```
final simplex: (array([[1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388223e-01,
                                                                                                      2.31280746e+02, 1.12837151e+04, 4.67417729e-04, 1.17419444e+00,
                                                                                                      6.43987195e+00, 1.01085570e+00, 1.91051798e+00],
                                                                                                     [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388223e-01,
                                                                                                      2.31280746e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987195e+00, 1.01085570e+00, 1.91051798e+00],
                                                                                                      [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166609e+04, 3.18911354e-03, 7.70388222e-01,
                                                                                                      2.31280748e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987194e+00, 1.01085570e+00, 1.91051798e+00],
                                                                                                     [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388222e-01,
                                                                                                      2.31280746e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987195e+00, 1.01085570e+00, 1.91051798e+00],
                                                                                                      [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911354e-03, 7.70388222e-01,
                                                                                                       2.31280747e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987194e+00, 1.01085570e+00, 1.91051798e+00],
                                                                                                     [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911351e-03, 7.70388223e-01,
            ['SM data type data plots for mutation', 'Sensor 67] 5e+02, 1.12837150 = +04, Initial Guess 9e-04, 1.17419444e+00, cer -> sensor (GFP output) inducer -> 5[1] 636325984403, 6.9260832 set Converged 14e+03, 1.05125413e+00,
  inducer -> sensor (GFP output)
                                                                                                      1.05110225e+03, 2.7016661 Converged 53e-03, 7.70388222e-01,
                                                                                                     2.31280747e+02, 1.1283715 e+0 Converged 28e-04, 1.17419444e+00, 6.43987194e+00, 1.0108557 e+0 Converged 14e+03, 1.05125413e+00, [1.03632598e+03, 6.9260832 *** Converged 14e+03, 1.05125413e+00,
                                                                6 \times 10^{3}
                                                                                                      1.05110225e+03, 2.70166609e+04, 3.18911353e-03, 7.70388222e-01,
                                                                                                       ೩31280748e+02, 1.12837151e+04, 4.67417729e-04, 1.17419444e+00,
                                                                4 \times 10^{3}
                                                                                                      6.43987194e+00, 1.\psi1085570e+00, 1.91051798e+00],
                                                                                                      [1.036325<del>98e+03,</del> 6.$2608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                               3 \times 10^{3}
                                                                                                      1.05110225e+03, 2.70166609e+04, 3.18911354e-03, 7.70388222e-01,
                                                                                                         31280748e+02, 1.12837151e+04, 4.67417729e-04, 1.17419444e+00,
                                                                                                      6.43987194e+00, 1.\psi 1085570e+00, 1.91051798e+00],
                                                                                                       \frac{1.03632598e+03.6.9}{1.05110225e+03}, \frac{1.56281714e+03}{1.05125413e+00}, \frac{1.05125413e+00}{1.05110225e+03}, \frac{1.92608323e+03}{1.05110225e+03}, \frac{1.92608323e+03}{1.0511025e+03}, \frac{1.92608323e+03}{1.0511025e+03}
                           10^{-3}
10^{-5}
             10^{-4}
                                        10^{-2}
                                                      10^{-1}
                                                                          10^{-5}
                                                                                        10^{-4}
                                                                                      Full circuit 31/2890 347 in te 02, 1.12837151e+04, 4.67417729e-04, 1.17419444e+00,
     inducer -> S -| Output (GFP)
                                                                                                          <del>43987194e+00, 1.</del>01085570e+00, 1.91051798e+00],
                                                               6 \times 10^{3}
                                                                                                     [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911354e-03, 7.70388222e-01,
                                                                                                       2.31280747e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987195e+00, 1.$\psi$1085570e+00, 1.91051798e+00],
                                                               4 \times 10^{3}
                                                                                                      1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00, 1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388222e-01,
                                                                                                       2\31280747e+02, 1.\daggeq2837151e+04, 4.67417729e-04, 1.17419444e+00,
                                                               3 \times 10^{3}
                                                                                                     6.43987194e+00, 1.01085570e+00, 1.91051798e+00], [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05119225e+03, 2.70166610e+04, 3.18911354e-03, 7.70388223e-01,
                                                                                                       <del>2.,312807<u>4</u>5e+02,..1</del>.12837150e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6043987195e+0016-01085570e+00, 1.91051798e+00],
                                        10^{-2}
10^{-5}
                           10^{-3}
                                                      10^{-1}
                                                                          10^{-5}
                                                                                        10^{-4}
             10^{-4}
                                                                                                      [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388222e-01,
          Across all four plots:
                                                                                                      2.31280747e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987194e+00, 1.01085570e+00, 1.91051798e+00],
             RSS (converged)=0.022
                                                                                                      [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911354e-03, 7.70388222e-01,
             RSS (initial)=1.623
                                                                                                      2.31280746e+02, 1.12837151e+04, 4.67417728e-04, 1.17419444e+00,
                                                                                                      6.43987195e+00, 1.01085570e+00, 1.91051798e+00],
              RSS (% reduction)=0.987
                                                                                                     [1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
                                                                                                      1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388223e-01,
                       epsilon Initial guesses Converged
                                                                                                      2.31280746e+02, 1.12837150e+04, 4.67417729e-04, 1.17419444e+00,
         A s 427.928877
                                            608.397103 1036.325980
                                                                                                      6.43987195e+00, 1.01085570e+00, 1.91051798e+00]), array([0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.02179850, 0.0217985, 0.0217985, 0.0217985, 0.0217985, 0.0217985
         B s -8324.374468
                                            15250.457700 6926.083232
                                                                                                     C s -105.241909
                                            1668.059050 1562.817141
                                                                                                      0.02179855, 0.02179855, 0.02179855, 0.02179855, 0.02179855,
                   -0.147679
                                            1.198934
                                                              1.051254
                                                                                                     0.02179855]))
                                            687.964693 1051.102247
                  363.137554
                                                                                                         fun: 0.021798546005671493
         Br 3519.049602
                                           23497.611400 27016.661002
                                                                                                      message: 'Optimization terminated successfully.'
                                                                0.003189
                   -0.059178
                                            0.062367
         Сr
                                                                                                        nfev: 13494
                    0.378657
                                            0.391731
                                                                0.770388
         Νr
                                                                                                         nit: 10138
         A h -359.325802
                                             590.606548 231.280746
                                                                                                      status: 0
                                            35287.125700 11283.715060
         B h -24003.410640
                                                                                                      success: True
                    -0.000062
                                             0.000530
                                                                 0.000467
         Сh
                                                                                                           x: array([1.03632598e+03, 6.92608323e+03, 1.56281714e+03, 1.05125413e+00,
         Αо
                     0.344365
                                            0.829830
                                                                 1.174194
                                                                                                     1.05110225e+03, 2.70166610e+04, 3.18911353e-03, 7.70388223e-01,
                     2.151702
                                            4.288170
                                                                  6.439872
                                                                                                     2.31280746e+02, 1.12837151e+04, 4.67417729e-04, 1.17419444e+00,
         Со
                    -2.122366
                                             3.133222
                                                                 1.010856
                                                                                                     6.43987195e+00, 1.01085570e+00, 1.91051798e+00])
                     0.101499
                                            1.809018
                                                                 1.910518
         N_0
```

 10^{4}

 10^{3}

 10^{4}