```
final simplex: (array([[9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639015e+02, 4.58882559e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509041e+03, 4.71201365e+04, 2.22345824e-03, 1.99974711e-01,
                                                                               8.37328604e+00, 2.84075055e+00, 1.91689058e+00],
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639016e+02, 4.58882560e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509041e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.37328603e+00, 2.84075054e+00, 1.91689058e+00],
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639015e+02, 4.58882560e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509042e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.37328604e+00, 2.84075054e+00, 1.91689058e+00],
                                                                              [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639015e+02, 4.58882560e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509042e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.37328604e+00, 2.84075053e+00, 1.91689058e+00],
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639015e+02, 4.58882561e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509042e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.37328604e+00, 2.84075053e+00, 1.91689058e+00],
                                                                              [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639015e+02, 4.58882558e+03, 1.16628668e-03, 1.52097902e+00,
         ['SM data type data plots for mutation', 'Sensor 10] 1e+03, 4.7120136 1e+04 Initial Guess 3e-03, 1.99974711e-01, 8.37328603e+00, 2.8407505 1.99974711e-01, 1
 inducer -> sensor (GFP output)
                                                                               1.33639015e+02, 4.$8882557e+03Converged 68e-03, 1.52097902e+00,
                                                                              1.33639015e+02, 4.$8882558e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509041e+03, 4.71201365e+04, 2.22345823e-03, 1.99974711e-01,
                                                     10^{3}
                                                                               8.37328603e+00, 2.$4075055e+00, 1.91689058e+00],
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639016e+02, 4.$8882562e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509042e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.3732<del>8604e+00, 2</del>.$4075053e+00, 1.91689058e+00],
                                                                               9.18964340e+02.1.11523382e+04, 1.49512859e+03, 1.03528264e+00, 1.03528264e+00, 1.03528264e+03, 1.16628668e-03, 1.52097902e+00,
          10^{-4}
                     10^{-3}
                               10^{-2}
                                          10^{-1}
                                                          10^{-5}
                                                                    10^{-4}
                                                                  Full circu% Ղարաբանի 24 ինթե03, 4.71201364e+04, 2.22345823e-03, 1.99974711e-01,
    inducer -> S -| Output (GFP)
                                                                                      <del>šŽ8603E+00, 2.</del>84075055e+00, 1.91689058e+00],
                                                 6 \times 10^{3}
                                                                              [9.18964340e+02, 1.1523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639016e+02, 4.$8882560e+03, 1.16628668e-03, 1.52097902e+00,
                                                                               8.70509041e+03, 4.71201365e+04, 2.22345823e-03, 1.99974710e-01,
                                                                               .8.37328603e+00, 2.84075054e+00, 1.91689057e+00],
                                                 4 \times 10^{3}
                                                                               9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                                  33639016e+02, 4.$8882557e+03, 1.16628668e-03, 1.52097902e+00,
                                                                                  0509040e+03, 4.71201364e+04, 2.22345823e-03, 1.99974711e-01,
                                                 3 \times 10^{3}
                                                                              8.3\328603e+00, 2.84075056e+00, 1.91689058e+00],
[9.18\64340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
1.3363\9015e+00, 4.58882559e+03, 1.16628668e-03, 1.52097902e+00,
8.7050\9042e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               <u></u>გ<sub>0</sub>373286ე4e+00<sub>1</sub> გ-84075054e+00, 1.91689058e+00],
                               10^{-2}
10^{-5}
                     10<sup>-3</sup>
                                         10^{-1}
                                                          10^{-5}
                                                                    10^{-4}
          10^{-4}
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639016e+02, 4.58882560e+03, 1.16628668e-03, 1.52097902e+00,
        Across all four plots:
                                                                               8.70509041e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.37328603e+00, 2.84075054e+00, 1.91689058e+00],
          RSS (converged)=0.017
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639015e+02, 4.58882564e+03, 1.16628668e-03, 1.52097902e+00,
          RSS (initial)=0.328
                                                                               8.70509044e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
                                                                               8.37328604e+00, 2.84075051e+00, 1.91689058e+00],
          RSS (% reduction)=0.952
                                                                               [9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
                                                                               1.33639017e+02, 4.58882564e+03, 1.16628668e-03, 1.52097902e+00,
                  epsilon Initial guesses Converged
                                                                               8.70509043e+03, 4.71201365e+04, 2.22345824e-03, 1.99974710e-01,
       A s 310.567237
                                  608.397103 918.964340
                                                                               B s -4098.119540
                                  15250.457700 11152.338160
                                                                              0.01660947, 0.01660947, 0.01660947, 0.01660947, 0.01660947,
       C s -172.930457
                                  1668.059050 1495.128593
                                                                               0.01660947, 0.01660947, 0.01660947, 0.01660947, 0.01660947,
               -0.163651
                                  1.198934 1.035283
                                                                              0.016609471))
       A r -554.325678
                                  687.964693 133.639015
                                                                                 fun: 0.016609473686805185
                                  23497.611400 4588.825586
       Br-18908.785814
                                                                               message: 'Optimization terminated successfully.'
              -0.061201
                                  0.062367
                                                  0.001166
       Сr
                                                                                nfev: 17144
                                  0.391731
       Νr
               1.129248
                                                 1.520979
                                                                                 nit: 12913
                                   590.606548 8705.090412
       A h 8114.483864
                                                                               status: 0
                                  35287.125700 47120.136455
       B h 11833.010755
                                                                               success: True
       C h
                0.001694
                                   0.000530
                                                  0.002223
                                                                                   x: array([9.18964340e+02, 1.11523382e+04, 1.49512859e+03, 1.03528264e+00,
       Αо
               -0.629855
                                   0.829830
                                                   0.199975
                                                                              1.33639015e+02, 4.58882559e+03, 1.16628668e-03, 1.52097902e+00,
                4.085116
                                  4.288170
                                                   8.373286
                                                                              8.70509041e+03, 4.71201365e+04, 2.22345824e-03, 1.99974711e-01,
       Со
               -0.292471
                                   3.133222
                                                   2.840751
                                                                              8.37328604e+00, 2.84075055e+00, 1.91689058e+00])
                0.107872
                                   1.809018
                                                   1.916891
       N_o
```

 10^{4}

 10^{3}

 10^{4}