```
1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329361e+02, 4.47773043e+04, 8.60497444e-04, 2.00410301e+00,
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                     [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329360e+02, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00,
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329359e+02, 4.47773044e+04, 8.60497446e-04, 2.00410300e+00,
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                     [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329361e+02, 4.47773043e+04, 8.60497444e-04, 2.00410300e+00,
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                     [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329359e+02, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00,
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329361e+02, 4.47773044e+04, 8.60497445e-04, 2.00410301e+00,
                                                                                                      2.79853434e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
            ['SM data type data plots for mutation', 'Output 163 de+02, 4.4777304 \underline{b} Initial Guess' -04, 2.00410300e+00, cer -> sensor (GFP output) inducer -> S_{[6]} \underline{b} 
  inducer -> sensor (GFP output)
                                                                                                      5.89329360e+02, 4.47773044e+04Converged 46e-04, 2.00410300e+00,
                                                                                                     2.79853436e-01, 1.78477435e+00, 2.744502e+00, 1.63127074e+00], [6.18047086e+02, 1.62788566e+0 Converged 79e+03, 1.09654125e+00,
                                                                4 \times 10^{3}
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329360e+02, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00, 2.79853435e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                3 \times 10^{3}
                                                                                                      16.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01, 5.89329360e+02, 4.47773043e+04, 8.60497446e-04, 2.00410300e+00,
                                                                2 \times 10^{3}
                                                                                                       2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6:18047086e+02:1.62788566e+04, 1.30065379e+03, 1.09654125e+00, 1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                          10<sup>-5</sup>
                                        10-2
             10^{-4}
                           10-3
                                                      10^{-1}
                                                                                        10^{-4}
                                                                                      Full circunt & 12936 Per 602, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00,
     inducer -> S -| Output (GFP)
                                                                                                               <del>งรี34ั376-01, 1.7</del>8477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                4 \times 10^{3}
                                                                                                       1.91617561e+03, 1.$8742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                       %.89329360e+02, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00,
                                                                                                         √9853437e-01, 1.7β477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                3 \times 10^{3}
                                                                                                       38047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329361e+02.4.47773043e+04.8.60497445e-04.2.00410300e+00.
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                2 \times 10^{3}
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01, 5.89329360e+02, 4.47773043e+04, 8.60497446e-04, 2.00410300e+00,
                                                                                                      20^{79}853435e-01, 10^{78}477435e+00, 2.73440502e+00, 1.63127074e+00], [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                         10^{-2}
10^{-5}
             10^{-4}
                           10<sup>-3</sup>
                                                      10^{-1}
                                                                           10^{-5}
                                                                                        10^{-4}
           Across all four plots:
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329359e+02, 4.47773044e+04, 8.60497446e-04, 2.00410300e+00,
             RSS (converged)=0.063
                                                                                                      2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
             RSS (initial)=0.298
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                                                                                      5.89329360e+02, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00,
             RSS (% reduction)=0.825
                                                                                                      2.79853435e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00],
                                                                                                      [6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                        epsilon Initial_guesses
                                                                Converged
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                                          618.047086 618.047086
                     0.000000
                                                                                                      5.89329360e+02, 4.47773043e+04, 8.60497445e-04, 2.00410300e+00
          Вs
                     0.000000
                                         16278.856600 16278.856600
                                                                                                      0.000000
                                         1300.653790 1300.653790
                                                                                                     0.06313553, 0.06313553, 0.06313553, 0.06313553,
                     0.000000
                                            1.096541
          N_s
                                                                 1.096541
                                                                                                     0.06313553, 0.06313553, 0.06313553, 0.06313553,
                    0.000000
                                         1916.175610 1916.175610
                                                                                                     0.06313553, 0.06313553]))
                                        18874.240800 18874.240800
                    0.000000
                                                                                                         fun: 0.06313552754175704
                    0.000000
                                            0.009030
                                                                 0.009030
                                                                                                      message: 'Optimization terminated successfully.'
                                                                 0.820433
          Νr
                    0.000000
                                             0.820433
                                                                                                         nfev: 2147
                                            683.835638 589.329361
                   -94.506277
                                                                                                         nit: 1458
                                             32464.380200 44777.304300
                12312.924100
          Βh
                                                                                                      status: 0
                     0.000387
                                             0.000473
                                                                 0.000860
          C h
                                                                                                     success: True
                    -0.817249
                                             2.821352
                                                                 2.004103
          Fο
                                                                                                            x: array([6.18047086e+02, 1.62788566e+04, 1.30065379e+03, 1.09654125e+00,
                                                                 0.279853
                    -0.352295
                                             0.632148
                                                                                                      1.91617561e+03, 1.88742408e+04, 9.03017988e-03, 8.20433340e-01,
                     0.812006
                                             0.972768
                                                                 1.784774
                                                                                                     5.89329361e+02, 4.47773043e+04, 8.60497444e-04, 2.00410301e+00,
          Во
                                             2.640174
                                                                  2.734405
                                                                                                     2.79853436e-01, 1.78477435e+00, 2.73440502e+00, 1.63127074e+00])
          C o
                     0.094231
```

 10^{4}

 10^{3}

 10^{4}

 10^{3}

-0.288068

1.919339

1.631271