

drosophila_441_post.csv_run_9_20250525_210621

May 25, 2025

```
/Users/navehr/Dropbox/naveh/weizmann/uri_alon/aging/code_3
```

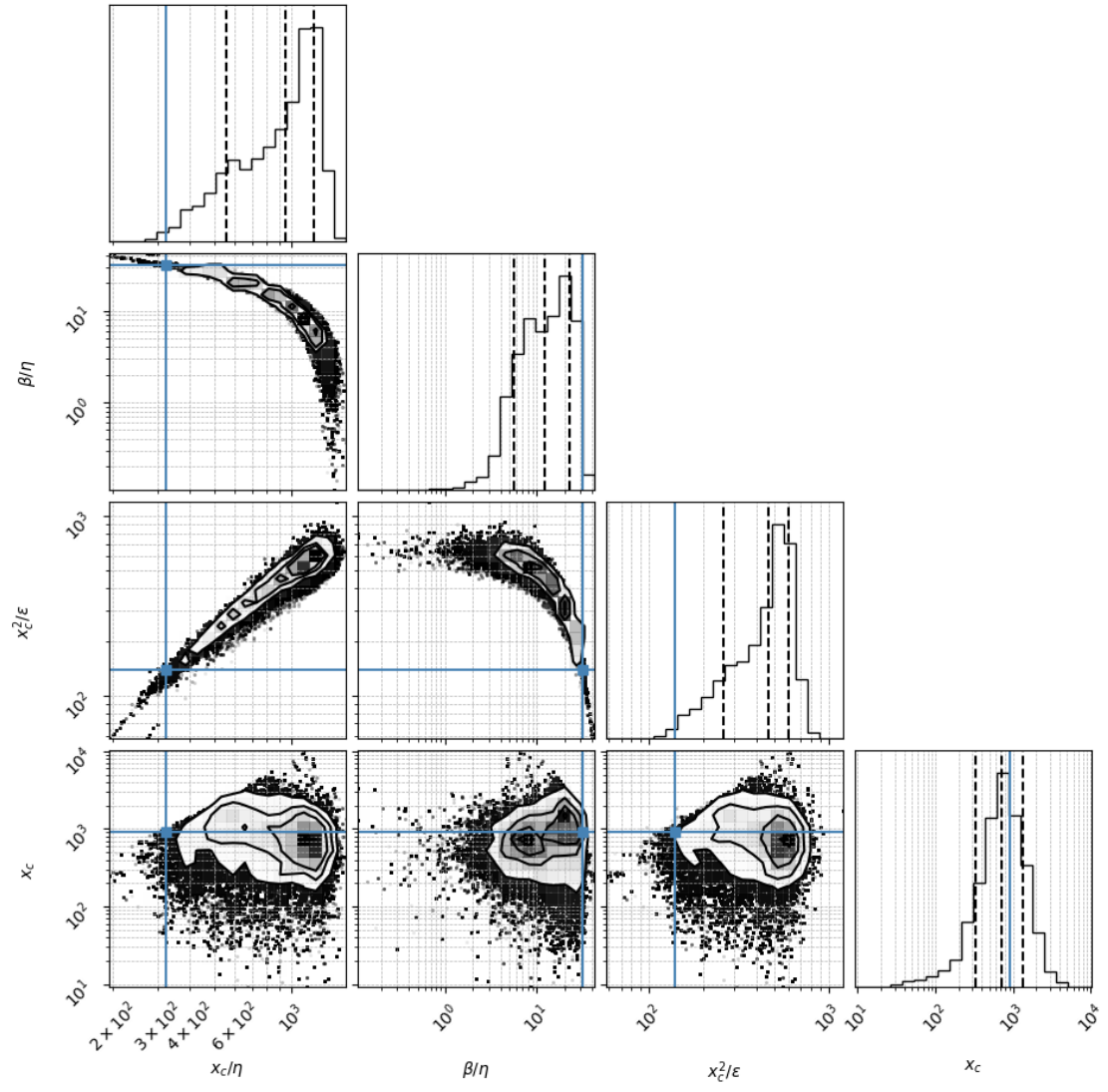
```
Loading file from: /Users/navehr/Dropbox/naveh/weizmann/uri_alon/aging/code_3/ba  
ysian02/posterior_csvs_baysian01/DROSOPHILA/drosophila_441_post.csv
```

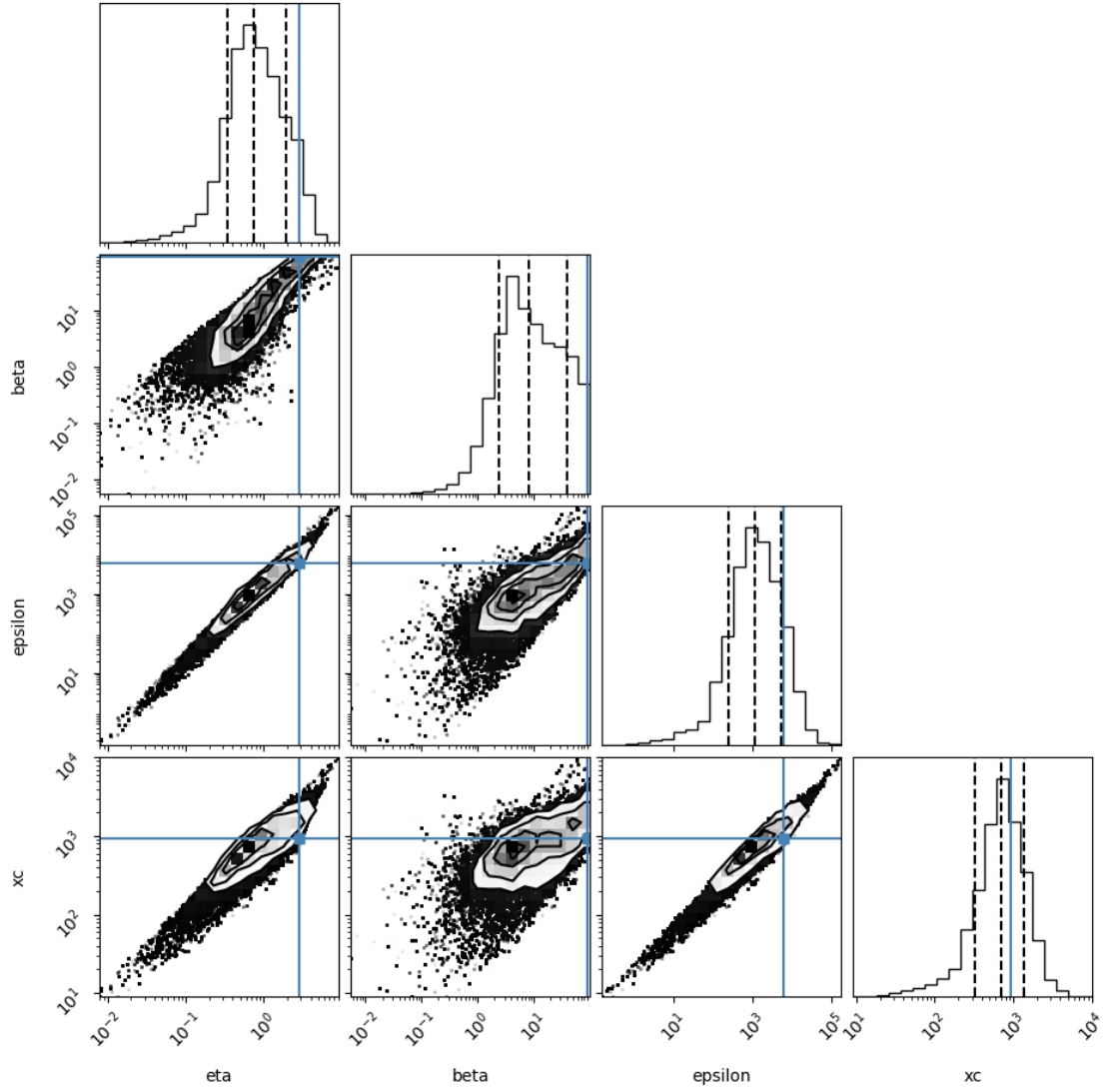
```
Reading drosophila_441_seed
```

1 # 1. Density coner plot

A sample is 1 parameter set scanned. For the corner plot below, the quantiles (represented by the solid lines) are 0.16,0.5,0.84 of the samples. Dots represent individual samples (outside the line surrounding 0.84 of the samples) The parameter search is performed in the transformed space of x_c/η , β/η , x_c^2/ϵ , x_c but we also show the regular parameters

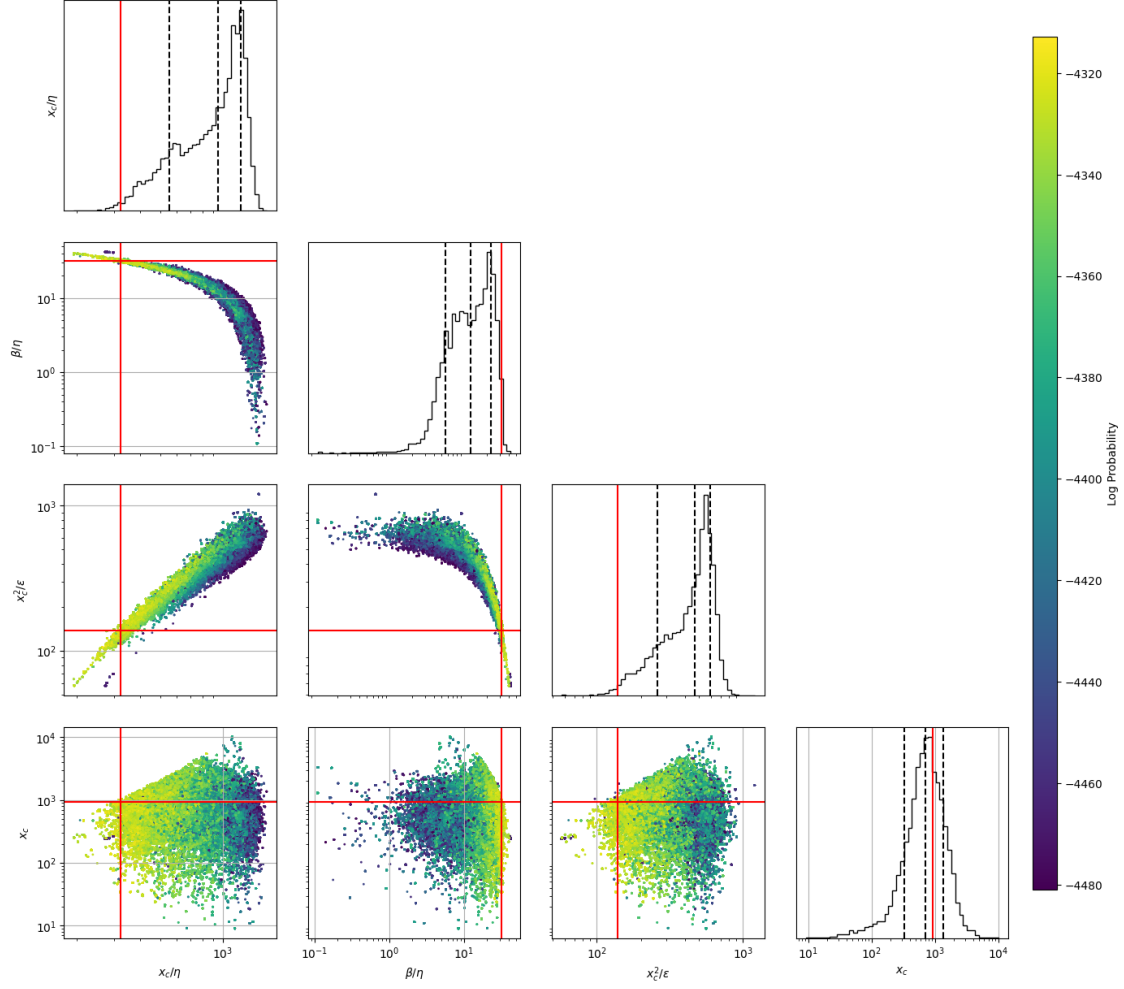
(16,)





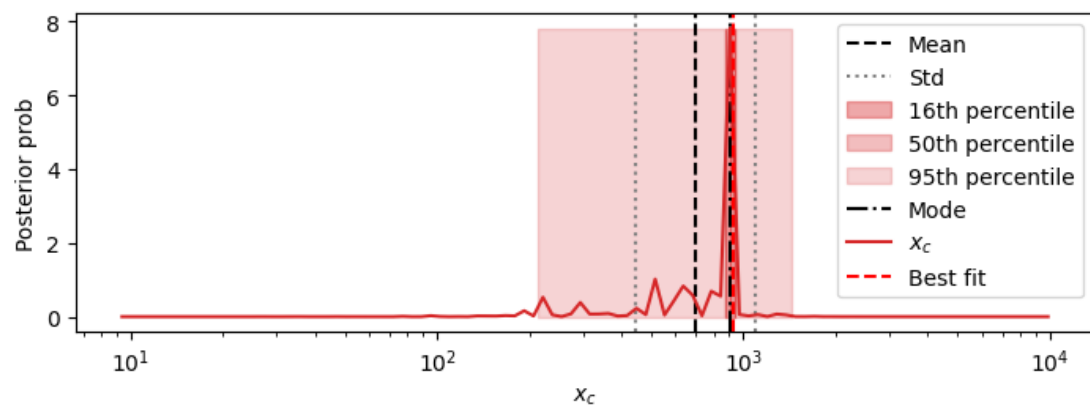
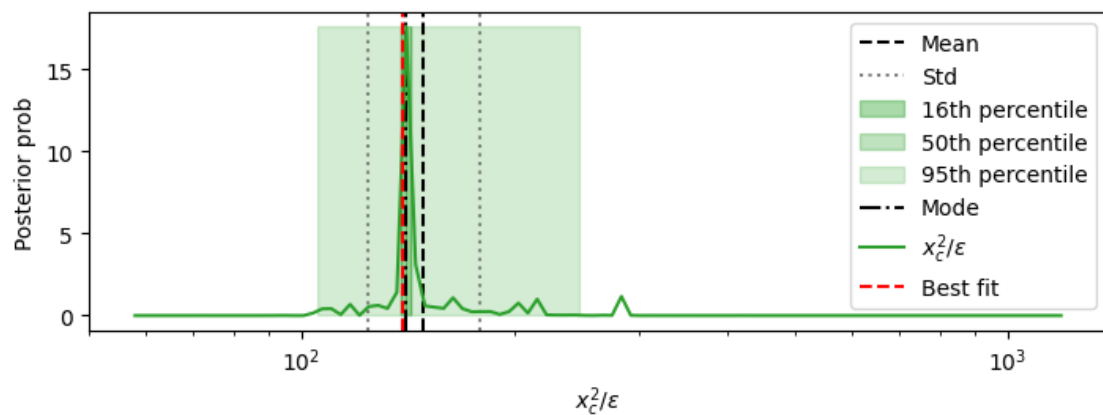
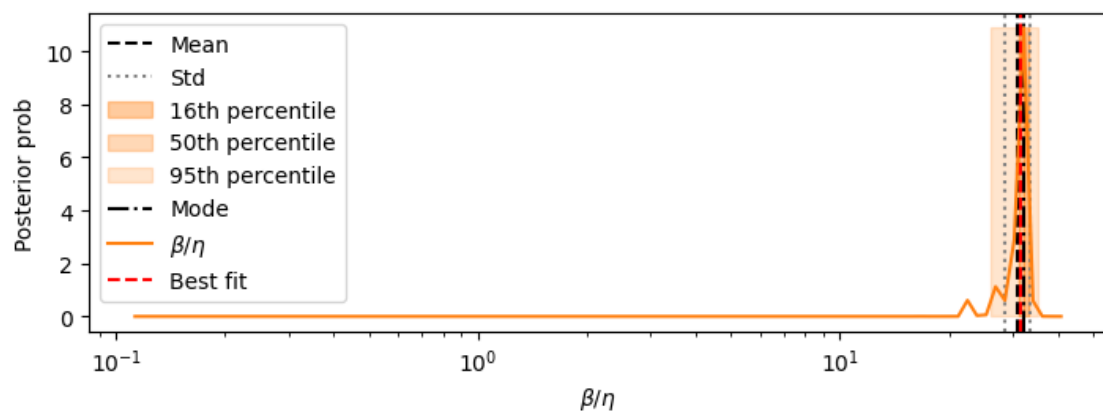
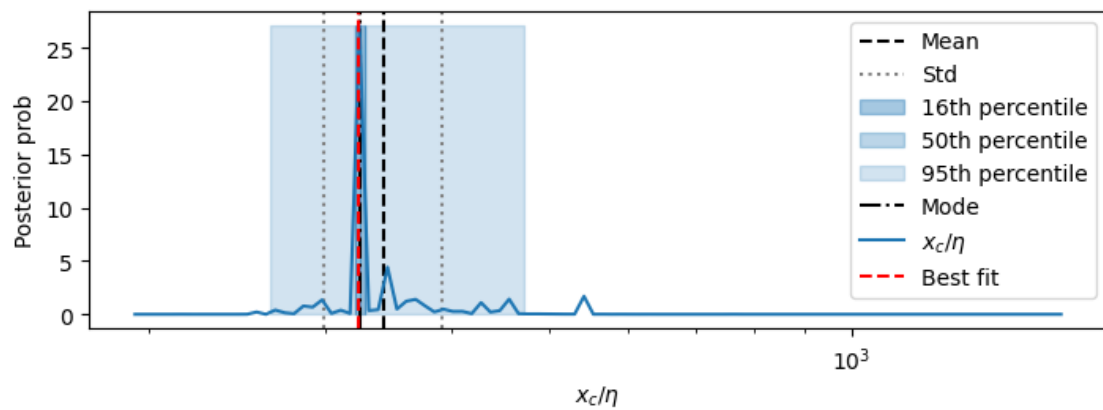
2 2. Heat map corner plot of raw samples

This plot shows all the raw sample points and their lnprobability



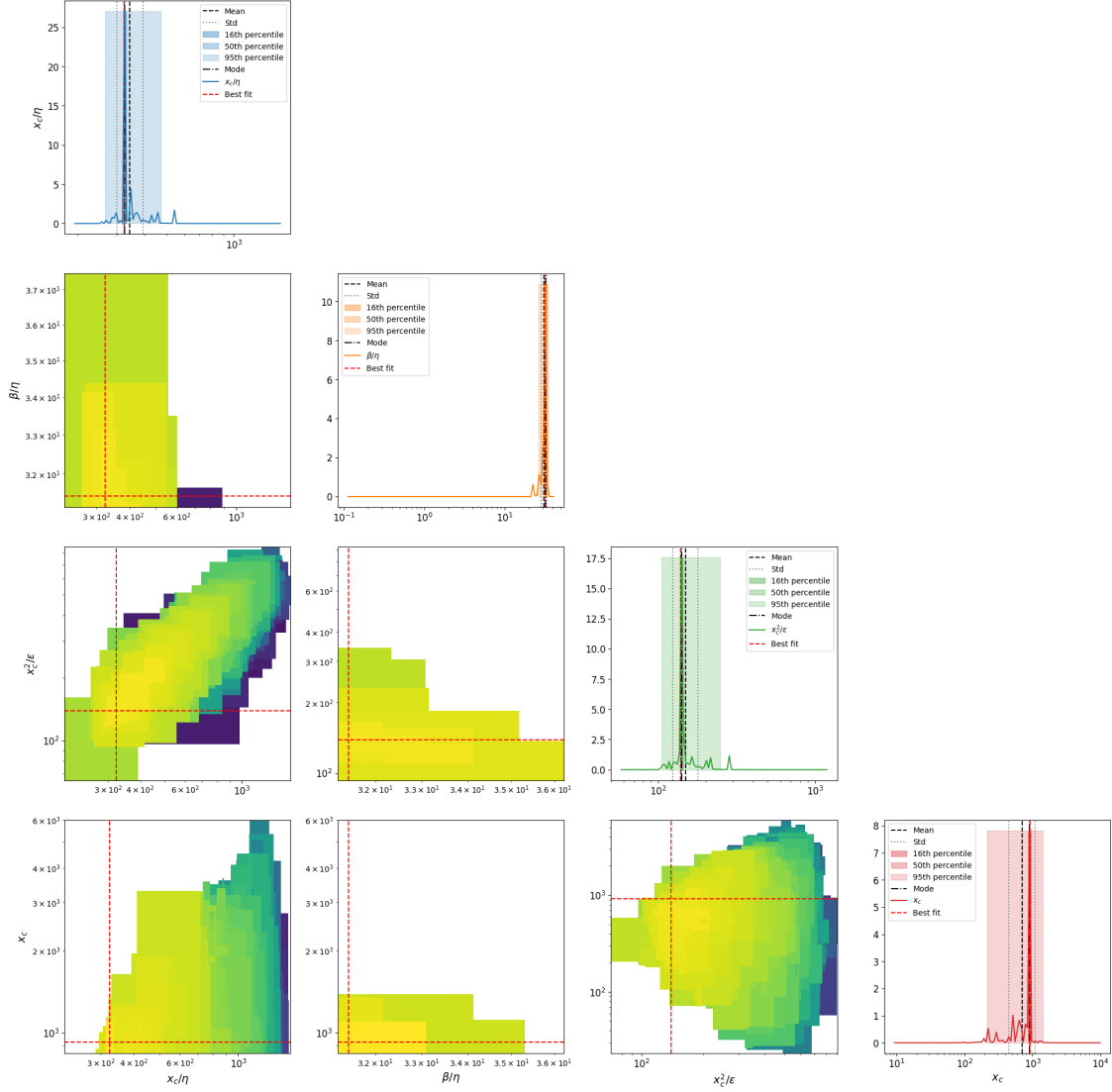
3. Posterior distributions of parameters

1d marginalizations of posterior distributions. we use a grid of size nbins=100-150



2D marginalizations of posterior distributions

2D Marginalized Posterior



4. Table of results

mode is the marginalized mode, max_likwlihood is the sample with highest likelihood mode_overall is the 4D posterior mode

	mean	std	mode \
xc/eta	342.23	[50.023, 43.644]	345.73

beta/eta	30.941	[2.689, 2.474]	30.309
xc^2/epsilon	148.848	[29.806, 24.833]	140.677
xc	698.559	[392.112, 251.142]	843.738
eta	1.37	[1.092, 0.608]	1.628
beta	43.066	[36.095, 19.637]	53.004
epsilon	1462.128	[3043.675, 987.669]	4229.674
sqrt(xc/eta)	18.498	[1.304, 1.218]	18.594
s= eta^0.5*xc^1.5/epsilon	7.998	[0.999, 0.888]	7.734
beta*xc/epsilon	13.437	[0.655, 0.625]	12.395
eta*xc/epsilon	0.433	[0.0237, 0.0225]	0.425
Fx=beta^2/eta*xc	2.678	[0.892, 0.669]	2.918
Dx =beta*epsilon/eta*xc^2	0.208	[0.0622, 0.0479]	0.21
Pk=beta*k/epsilon	0.0148	[0.0114, 0.00643]	0.0115
Fk=beta^2/eta*k	2358.148	[1665.119, 975.972]	2605.083
Dk =beta*epsilon/eta*k^2	192237.017	[389574.952, 128719.811]	267676.291
Fk^2/Dk=beta^3/eta*epsilon	35.111	[18.136, 11.959]	34.225
beta^2/epsilon	1.346	[0.192, 0.168]	1.219
k/beta	0.00723	[0.00435, 0.00271]	0.00636
k/epsilon	0.000124	[0.000193, 7.55e-05]	0.000118
best fit_MedianLifetime	49.81	0.51	49.81
best fit_MaxLifetime	77.36	0	77.36
data_MedianLifetime	49.0	0.52	49.0
data_MaxLifetime	82.0	0	82.0

	percentile_16 \
xc/eta	[342.046, 357.023]
beta/eta	[29.42, 31.224]
xc^2/epsilon	[138.549, 147.261]
xc	[759.292, 873.925]
eta	[1.464, 1.686]
beta	[45.737, 55.674]
epsilon	[2983.047, 4535.616]
sqrt(xc/eta)	[18.297, 18.694]
s= eta^0.5*xc^1.5/epsilon	[7.65, 7.82]
beta*xc/epsilon	[12.051, 12.749]
eta*xc/epsilon	[0.422, 0.428]
Fx=beta^2/eta*xc	[2.723, 3.127]
Dx =beta*epsilon/eta*xc^2	[0.201, 0.219]
Pk=beta*k/epsilon	[0.0109, 0.0135]
Fk=beta^2/eta*k	[2418.569, 3255.452]
Dk =beta*epsilon/eta*k^2	[248078.102, 391486.951]
Fk^2/Dk=beta^3/eta*epsilon	[31.1, 37.664]
beta^2/epsilon	[1.141, 1.303]
k/beta	[0.00606, 0.00737]
k/epsilon	[9.58e-05, 0.000146]
best fit_MedianLifetime	[49.32, 50.32]
best fit_MaxLifetime	[77.36, 77.36]

data_MedianLifetime	[48.54, 49.52]	
data_MaxLifetime	[82.0, 82.0]	
	percentile_50	percentile_95 \
xc/eta	[320.749, 372.657]	[276.071, 461.713]
beta/eta	[27.721, 31.224]	[24.611, 35.169]
xc^2/epsilon	[130.352, 151.821]	[115.383, 218.902]
xc	[573.164, 937.576]	[186.105, 1157.722]
eta	[1.364, 2.399]	[0.441, 2.965]
beta	[41.455, 82.493]	[14.059, 100.416]
epsilon	[1483.769, 5215.489]	[182.593, 6896.243]
sqrt(xc/eta)	[17.909, 19.304]	[16.615, 21.488]
s= eta^0.5*xc^1.5/epsilon	[7.484, 8.171]	[6.706, 10.176]
beta*xc/epsilon	[12.051, 13.487]	[11.392, 14.268]
eta*xc/epsilon	[0.416, 0.439]	[0.389, 0.476]
Fx=beta^2/eta*xc	[2.065, 3.127]	[1.364, 4.122]
Dx =beta*epsilon/eta*xc^2	[0.185, 0.26]	[0.11, 0.309]
Pk=beta*k/epsilon	[0.00872, 0.0168]	[0.007, 0.0405]
Fk=beta^2/eta*k	[1796.824, 4381.918]	[854.817, 6842.953]
Dk =beta*epsilon/eta*k^2	[213081.368, 719265.293]	[18700.715, 837398.268]
Fk^2/Dk=beta^3/eta*epsilon	[25.679, 45.614]	[14.457, 66.902]
beta^2/epsilon	[0.999, 1.488]	[0.766, 1.941]
k/beta	[0.00498, 0.00897]	[0.00498, 0.0292]
k/epsilon	[8.33e-05, 0.000255]	[6.3e-05, 0.00207]
best fit_MedianLifetime	[49.32, 50.32]	[49.32, 50.32]
best fit_MaxLifetime	[77.36, 77.36]	[77.36, 77.36]
data_MedianLifetime	[48.54, 49.52]	[48.54, 49.52]
data_MaxLifetime	[82.0, 82.0]	[82.0, 82.0]

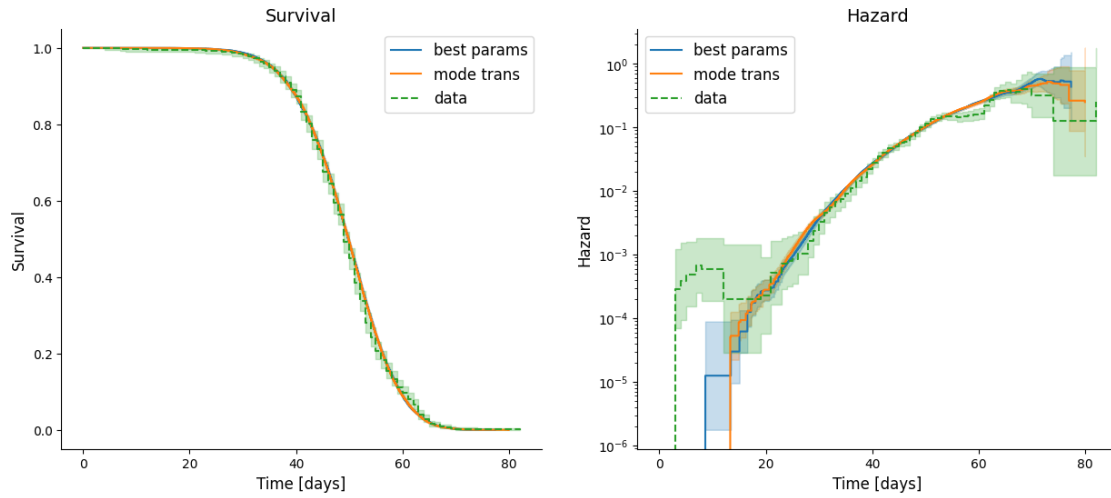
	max_likelihood	mode_overall
xc/eta	323.203	323.203
beta/eta	31.446	31.446
xc^2/epsilon	139.087	139.087
xc	923.645	923.645
eta	2.858	1.542
beta	89.866	47.675
epsilon	6133.708	1959.093
sqrt(xc/eta)	17.978	17.978
s= eta^0.5*xc^1.5/epsilon	7.737	7.737
beta*xc/epsilon	13.532	13.532
eta*xc/epsilon	0.43	0.43
Fx=beta^2/eta*xc	3.06	3.06
Dx =beta*epsilon/eta*xc^2	0.226	0.226
Pk=beta*k/epsilon	0.00733	0.0122
Fk=beta^2/eta*k	5651.809	2947.469
Dk =beta*epsilon/eta*k^2	771519.921	283427.86
Fk^2/Dk=beta^3/eta*epsilon	41.403	18.019

β^2/ϵ	1.317	1.317
k/β	0.00556	0.00556
k/ϵ	0.000082	0.000082
best fit_MedianLifetime	49.81	NaN
best fit_MaxLifetime	77.36	NaN
data_MedianLifetime	49.0	NaN
data_MaxLifetime	82.0	NaN

5 5. Fits of simulations to data

best params is the sample with highest likelihood. mode trans is the 4D posterior mode in the transformed space of x_c/η , β/η , x_c^2/ϵ , x_c

Text(0, 0.5, 'Hazard')



Text(0, 0.5, 'Prob density')

