# mice_F_post.csv_run_1_20250525_200856

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/baysian02/posterior_csvs_baysian01/mice_F_post.csv
```

```
Reading Mice_F
```

# 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 $x_c/\eta$, $\beta/\eta$, $x_c^2/\epsilon$, $x_c$ but we also show the regular parameters
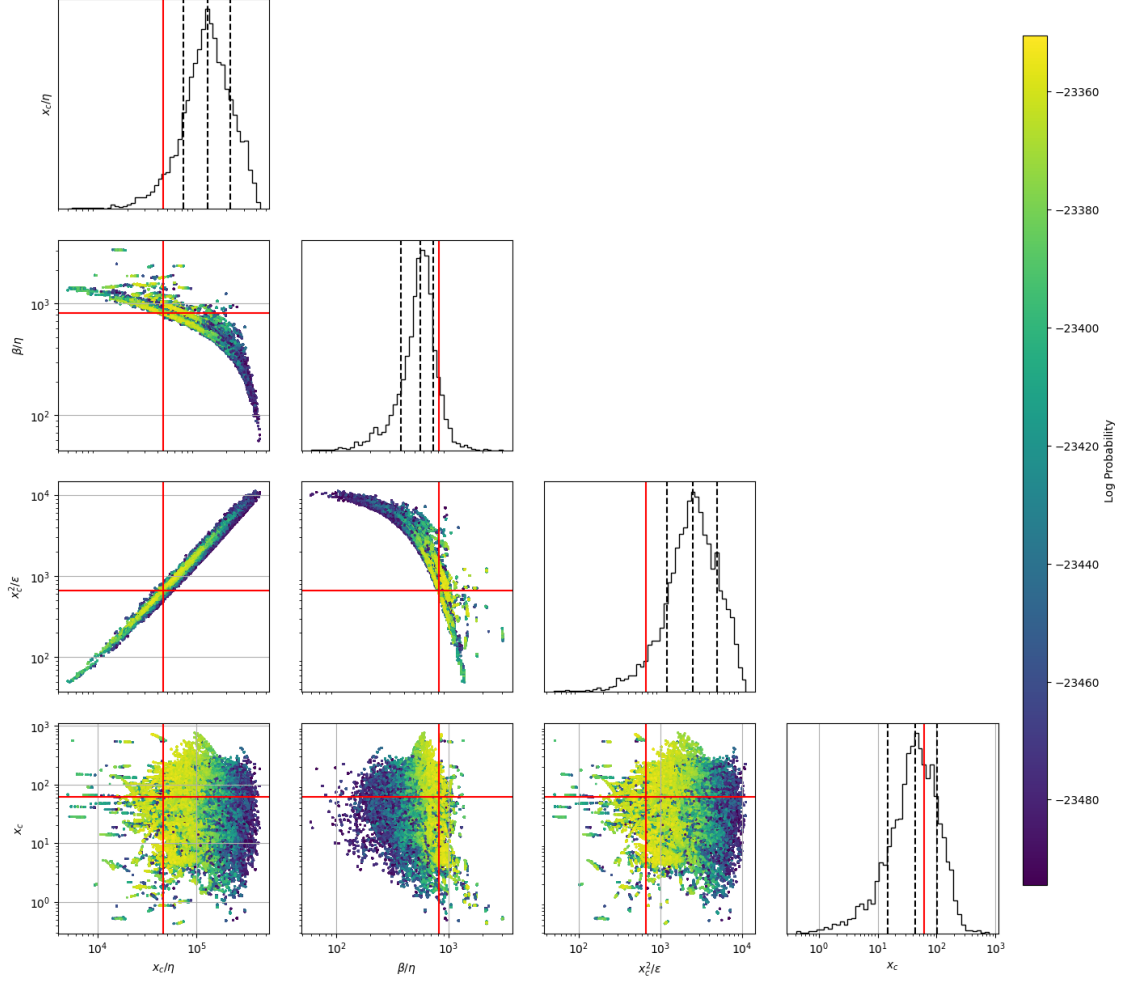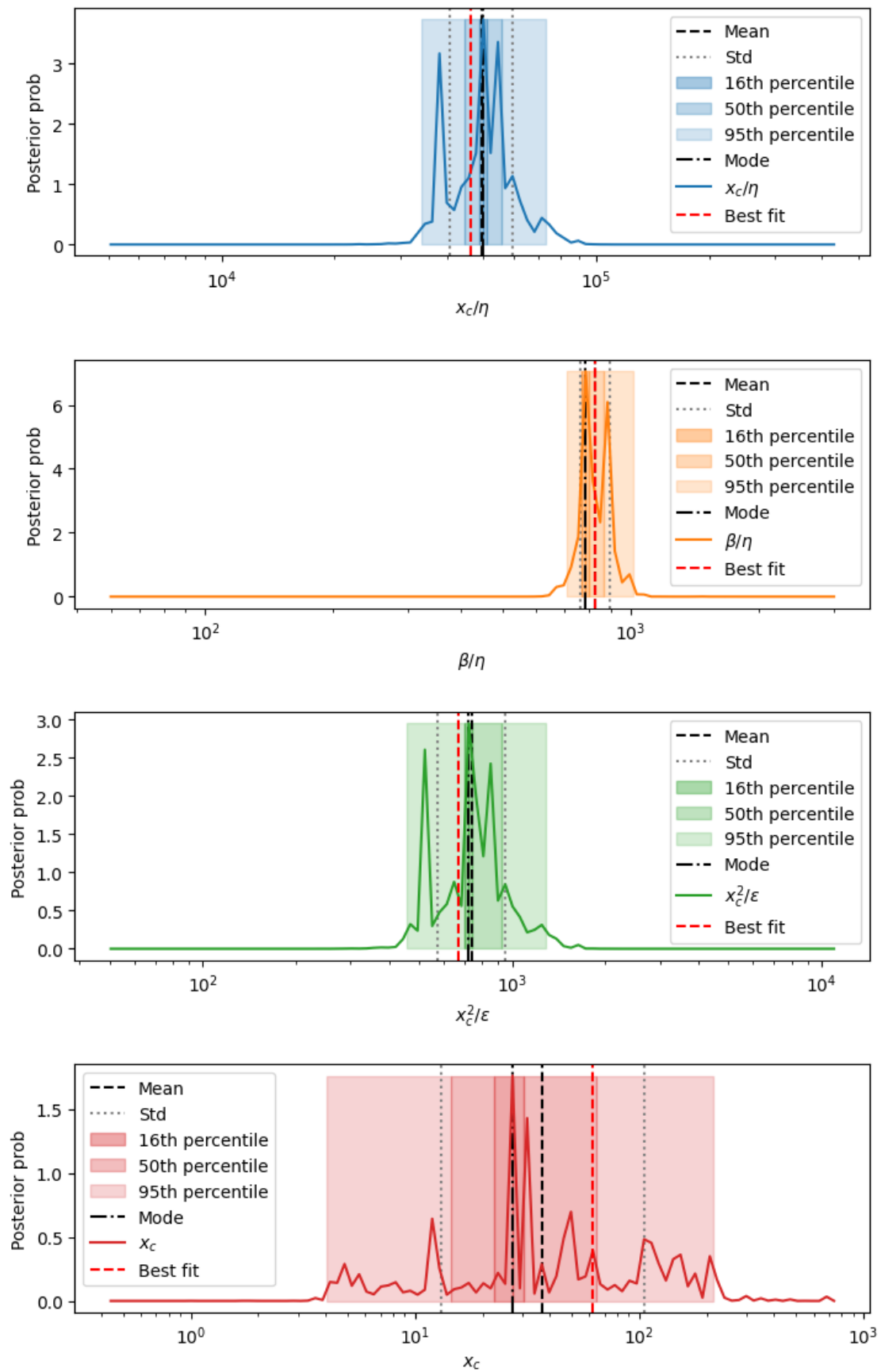
```
(16,)
```
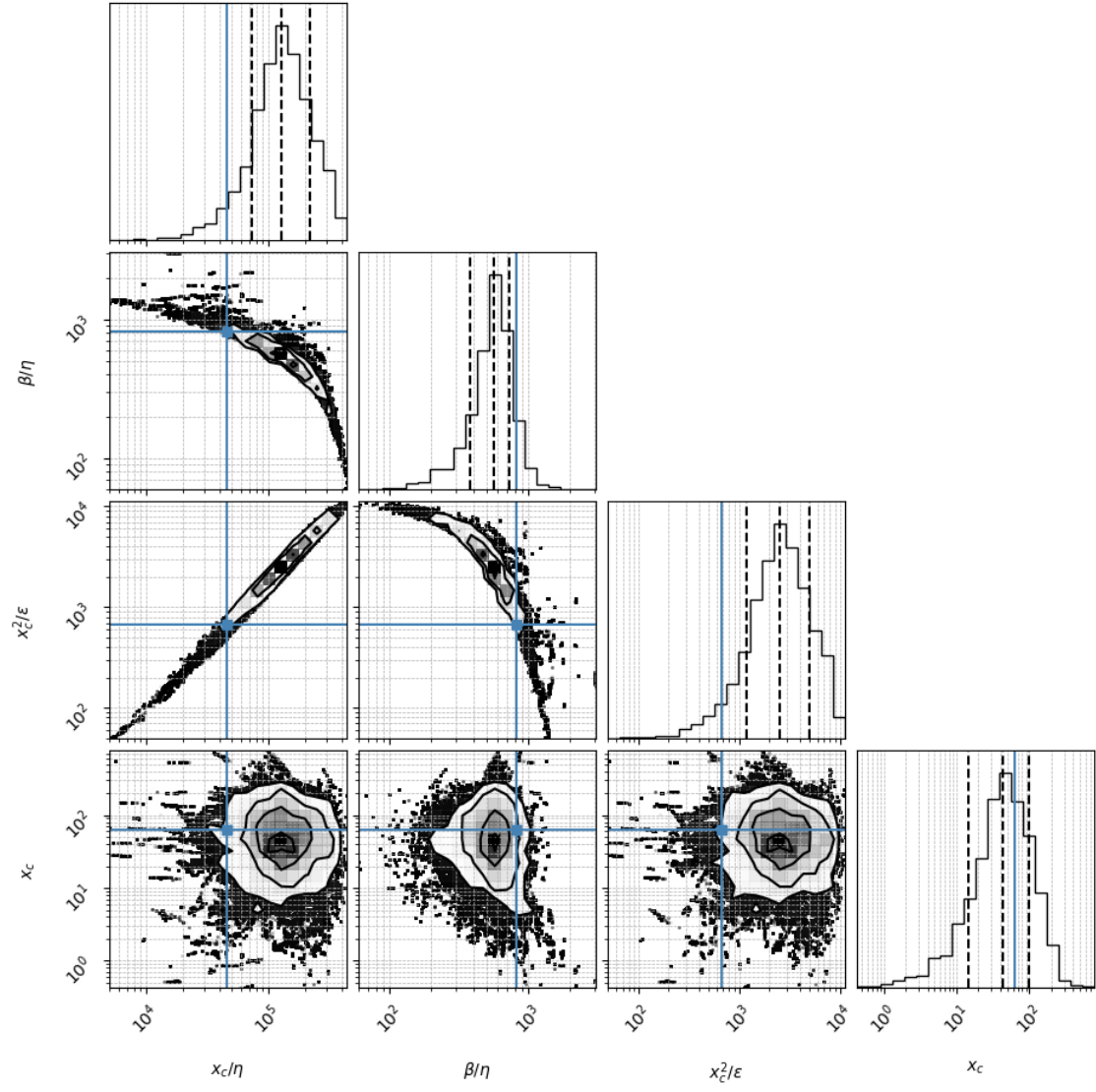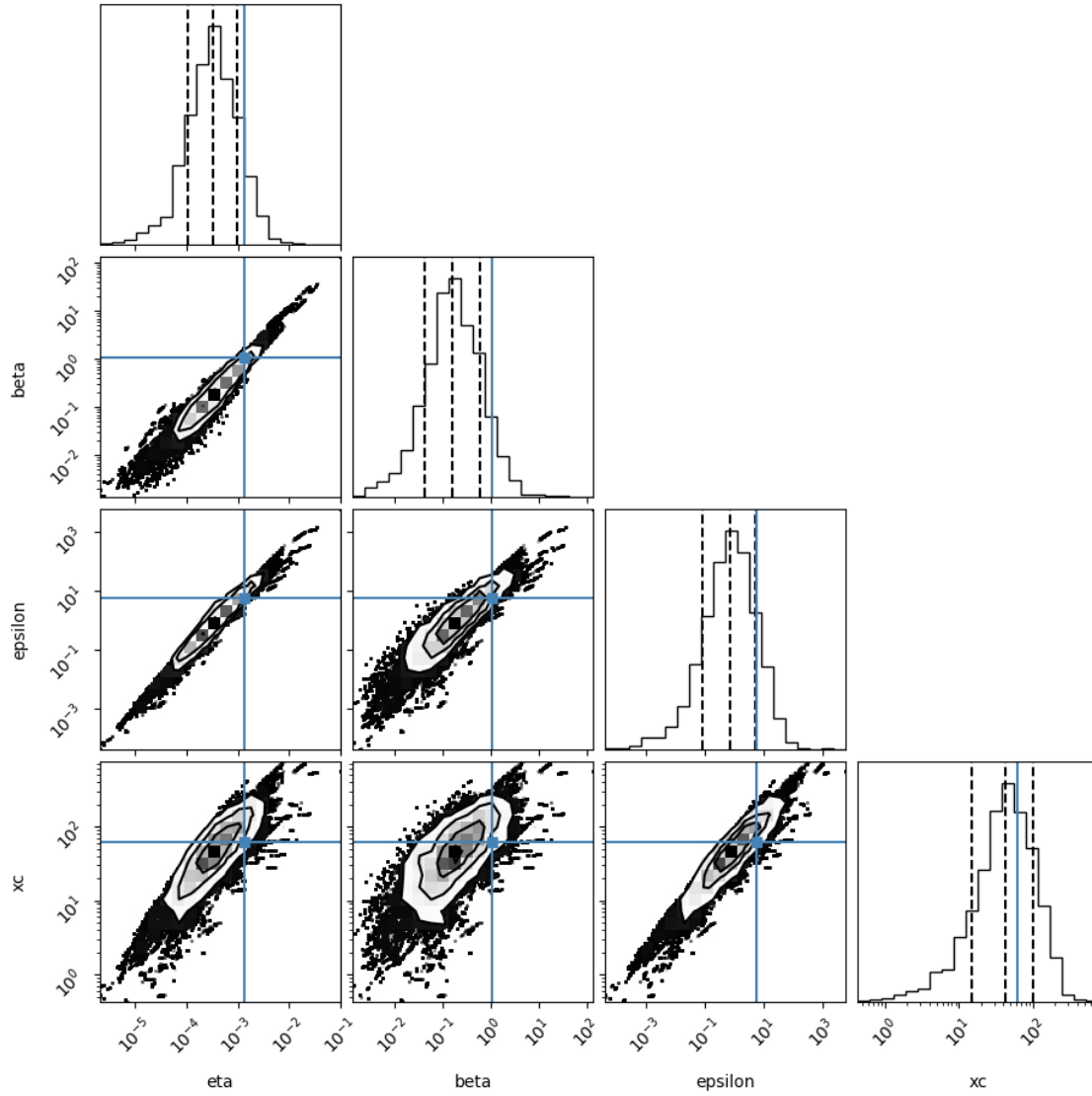
# 2  2. Heat map corner plot of raw samples

This plot shows all the raw sample points and their lnprobability

# 3   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
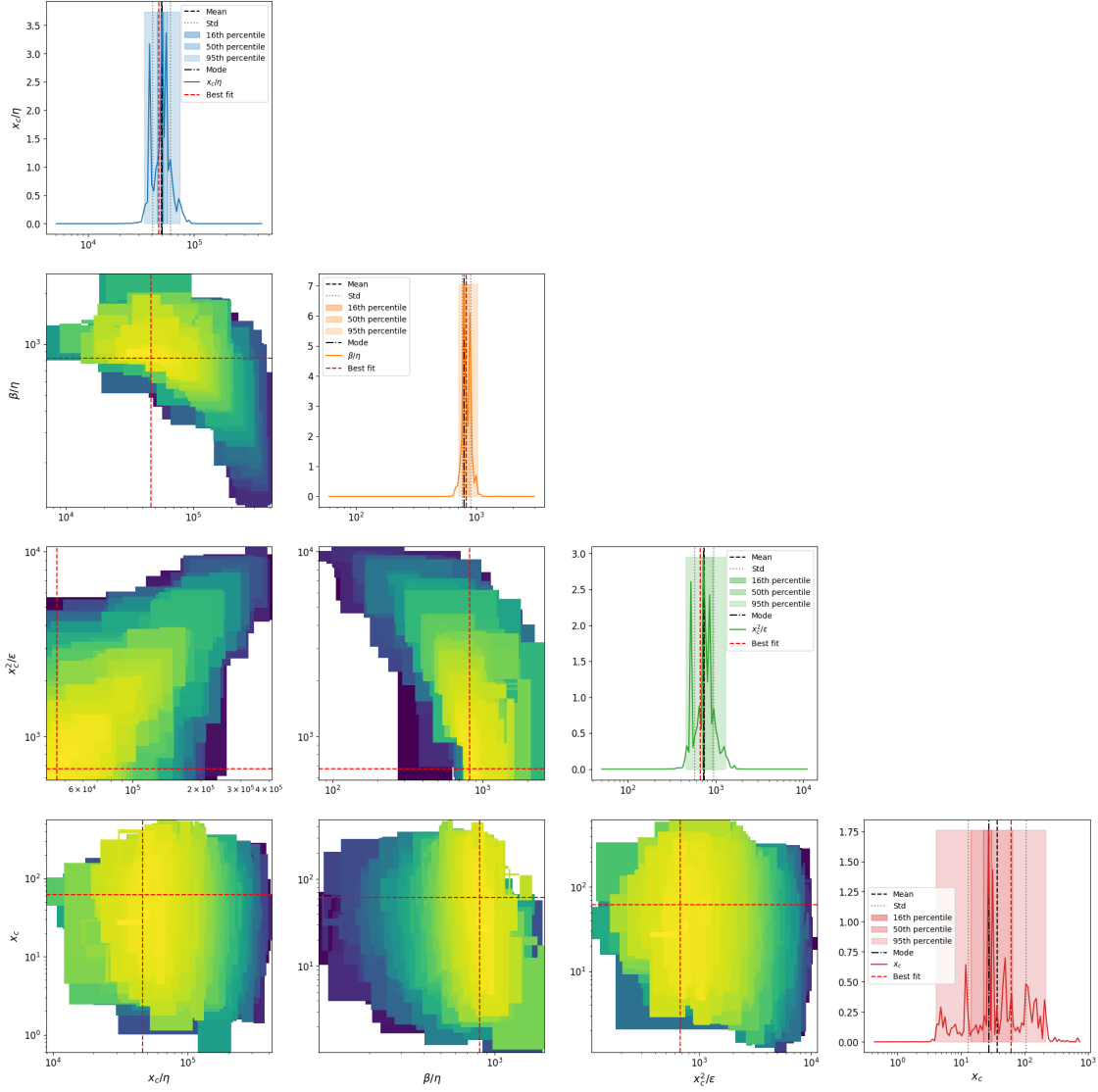


## 4   4. Table of results

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 | 50942.565 | [11336.891, 9273.207] | 51832.668 |

```
beta/eta                      817.858      [74.413, 68.207]      810.708
xc^2/epsilon                  771.968     [224.013, 173.629]     756.961
xc                             38.975       [69.44, 24.964]       50.279
eta                            0.0008    [0.00155, 0.000528]      0.00264
beta                           0.667        [1.213, 0.431]         0.71
epsilon                        2.072       [15.599, 1.829]        20.192
sqrt(xc/eta)                  227.789      [24.004, 21.716]      227.668
s= eta^0.5*xc^1.5/epsilon       3.46        [0.58, 0.497]          3.384
beta*xc/epsilon               12.262       [0.778, 0.731]        12.234
eta*xc/epsilon                0.0152    [0.000905, 0.000854]      0.0151
Fx=beta^2/eta*xc              12.548       [5.294, 3.723]        12.658
Dx =beta*epsilon/eta*xc^2      1.026       [0.399, 0.287]         1.036
Pk=beta*k/epsilon              0.164       [0.324, 0.109]         0.052
Fk=beta^2/eta*k             1029.941    [1725.101, 644.909]    1320.887
Dk =beta*epsilon/eta*k^2     7050.27    [51276.8, 6198.07]    66974.732
Fk^2/Dk=beta^3/eta*epsilon   171.055      [78.891, 53.991]      171.586
beta^2/epsilon                0.206      [0.0709, 0.0527]        0.197
k/beta                         0.702       [1.189, 0.441]         0.704
k/epsilon                      0.201       [1.356, 0.175]        0.0281
best fit_MedianLifetime       886.98                   0.51      886.98
best fit_MaxLifetime         1406.68                      0     1406.68
data_MedianLifetime           882.0                    0.52       882.0
data_MaxLifetime             1456.0                       0      1456.0
```

```
                              percentile_16             percentile_50  \
xc/eta                 [49556.82, 54213.033]   [45300.516, 59306.731]
beta/eta                  [779.277, 821.464]        [759.003, 865.935]
xc^2/epsilon              [716.902, 799.258]        [666.769, 923.966]
xc                          [40.144, 59.901]           [20.95, 89.38]
eta                       [0.00191, 0.00294]     [0.000748, 0.00316]
beta                        [0.586, 0.86]            [0.543, 2.002]
epsilon                   [14.738, 31.377]          [1.965, 35.588]
sqrt(xc/eta)              [222.614, 232.837]        [212.839, 243.53]
s= eta^0.5*xc^1.5/epsilon    [3.275, 3.496]            [3.068, 3.815]
beta*xc/epsilon            [12.096, 12.374]          [11.824, 12.95]
eta*xc/epsilon             [0.0149, 0.0153]          [0.0145, 0.0157]
Fx=beta^2/eta*xc           [11.306, 13.143]           [9.726, 15.279]
Dx =beta*epsilon/eta*xc^2     [0.952, 1.128]            [0.804, 1.263]
Pk=beta*k/epsilon          [0.0419, 0.0647]           [0.037, 0.175]
Fk=beta^2/eta*k          [1046.24, 1667.63]       [790.953, 3202.987]
Dk =beta*epsilon/eta*k^2  [42730.29, 92325.529]  [7080.033, 119357.706]
Fk^2/Dk=beta^3/eta*epsilon [148.439, 180.077]       [122.36, 218.459]
beta^2/epsilon              [0.177, 0.204]            [0.165, 0.252]
k/beta                      [0.538, 0.789]             [0.25, 0.852]
k/epsilon                  [0.0205, 0.0385]          [0.0159, 0.174]
best fit_MedianLifetime     [886.49, 887.49]          [886.49, 887.49]
best fit_MaxLifetime      [1406.68, 1406.68]       [1406.68, 1406.68]
```
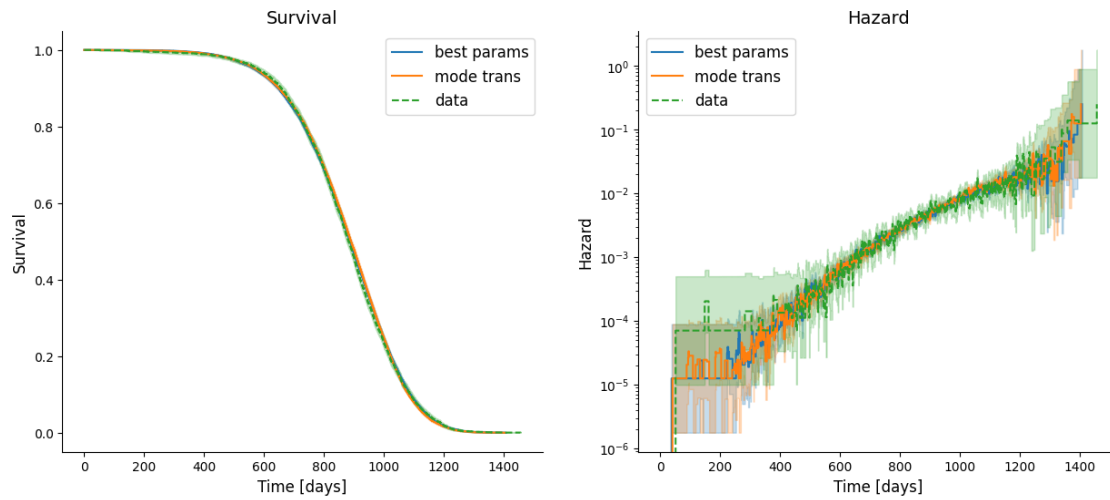
| | | |
|---|---|---|
| data_MedianLifetime | [881.52, 882.52] | [881.52, 882.52] |
| data_MaxLifetime | [1456.0, 1456.0] | [1456.0, 1456.0] |

| | percentile_95 | max_likelihood | mode_overall |
|---|---|---|---|
| xc/eta | [35653.519, 77643.449] | 46236.322 | 37651.206 |
| beta/eta | [683.047, 962.229] | 824.86 | 899.104 |
| xc^2/epsilon | [481.166, 1327.636] | 670.741 | 526.572 |
| xc | [5.162, 189.293] | 62.013 | 27.471 |
| eta | [9.24e-05, 0.00393] | 0.00134 | 0.00073 |
| beta | [0.086, 2.939] | 1.106 | 0.656 |
| epsilon | [0.0308, 51.926] | 5.733 | 1.433 |
| sqrt(xc/eta) | [188.821, 278.646] | 215.026 | 194.039 |
| s= eta^0.5*xc^1.5/epsilon | [2.578, 4.742] | 3.119 | 2.714 |
| beta*xc/epsilon | [11.558, 14.842] | 11.966 | 12.574 |
| eta*xc/epsilon | [0.0136, 0.0171] | 0.0145 | 0.014 |
| Fx=beta^2/eta*xc | [6.191, 24.001] | 14.716 | 21.47 |
| Dx =beta*epsilon/eta*xc^2 | [0.511, 1.876] | 1.23 | 1.707 |
| Pk=beta*k/epsilon | [0.0288, 1.445] | 0.0965 | 0.229 |
| Fk=beta^2/eta*k | [162.091, 5105.324] | 1825.116 | 1179.612 |
| Dk =beta*epsilon/eta*k^2 | [116.299, 154304.686] | 18916.972 | 5154.043 |
| Fk^2/Dk=beta^3/eta*epsilon | [75.486, 354.115] | 176.088 | 269.979 |
| beta^2/epsilon | [0.108, 0.333] | 0.213 | 0.3 |
| k/beta | [0.17, 5.81] | 0.452 | 0.762 |
| k/epsilon | [0.00962, 14.306] | 0.0872 | 0.349 |
| best fit_MedianLifetime | [886.49, 887.49] | 886.98 | NaN |
| best fit_MaxLifetime | [1406.68, 1406.68] | 1406.68 | NaN |
| data_MedianLifetime | [881.52, 882.52] | 882.0 | NaN |
| data_MaxLifetime | [1456.0, 1456.0] | 1456.0 | 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 $x_c/\eta$, $\beta/\eta$, $x_c^2/\epsilon$, $x_c$

Text(0, 0.5, 'Hazard')

Text(0, 0.5, 'Prob density')