```
final simplex: (array([[6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10890514e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                   1.18310005e+01, 6.31752368e+04, 1.29299115e-03, 4.10843557e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10871969e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10888233e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                   1.18310003e+01, 6.31752368e+04, 1.29299115e-03, 4.10848253e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
        ['SM data type data plots for mutation', 'Regulation' 4]e+01, 6.3175236 e+0 Initial Guess 5e-03, 4.10848427e-08, ucer -> sensor (GFP output) inducer -> S[6] 5856 5759 4 695, 1.6241449 5e+0 Converged 7e+03, 1.16672650e+00,
    inducer -> sensor (GFP output)
                                                                   3.82152968e+03, 2.1598538 --- 5 Converged 1 6e-02, 7.30411989e-01,
                                                                   1.18310004e+01, 6.3175236 e+04 Converged
                                                                                                                 15e-03, 4.10850228e-08,
10^{4}
                                                                   2.56848297e+00, 1.25602884e+0
                                                                                                                  6e+00],
                                              10^{4}
                                                                                                  Converged 37e+03, 1.16672650e+00,
                                                                   [6.58303751e+02, 1.624144956
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                   1018310004e+01, 6.$1752368e+04, 1.29299115e-03, 4.10870602e-08, 2.56848<mark>297e+00, 1.</mark>25602884e+00, 1.27135026e+00],
                                           6 \times 10^{3}
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                           4 \times 10^{3}
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                           3 \times 10^{3}
10^{3}
                                                                    .18310004e+01, 6.$1752368e+04, 1.29299115e-03, 4.10875520e-08,
                                                                   2.5<del>6848297e+00, 1</del>.$5602884e+00, 1.27135026e+00],
                                           2 \times 10^{3}
                                                                   6.58303751e+02.1.62414495e+04, 1.29141537e+03, 1.16672650e+00, 5.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                    10^{-3}
                                                 10^{-5}
           10^{-4}
                            10^{-2}
                                     10^{-1}
                                                          10^{-4}
                                                         Full circult 1884 0 0 4:00 1, 6.31752368e+04, 1.29299115e-03, 4.10876398e-08,
      inducer -> S -| Output (GFP)
                                                                        <del>3482976+00, 1.2</del>5602884e+00, 1.27135026e+00],
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                           4 \times 10^{3}
                                                                   1.18310004e+01, 6.$1752368e+04, 1.29299115e-03, 4.10915337e-08,
                                                                     56848297e+00, 1.⊉5602884e+00, 1.27135026e+00],
10^{4}
                                                                   [6\56303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                           3 \times 10^3
                                                                   382152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                                                                  1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10823229e-08, 2.56848297e+00, 1.25602884e+00, 1.27135026e+00], [6.58303751e-02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00, 3.82152968e+03, 2.15985389e+05, 7.478386116e-02, 7.30411989e-01,
                                           2 \times 10^{3}
                                                                    <u>,,18310003e+01,,9</u>.31752368e+04, 1.29299115e-03, 4.10868392e-08,
10^{3}
                                                                   2_{0}56848297e+00<sub>1</sub>d-25602884e+00, 1.27135026e+00],
                                                          10^{-4}
   10^{-5}
                    10^{-3}
                            10^{-2}
                                                  10^{-5}
           10^{-4}
                                     10^{-1}
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
          Across all four plots:
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10880649e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
           RSS (converged)=0.047
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
           RSS (initial)=2.415
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10876868e-08,
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00],
            RSS (% reduction)=0.981
                                                                   [6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                  epsilon Initial guesses Converged
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10890932e-08,
                49.906648
                               608.397103 6.583038e+02
                                                                   2.56848297e+00, 1.25602884e+00, 1.27135026e+00]]), array([0.04744041, 0.04744041, 0.04744041, 0.04744041, 0.04744041,
               990.991790
                              15250.457700 1.624145e+04
                                                                  0.04744041, 0.04744041, 0.04744041, 0.04744041, 0.04744041,
               -376.643680
                               1668.059050 1.291415e+03
                                                                   0.04744041, 0.04744041, 0.04744041, 0.04744041, 0.04744041,
                -0.032207
                                1.198934 1.166726e+00
                                                                  0.047440411))
              3133.564986
                                687.964693 3.821530e+03
                                                                     fun: 0.04744040995846519
         B r 192487.778005
                                23497.611400 2.159854e+05
                                                                   message: 'Optimization terminated successfully.'
         Сr
                               0.062367 7.478386e-02
                0.012417
                                                                    nfev: 29639
                0.338681
                               0.391731 7.304120e-01
         Νr
                                                                     nit: 22660
               -578.775548
                                590.606548 1.183100e+01
         Αh
                                                                   status: 0
              27888.111124
                                35287.125700 6.317524e+04
         Βh
                                                                   success: True
         C h
                 0.000763
                                0.000530 1.292991e-03
                                                                      x: array([6.58303751e+02, 1.62414495e+04, 1.29141537e+03, 1.16672650e+00,
         Αо
                -0.829830
                                0.829830 4.108905e-08
                                                                   3.82152968e+03, 2.15985389e+05, 7.47838616e-02, 7.30411989e-01,
                -1.719687
                                4.288170 2.568483e+00
                                                                   1.18310004e+01, 6.31752368e+04, 1.29299115e-03, 4.10890514e-08,
         Со
                -1.877193
                                3.133222 1.256029e+00
                                                                  2.56848297e+00, 1.25602884e+00, 1.27135026e+00])
                -0.537668
                                1.809018 1.271350e+00
         N_0
```