```
final simplex: (array([[6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080970e+03, 2.69209683e-03, 1.10247260e+00,
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061362e-01,
                                                                                           3.20831985e+00, 2.67573398e+00, 1.47210327e+00],
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080968e+03, 2.69209682e-03, 1.10247260e+00,
                                                                                           5.12679665e+02, 5.76971042e+04, 1.24452672e-03, 4.65061360e-01,
                                                                                           3.20831985e+00, 2.67573398e+00, 1.47210327e+00],
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080970e+03, 2.69209683e-03, 1.10247260e+00,
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061361e-01,
                                                                                           3.20831986e+00, 2.67573398e+00, 1.47210327e+00],
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080969e+03, 2.69209682e-03, 1.10247260e+00,
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061361e-01,
                                                                                           3.20831986e+00, 2.67573398e+00, 1.47210327e+00],
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080969e+03, 2.69209682e-03, 1.10247260e+00,
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061360e-01,
                                                                                           3.20831986e+00, 2.67573398e+00, 1.47210327e+00]
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080969e+03, 2.69209682e-03, 1.10247260e+00,
              ['SM data type data plots for mutation', 'Output 64 fe+02, 5.7697104] \frac{1}{2} Initial Guess 72e-03, 4.65061361e-01, cer -> sensor (GFP output) inducer -> \frac{3.20831986e+00}{16159194458e+02}, \frac{1}{2} 1.6296651 set Converged 1e+03, 1.16592565e+00,
      inducer -> sensor (GFP output)
                                                                                           2.10067414e+03, 9.7708097 e+03 Converged 83e-03, 1.10247260e+00,
                                                                                           5.12679666e+02, 5.7697104 <u>e+04</u>Converged 72e-03, 4.65061361e-01, 3.20831986e+00, 2.6757339 <u>e+00</u> Converged 72e+00],
10^{4}
                                                                                          [6.59114458e+02, 1.6296651 e+0 Converged 5 le+03, 1.16592565e+00,
                                                          4 \times 10^{3}
                                                                                           2.10067414e+03, 9.77080969e+03, 2.69209682e-03, 1.10247260e+00,
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061360e-01,
                                                          3 \times 10^3
                                                                                           3.20831986e+00, 2.$7573398e+00, 1.47210327e+00],
                                                                                               5<mark>811</mark>4458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                            2.1<del>0067414e+03, 9.</del>77080969e+03, 2.69209682e-03, 1.10247260e+00, 5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061361e-01,
10^{3}
                                                          2 \times 10^{3}
                                                                                           3.20831985e+06, 2.$7573398e+00, 1.47210327e+00],
                                                                                           <del>6.5911445<u>8</u>e+02.1.</del>62966518e+04, 1.27810551e+03, 1.16592565e+00,
<del>2</del>.10067<del>4</del>14e+03, 9.77080970e+03, 2.69209683e-03, 1.10247260e+00,
                10^{-4}
                           10^{-3}
                                       10^{-2}
                                                  10^{-1}
                                                                    10^{-5}
                                                                               10^{-4}
                                                                             inducer -> S -| Output (GFP)
                                                                                                <del>0831986é+00, 2.</del>67573398e+00, 1.47210327e+00],
                                                                                          [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                          4 \times 10^3
                                                                                           2.10067414e+03, 9.7080969e+03, 2.69209682e-03, 1.10247260e+00,
                                                                                            §.12679666e+02, 5.†6971041e+04, 1.24452672e-03, 4.65061361e-01,
                                                                                              Q0831986e+00, 2.₲7573398e+00, 1.47210327e+00],
10^{4}
                                                          3 \times 10^{3}
                                                                                           $\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2
                                                                                           2.\10067414e+03, 9.\77080969e+03, 2.69209682e-03, 1.10247260e+00,
                                                                                          5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061360e-01, 3.20831986e+00, 2.67573398e+00, 1.47210327e+00], [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                          2 \times 10^{3}
                                                                                           2.100674<del>14e+03, 9.</del>77080970e+03, 2.69209682e-03, 1.10247260e+00, 5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061361e-01,
10^{3}
                                                                                           3<sub>0</sub>20831985e+00<sub>1</sub>2-67573398e+00, 1.47210327e+00],
    10^{-5}
                           10^{-3}
                                       10^{-2}
                                                                    10^{-5}
                                                                               10^{-4}
                10^{-4}
                                                  10^{-1}
                                                                                           [6̃.591144̃58e+02, ̃1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080969e+03, 2.69209682e-03, 1.10247260e+00,
             Across all four plots:
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061361e-01,
                                                                                           3.20831985e+00, 2.67573398e+00, 1.47210327e+00],
                RSS (converged)=0.057
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080970e+03, 2.69209683e-03, 1.10247260e+00,
                RSS (initial) = 0.3
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061361e-01,
                                                                                           3.20831985e+00, 2.67573398e+00, 1.47210327e+00],
                RSS (% reduction)=0.839
                                                                                           [6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                                                                                           2.10067414e+03, 9.77080968e+03, 2.69209682e-03, 1.10247260e+00,
                        epsilon Initial guesses Converged
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061359e-01,
                     50.717355
                                         608.397103 659.114458
                                                                                           B_s 1046.194066
                                         15250.457700 16296.651766
                                                                                          0.05746565, 0.05746565, 0.05746565, 0.05746565, 0.05746565,
             C s -389.953539
                                         1668.059050 1278.105511
                                                                                           0.05746565, 0.05746565, 0.05746565, 0.05746565, 0.05746565,
                     -0.033008
                                          1.198934 1.165926
                                                                                          0.05746565]))
             Ar 1412.709451
                                          687.964693 2100.674144
                                                                                             fun: 0.05746565010719436
             B r -13726.801696
                                          23497.611400 9770.809704
                                                                                          message: 'Optimization terminated successfully.'
                     -0.059675
                                          0.062367
                                                           0.002692
             Сr
                                                                                             nfev: 32248
                     0.710742
                                          0.391731
                                                           1.102473
             Νr
                                                                                             nit: 24705
                    -77.926882
                                          590.606548 512.679666
             Αh
                                                                                           status: 0
             B h 22409.978387
                                          35287.125700 57697.104087
                                                                                           success: True
                      0.000715
                                          0.000530
                                                            0.001245
             Сh
                                                                                               x: array([6.59114458e+02, 1.62966518e+04, 1.27810551e+03, 1.16592565e+00,
                     -0.364768
                                          0.829830
                                                            0.465061
                                                                                           2.10067414e+03, 9.77080970e+03, 2.69209683e-03, 1.10247260e+00,
                     -1.079850
                                          4.288170
                                                            3.208320
                                                                                           5.12679666e+02, 5.76971041e+04, 1.24452672e-03, 4.65061362e-01,
                     -0.457488
                                          3.133222
                                                            2.675734
                                                                                          3.20831985e+00, 2.67573398e+00, 1.47210327e+00])
                     -0.336915
                                          1.809018
                                                            1.472103
             N_o
```