```
final simplex: (array([[6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                         1.89095877e+03, 3.49296964e+04, 2.69540175e-02, 7.62132205e-01,
                                                                                                          6.54782349e+02, 2.82876920e+04, 3.89751154e-04, 2.69908514e-01,
                                                                                                         3.78038511e+00, 3.07254489e+00, 1.90752255e+00],
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                         1.89095877e+03, 3.49296963e+04, 2.69540176e-02, 7.62132203e-01,
                                                                                                          6.54782347e+02, 2.82876920e+04, 3.89751154e-04, 2.69908508e-01,
                                                                                                          3.78038511e+00, 3.07254490e+00, 1.90752255e+00],
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                          1.89095877e + 03, 3.49296964e + 04, 2.69540176e - 02, 7.62132203e - 01,
                                                                                                          6.54782345e+02, 2.82876921e+04, 3.89751154e-04, 2.69908505e-01,
                                                                                                          3.78038510e+00, 3.07254490e+00, 1.90752254e+00]
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                         1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132203e-01,
                                                                                                          6.54782349e+02, 2.82876920e+04, 3.89751154e-04, 2.69908512e-01,
                                                                                                          3.78038510e+00, 3.07254489e+00, 1.90752255e+00],
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                          1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                                                                                                          6.54782346e+02, 2.82876920e+04, 3.89751154e-04, 2.69908510e-01,
                                                                                                          3.78038510e+00, 3.07254489e+00, 1.90752255e+00],
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                         1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                ['SM data type data plots for mutation', 'Output 53] 6e+02, 2.8287692 1e+0 Initial Guess 1e-04, 2.69908510e-01, 1e-04 1e-04 Initial Guess 1e-04, 1e
        inducer -> sensor (GFP output)
                                                                                                          1.89095877e+03, 3.49296964<del>e+0</del>4Converged76e-02, 7.62132205e-01,
                                                                                                         6.54782348e+02, 2.8287692 e+ Converged
                                                                                                                                                                                   55e-04, 2.69908513e-01,
10^{4}
                                                                                                          3.78038510e+00, 3.\psi725448\sqrt{9}\ext{e}+0
                                                                                                                                                                                    5e+00],
                                                                                                                                                          Converged 35e+03, 1.18606000e+00,
                                                                    4 \times 10^{3}
                                                                                                         [6.72429368e+02, 1.630846637
                                                                                                          1.89095877e+03, 3.49296965e+04, 2.69540175e-02, 7.62132206e-01,
                                                                                                          6.54782347e+02, 2.$2876921e+04, 3.89751155e-04, 2.69908516e-01,
                                                                   3 \times 10^3
                                                                                                          3.78038509e+00, 3.07254489e+00, 1.90752255e+00],
                                                                                                              7<mark>2</mark>429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                          1.8<del>9095877e+03, 3.</del>49296964e+04, 2.69540176e-02, 7.62132204e-01, 6.54782348e+02, 2.82876920e+04, 3.89751154e-04, 2.69908512e-01,
10^{3}
                                                                    2 \times 10^{3}
                                                                                                          3.78038510e+00, 3.\pi7254489e+00, 1.90752255e+00],
                                                                                                          6.72429368e+02.1.63084663e+04, 1.28100735e+03, 1.18606000e+00, 1.89095897e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                  10^{-4}
                               10^{-3}
                                             10^{-2}
                                                          10^{-1}
                                                                              10^{-5}
                                                                                           10^{-4}
                                                                                          Full circuft 5/47/87 3/15/60-02, 2.82876921e+04, 3.89751154e-04, 2.69908506e-01,
          inducer -> S -| Output (GFP)
                                                                                                                 <del>038510e+00, 3.</del>07254490e+00, 1.90752254e+00],
                                                                                                      ●[6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                          1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                                                                    4 \times 10^{3}
                                                                                                          (6.54782346e+02, 2.$2876921e+04, 3.89751155e-04, 2.69908509e-01,
10^{4}
                                                                                                             78038510e+00, 3.\particle{7254489e+00, 1.90752255e+00],
                                                                                                         [6\2429368e+02, 1.$3084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                   3 \times 10^3
                                                                                                             89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132203e-01,
                                                                                                          6.54782347e+02, 2.$2876920e+04, 3.89751154e-04, 2.69908510e-01,
                                                                                                          3.78038510e+00, 3.$7254489e+00, 1.90752255e+00],
                                                                    2 \times 10^{3}
                                                                                                        [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18605999e+00, 1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                                                                                                          <u>6.54782350e+02, 2.</u>$2876920e+04, 3.89751154e-04, 2.69908515e-01,
10^{3}
                                                                                                          10^{-5}
                                10<sup>-3</sup>
                                             10^{-2}
                                                                              10^{-5}
                                                                                           10^{-4}
                   10^{-4}
                                                          10^{-1}
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                          1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                Across all four plots:
                                                                                                          6.54782346e+02, 2.82876921e+04, 3.89751155e-04, 2.69908508e-01,
                                                                                                          3.78038510e+00, 3.07254489e+00, 1.90752255e+00],
                   RSS (converged)=0.068
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                          1.89095877e+03, 3.49296963e+04, 2.69540176e-02, 7.62132203e-01,
                   RSS (initial)=0.222
                                                                                                          6.54782349e+02, 2.82876920e+04, 3.89751154e-04, 2.69908509e-01,
                                                                                                         3.78038511e+00, 3.07254489e+00, 1.90752255e+00],
                   RSS (% reduction)=0.764
                                                                                                         [6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                         1.89095877e+03, 3.49296964e+04, 2.69540176e-02, 7.62132204e-01,
                            epsilon Initial guesses Converged
                                                                                                          6.54782346e+02, 2.82876921e+04, 3.89751155e-04, 2.69908512e-01
                        64.032265
                                                608.397103 672.429368
                                                                                                         3.78038509e+00, 3.07254489e+00, 1.90752255e+00]), array([0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.0684
               B s 1058.008559
                                                15250.457700 16308.466259
                                                                                                        0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142,
               C s -387.051699
                                                1668.059050 1281.007351
                                                                                                         0.06847142, 0.06847142, 0.06847142, 0.06847142, 0.06847142,
                        -0.012874
                                                 1.198934 1.186060
                                                                                                        0.06847142]))
                                                 687.964693 1890.958769
               Ar 1202.994076
                                                                                                            fun: 0.06847141810010335
               B r 11432.085002
                                                23497.611400 34929.696402
                                                                                                         message: 'Optimization terminated successfully.'
                                                                    0.026954
               Cr
                        -0.035413
                                                 0.062367
                                                                                                           nfev: 12153
                         0.370401
                                                 0.391731
                                                                    0.762132
               Νr
                                                                                                            nit: 9214
                         64.175801
                                                 590.606548 654.782349
               Αh
                                                                                                          status: 0
                                                 35287.125700 28287.692035
               B h -6999.433665
                                                                                                         success: True
                         -0.000140
                                                 0.000530
                                                                     0.000390
               Сh
                                                                                                              x: array([6.72429368e+02, 1.63084663e+04, 1.28100735e+03, 1.18606000e+00,
                                                                                                        1.89095877e+03, 3.49296964e+04, 2.69540175e-02, 7.62132205e-01,
               Αо
                         -0.559921
                                                 0.829830
                                                                      0.269909
                         -0.507785
                                                 4.288170
                                                                      3.780385
                                                                                                        6.54782349e+02, 2.82876920e+04, 3.89751154e-04, 2.69908514e-01,
                         -0.060677
                                                 3.133222
                                                                      3.072545
                                                                                                        3.78038511e+00, 3.07254489e+00, 1.90752255e+00
                          0.098504
                                                 1.809018
                                                                      1.907523
               N_o
```