```
final simplex: (array([[6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837381e+03, 7.76223264e+03, 2.05991397e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 2.80837380e+03, 7.76223274e+03, 2.05991401e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837381e+03, 7.76223265e+03, 2.05991398e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837381e+03, 7.76223261e+03, 2.05991397e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00, 6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837381e+03, 7.76223260e+03, 2.05991396e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837381e+03, 7.76223259e+03, 2.05991396e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837381e+03, 7.76223255e+03, 2.05991394e-03, 1.19022679e+00,
     ['SM data type data plots for mutation', 'Regulator88]e+02, 3.24643802e+03, 1.0366-04, 3.38800490e+00, ucer -> sensor (GFP output) inducer -> S[6] 18047088 4 1091, 1.6278856 0 Converged 79e+03, 1.09654125e+00,
inducer -> sensor (GFP output)
                                                                                       2.80837381e+03, 7.7622326 -+- Converged 98e-03, 1.19022678e+00,
                                                      6 \times 10^3
                                                                                       6.83835638e+02, 3.24643802<u>e+0</u>4Converged 5e-04, 3.38800490e+00,
                                                                                      6.32148081e-01, 9.72768210e-01, 2.441796e+00, 1.91933916e+00], [6.18047086e+02, 1.6278856e+0 Converged 79e+03, 1.09654125e+00,
                                                                                       2.80837380e+03, 7.76223272e+03, 2.05991400e-03, 1.19022678e+00,
                                                     4 \times 10^{3}
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00, 6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                     ₹6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                     3 \times 10^{3}
                                                                                       2.80837381e+03, 7.76223265e+03, 2.05991398e-03, 1.19022678e+00,
                                                                                        &83835638e+02, 3.⊉4643802e+04, 4.73376905e-04, 3.38800489e+00,
                                                                                       6.32148081e 01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      16.18047086e+02.1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 2.80837380e+03, 9.76223269e+03, 2.05991399e-03, 1.19022678e+00,
                                 10-2
                                                               10<sup>-5</sup>
                                                                          10^{-4}
                                                                         inducer -> S -| Output (GFP)
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                       2.80837380e+03, 7.76223269e+03, 2.05991399e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                                     4 \times 10^{3}
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                       🔭 18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                          80837381e+03, 7.76223263e+03, 2.05991397e-03, 1.19022678e+00,
                                                     3 \times 10^{3}
                                                                                           83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00, 3.248081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 2.80837380e+03, 7.76223270e+03, 2.05991400e-03, 1.19022678e+00, 6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00, 6_032148981e-01, 19072768210e-01, 2.64017386e+00, 1.91933916e+00], [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 2.80837380e+03, 7.76233370e+03, 2.0601400e-03, 1.10033678e+00,
                                                     2 \times 10^{3}
                                                               10^{-5}
                                 10^{-2}
                                             10^{-1}
                                                                           10^{-4}
                                                                                       2.80837380e+03, 7.76223270e+03, 2.05991400e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
          RSS (converged)=0.157
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
         RSS (initial)=0.303
                                                                                       2.80837381e+03, 7.76223264e+03, 2.05991398e-03, 1.19022678e+00,
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
         RSS (% reduction)=0.659
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                  epsilon Initial guesses
                                                     Converged
                                                                                       2.80837381e+03, 7.76223264e+03, 2.05991397e-03, 1.19022678e+00,
                                  618.047086 618.047086
                                                                                       6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                 16278.856600 16278.856600
                                                                                       6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00]), array([0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707
                                  1300.653790 1300.653790
                                                                                      0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447,
                                    1.096541
                                                      1.096541
                                                                                      0.15707447, 0.15707447, 0.15707447, 0.15707447, 0.15707447,
                                   1916.175610 2808.373807
                                                                                      0.15707447, 0.15707447]))
                                    18874.240800 7762.232641
                                                                                          fun: 0.15707446840436967
                                    0.009030
                                                      0.002060
                                                                                      message: 'Optimization terminated successfully.'
                                    0.820433
                                                      1.190227
                                                                                         nfev: 2486
                                   683.835638
                                                      683.835638
                                                                                         nit: 1697
                                 32464.380200 32464.380200
                                                                                       status: 0
                                     0.000473
                                                       0.000473
                                                                                      success: True
                                    2.821352
                                                       3.388005
                                                                                            x: array([6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                     0.632148
                                                       0.632148
                                                                                      2.80837381e+03, 7.76223264e+03, 2.05991397e-03, 1.19022678e+00,
                                     0.972768
                                                       0.972768
                                                                                      6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 3.38800490e+00,
                                     2.640174
                                                       2.640174
                                                                                      6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00])
```

 10^{4}

 10^{3}

 10^{4}

 10^{3}

 10^{-5}

10-3

 10^{-3}

Across all four plots:

0.000000

0.000000

0.000000

0.000000

892.198197

-0.006970

0.369793

0.000000

0.000000

0.000000

0.566653

0.000000

0.000000

0.000000

0.000000

1.919339

1.919339

B r -11112.008159

 10^{-4}

 10^{-4}

Вs

C s

 N_s

Сr

Νr

Βh

Ch

Fο

Во

Со