```
5.28720231e+03, 1.52723601e+04, 1.15710050e-03, 1.77547993e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+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,
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710050e-03, 1.77547994e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+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,
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+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,
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                                                          \begin{array}{l} 6.83835638e+02,\ 3.24643802e+04,\ 4.73376905e-04,\ 4.37262825e+00,\\ 6.32148081e-01,\ 9.72768210e-01,\ 2.64017386e+00,\ 1.91933916e+00], \end{array}
                                                                                         [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 1.09654125e+00]
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+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,
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+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,
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710051e-03, 1.77547993e+00,
     ['SM data type data plots for mutation', 'Regulato638e+02, 3.24643802e+04, 1.7776056-04, 4.37262825e+00, ucer -> sensor (GFP output) inducer -> S[6] 18047088641091, 1.6278856 e+0 Converged 79e+03, 1.09654125e+00,
inducer -> sensor (GFP output)
                                                                                          5.28720231e+03, 1.$272360 +++04Converged 5 e-03, 1.77547993e+00,
                                                                                         6.83835638e+02, 3.2464380 e+0 Converged 5e-04, 4.37262825e+00, 6.32148081e-01, 9.72768210 e-01, Converged 79e+03, 1.09654125e+00, [6.18047086e+02, 1.6278856 e+0 Converged 79e+03, 1.09654125e+00,
                                                            10^{4}
                                                                                          5.28720231e+03, 1.$2723601e+04, 1.15710050e-03, 1.77547993e+00,
                                                                                          683835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+00, 6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                       6 \times 10^{3}
                                                                                         [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                       4 \times 10^{3}
                                                                                          5.28720231e+03, 1.$2723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                       3 \times 10^{3}
                                                                                          6.83835638e+02, 3.‡4643802e+04, 4.73376905e-04, 4.37262825e+00,
                                                                                          6.<del>32148081e-01, 9.</del>72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                          \begin{array}{l} 16.18047086\underline{e} + 02.1.62788566\underline{e} + 04, 1.30065379\underline{e} + 03, 1.09654125\underline{e} + 00, \\ 5.28720231\underline{e} + 03.1.52723601\underline{e} + 04, 1.15710051\underline{e} - 03, 1.77547993\underline{e} + 00, \end{array} 
                                                                 10-5
                                  10-2
                                                                             10^{-4}
                                                                           inducer -> S -| Output (GFP)
                                                                                         [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                          5.28720231e+03, 1.$2723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                       4 \times 10^{3}
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+00,
                                                                                           6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                          [6.16047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                       3 \times 10^{3}
                                                                                          328720231e+03, 1.$2723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                                                         6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+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, 5.28720231e+03, 1.52723601e+04, 1.15710050e-03, 1.77547994e+00,
                                                       2 \times 10^{3}
                                                                                         \begin{array}{l} 6.83835638e + 02, 9.24643802e + 04, 4.73376905e - 04, 4.37262825e + 00, \\ 6032148981e - 01, 19, 72768210e - 01, 2.64017386e + 00, 1.91933916e + 00], \\ [6.18047086e + 02, 1.62788566e + 04, 1.30065379e + 03, 1.09654125e + 00, \\ \end{array}
                                                                 10^{-5}
                                  10^{-2}
                                                                             10^{-4}
                                               10^{-1}
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710050e-03, 1.77547994e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+00,
          RSS (converged)=0.167
                                                                                          6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00],
                                                                                         [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710051e-03, 1.77547993e+00,
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+00,
         RSS (% reduction)=0.936
                                                                                          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
                                                                                          5.28720231e+03, 1.52723601e+04, 1.15710050e-03, 1.77547994e+00,
                                   618.047086 618.047086
                                                                                          6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+00,
                                 16278.856600 16278.856600
                                                                                          6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00]), array([0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716
                                  1300.653790 1300.653790
                                                                                         0.16716515, 0.16716515, 0.16716515, 0.16716515, 0.16716515,
                                     1.096541
                                                      1.096541
                                                                                         0.16716515, 0.16716515, 0.16716515, 0.16716515,
                                    1916.175610 5287.202309
                                                                                         0.16716515, 0.16716515]))
                                    18874.240800 15272.360070
                                                                                            fun: 0.16716514936785842
                                    0.009030
                                                       0.001157
                                                                                         message: 'Optimization terminated successfully.'
                                    0.820433
                                                       1.775480
                                                                                            nfev: 2609
                                   683.835638 683.835638
                                                                                            nit: 1769
                                  32464.380200 32464.380200
                                                                                          status: 0
                                     0.000473
                                                        0.000473
                                                                                         success: True
                                     2.821352
                                                        4.372628
                                                                                               x: array([6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                     0.632148
                                                        0.632148
                                                                                         5.28720231e+03, 1.52723601e+04, 1.15710050e-03, 1.77547993e+00,
                                     0.972768
                                                        0.972768
                                                                                         6.83835638e+02, 3.24643802e+04, 4.73376905e-04, 4.37262825e+00,
                                     2.640174
                                                        2.640174
                                                                                         6.32148081e-01, 9.72768210e-01, 2.64017386e+00, 1.91933916e+00])
```

final simplex: (array([[6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,

 10^{4}

 10^{3}

 10^{4}

 10^{3}

 10^{-5}

 10^{-4}

 10^{-4}

Bs

C s

 N_s

 C_r

Νr

Βh

C h

Fο

Αо

Во

Со

10-3

 10^{-3}

Across all four plots:

RSS (initial)=2.442

0.000000

0.000000

0.000000

0.000000

-0.007873

0.955047

0.000000

0.000000

0.000000

1.551277

0.000000

0.000000

0.000000

0.000000

1.919339

1.919339

A r 3371.026699

B r -3601.880730