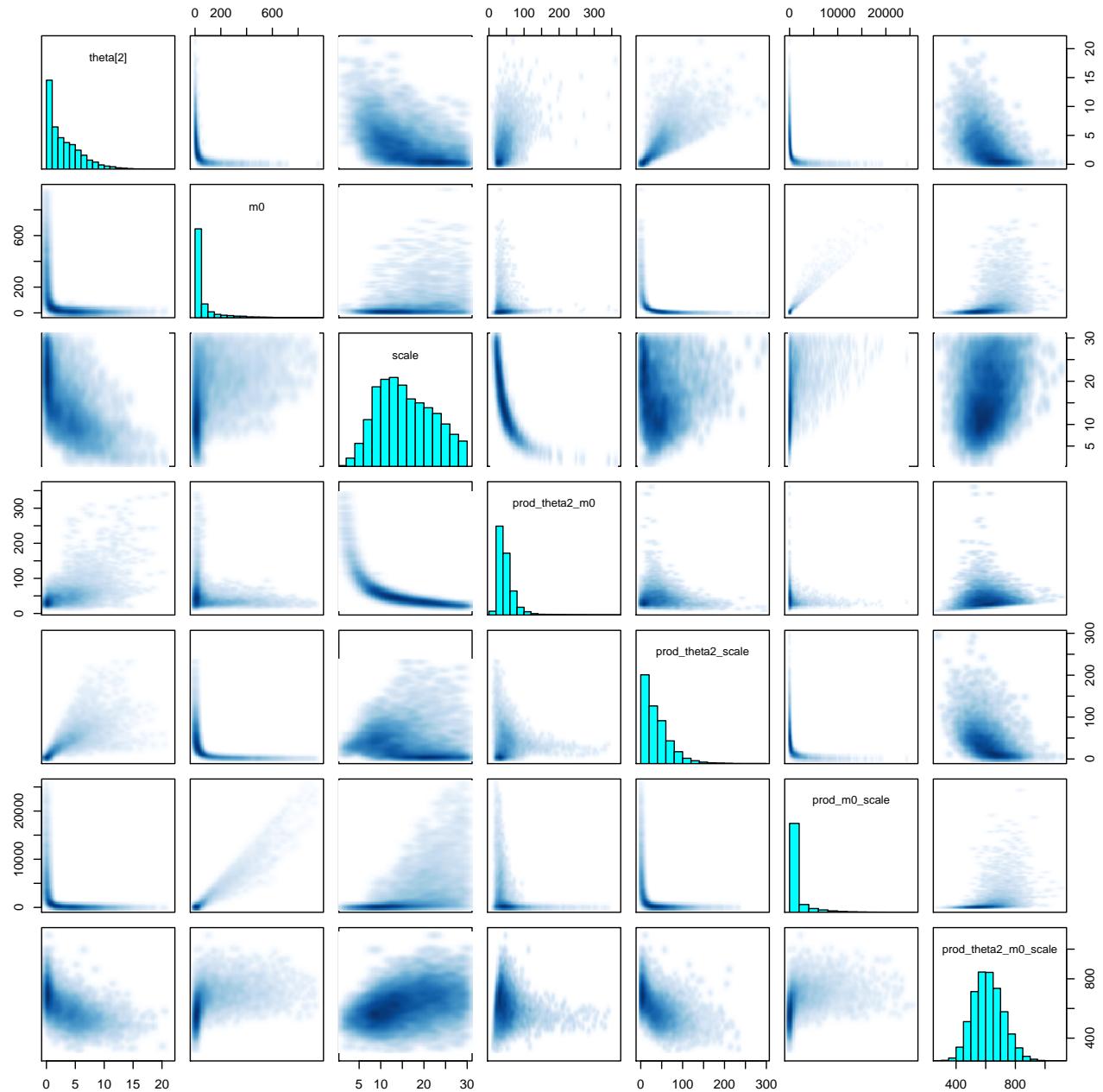


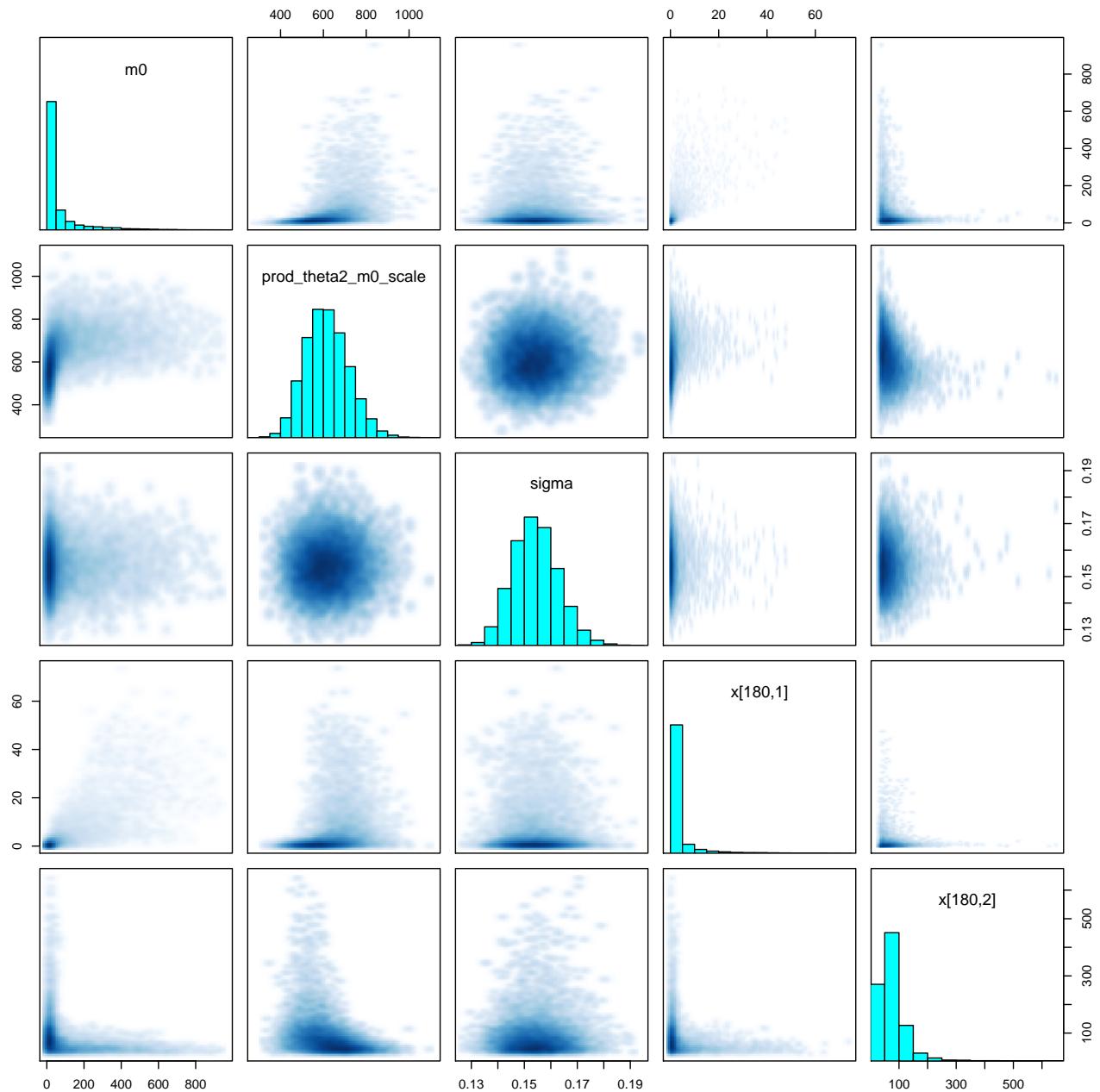
### Density plots with 95% CI and median



## Pair plots

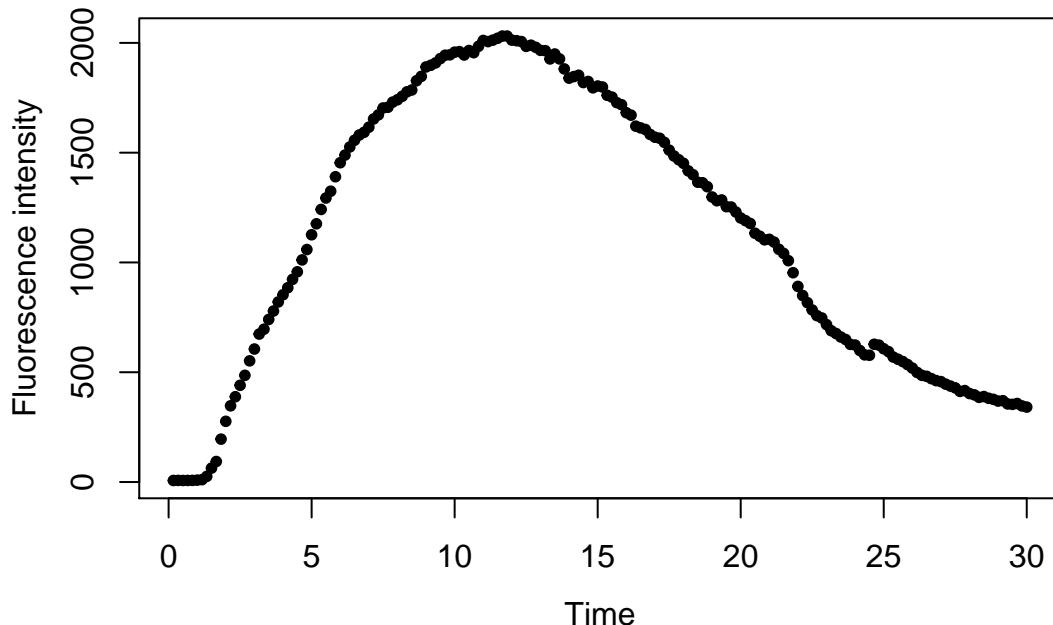






## Trajectory 4: very high Rhat for offset t0 prod\_theta2\_m0\_scale

Trajectory 4



	mean	se_mean	sd	5%	50%	95%	n_eff
theta[1]	0.105	0.001	0.028	0.063	0.102	0.154	1983
theta[2]	5.541	0.104	2.951	1.363	5.193	10.877	804
theta[3]	0.151	0.001	0.023	0.118	0.149	0.192	1268
m0	17.513	1.187	18.153	6.371	13.730	36.561	234
sigma	0.097	0.000	0.006	0.089	0.097	0.107	18844
scale	7.926	0.137	3.210	3.802	7.376	13.950	546
offset	9.045	0.002	0.313	8.539	9.040	9.567	21289
prod_theta2_m0	72.220	1.357	29.944	34.601	66.636	128.811	487
prod_theta2_scale	38.481	0.767	18.486	14.295	35.524	72.375	581
prod_m0_scale	151.482	16.805	274.532	42.868	94.414	381.341	267
prod_theta2_m0_scale	493.504	0.912	57.827	402.481	490.706	593.061	4020
x[180,1]	0.460	0.030	0.560	0.025	0.312	1.314	342
x[180,2]	48.278	0.923	19.807	23.557	44.571	86.095	461
	Rhat						
theta[1]	1.003						
theta[2]	1.007						
theta[3]	1.005						
m0	1.034						
sigma	1.000						
scale	1.014						
offset	1.000						
prod_theta2_m0	1.017						
prod_theta2_scale	1.011						
prod_m0_scale	1.028						
prod_theta2_m0_scale	1.001						
x[180,1]	1.031						
x[180,2]	1.018						

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 1: E-BFMI = 0.110

Chain 2: E-BFMI = 0.113

Chain 3: E-BFMI = 0.124

Chain 4: E-BFMI = 0.106

Chain 5: E-BFMI = 0.081

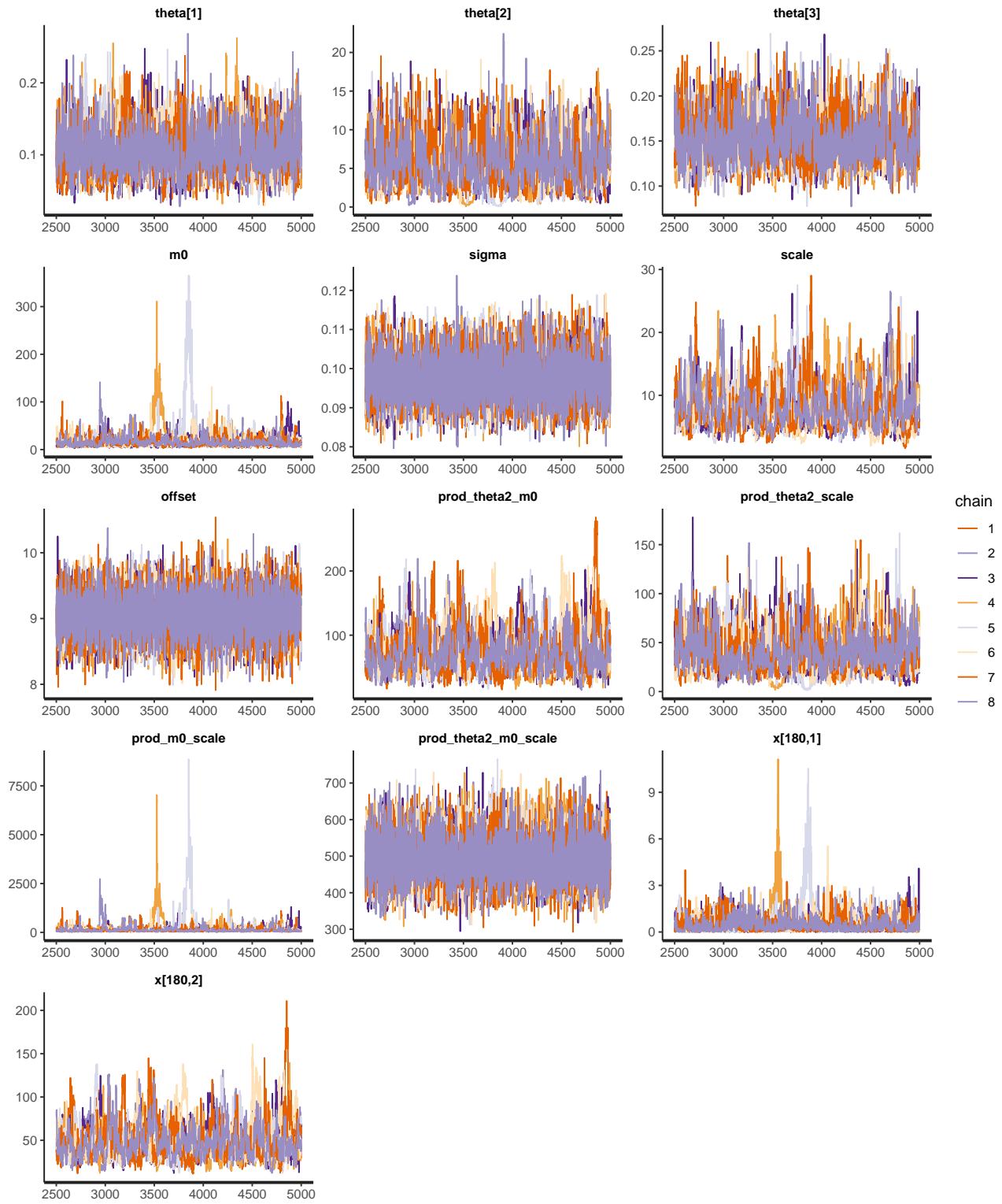
Chain 6: E-BFMI = 0.113

Chain 7: E-BFMI = 0.100

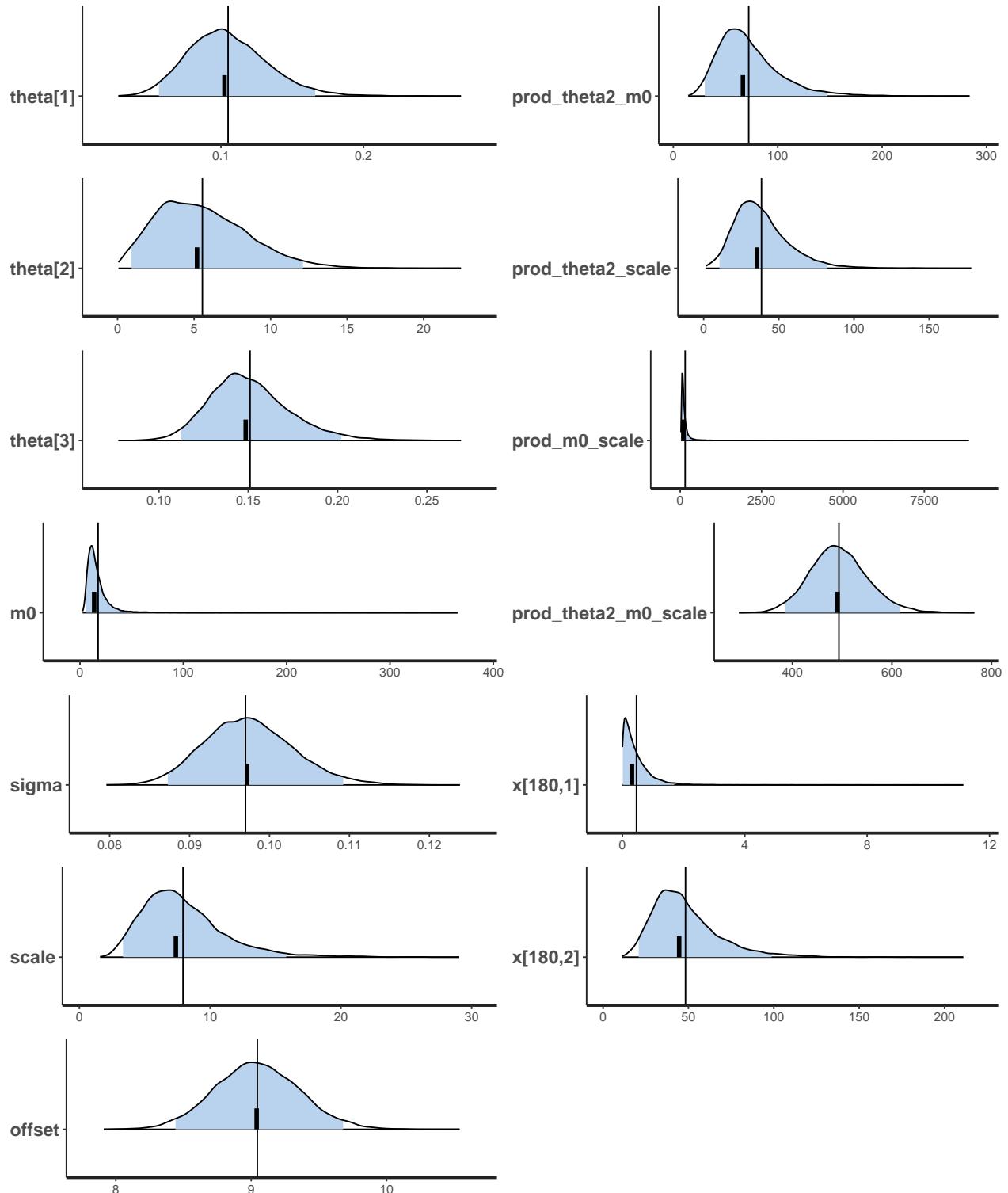
Chain 8: E-BFMI = 0.140

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

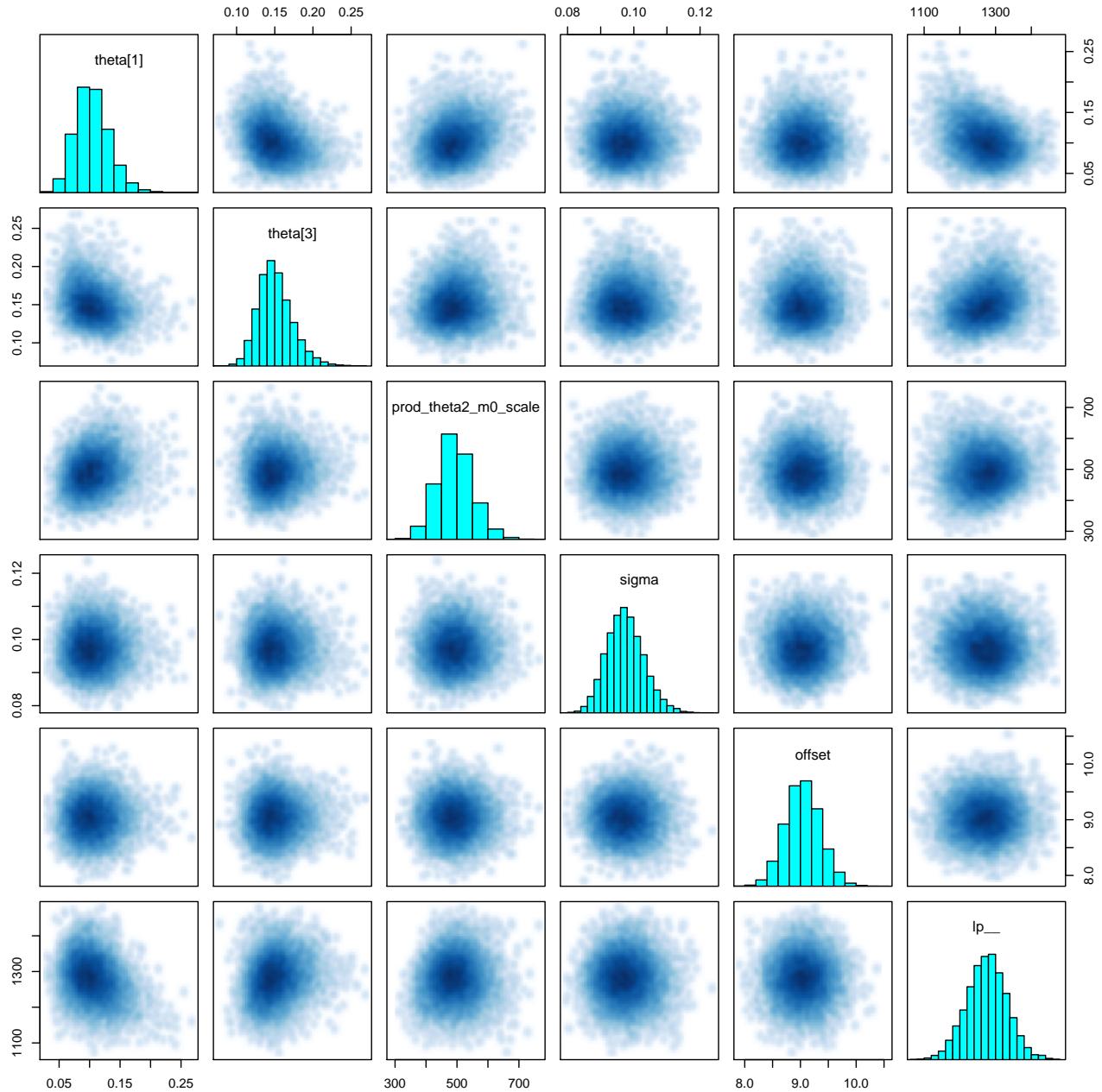
## Traceplots

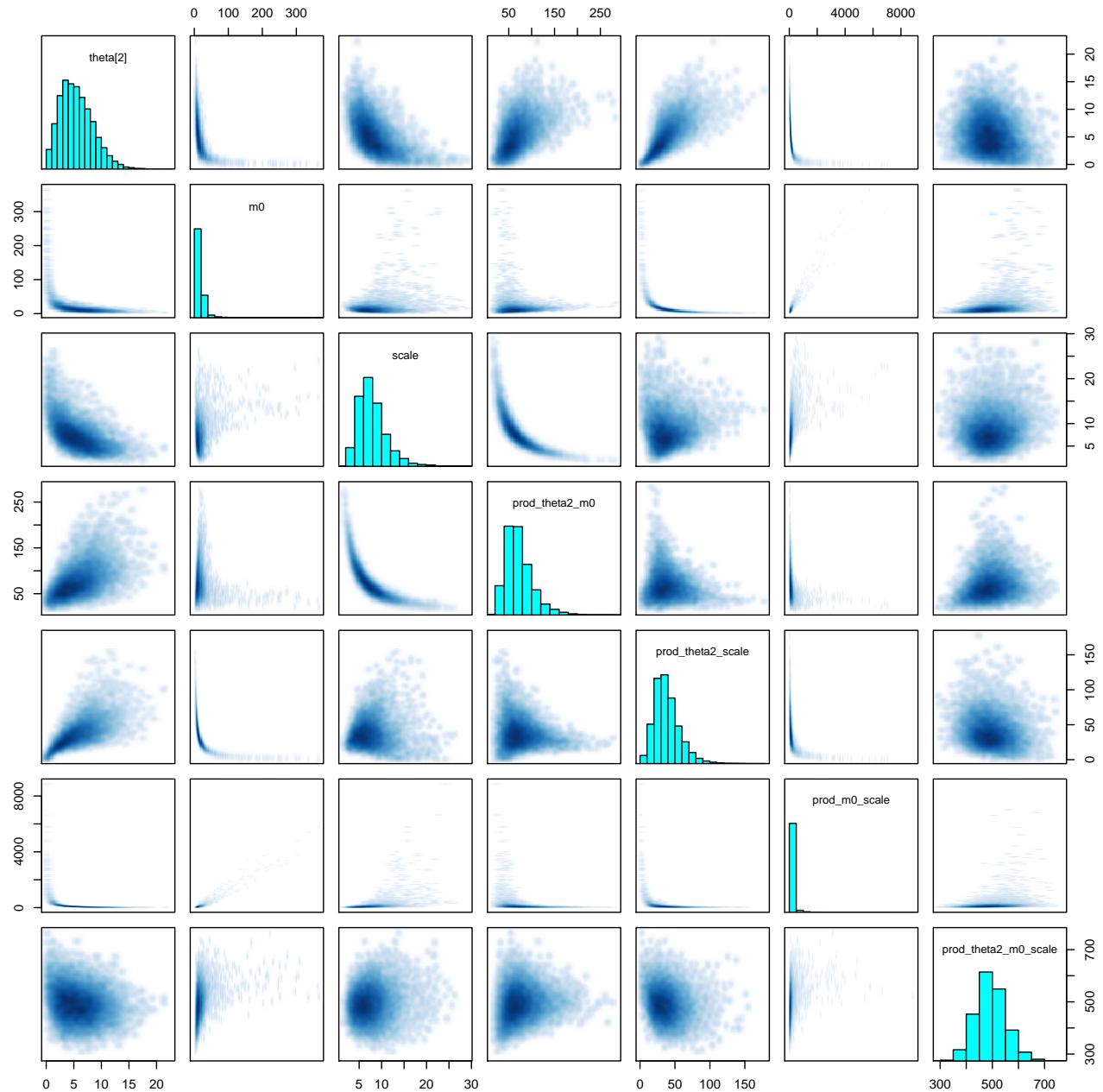


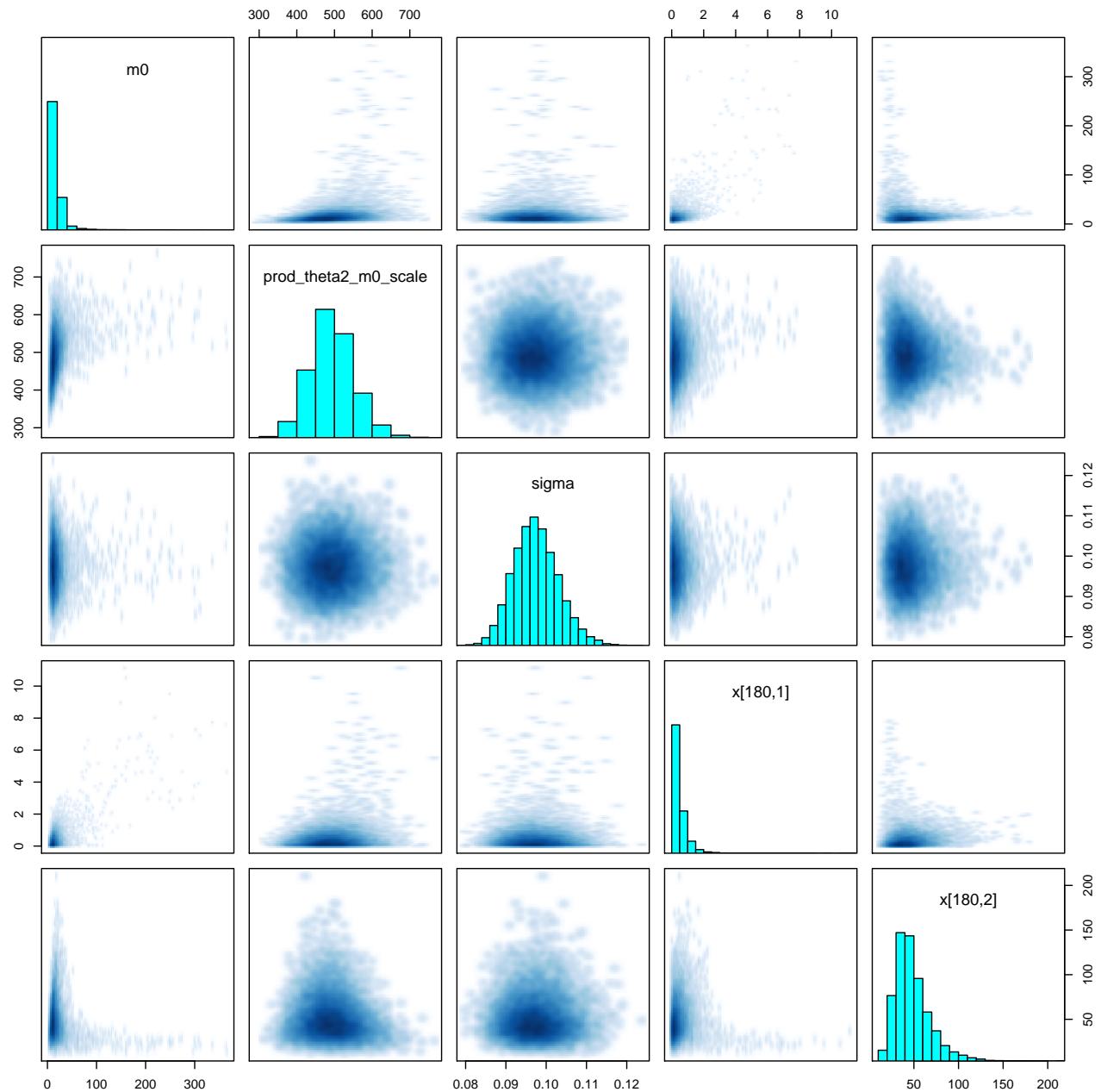
### Density plots with 95% CI and median



## Pair plots

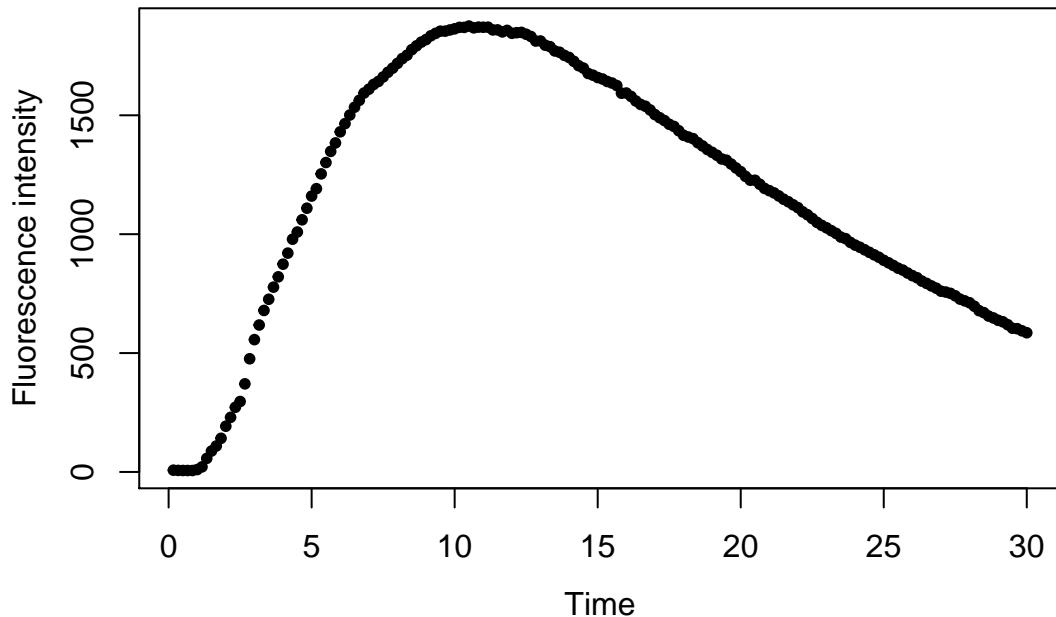






## Trajectory 79: some divergent transitions

### Trajectory 79



	mean	se_mean	sd	5%	50%	95%	n_eff
theta[1]	0.114	0.001	0.030	0.067	0.113	0.165	1743
theta[2]	2.654	0.159	2.465	0.137	1.946	7.560	239
theta[3]	0.092	0.001	0.016	0.069	0.090	0.121	946
m0	72.959	14.281	119.020	7.370	27.679	342.631	69
sigma	0.091	0.000	0.005	0.083	0.091	0.100	9882
scale	8.583	0.222	3.585	4.154	7.857	15.807	262
offset	8.185	0.002	0.278	7.737	8.183	8.649	13233
prod_theta2_m0	56.328	1.218	21.172	27.520	53.222	96.080	302
prod_theta2_scale	18.514	1.041	15.496	1.418	14.992	48.252	222
prod_m0_scale	734.769	149.853	1422.189	47.068	212.737	3492.407	90
prod_theta2_m0_scale	421.327	3.199	61.834	325.336	418.617	527.002	374
x[180,1]	1.871	0.575	4.578	0.030	0.504	9.656	63
x[180,2]	79.799	2.004	32.091	36.931	74.588	141.480	256
	Rhat						
theta[1]	1.003						
theta[2]	1.026						
theta[3]	1.008						
m0	1.090						
sigma	1.000						
scale	1.017						
offset	1.000						
prod_theta2_m0	1.019						
prod_theta2_scale	1.027						
prod_m0_scale	1.069						
prod_theta2_m0_scale	1.017						
x[180,1]	1.099						
x[180,2]	1.025						

Divergences:

8 of 20000 iterations ended with a divergence (0.04%).

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 possible pathological behavior:

Chain 1: E-BFMI = 0.039

Chain 2: E-BFMI = 0.062

Chain 3: E-BFMI = 0.041

Chain 4: E-BFMI = 0.073

Chain 5: E-BFMI = 0.085

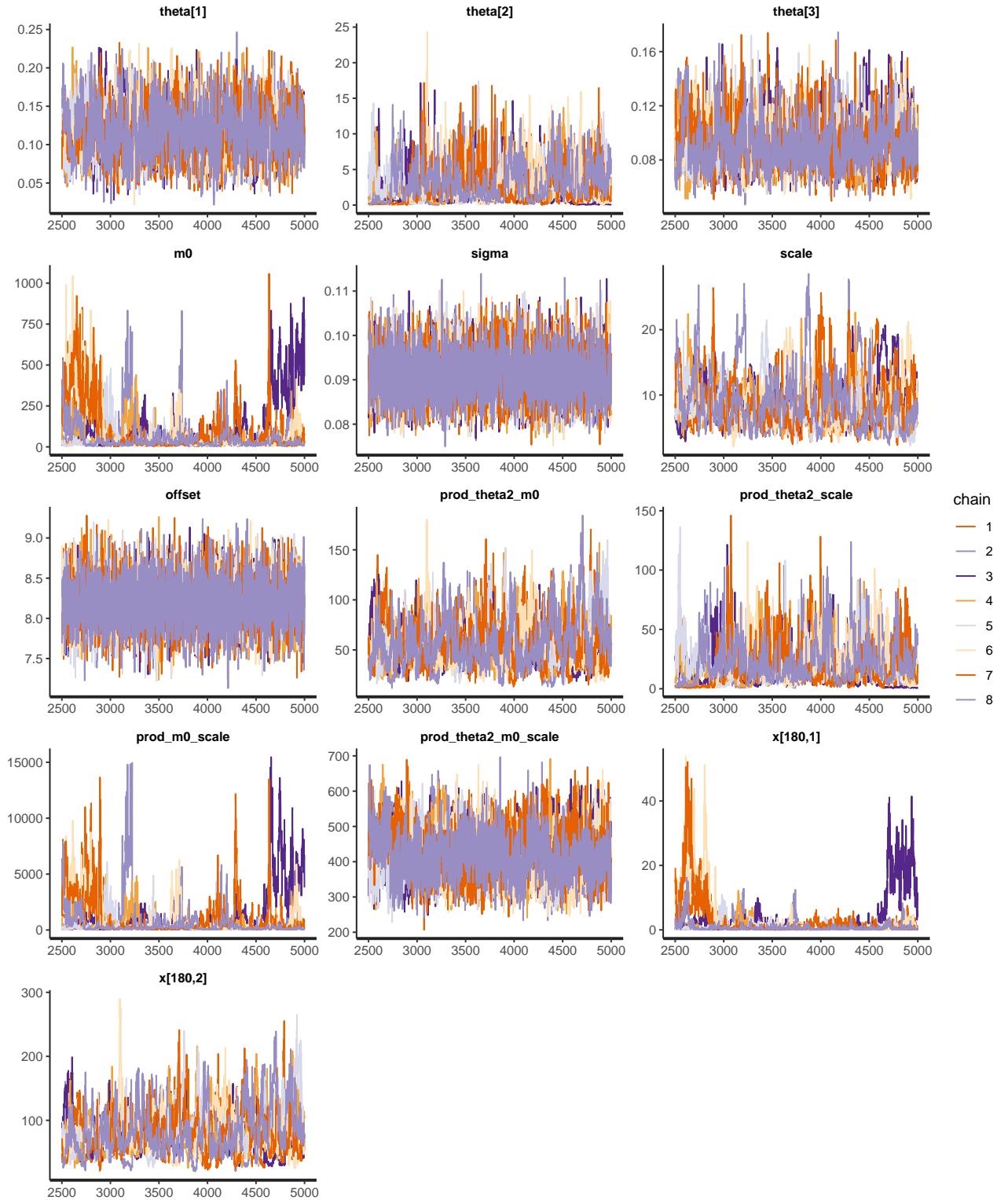
Chain 6: E-BFMI = 0.028

Chain 7: E-BFMI = 0.038

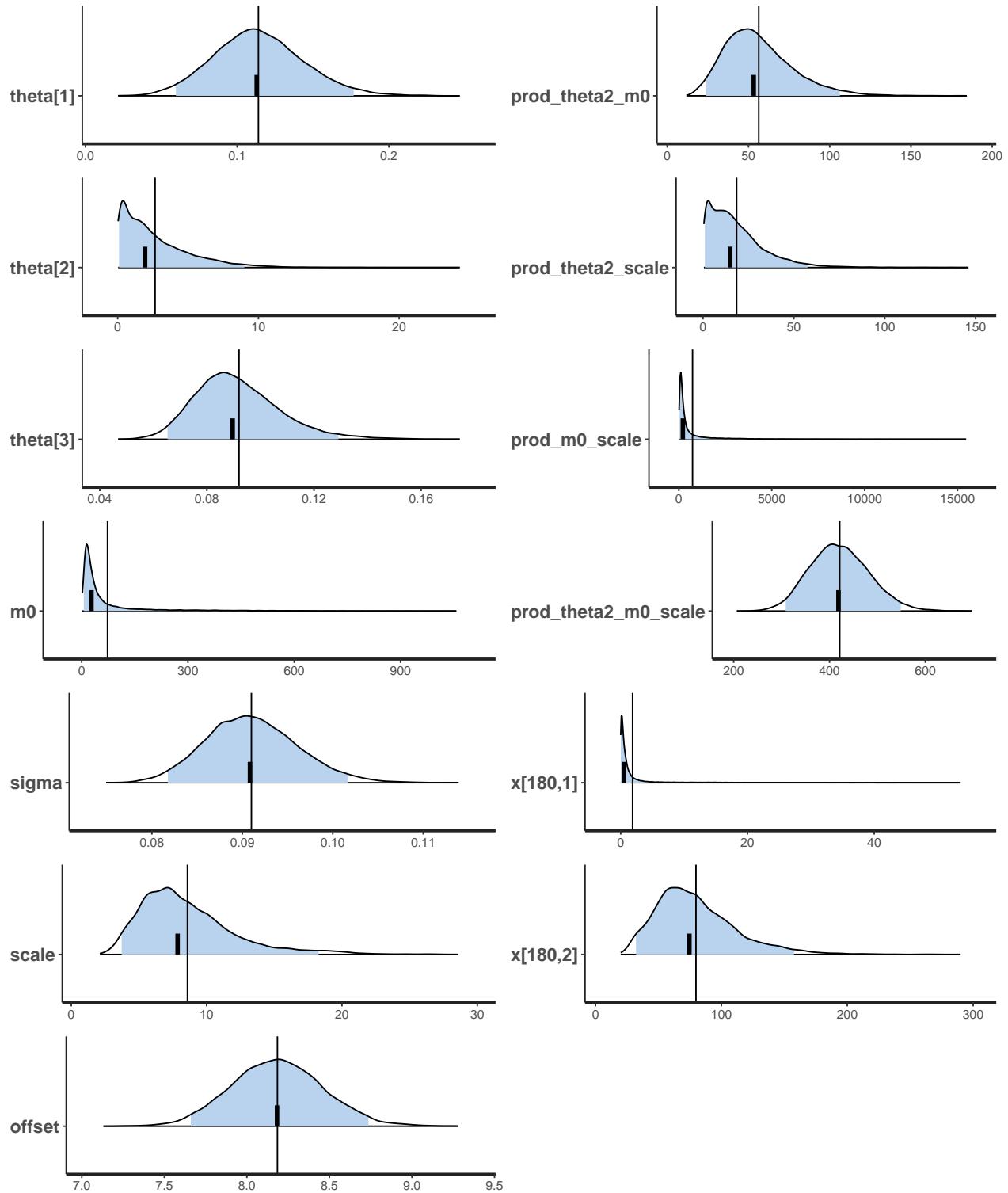
Chain 8: E-BFMI = 0.077

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

## Traceplots



### Density plots with 95% CI and median



## Pair plots

