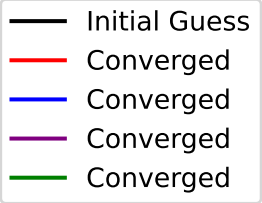
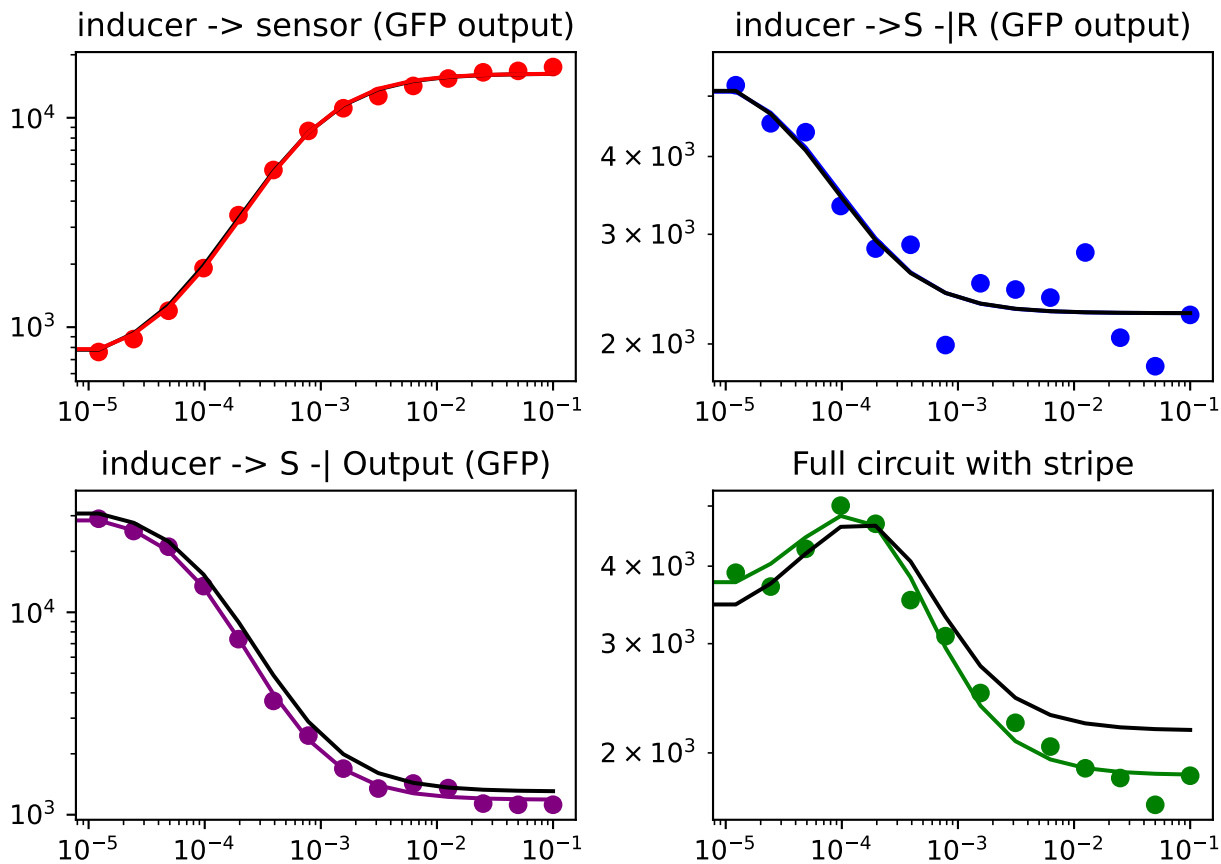


['SM data type data plots for mutation', 'Output1', 'using model:', 'model']



time elapsed for this fit  
--- 12.317525625228882 seconds ---

Across all four plots:

RSS (converged)=0.056

RSS (initial)=0.152

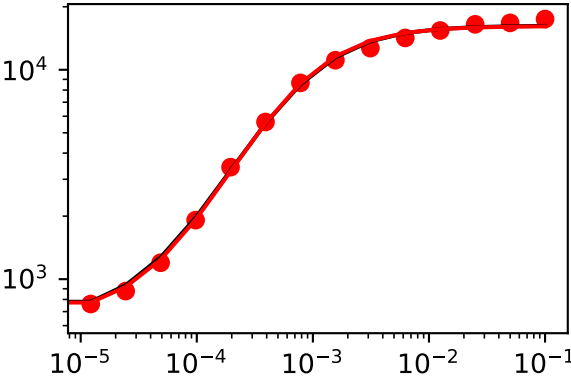
RSS (% reduction)=0.732

	epsilon	Initial_guesses	Converged
A_s	22.022965	650.714912	672.737877
B_s	7.504290	16259.979950	16267.484240
C_s	-5.819438	1296.448889	1290.629450
N_s	0.031977	1.154067	1.186044
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	246.923708	143.802212	390.725920
B_h	1923.504529	50238.271408	52161.775937
C_h	0.000216	0.000929	0.001145
A_o	-0.316898	1.673894	1.356996
B_o	1.245829	0.895342	2.141171
C_o	-0.702571	2.657699	1.955127
N_o	0.045365	1.379953	1.425318
F_o	-1.306895	2.361284	1.054389

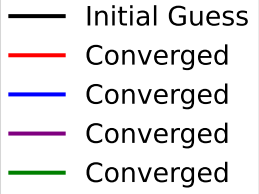
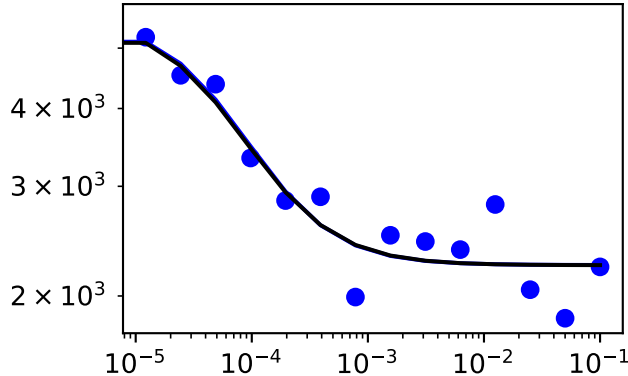
message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.05567006626750709  
x: [ 6.727e+02 1.627e+04 ... 1.425e+00 1.054e+00]  
nit: 4382  
nfev: 5971  
final\_simplex: (array([[ 6.727e+02, 1.627e+04, ..., 1.425e+00, 1.054e+00],  
[ 6.727e+02, 1.627e+04, ..., 1.425e+00, 1.054e+00],  
...,  
[ 6.727e+02, 1.627e+04, ..., 1.425e+00, 1.054e+00],  
[ 6.727e+02, 1.627e+04, ..., 1.425e+00, 1.054e+00]]), array([ 5.567e-02, 5.567e-02, ..., 5.567e-02, 5.567e-02]))

['SM data type data plots for mutation', 'Output10', 'using model:', 'model']

inducer -> sensor (GFP output)

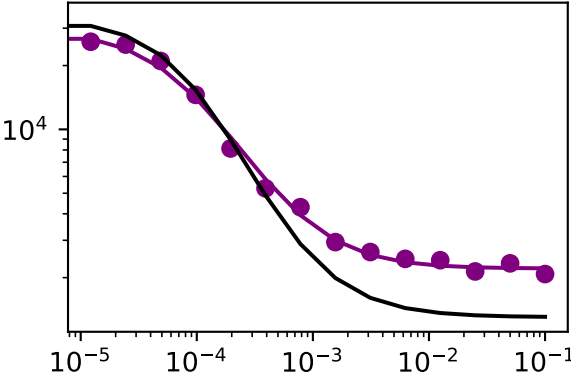


inducer ->S -|R (GFP output)

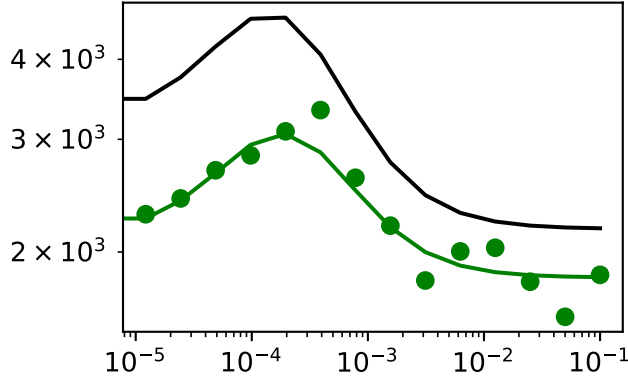


time elapsed for this fit  
--- 9.640436887741089 seconds ---

inducer -> S -| Output (GFP)



Full circuit with stripe



Across all four plots:

RSS (converged)=0.063

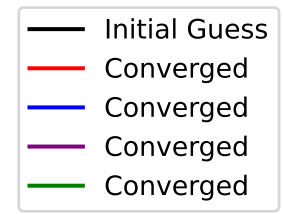
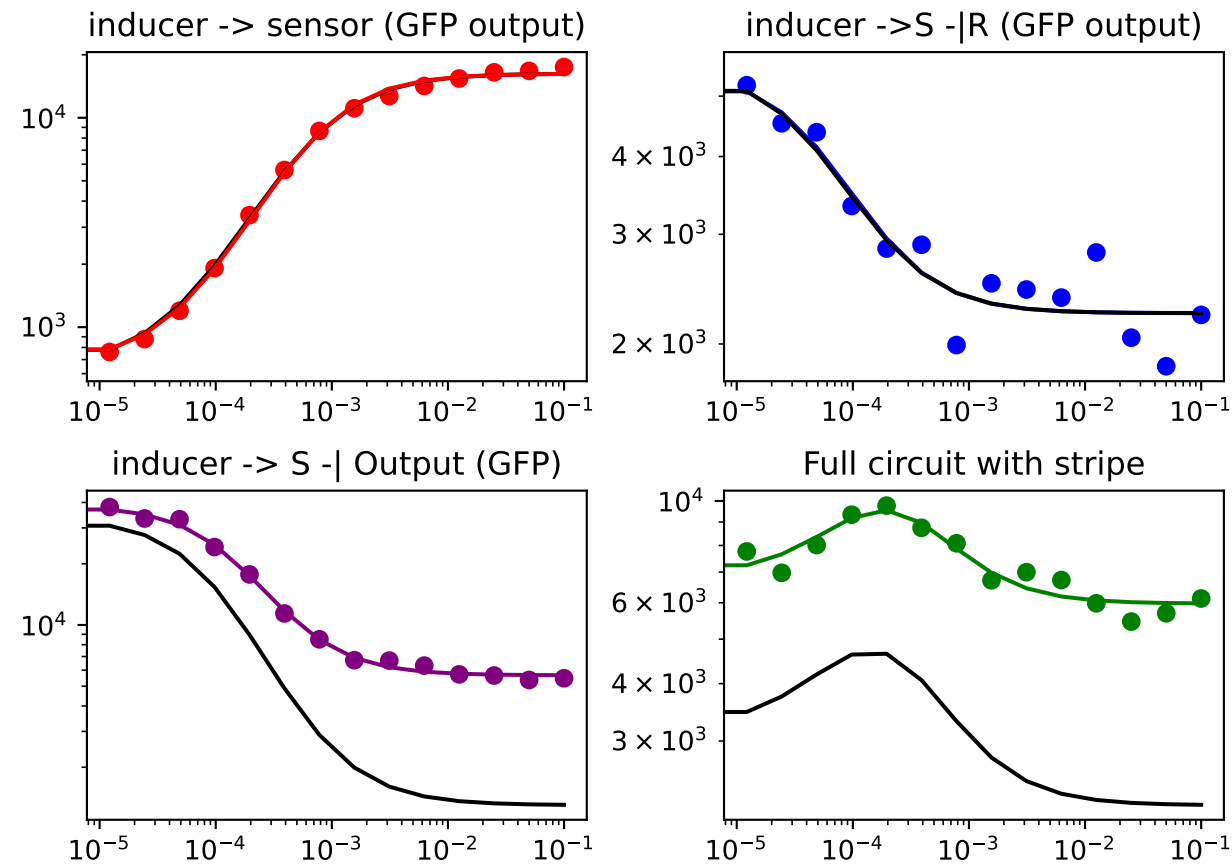
RSS (initial)=0.735

RSS (% reduction)=0.921

	epsilon	Initial_guesses	Converged
A_s	7.018094	650.714912	6.577330e+02
B_s	-97.967161	16259.979950	1.616201e+04
C_s	40.262563	1296.448889	1.336711e+03
N_s	0.034405	1.154067	1.188472e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	-143.802212	143.802212	3.457881e-12
B_h	24106.454139	50238.271408	7.434473e+04
C_h	0.001434	0.000929	2.363492e-03
A_o	1.473082	1.673894	3.146977e+00
B_o	0.718893	0.895342	1.614234e+00
C_o	0.972755	2.657699	3.630453e+00
N_o	-0.422741	1.379953	9.572119e-01
F_o	-1.612058	2.361284	7.492255e-01

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.06294499394528036  
x: [ 6.577e+02 1.616e+04 ... 9.572e-01 7.492e-01]  
nit: 3385  
nfev: 4557  
final\_simplex: (array([[ 6.577e+02, 1.616e+04, ..., 9.572e-01, 7.492e-01],  
[ 6.577e+02, 1.616e+04, ..., 9.572e-01, 7.492e-01],  
...,  
[ 6.577e+02, 1.616e+04, ..., 9.572e-01, 7.492e-01],  
[ 6.577e+02, 1.616e+04, ..., 9.572e-01, 7.492e-01]]), array([ 6.294e-02, 6.294e-02, ..., 6.294e-02, 6.294e-02]))

['SM data type data plots for mutation', 'Output2', 'using model:', 'model']



time elapsed for this fit  
--- 49.16168665885925 seconds ---

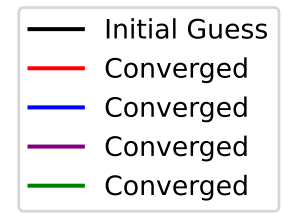
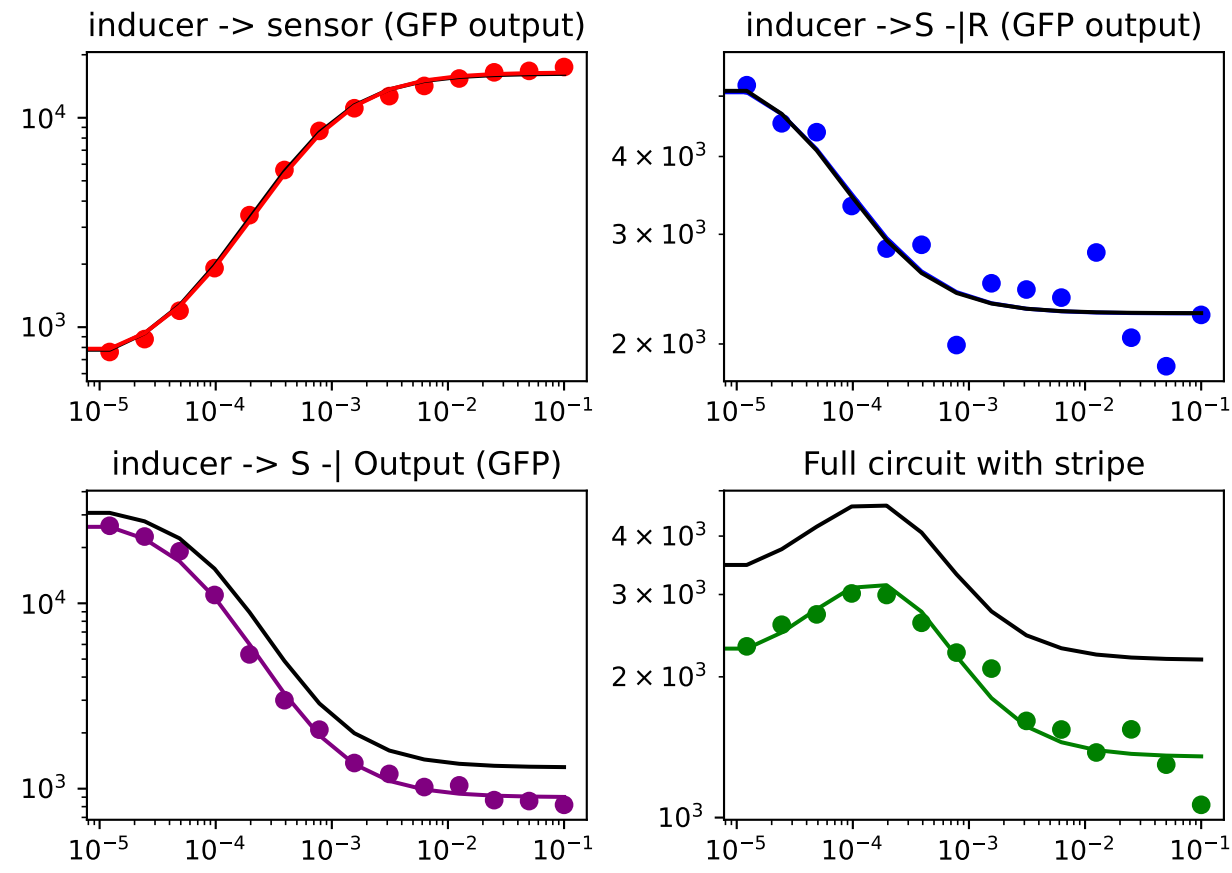
Across all four plots:

RSS (converged)=0.051  
RSS (initial)=5.327  
RSS (% reduction)=0.991

	epsilon	Initial_guesses	Converged
A_s	20.879424	650.714912	671.594336
B_s	-20.247126	16259.979950	16239.732824
C_s	7.373916	1296.448889	1303.822805
N_s	0.036723	1.154067	1.190790
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	3055.329293	143.802212	3199.131505
B_h	-4434.132640	50238.271408	45804.138768
C_h	-0.000355	0.000929	0.000574
A_o	-1.191400	1.673894	0.482494
B_o	0.639275	0.895342	1.534617
C_o	0.917751	2.657699	3.575450
N_o	-0.094522	1.379953	1.285431
F_o	-0.807871	2.361284	1.553412

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.05091438704560596  
x: [ 6.716e+02 1.624e+04 ... 1.285e+00 1.553e+00]  
nit: 17984  
nfev: 23526  
final\_simplex: (array([[ 6.716e+02, 1.624e+04, ..., 1.285e+00, 1.553e+00],  
[ 6.716e+02, 1.624e+04, ..., 1.285e+00, 1.553e+00],  
...,  
[ 6.716e+02, 1.624e+04, ..., 1.285e+00, 1.553e+00],  
[ 6.716e+02, 1.624e+04, ..., 1.285e+00, 1.553e+00]]), array([ 5.091e-02, 5.091e-02, ..., 5.091e-02, 5.091e-02]))

['SM data type data plots for mutation', 'Output3', 'using model:', 'model']



time elapsed for this fit  
--- 18.357605934143066 seconds ---

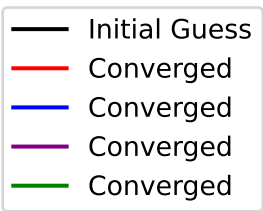
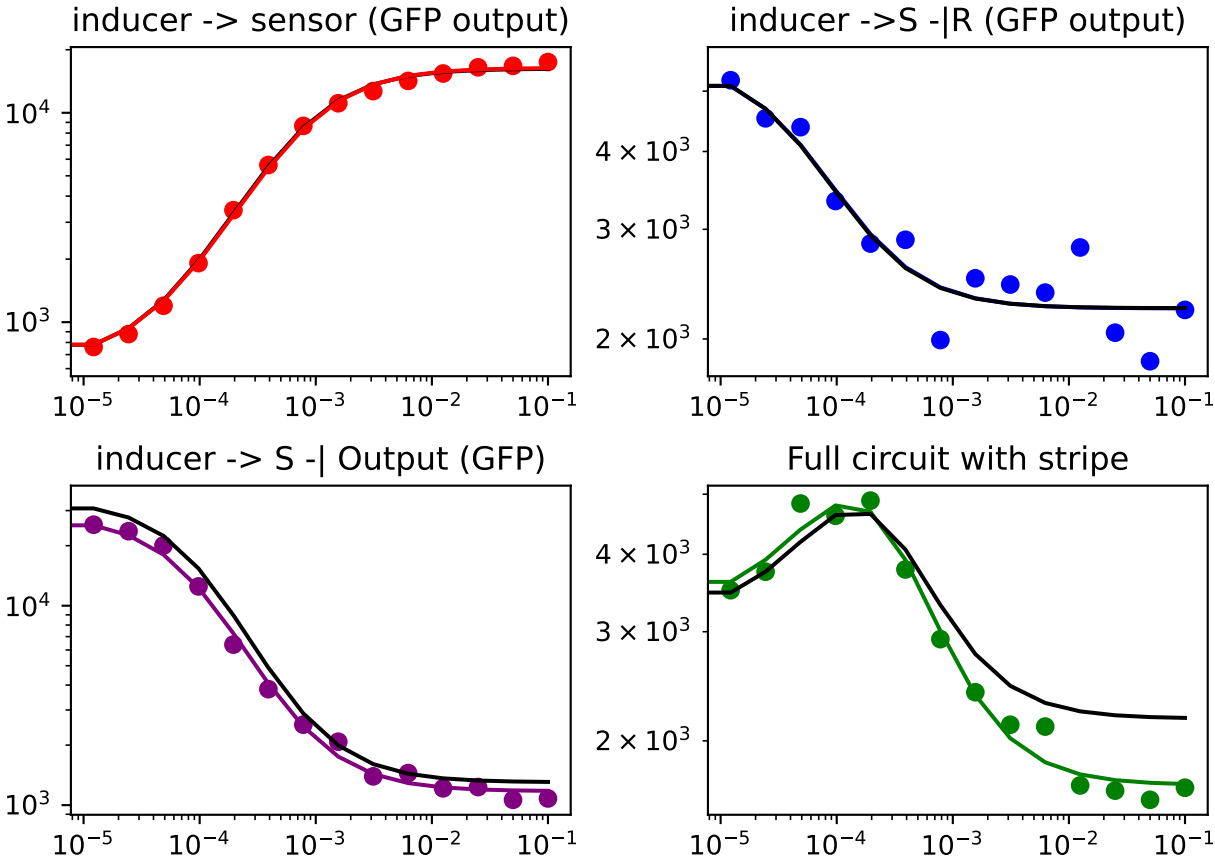
Across all four plots:

RSS (converged)=0.075  
RSS (initial)=0.937  
RSS (% reduction)=0.926

	epsilon	Initial_guesses	Converged
A_s	13.645011	650.714912	664.359923
B_s	221.550307	16259.979950	16481.530257
C_s	-83.516940	1296.448889	1212.931949
N_s	-0.005793	1.154067	1.148274
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	18.336828	143.802212	162.139041
B_h	21314.905583	50238.271408	71553.176992
C_h	0.001043	0.000929	0.001973
A_o	-1.228969	1.673894	0.444925
B_o	0.343934	0.895342	1.239276
C_o	0.018406	2.657699	2.676105
N_o	-0.068533	1.379953	1.311419
F_o	-0.385995	2.361284	1.975289

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.07523982015554483  
x: [ 6.644e+02 1.648e+04 ... 1.311e+00 1.975e+00]  
nit: 6637  
nfev: 8869  
final\_simplex: (array([[ 6.644e+02, 1.648e+04, ..., 1.311e+00, 1.975e+00],  
[ 6.644e+02, 1.648e+04, ..., 1.311e+00, 1.975e+00],  
...,  
[ 6.644e+02, 1.648e+04, ..., 1.311e+00, 1.975e+00],  
[ 6.644e+02, 1.648e+04, ..., 1.311e+00, 1.975e+00],  
[ 6.644e+02, 1.648e+04, ..., 1.311e+00, 1.975e+00]]), array([ 7.524e-02, 7.524e-02, ..., 7.524e-02, 7.524e-02]))

['SM data type data plots for mutation', 'Output4', 'using model:', 'model']



time elapsed for this fit  
--- 272.03189158439636 seconds ---

Across all four plots:

RSS (converged)=0.067

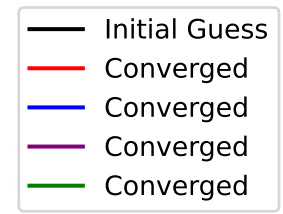
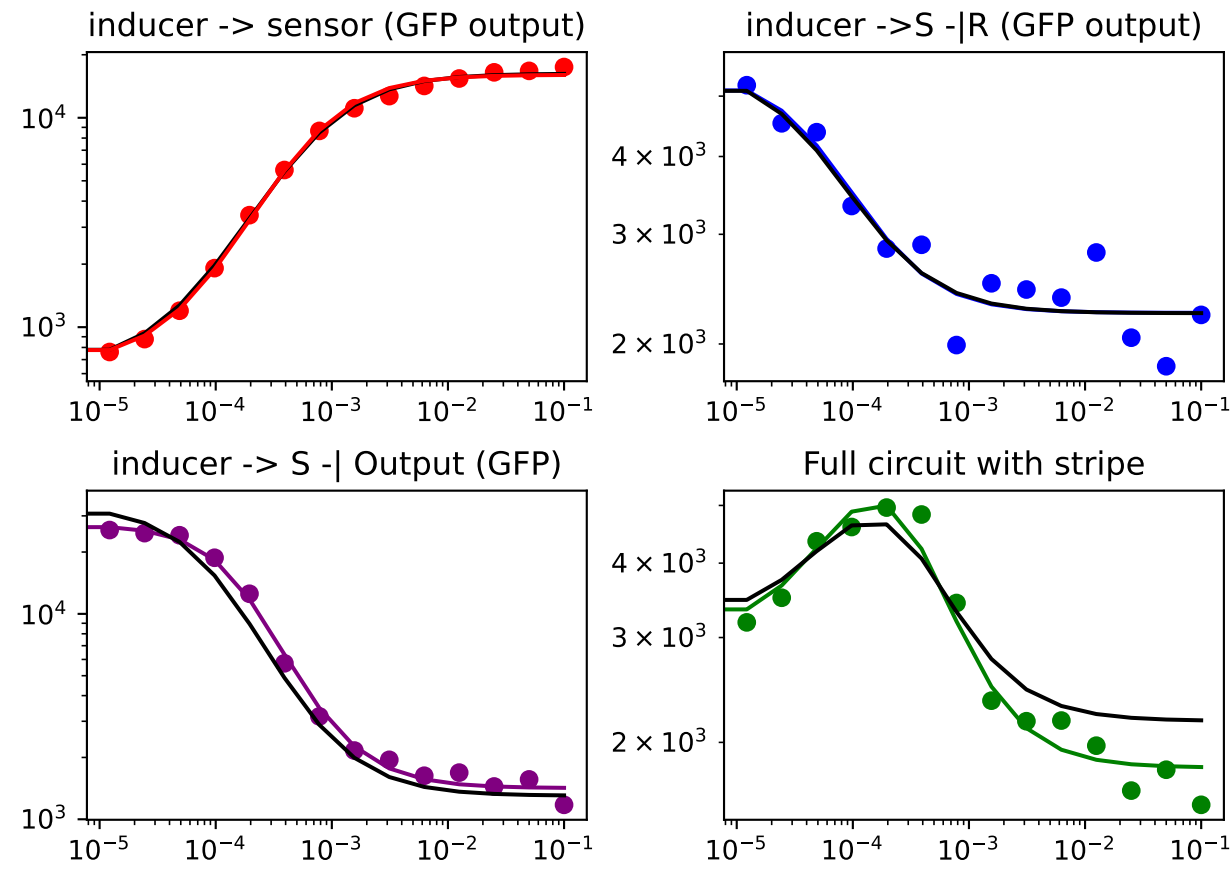
RSS (initial)=0.21

RSS (% reduction)=0.759

	epsilon	Initial_guesses	Converged
A_s	0.488597	650.714912	651.203509
B_s	142.213858	16259.979950	16402.193808
C_s	-54.767286	1296.448889	1241.681603
N_s	-0.009530	1.154067	1.144537
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	70.276132	143.802212	214.078345
B_h	-3836.892982	50238.271408	46401.378426
C_h	0.000204	0.000929	0.001133
A_o	-1.298954	1.673894	0.374941
B_o	49.174558	0.895342	50.069900
C_o	-0.489165	2.657699	2.168533
N_o	-0.060107	1.379953	1.319845
F_o	-2.312007	2.361284	0.049277

message: Maximum number of iterations has been exceeded.  
success: False  
status: 2  
fun: 0.06684273668587516  
x: [ 6.512e+02 1.640e+04 ... 1.320e+00 4.928e-02]  
nit: 100000  
nfev: 129202  
final\_simplex: (array([[ 6.512e+02, 1.640e+04, ..., 1.320e+00,  
4.928e-02],  
[ 6.512e+02, 1.640e+04, ..., 1.320e+00,  
4.928e-02],  
...,  
[ 6.512e+02, 1.640e+04, ..., 1.320e+00,  
4.940e-02],  
[ 6.512e+02, 1.640e+04, ..., 1.320e+00,  
4.934e-02]]), array([ 6.684e-02, 6.684e-02, ..., 6.684e-02, 6.684e-02]))

['SM data type data plots for mutation', 'Output5', 'using model:', 'model']



time elapsed for this fit  
--- 11.406686067581177 seconds ---

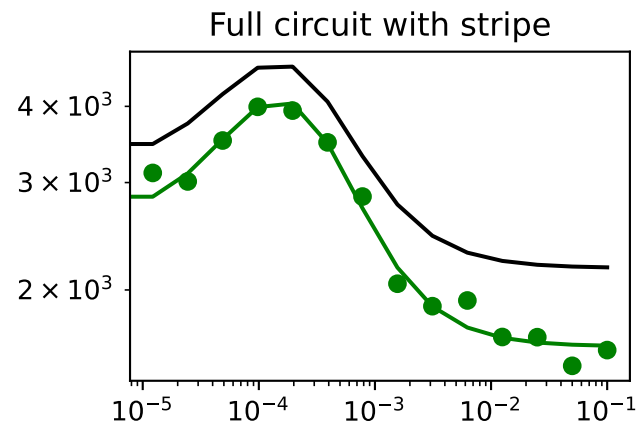
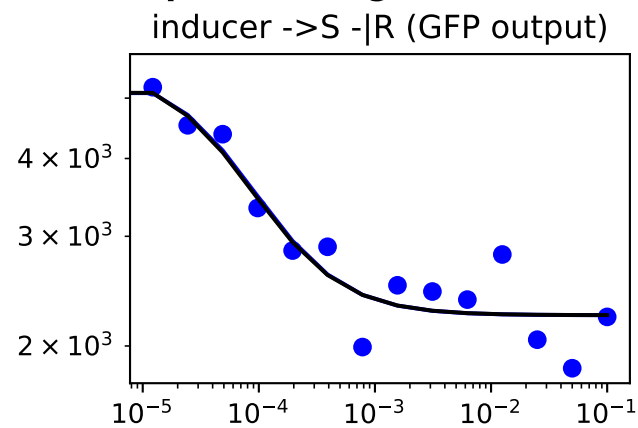
Across all four plots:

RSS (converged)=0.073  
RSS (initial)=0.184  
RSS (% reduction)=0.715

	epsilon	Initial_guesses	Converged
A_s	25.174826	650.714912	6.758897e+02
B_s	-214.601699	16259.979950	1.604538e+04
C_s	87.822022	1296.448889	1.384271e+03
N_s	0.074361	1.154067	1.228428e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	-143.802212	143.802212	2.631796e-12
B_h	-19421.430749	50238.271408	3.081684e+04
C_h	-0.000512	0.000929	4.167862e-04
A_o	0.891442	1.673894	2.565336e+00
B_o	0.603329	0.895342	1.498671e+00
C_o	0.116487	2.657699	2.774186e+00
N_o	0.215593	1.379953	1.595546e+00
F_o	-0.948157	2.361284	1.413126e+00

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.0732268052454623  
x: [ 6.759e+02 1.605e+04 ... 1.596e+00 1.413e+00]  
nit: 3672  
nfev: 4895  
final\_simplex: (array([[ 6.759e+02, 1.605e+04, ..., 1.596e+00, 1.413e+00],  
[ 6.759e+02, 1.605e+04, ..., 1.596e+00, 1.413e+00],  
...,  
[ 6.759e+02, 1.605e+04, ..., 1.596e+00, 1.413e+00],  
[ 6.759e+02, 1.605e+04, ..., 1.596e+00, 1.413e+00]]), array([ 7.323e-02, 7.323e-02, ..., 7.323e-02, 7.323e-02]))

- Initial Guess
- Converged
- Converged
- Converged
- Converged



RSS (converged)=0.057

RSS (initial)=0.273

RSS (% reduction)=0.826

	epsilon	Initial_guesses	Converged
A_s	11.926992	650.714912	662.641904
B_s	13.409215	16259.979950	16273.389164
C_s	-8.517917	1296.448889	1287.930972
N_s	0.018702	1.154067	1.172769
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	343.784769	143.802212	487.586981
B_h	10060.081699	50238.271408	60298.353108
C_h	0.000387	0.000929	0.001316
A_o	-1.363830	1.673894	0.310065
B_o	1.986349	0.895342	2.881691
C_o	0.043410	2.657699	2.701108
N_o	0.068420	1.379953	1.448373
F_o	-1.239471	2.361284	1.121813

message: Optimization terminated successfully.

success: True

```
status: 0
```

fun: 0.05740338716192191

```
x: [ 6.626e+02  1.627e+04 ...  1.448e+00  1.122e+00]
```

nit: 8416

nfev: 11119

```
final_simplex: (array([[ 6.626e+02, 1.627e+04, ..., 1.448e+00,
                        1.122e+00],
                       [ 6.626e+02, 1.627e+04, ..., 1.448e+00,
                        1.122e+00],
```

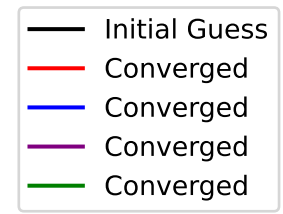
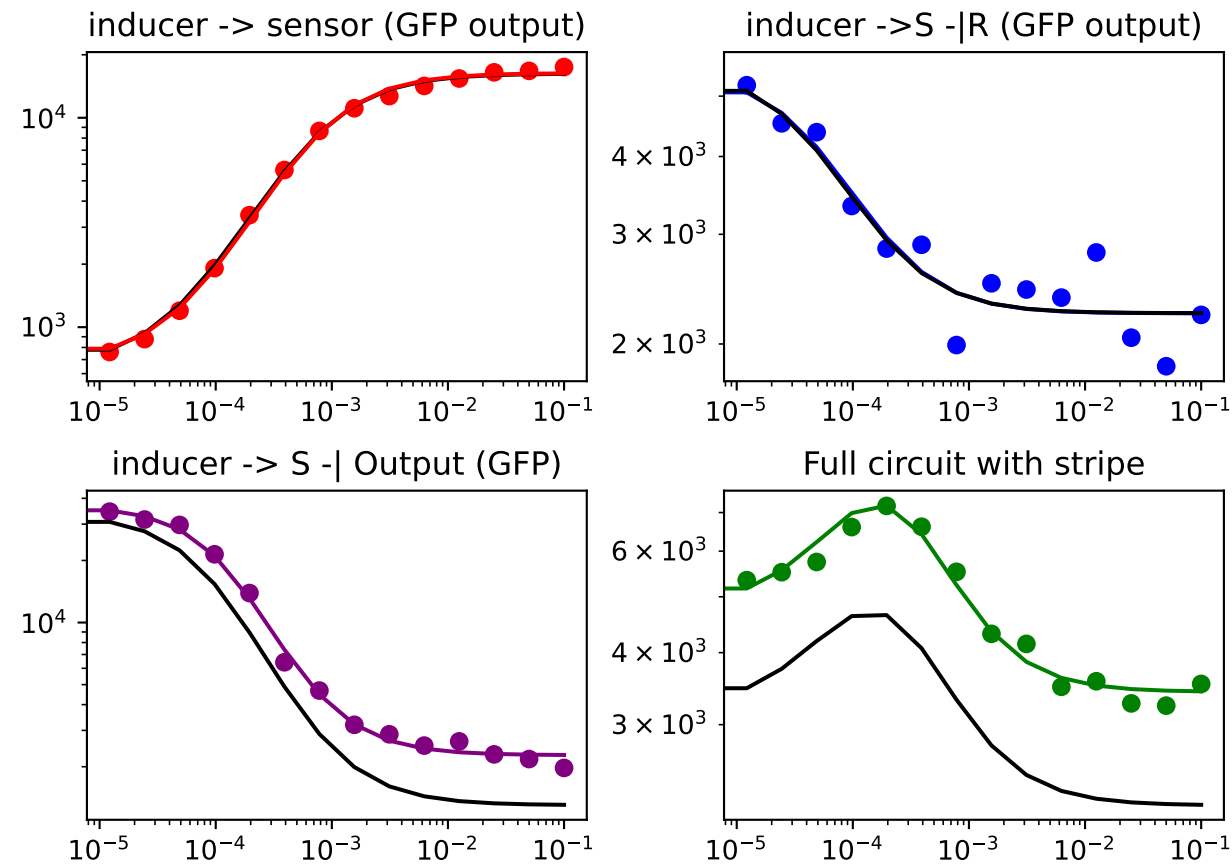
...

```
[ 6.626e+02, 1.627e+04, ..., 1.448e+00,
 1.122e+00],
```

```
[ 6.626e+02, 1.627e+04, ..., 1.448e+00,
```

```
1.122e+00]]), array([ 5.740e-02, 5.740e-02, ..., 5.740e-02, 5.740e-02]))
```

['SM data type data plots for mutation', 'Output7', 'using model:', 'model']



time elapsed for this fit  
--- 48.4815878868103 seconds ---

Across all four plots:

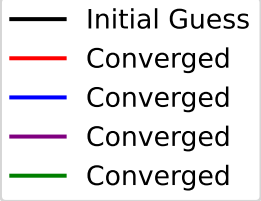
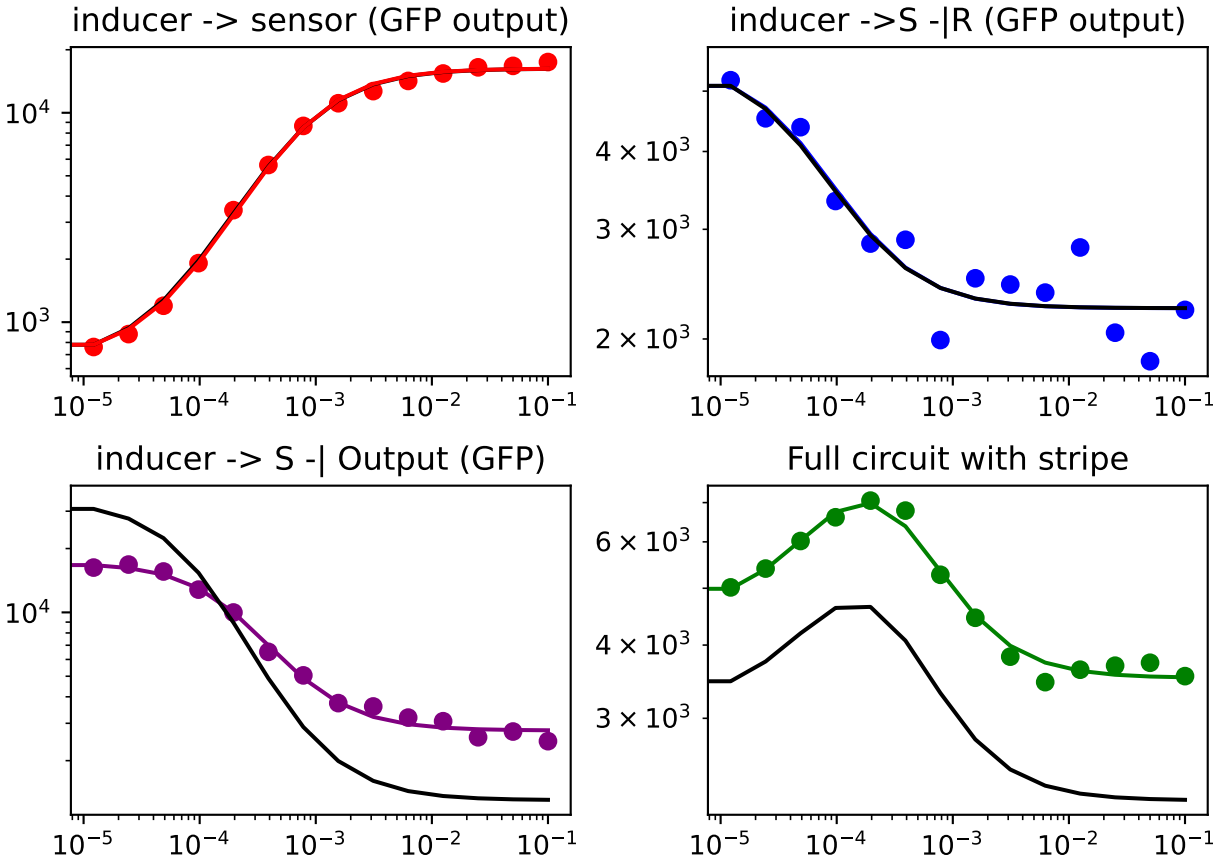
RSS (converged)=0.058  
RSS (initial)=1.108  
RSS (% reduction)=0.95

	epsilon	Initial_guesses	Converged
A_s	28.152936	650.714912	678.867848
B_s	82.838877	16259.979950	16342.818827
C_s	-30.073645	1296.448889	1266.375244
N_s	0.032747	1.154067	1.186814
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	660.402944	143.802212	804.205156
B_h	-3788.557319	50238.271408	46449.714089
C_h	-0.000299	0.000929	0.000630
A_o	-1.645307	1.673894	0.028587
B_o	-0.828563	0.895342	0.066779
C_o	0.305372	2.657699	2.963071
N_o	0.087260	1.379953	1.467212
F_o	38.707386	2.361284	41.068670

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.058189644356363  
x: [ 6.789e+02 1.634e+04 ... 1.467e+00 4.107e+01]  
nit: 15538  
nfev: 20343  
final\_simplex: (array([[ 6.789e+02, 1.634e+04, ..., 1.467e+00, 4.107e+01],  
[ 6.789e+02, 1.634e+04, ..., 1.467e+00, 4.107e+01],  
...,  
[ 6.789e+02, 1.634e+04, ..., 1.467e+00, 4.107e+01],  
[ 6.789e+02, 1.634e+04, ..., 1.467e+00, 4.107e+01]]), array([ 5.819e-02, 5.819e-02, ..., 5.819e-02, 5.819e-02]))



['SM data type data plots for mutation', 'Output8', 'using model:', 'model']



time elapsed for this fit  
--- 256.55765414237976 seconds ---

Across all four plots:

RSS (converged)=0.051

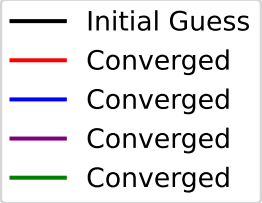
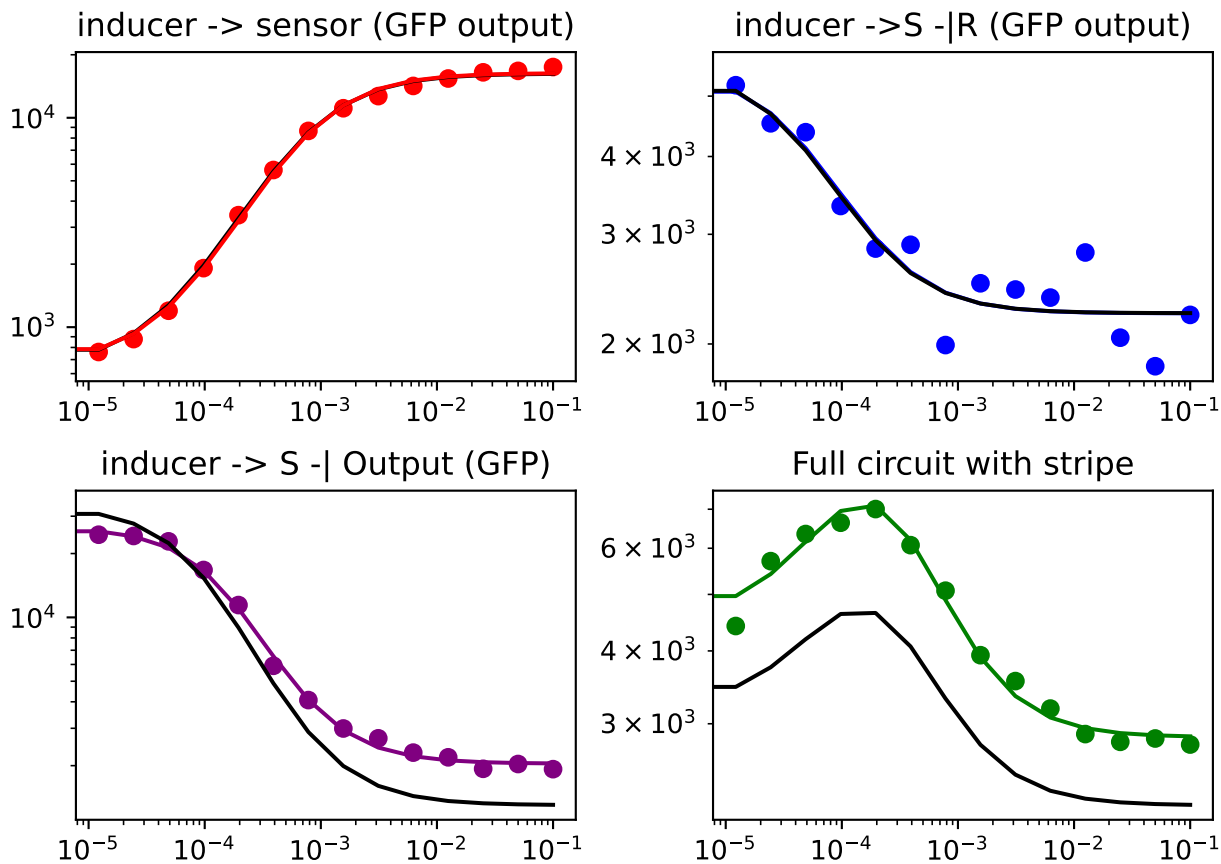
RSS (initial)=1.614

RSS (% reduction)=0.969

	epsilon	Initial_guesses	Converged
A_s	12.047228	650.714912	662.762140
B_s	11.874714	16259.979950	16271.854664
C_s	-4.988879	1296.448889	1291.460010
N_s	0.021928	1.154067	1.175995
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	497.204740	143.802212	641.006952
B_h	-31564.632057	50238.271408	18673.639352
C_h	-0.000622	0.000929	0.000307
A_o	-1.310199	1.673894	0.363695
B_o	49.537175	0.895342	50.432517
C_o	0.609542	2.657699	3.267241
N_o	-0.105937	1.379953	1.274016
F_o	-2.311226	2.361284	0.050058

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.051024200770099316  
x: [ 6.628e+02 1.627e+04 ... 1.274e+00 5.006e-02]  
nit: 91561  
nfev: 118368  
final\_simplex: (array([[ 6.628e+02, 1.627e+04, ..., 1.274e+00,  
5.006e-02],  
[ 6.628e+02, 1.627e+04, ..., 1.274e+00,  
5.006e-02],  
...,  
[ 6.628e+02, 1.627e+04, ..., 1.274e+00,  
5.006e-02],  
[ 6.628e+02, 1.627e+04, ..., 1.274e+00,  
5.006e-02]]), array([ 5.102e-02, 5.102e-02, ..., 5.102e-02, 5.102e-02]))

['SM data type data plots for mutation', 'Output9', 'using model:', 'model']



time elapsed for this fit  
--- 23.700912952423096 seconds ---

Across all four plots:

RSS (converged)=0.052

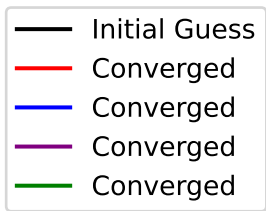
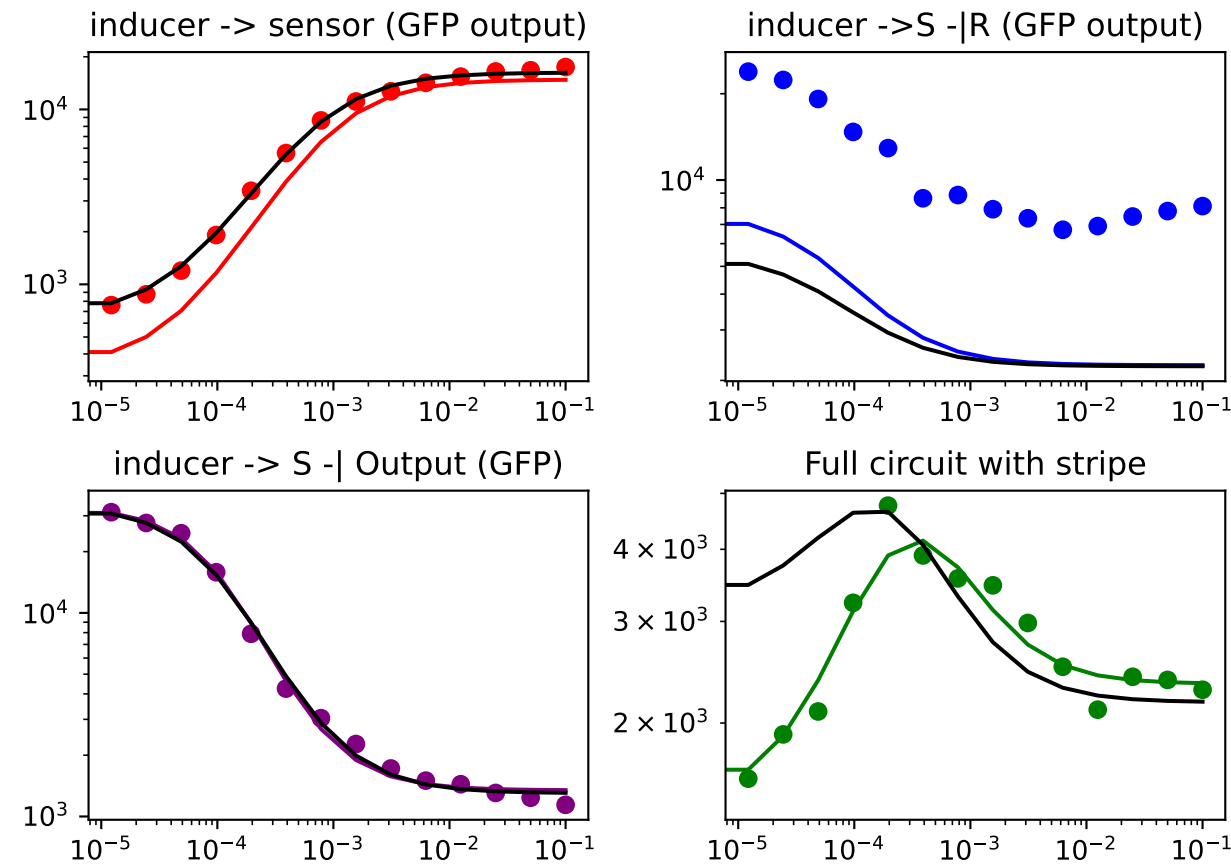
RSS (initial)=0.711

RSS (% reduction)=0.932

	epsilon	Initial_guesses	Converged
A_s	16.762155	650.714912	6.674771e+02
B_s	88.856512	16259.979950	1.634884e+04
C_s	-34.334679	1296.448889	1.262114e+03
N_s	0.016359	1.154067	1.170426e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	428.925078	143.802212	5.727273e+02
B_h	-18516.041632	50238.271408	3.172223e+04
C_h	-0.000416	0.000929	5.128883e-04
A_o	-1.673894	1.673894	8.563796e-12
B_o	2.017619	0.895342	2.912961e+00
C_o	0.149913	2.657699	2.807612e+00
N_o	0.042333	1.379953	1.422285e+00
F_o	-1.323642	2.361284	1.037641e+00

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.05219452289808844  
x: [ 6.675e+02 1.635e+04 ... 1.422e+00 1.038e+00]  
nit: 8640  
nfev: 11340  
final\_simplex: (array([[ 6.675e+02, 1.635e+04, ..., 1.422e+00, 1.038e+00],  
[ 6.675e+02, 1.635e+04, ..., 1.422e+00, 1.038e+00],  
...,  
[ 6.675e+02, 1.635e+04, ..., 1.422e+00, 1.038e+00],  
[ 6.675e+02, 1.635e+04, ..., 1.422e+00, 1.038e+00]]), array([ 5.219e-02, 5.219e-02, ..., 5.219e-02, 5.219e-02]))

['SM data type data plots for mutation', 'Regulator1', 'using model:', 'model']



time elapsed for this fit  
--- 13.056551694869995 seconds ---

Across all four plots:

RSS (converged)=4.634

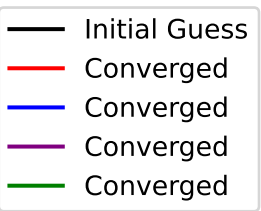
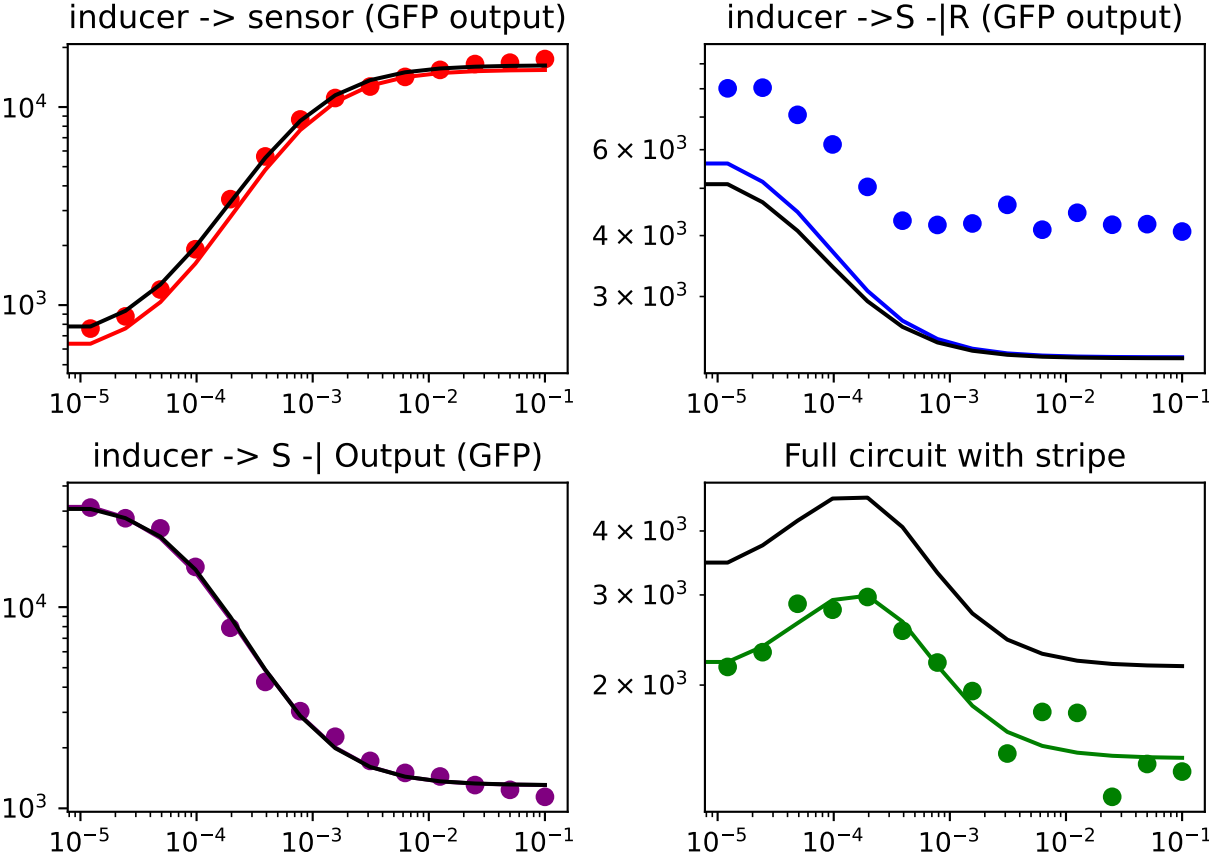
RSS (initial)=5.544

RSS (% reduction)=0.545

	epsilon	Initial_guesses	Converged
A_s	-310.429862	650.714912	3.402851e+02
B_s	-1440.700075	16259.979950	1.481928e+04
C_s	-293.220965	1296.448889	1.003228e+03
N_s	0.056646	1.154067	1.210713e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	542.815927	143.802212	6.866181e+02
B_h	-6709.074624	50238.271408	4.352920e+04
C_h	0.000416	0.000929	1.345610e-03
A_o	-1.673894	1.673894	1.044260e-14
B_o	1.584430	0.895342	2.479772e+00
C_o	1.829404	2.657699	4.487103e+00
N_o	0.015781	1.379953	1.395733e+00
F_o	0.583562	2.361284	2.944846e+00

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 4.6342047511992694  
x: [ 3.403e+02 1.482e+04 ... 1.396e+00 2.945e+00]  
nit: 4655  
nfev: 6183  
final\_simplex: (array([[ 3.403e+02, 1.482e+04, ..., 1.396e+00, 2.945e+00],  
[ 3.403e+02, 1.482e+04, ..., 1.396e+00, 2.945e+00],  
...,  
[ 3.403e+02, 1.482e+04, ..., 1.396e+00, 2.945e+00],  
[ 3.403e+02, 1.482e+04, ..., 1.396e+00, 2.945e+00]]), array([ 4.634e+00, 4.634e+00, ..., 4.634e+00, 4.634e+00]))

['SM data type data plots for mutation', 'Regulator10', 'using model:', 'model']



time elapsed for this fit  
--- 48.92400097846985 seconds ---

Across all four plots:

RSS (converged)=0.946

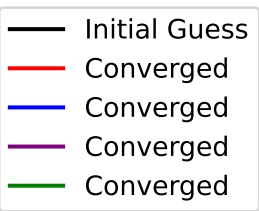
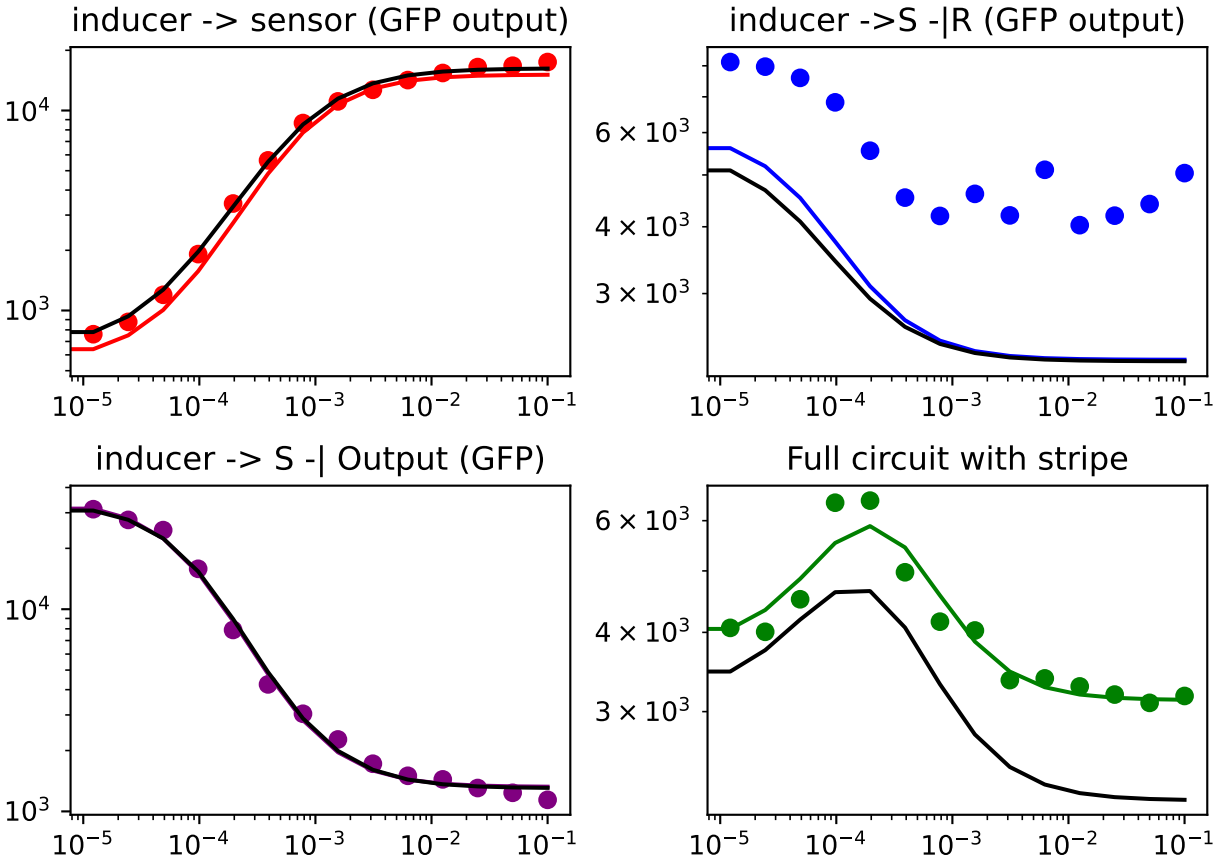
RSS (initial)=1.527

RSS (% reduction)=0.618

	epsilon	Initial_guesses	Converged
A_s	-111.601696	650.714912	539.113216
B_s	-825.014772	16259.979950	15434.965178
C_s	-110.611845	1296.448889	1185.837044
N_s	0.027826	1.154067	1.181893
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	-140.930947	143.802212	2.871265
B_h	21075.526521	50238.271408	71313.797929
C_h	0.000984	0.000929	0.001913
A_o	17.644332	1.673894	19.318226
B_o	-0.713601	0.895342	0.181741
C_o	-0.511831	2.657699	2.145868
N_o	-0.201917	1.379953	1.178035
F_o	3.964223	2.361284	6.325507

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.945661226946576  
x: [ 5.391e+02 1.543e+04 ... 1.178e+00 6.326e+00]  
nit: 18213  
nfev: 23797  
final\_simplex: (array([[ 5.391e+02, 1.543e+04, ..., 1.178e+00, 6.326e+00],  
[ 5.391e+02, 1.543e+04, ..., 1.178e+00, 6.326e+00],  
...,  
[ 5.391e+02, 1.543e+04, ..., 1.178e+00, 6.326e+00],  
[ 5.391e+02, 1.543e+04, ..., 1.178e+00, 6.326e+00]]), array([ 9.457e-01, 9.457e-01, ..., 9.457e-01, 9.457e-01]))

['SM data type data plots for mutation', 'Regulator2', 'using model:', 'model']



time elapsed for this fit  
--- 49.95412993431091 seconds ---

Across all four plots:

RSS (converged)=1.078

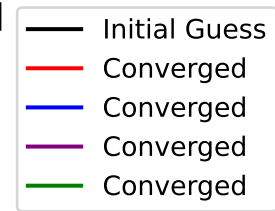
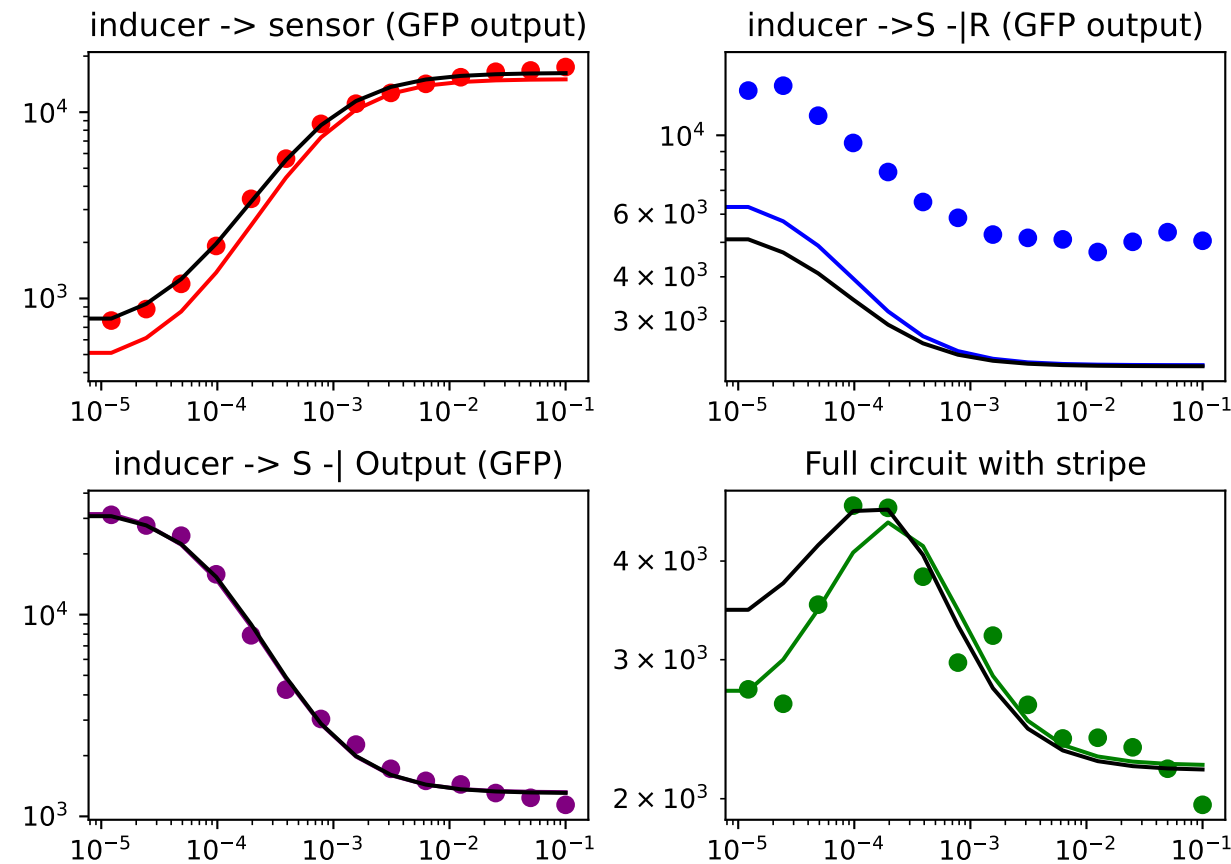
RSS (initial)=1.38

RSS (% reduction)=0.561

	epsilon	Initial_guesses	Converged
A_s	-93.221531	650.714912	557.493381
B_s	-1135.496489	16259.979950	15124.483460
C_s	-40.585643	1296.448889	1255.863246
N_s	0.081475	1.154067	1.235542
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	-142.357595	143.802212	1.444617
B_h	24902.186108	50238.271408	75140.457517
C_h	0.001140	0.000929	0.002069
A_o	39.535445	1.673894	41.209339
B_o	-0.535011	0.895342	0.360331
C_o	0.184352	2.657699	2.842051
N_o	-0.211422	1.379953	1.168531
F_o	5.950765	2.361284	8.312049

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.078270285895175  
x: [ 5.575e+02 1.512e+04 ... 1.169e+00 8.312e+00]  
nit: 18511  
nfev: 24217  
final\_simplex: (array([[ 5.575e+02, 1.512e+04, ..., 1.169e+00, 8.312e+00],  
[ 5.575e+02, 1.512e+04, ..., 1.169e+00, 8.312e+00],  
[ 5.575e+02, 1.512e+04, ..., 1.169e+00, 8.312e+00],  
...,  
[ 5.575e+02, 1.512e+04, ..., 1.169e+00, 8.312e+00],  
[ 5.575e+02, 1.512e+04, ..., 1.169e+00, 8.312e+00],  
[ 5.575e+02, 1.512e+04, ..., 1.169e+00, 8.312e+00]]), array([ 1.078e+00, 1.078e+00, ..., 1.078e+00, 1.078e+00]))

['SM data type data plots for mutation', 'Regulator3', 'using model:', 'model']



time elapsed for this fit  
--- 13.365216255187988 seconds ---

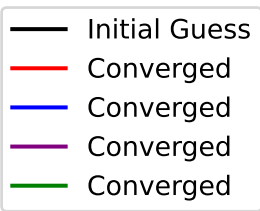
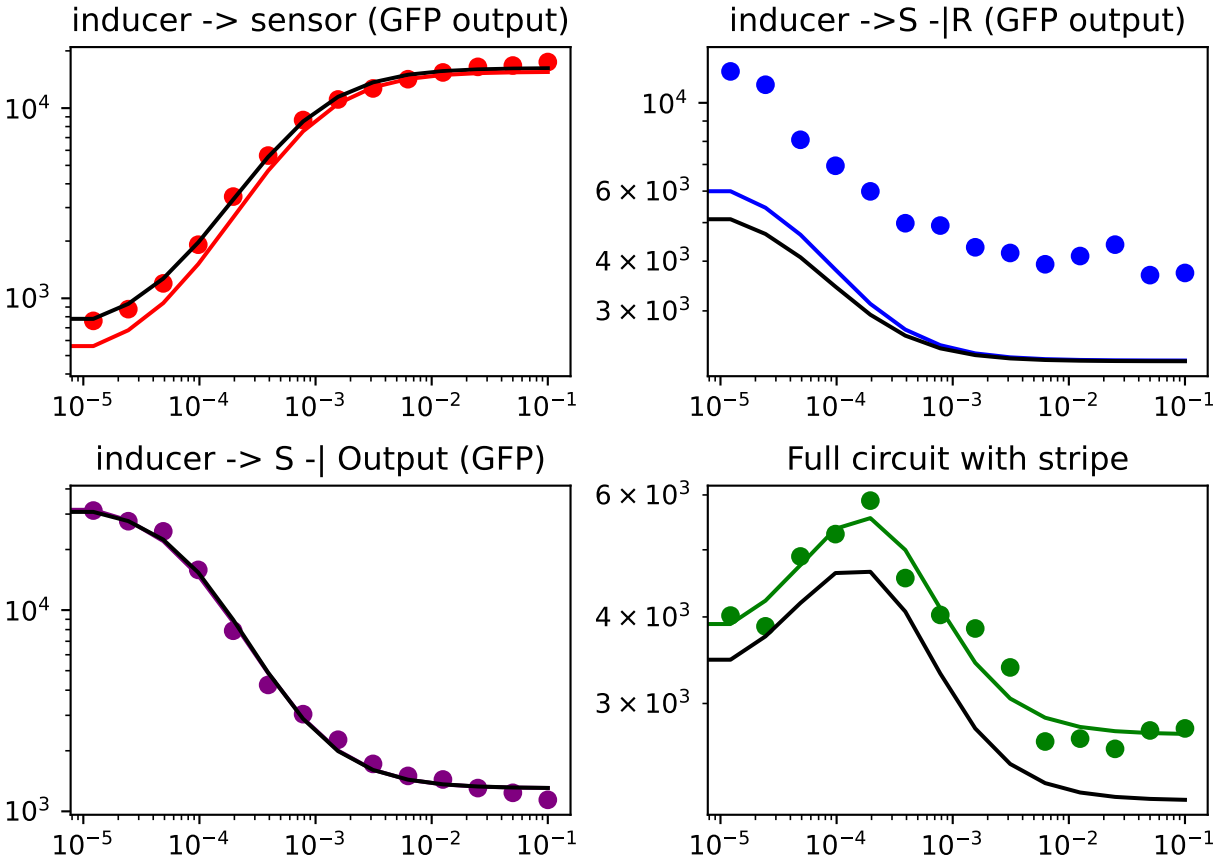
Across all four plots:

RSS (converged)=2.174  
RSS (initial)=2.427  
RSS (% reduction)=0.528

	epsilon	Initial_guesses	Converged
A_s	-218.002186	650.714912	4.327127e+02
B_s	-1214.831890	16259.979950	1.504515e+04
C_s	-131.182061	1296.448889	1.165267e+03
N_s	0.075502	1.154067	1.229569e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	-143.802212	143.802212	4.465639e-10
B_h	19413.802003	50238.271408	6.965207e+04
C_h	0.001398	0.000929	2.326791e-03
A_o	-1.327771	1.673894	3.461237e-01
B_o	0.684169	0.895342	1.579511e+00
C_o	0.005811	2.657699	2.663510e+00
N_o	-0.268733	1.379953	1.111219e+00
F_o	-0.828700	2.361284	1.532584e+00

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 2.173946679421257  
x: [ 4.327e+02 1.505e+04 ... 1.111e+00 1.533e+00]  
nit: 4835  
nfev: 6523  
final\_simplex: (array([[ 4.327e+02, 1.505e+04, ..., 1.111e+00, 1.533e+00],  
[ 4.327e+02, 1.505e+04, ..., 1.111e+00, 1.533e+00],  
...,  
[ 4.327e+02, 1.505e+04, ..., 1.111e+00, 1.533e+00],  
[ 4.327e+02, 1.505e+04, ..., 1.111e+00, 1.533e+00]]), array([ 2.174e+00, 2.174e+00, ..., 2.174e+00, 2.174e+00]))

['SM data type data plots for mutation', 'Regulator4', 'using model:', 'model']



time elapsed for this fit  
--- 176.43277311325073 seconds ---

Across all four plots:

RSS (converged)=1.219

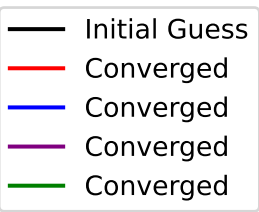
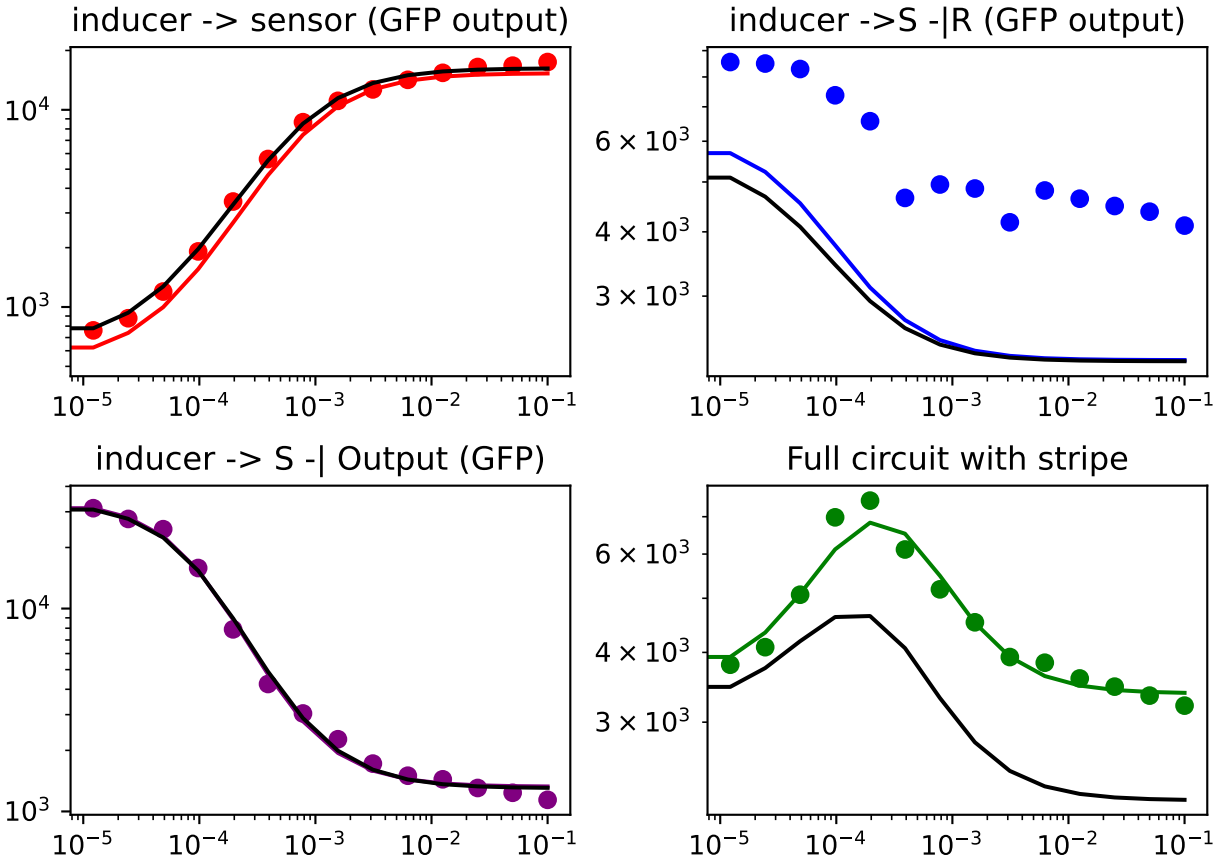
RSS (initial)=1.446

RSS (% reduction)=0.543

	epsilon	Initial_guesses	Converged
A_s	-183.877239	650.714912	466.837673
B_s	-717.502248	16259.979950	15542.477702
C_s	-138.574897	1296.448889	1157.873991
N_s	0.036564	1.154067	1.190631
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	-142.204745	143.802212	1.597467
B_h	16257.789881	50238.271408	66496.061290
C_h	0.001025	0.000929	0.001955
A_o	613.891914	1.673894	615.565808
B_o	2.575911	0.895342	3.471253
C_o	-0.472733	2.657699	2.184966
N_o	-0.233070	1.379953	1.146882
F_o	-1.731059	2.361284	0.630225

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.219416547322105  
x: [ 4.668e+02 1.554e+04 ... 1.147e+00 6.302e-01]  
nit: 59658  
nfev: 77389  
final\_simplex: (array([[ 4.668e+02, 1.554e+04, ..., 1.147e+00, 6.302e-01],  
[ 4.668e+02, 1.554e+04, ..., 1.147e+00, 6.302e-01],  
[ 4.668e+02, 1.554e+04, ..., 1.147e+00, 6.302e-01],  
...,  
[ 4.668e+02, 1.554e+04, ..., 1.147e+00, 6.302e-01],  
[ 4.668e+02, 1.554e+04, ..., 1.147e+00, 6.302e-01],  
[ 4.668e+02, 1.554e+04, ..., 1.147e+00, 6.302e-01]]), array([ 1.219e+00, 1.219e+00, ..., 1.219e+00, 1.219e+00]))

['SM data type data plots for mutation', 'Regulator5', 'using model:', 'model']



time elapsed for this fit  
--- 37.93808197975159 seconds ---

Across all four plots:

RSS (converged)=1.211

RSS (initial)=1.717

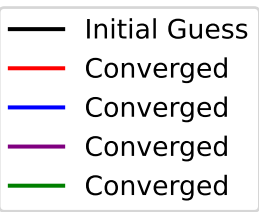
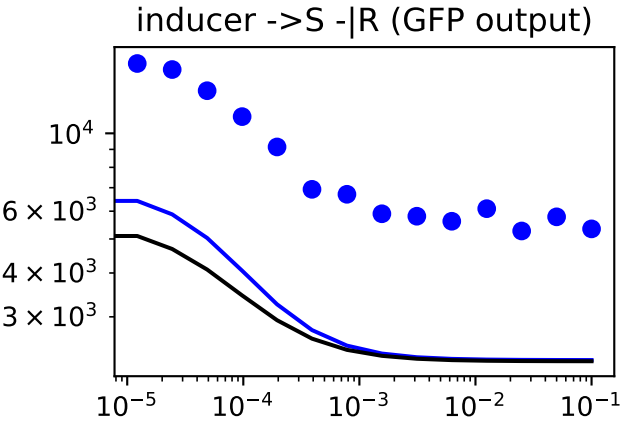
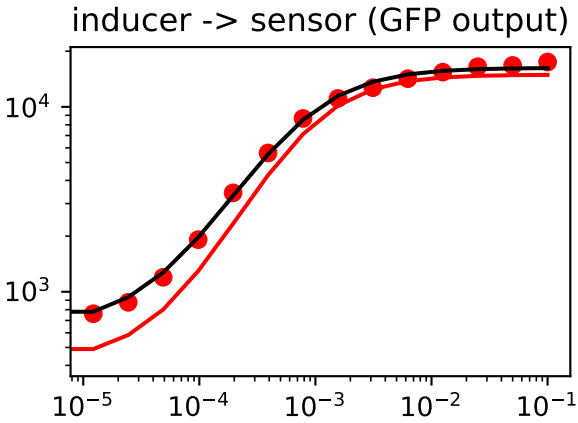
RSS (% reduction)=0.587

	epsilon	Initial_guesses	Converged
A_s	-119.900303	650.714912	5.308146e+02
B_s	-918.851186	16259.979950	1.534113e+04
C_s	-144.464629	1296.448889	1.151984e+03
N_s	0.035566	1.154067	1.189633e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	253.375620	143.802212	3.971778e+02
B_h	3689.358728	50238.271408	5.392763e+04
C_h	0.000367	0.000929	1.296115e-03
A_o	-1.673894	1.673894	6.244101e-13
B_o	4.390134	0.895342	5.285476e+00
C_o	0.901457	2.657699	3.559156e+00
N_o	-0.026505	1.379953	1.353448e+00
F_o	-1.152356	2.361284	1.208928e+00

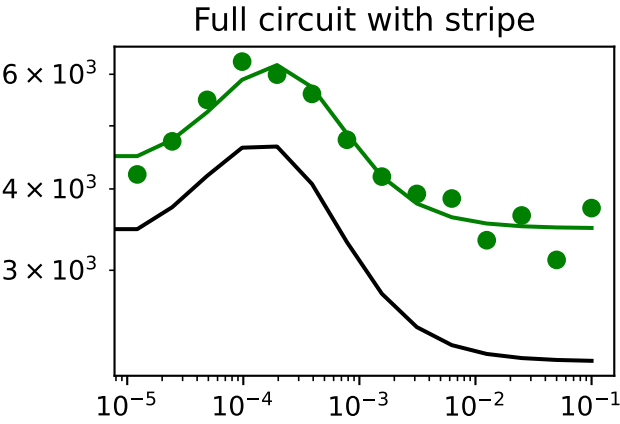
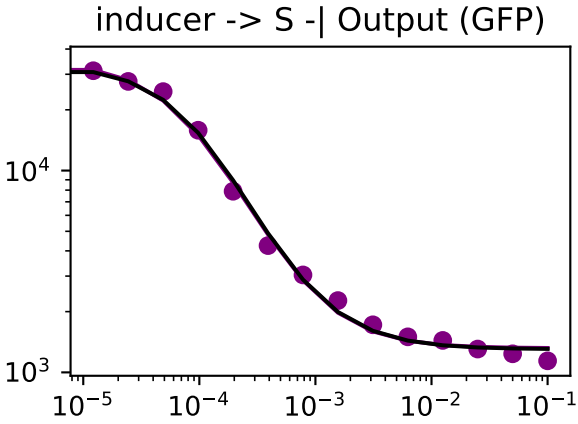
message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.210589570588235  
x: [ 5.308e+02 1.534e+04 ... 1.353e+00 1.209e+00]  
nit: 13519  
nfev: 17601  
final\_simplex: (array([[ 5.308e+02, 1.534e+04, ..., 1.353e+00,  
1.209e+00],  
[ 5.308e+02, 1.534e+04, ..., 1.353e+00,  
1.209e+00],  
...,  
[ 5.308e+02, 1.534e+04, ..., 1.353e+00,  
1.209e+00],  
[ 5.308e+02, 1.534e+04, ..., 1.353e+00,  
1.209e+00]]), array([ 1.211e+00, 1.211e+00, ..., 1.211e+00, 1.211e+00]))



['SM data type data plots for mutation', 'Regulator6', 'using model:', 'model']



time elapsed for this fit  
--- 104.56512427330017 seconds ---



Across all four plots:

RSS (converged)=2.74

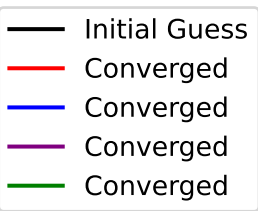
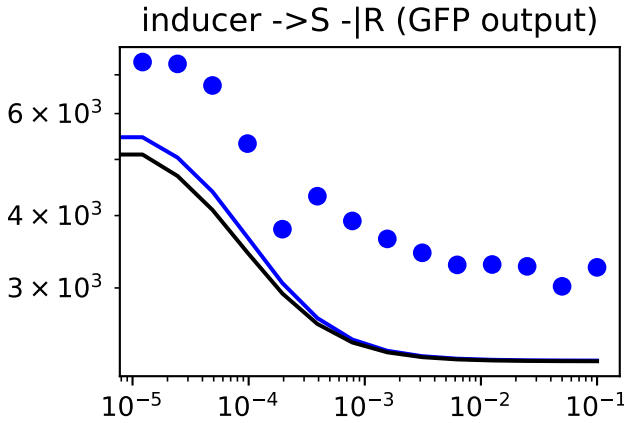
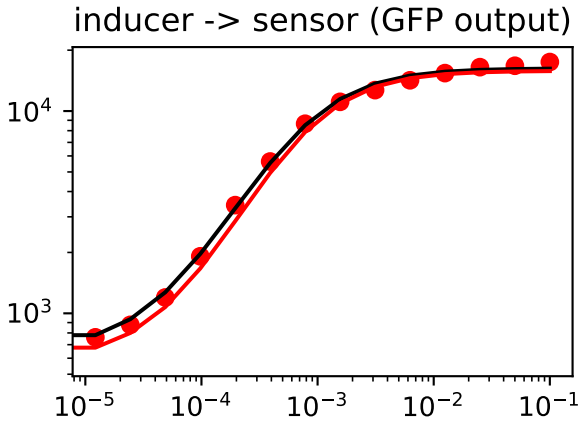
RSS (initial)=3.404

RSS (% reduction)=0.554

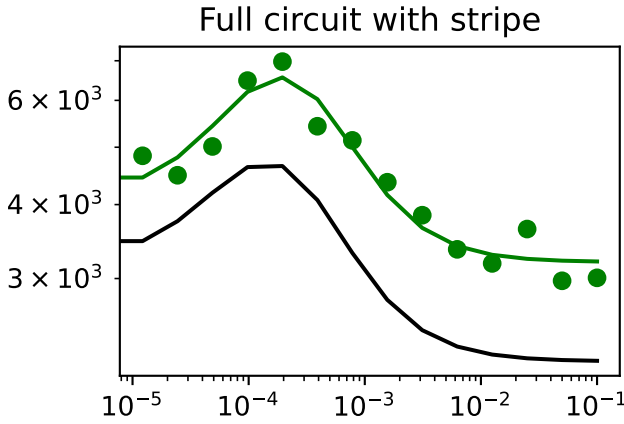
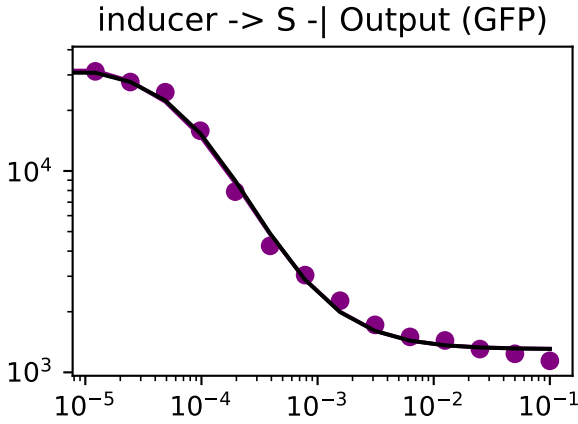
	epsilon	Initial_guesses	Converged
A_s	-229.541196	650.714912	421.173716
B_s	-1327.761687	16259.979950	14932.218263
C_s	-165.195678	1296.448889	1131.253211
N_s	0.094005	1.154067	1.248072
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	-143.235545	143.802212	0.566667
B_h	28884.246892	50238.271408	79122.518300
C_h	0.002066	0.000929	0.002995
A_o	73.563587	1.673894	75.237481
B_o	-0.826978	0.895342	0.068364
C_o	-0.626881	2.657699	2.030817
N_o	-0.306580	1.379953	1.073372
F_o	29.153868	2.361284	31.515151

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 2.7400541870032584  
x: [ 4.212e+02 1.493e+04 ... 1.073e+00 3.152e+01]  
nit: 37419  
nfev: 48551  
final\_simplex: (array([[ 4.212e+02, 1.493e+04, ..., 1.073e+00, 3.152e+01],  
[ 4.212e+02, 1.493e+04, ..., 1.073e+00, 3.152e+01],  
...,  
[ 4.212e+02, 1.493e+04, ..., 1.073e+00, 3.152e+01],  
[ 4.212e+02, 1.493e+04, ..., 1.073e+00, 3.152e+01]]), array([ 2.740e+00, 2.740e+00, ..., 2.740e+00, 2.740e+00]))

['SM data type data plots for mutation', 'Regulator7', 'using model:', 'model']



time elapsed for this fit  
--- 73.86659955978394 seconds ---



Across all four plots:

RSS (converged)=0.461

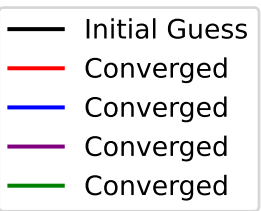
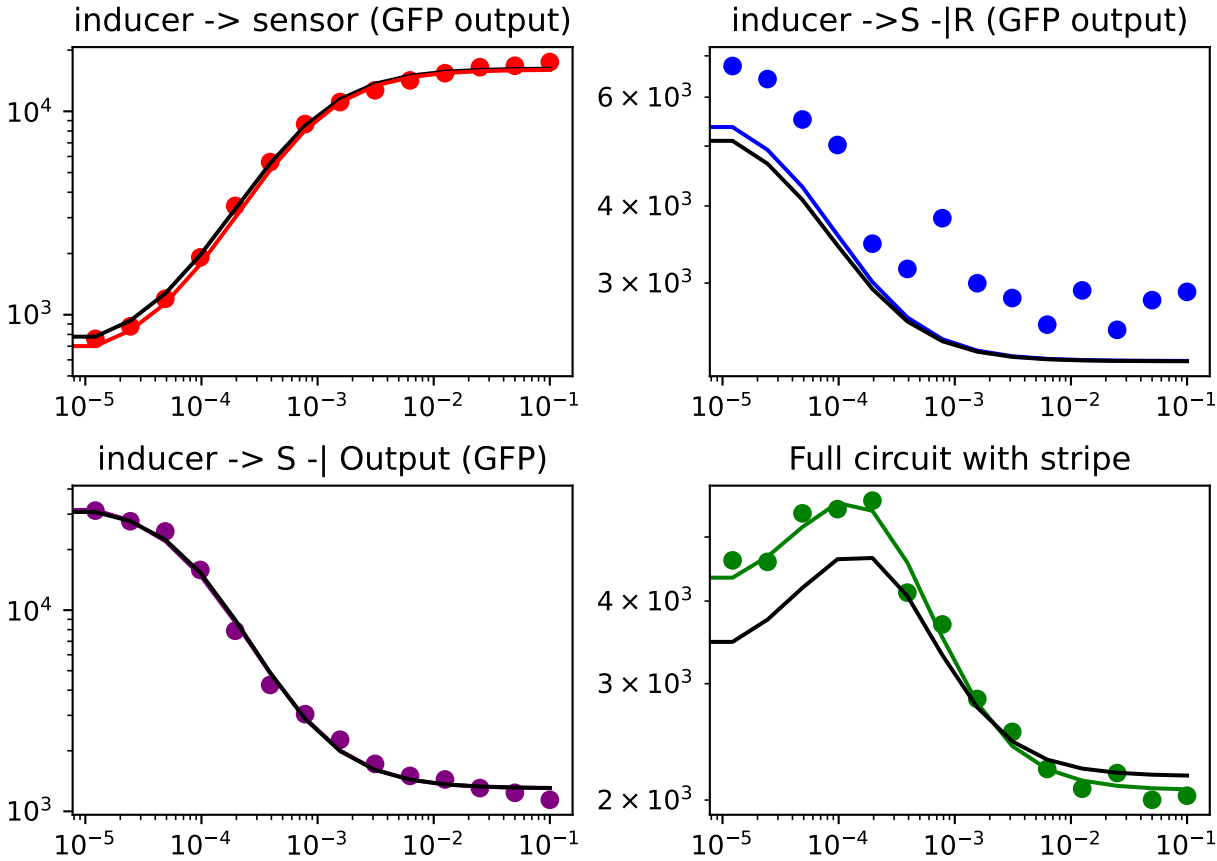
RSS (initial)=0.847

RSS (% reduction)=0.647

	epsilon	Initial_guesses	Converged
A_s	-71.050035	650.714912	579.664877
B_s	-453.275657	16259.979950	15806.704293
C_s	-102.372436	1296.448889	1194.076452
N_s	0.039965	1.154067	1.194032
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	-140.223519	143.802212	3.578693
B_h	26948.363293	50238.271408	77186.634702
C_h	0.001102	0.000929	0.002031
A_o	0.431628	1.673894	2.105522
B_o	-0.621748	0.895342	0.273594
C_o	0.282099	2.657699	2.939798
N_o	-0.207918	1.379953	1.172034
F_o	10.669952	2.361284	13.031235

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.46139596786181064  
x: [ 5.797e+02 1.581e+04 ... 1.172e+00 1.303e+01]  
nit: 27554  
nfev: 35764  
final\_simplex: (array([[ 5.797e+02, 1.581e+04, ..., 1.172e+00,  
1.303e+01],  
[ 5.797e+02, 1.581e+04, ..., 1.172e+00,  
1.303e+01],  
...,  
[ 5.797e+02, 1.581e+04, ..., 1.172e+00,  
1.303e+01],  
[ 5.797e+02, 1.581e+04, ..., 1.172e+00,  
1.303e+01]]), array([ 4.614e-01, 4.614e-01, ..., 4.614e-01, 4.614e-01]))

['SM data type data plots for mutation', 'Regulator8', 'using model:', 'model']



time elapsed for this fit  
--- 149.82780051231384 seconds ---

Across all four plots:

RSS (converged)=0.213

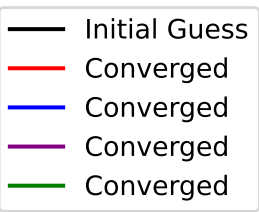
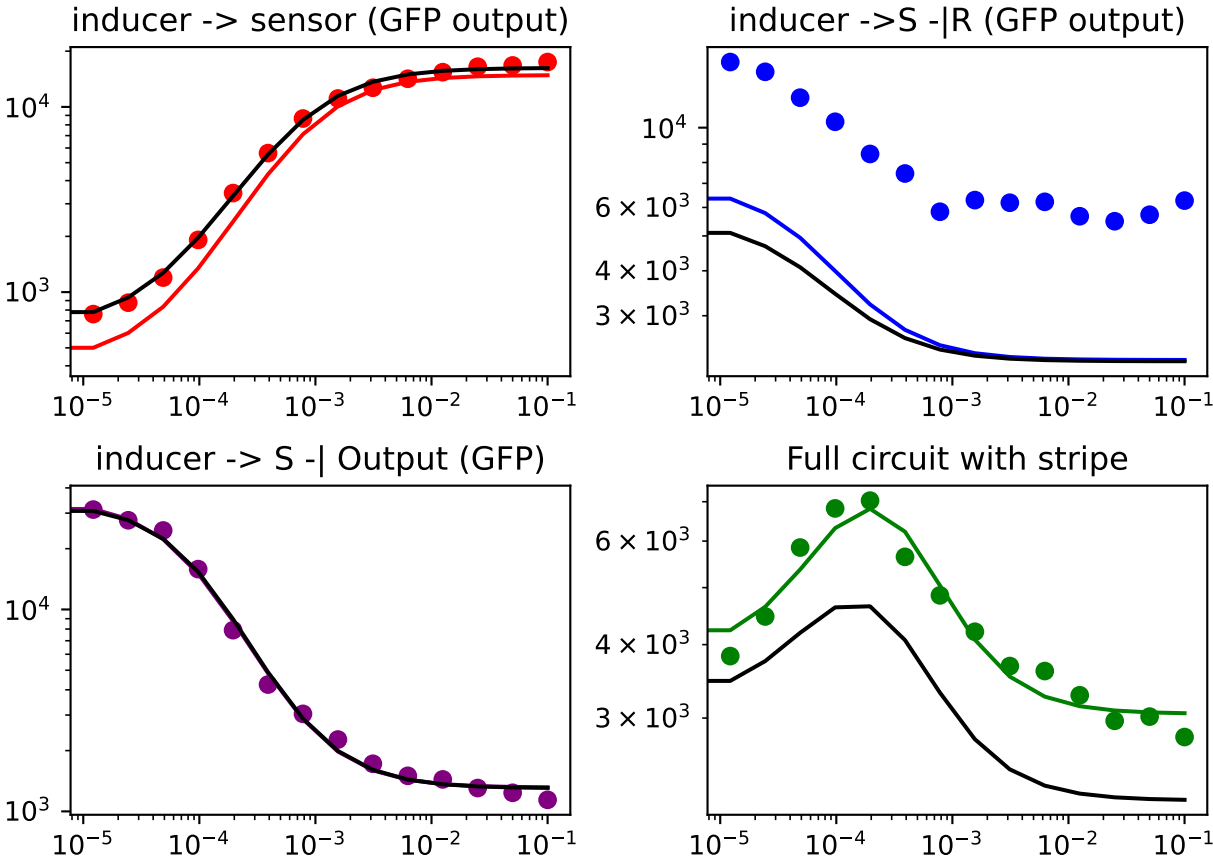
RSS (initial)=0.285

RSS (% reduction)=0.572

	epsilon	Initial_guesses	Converged
A_s	-60.046104	650.714912	590.668808
B_s	-226.494489	16259.979950	16033.485460
C_s	-79.960576	1296.448889	1216.488313
N_s	0.017557	1.154067	1.171624
A_r	0.000000	2020.019216	2020.019216
B_r	0.000000	23688.809187	23688.809187
C_r	0.000000	0.010358	0.010358
N_r	0.000000	0.910072	0.910072
A_h	-143.540316	143.802212	0.261896
B_h	18367.598016	50238.271408	68605.869424
C_h	0.000706	0.000929	0.001635
A_o	31.743119	1.673894	33.417013
B_o	-0.785143	0.895342	0.110199
C_o	-0.856985	2.657699	1.800713
N_o	-0.171316	1.379953	1.208637
F_o	15.136410	2.361284	17.497693

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.21322404164162714  
x: [ 5.907e+02 1.603e+04 ... 1.209e+00 1.750e+01]  
nit: 56015  
nfev: 72480  
final\_simplex: (array([[ 5.907e+02, 1.603e+04, ..., 1.209e+00,  
1.750e+01],  
[ 5.907e+02, 1.603e+04, ..., 1.209e+00,  
1.750e+01],  
...,  
[ 5.907e+02, 1.603e+04, ..., 1.209e+00,  
1.750e+01],  
[ 5.907e+02, 1.603e+04, ..., 1.209e+00,  
1.750e+01]]), array([ 2.132e-01, 2.132e-01, ..., 2.132e-01, 2.132e-01]))

['SM data type data plots for mutation', 'Regulator9', 'using model:', 'model']



time elapsed for this fit  
--- 12.741182327270508 seconds ---

Across all four plots:

RSS (converged)=2.705

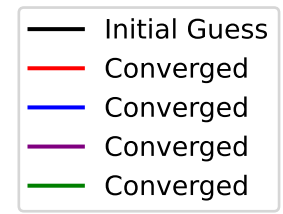
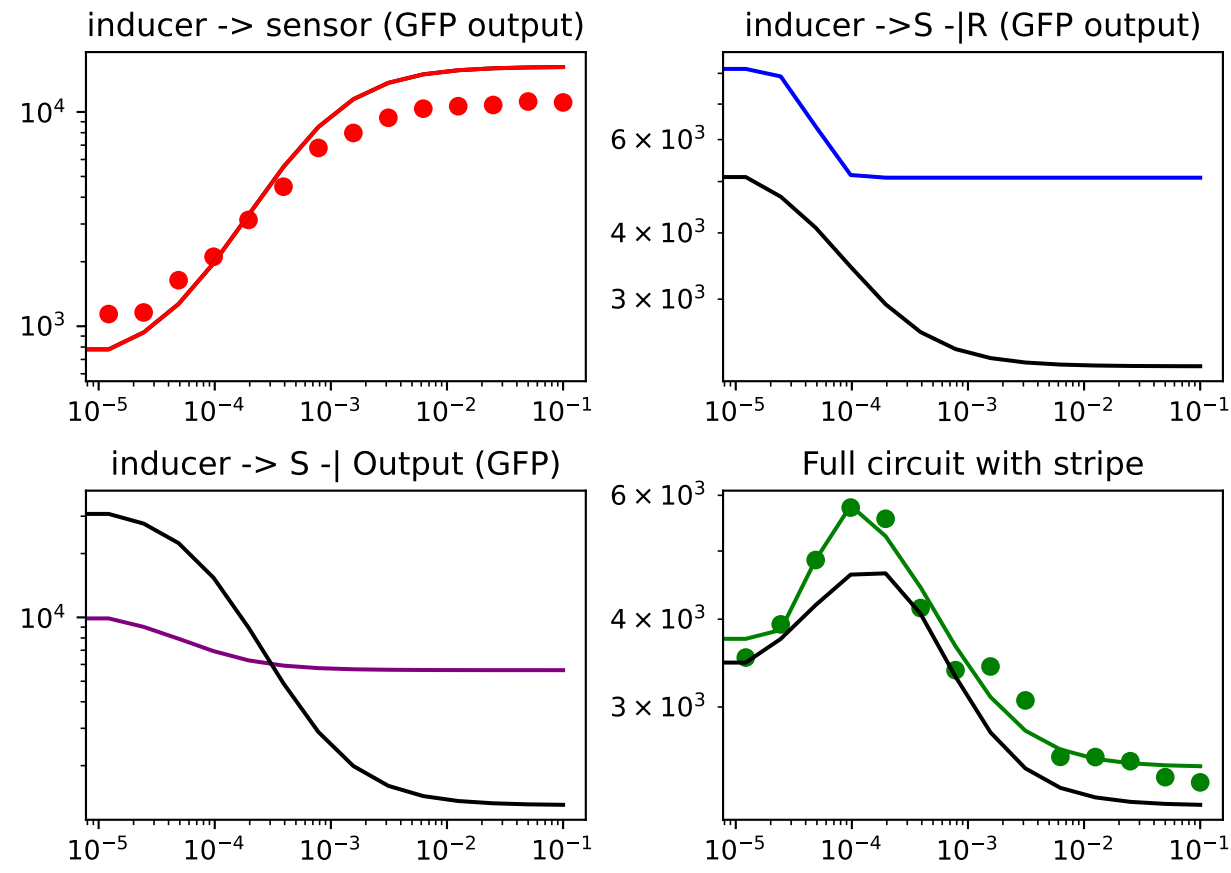
RSS (initial)=3.258

RSS (% reduction)=0.546

	epsilon	Initial_guesses	Converged
A_s	-227.272961	650.714912	4.234420e+02
B_s	-1392.989053	16259.979950	1.486699e+04
C_s	-160.514665	1296.448889	1.135934e+03
N_s	0.067675	1.154067	1.221742e+00
A_r	0.000000	2020.019216	2.020019e+03
B_r	0.000000	23688.809187	2.368881e+04
C_r	0.000000	0.010358	1.035760e-02
N_r	0.000000	0.910072	9.100723e-01
A_h	-62.747936	143.802212	8.105428e+01
B_h	15828.273823	50238.271408	6.606655e+04
C_h	0.001253	0.000929	2.182483e-03
A_o	-1.673894	1.673894	3.107401e-12
B_o	0.162446	0.895342	1.057788e+00
C_o	-0.383309	2.657699	2.274390e+00
N_o	-0.240714	1.379953	1.139239e+00
F_o	0.906502	2.361284	3.267786e+00

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 2.705193954915964  
x: [ 4.234e+02 1.487e+04 ... 1.139e+00 3.268e+00]  
nit: 4491  
nfev: 5993  
final\_simplex: (array([[ 4.234e+02, 1.487e+04, ..., 1.139e+00, 3.268e+00],  
[ 4.234e+02, 1.487e+04, ..., 1.139e+00, 3.268e+00],  
...,  
[ 4.234e+02, 1.487e+04, ..., 1.139e+00, 3.268e+00],  
[ 4.234e+02, 1.487e+04, ..., 1.139e+00, 3.268e+00]]), array([ 2.705e+00, 2.705e+00, ..., 2.705e+00, 2.705e+00]))

['SM data type data plots for mutation', 'Sensor1', 'using model:', 'model']



time elapsed for this fit  
--- 38.5137357711792 seconds ---

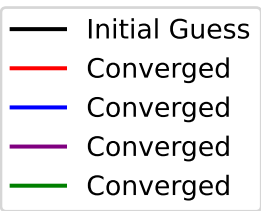
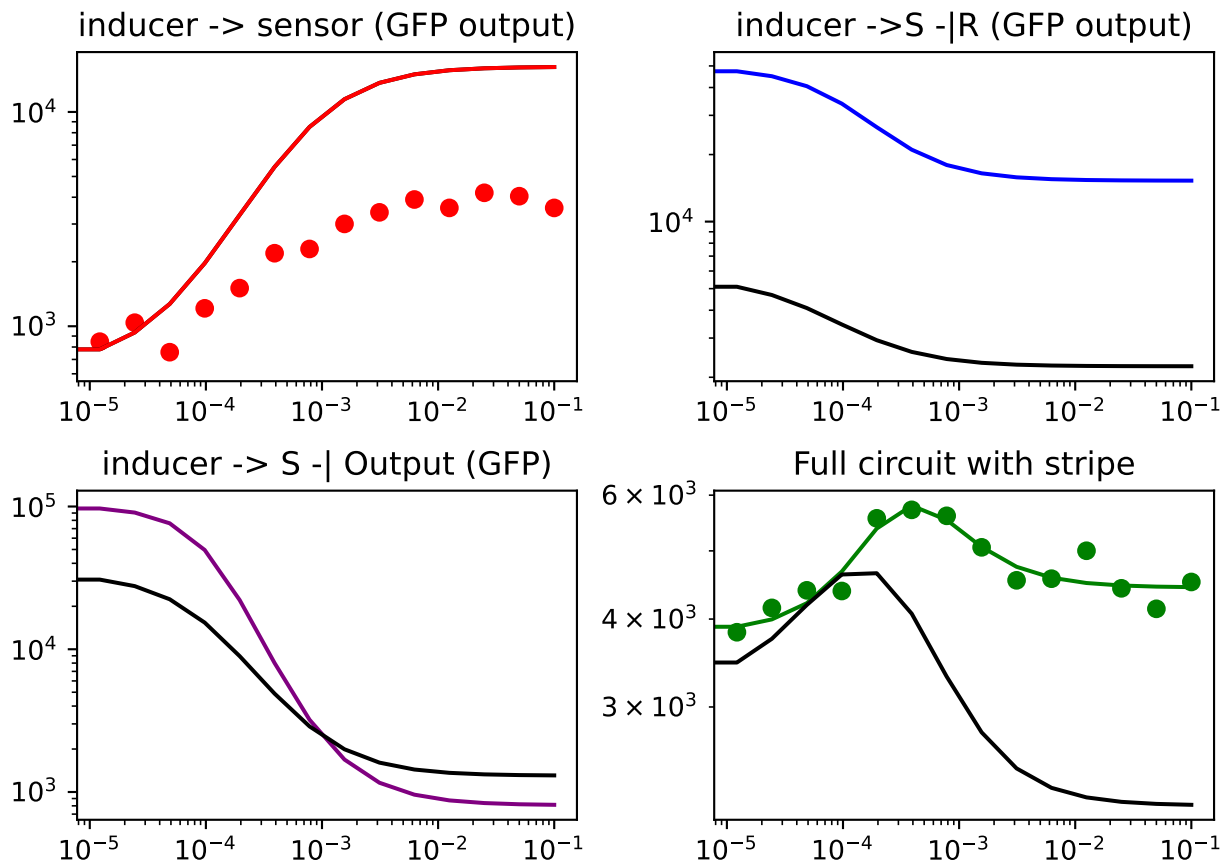
Across all four plots:

RSS (converged)=0.284  
RSS (initial)=0.332  
RSS (% reduction)=0.539

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	6.507149e+02
B_s	0.000000	16259.979950	1.625998e+04
C_s	0.000000	1296.448889	1.296449e+03
N_s	0.000000	1.154067	1.154067e+00
A_r	3064.142611	2020.019216	5.084162e+03
B_r	-20530.439883	23688.809187	3.158369e+03
C_r	-0.009531	0.010358	8.268924e-04
N_r	7.208515	0.910072	8.118587e+00
A_h	5392.311910	143.802212	5.536114e+03
B_h	218971.622490	50238.271408	2.692099e+05
C_h	0.034188	0.000929	3.511727e-02
A_o	-1.673894	1.673894	3.663068e-15
B_o	6.321683	0.895342	7.217025e+00
C_o	-0.270260	2.657699	2.387439e+00
N_o	-0.138883	1.379953	1.241069e+00
F_o	4.325944	2.361284	6.687228e+00

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.28368443760564377  
x: [ 6.507e+02 1.626e+04 ... 1.241e+00 6.687e+00]  
nit: 15090  
nfev: 19926  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 1.241e+00, 6.687e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.241e+00, 6.687e+00],  
...,  
[ 6.507e+02, 1.626e+04, ..., 1.241e+00, 6.687e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.241e+00, 6.687e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.241e+00, 6.687e+00]]), array([ 2.837e-01, 2.837e-01, ..., 2.837e-01, 2.837e-01]))

['SM data type data plots for mutation', 'Sensor10', 'using model:', 'model']



time elapsed for this fit  
--- 20.65137505531311 seconds ---

Across all four plots:

RSS (converged)=3.36

RSS (initial)=4.065

RSS (% reduction)=0.547

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	10968.990235	2020.019216	12989.009451
B_r	23765.234232	23688.809187	47454.043419
C_r	-0.009745	0.010358	0.000612
N_r	0.390467	0.910072	1.300540
A_h	-79.003157	143.802212	64.799056
B_h	61566.562695	50238.271408	111804.834103
C_h	-0.000367	0.000929	0.000562
A_o	9.710878	1.673894	11.384772
B_o	0.527283	0.895342	1.422625
C_o	-1.983670	2.657699	0.674029
N_o	0.882691	1.379953	2.262644
F_o	1.715532	2.361284	4.076815

message: Optimization terminated successfully.

success: True

status: 0

fun: 3.360263838475784

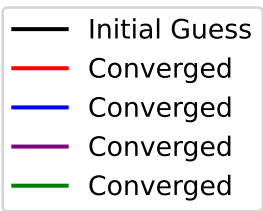
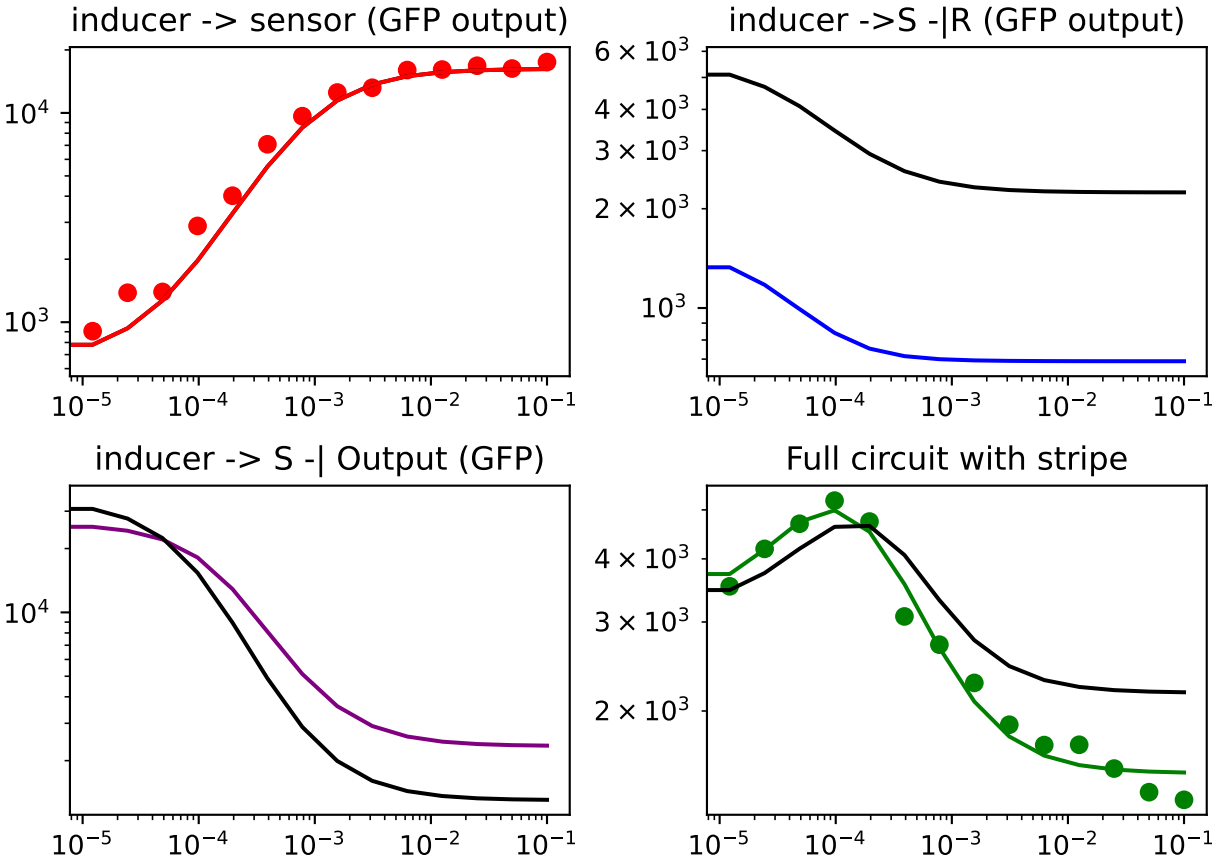
x: [ 6.507e+02 1.626e+04 ... 2.263e+00 4.077e+00]

nit: 7852

nfev: 10584

final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 2.263e+00,  
4.077e+00],  
[ 6.507e+02, 1.626e+04, ..., 2.263e+00,  
4.077e+00],  
...,  
[ 6.507e+02, 1.626e+04, ..., 2.263e+00,  
4.077e+00],  
[ 6.507e+02, 1.626e+04, ..., 2.263e+00,  
4.077e+00]]), array([ 3.360e+00, 3.360e+00, ..., 3.360e+00, 3.360e+00]))

['SM data type data plots for mutation', 'Sensor2', 'using model:', 'model']



time elapsed for this fit  
--- 16.974259853363037 seconds ---

Across all four plots:

RSS (converged)=0.12

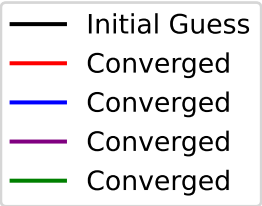
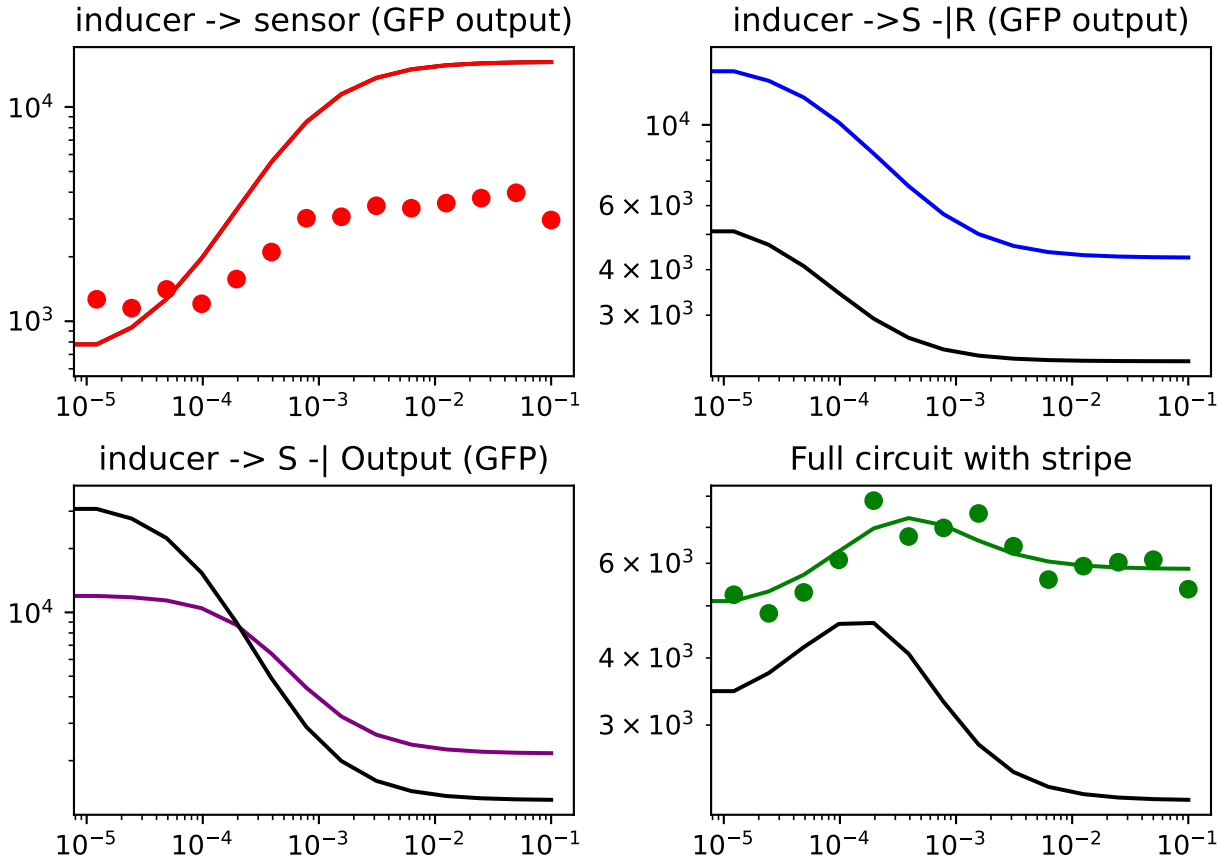
RSS (initial)=0.295

RSS (% reduction)=0.711

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	-1335.820745	2020.019216	684.198471
B_r	-14995.993692	23688.809187	8692.815495
C_r	-0.004108	0.010358	0.006250
N_r	0.683801	0.910072	1.593873
A_h	-143.788059	143.802212	0.014154
B_h	-20293.667944	50238.271408	29944.603464
C_h	-0.000558	0.000929	0.000371
A_o	0.752950	1.673894	2.426844
B_o	0.300063	0.895342	1.195405
C_o	4.440547	2.657699	7.098246
N_o	-0.007943	1.379953	1.372010
F_o	-1.608237	2.361284	0.753046

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.1197352048915372  
x: [ 6.507e+02 1.626e+04 ... 1.372e+00 7.530e-01]  
nit: 6595  
nfev: 8921  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 1.372e+00,  
7.530e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.372e+00,  
7.530e-01],  
...,  
[ 6.507e+02, 1.626e+04, ..., 1.372e+00,  
7.530e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.372e+00,  
7.530e-01]]), array([ 1.197e-01, 1.197e-01, ..., 1.197e-01, 1.197e-01]))

['SM data type data plots for mutation', 'Sensor3', 'using model:', 'model']



time elapsed for this fit  
--- 20.60858988761902 seconds ---

Across all four plots:

RSS (converged)=3.467

RSS (initial)=5.015

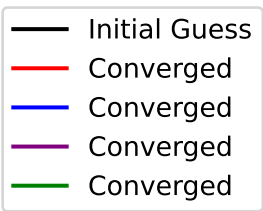
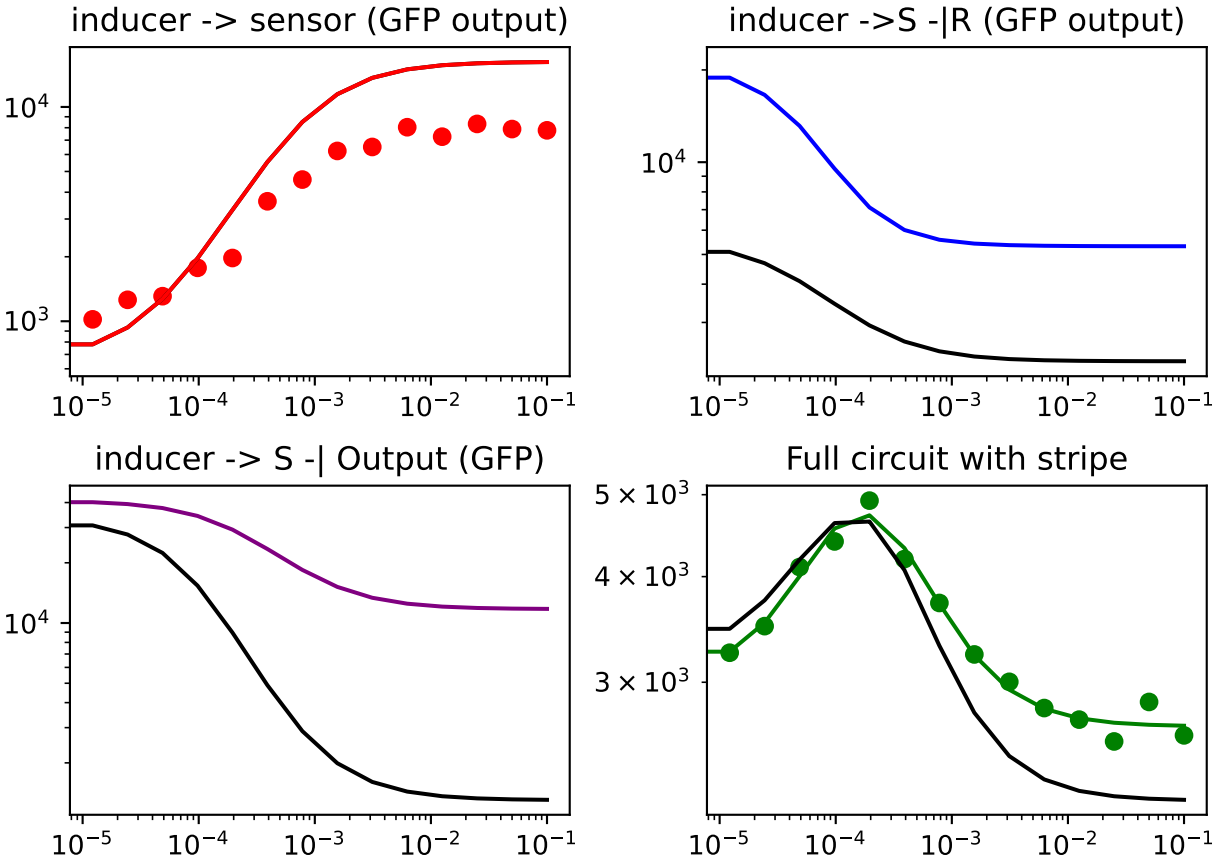
RSS (% reduction)=0.591

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	-1954.758661	2020.019216	65.260555
B_r	19302.272589	23688.809187	42991.081776
C_r	-0.004600	0.010358	0.005757
N_r	-0.423180	0.910072	0.486892
A_h	12.982678	143.802212	156.784891
B_h	-37875.707110	50238.271408	12362.564298
C_h	-0.000751	0.000929	0.000179
A_o	0.329088	1.673894	2.002982
B_o	-0.480707	0.895342	0.414635
C_o	-0.580932	2.657699	2.076767
N_o	0.162265	1.379953	1.542218
F_o	5.216738	2.361284	7.578022

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 3.467278812750455  
x: [ 6.507e+02 1.626e+04 ... 1.542e+00 7.578e+00]  
nit: 7957  
nfev: 10709  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 1.542e+00,  
7.578e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.542e+00,  
7.578e+00],  
...,  
[ 6.507e+02, 1.626e+04, ..., 1.542e+00,  
7.578e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.542e+00,  
7.578e+00]]), array([ 3.467e+00, 3.467e+00, ..., 3.467e+00, 3.467e+00]))



['SM data type data plots for mutation', 'Sensor4', 'using model:', 'model']



time elapsed for this fit  
--- 13.455730199813843 seconds ---

Across all four plots:

RSS (converged)=0.871

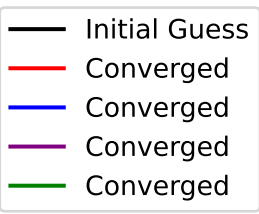
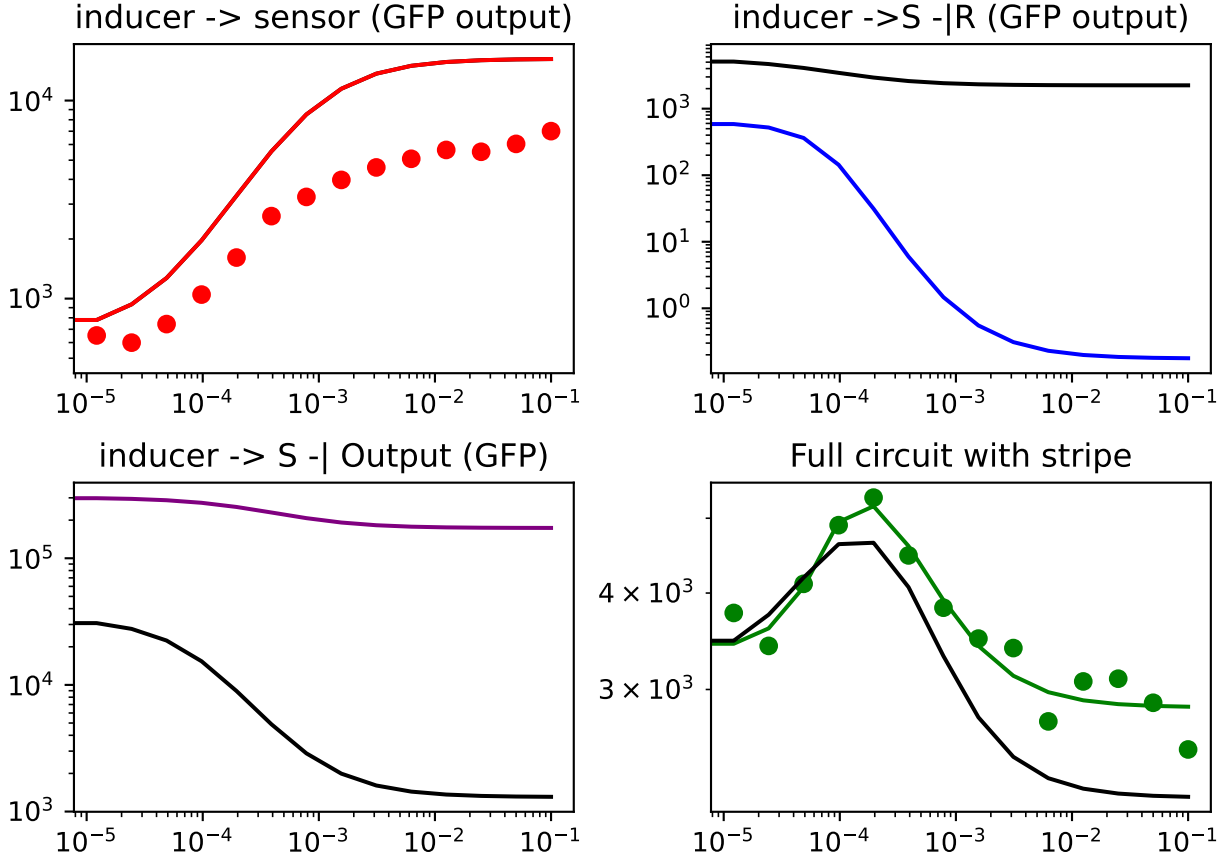
RSS (initial)=0.925

RSS (% reduction)=0.515

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	3166.710972	2020.019216	5186.730188
B_r	6312.055209	23688.809187	30000.864396
C_r	-0.008939	0.010358	0.001419
N_r	0.820970	0.910072	1.731042
A_h	35.992852	143.802212	179.795064
B_h	-5613.615629	50238.271408	44624.655779
C_h	-0.000763	0.000929	0.000167
A_o	1.760951	1.673894	3.434846
B_o	-0.205187	0.895342	0.690155
C_o	-1.878614	2.657699	0.779084
N_o	-0.324734	1.379953	1.055219
F_o	-1.994945	2.361284	0.366339

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 0.8714162231910737  
x: [ 6.507e+02 1.626e+04 ... 1.055e+00 3.663e-01]  
nit: 5190  
nfev: 7042  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 1.055e+00,  
3.663e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.055e+00,  
3.663e-01],  
...,  
[ 6.507e+02, 1.626e+04, ..., 1.055e+00,  
3.663e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.055e+00,  
3.663e-01]]), array([ 8.714e-01, 8.714e-01, ..., 8.714e-01, 8.714e-01]))

['SM data type data plots for mutation', 'Sensor5', 'using model:', 'model']



time elapsed for this fit  
--- 108.4381730556488 seconds ---

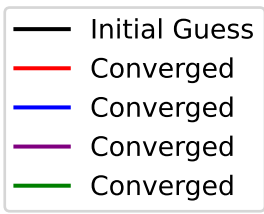
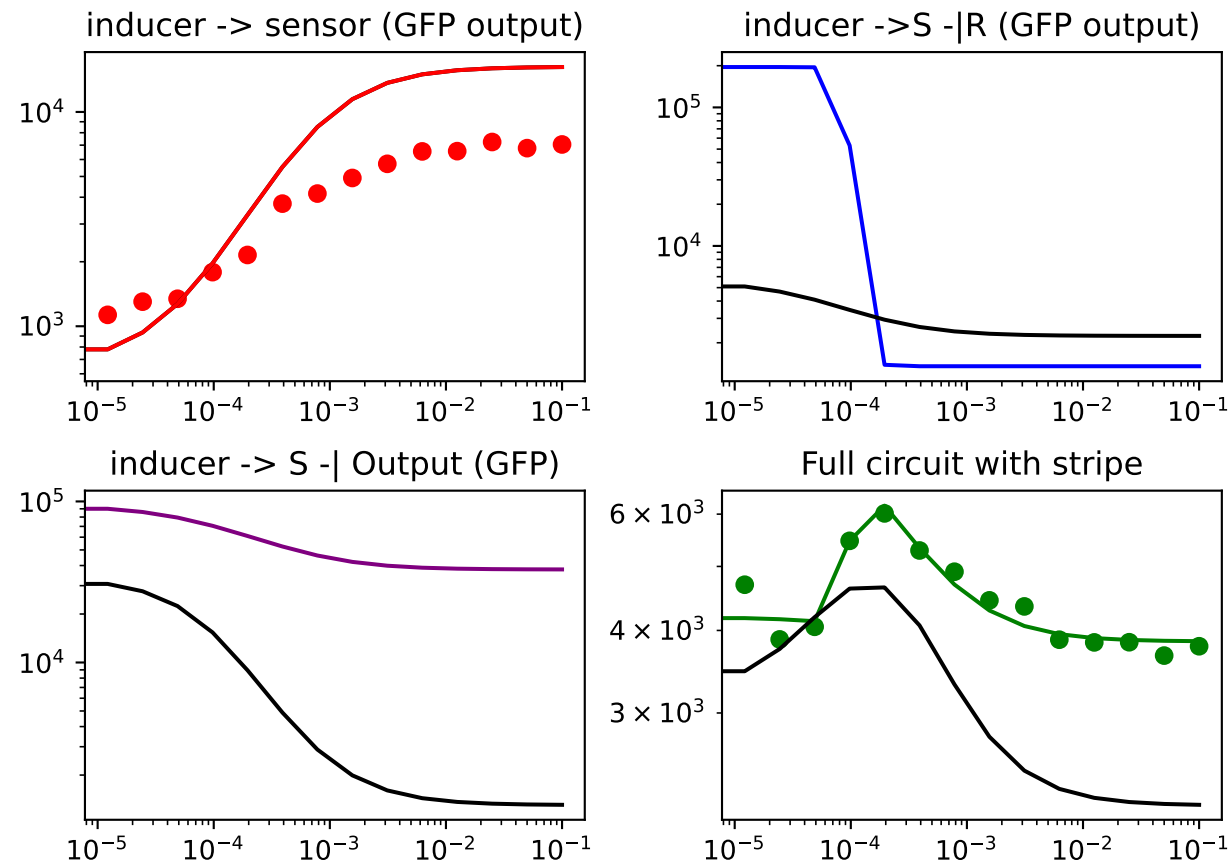
Across all four plots:

RSS (converged)=1.955  
RSS (initial)=2.053  
RSS (% reduction)=0.512

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	6.507149e+02
B_s	0.000000	16259.979950	1.625998e+04
C_s	0.000000	1296.448889	1.296449e+03
N_s	0.000000	1.154067	1.154067e+00
A_r	-2020.019216	2020.019216	1.235946e-08
B_r	-22993.438872	23688.809187	6.953703e+02
C_r	-0.009591	0.010358	7.664966e-04
N_r	2.373435	0.910072	3.283507e+00
A_h	83589.396670	143.802212	8.373320e+04
B_h	186895.612359	50238.271408	2.371339e+05
C_h	-0.000822	0.000929	1.068571e-04
A_o	-1.673894	1.673894	2.482954e-12
B_o	-0.346429	0.895342	5.489130e-01
C_o	15.313767	2.657699	1.797147e+01
N_o	-0.479529	1.379953	9.004239e-01
F_o	-2.303494	2.361284	5.779014e-02

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.955477635162612  
x: [ 6.507e+02 1.626e+04 ... 9.004e-01 5.779e-02]  
nit: 43993  
nfev: 57382  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 9.004e-01, 5.779e-02],  
[ 6.507e+02, 1.626e+04, ..., 9.004e-01, 5.779e-02],  
...,  
[ 6.507e+02, 1.626e+04, ..., 9.004e-01, 5.779e-02],  
[ 6.507e+02, 1.626e+04, ..., 9.004e-01, 5.779e-02]]), array([ 1.955e+00, 1.955e+00, ..., 1.955e+00, 1.955e+00]))

['SM data type data plots for mutation', 'Sensor6', 'using model:', 'model']



time elapsed for this fit  
--- 38.25314736366272 seconds ---

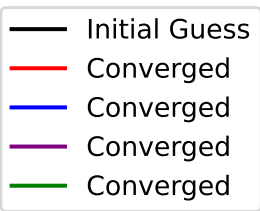
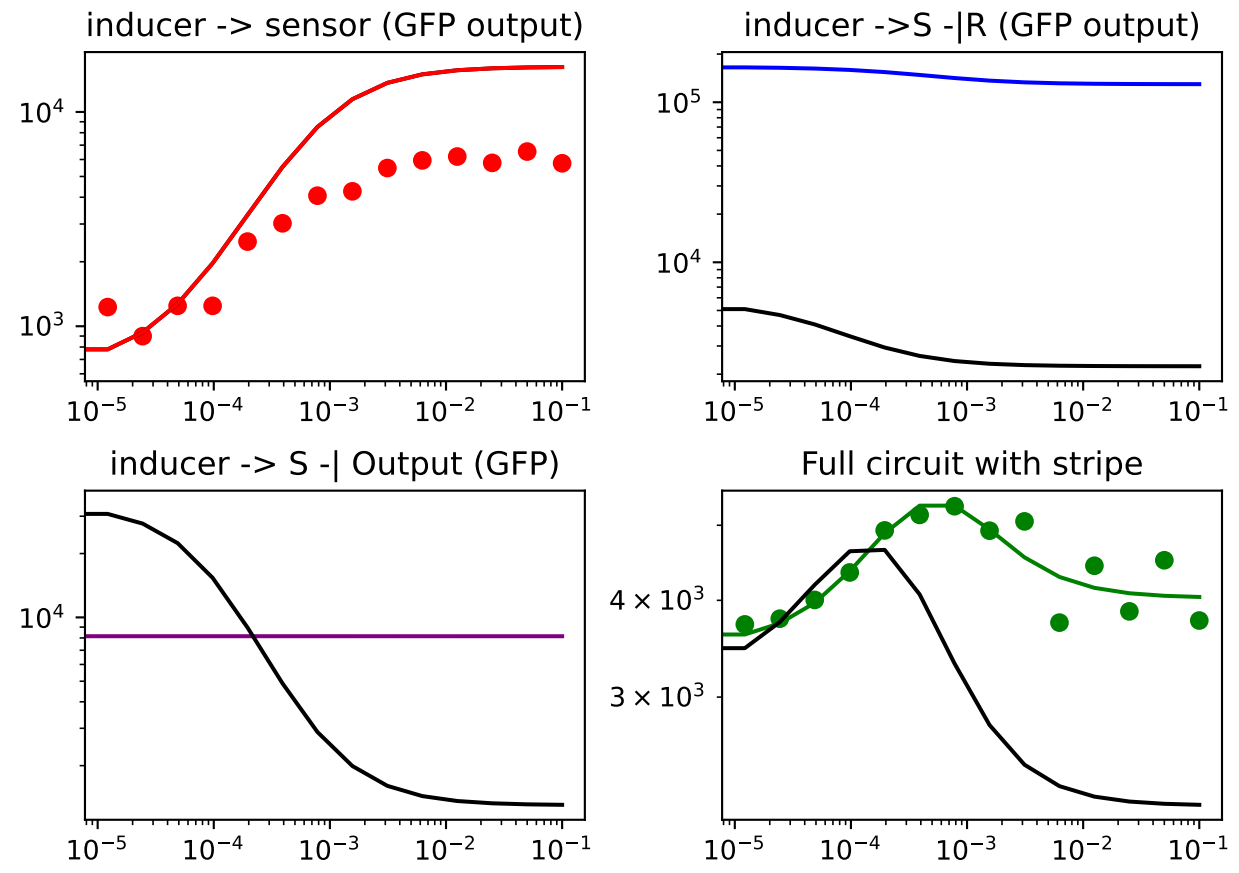
Across all four plots:

RSS (converged)=1.193  
RSS (initial)=1.653  
RSS (% reduction)=0.581

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	6.507149e+02
B_s	0.000000	16259.979950	1.625998e+04
C_s	0.000000	1296.448889	1.296449e+03
N_s	0.000000	1.154067	1.154067e+00
A_r	-666.368490	2020.019216	1.353651e+03
B_r	170558.126363	23688.809187	1.942469e+05
C_r	-0.009813	0.010358	5.442702e-04
N_r	13.888479	0.910072	1.479855e+01
A_h	-143.802212	143.802212	1.527035e-12
B_h	249694.499786	50238.271408	2.999328e+05
C_h	0.012607	0.000929	1.353590e-02
A_o	228.575878	1.673894	2.302498e+02
B_o	-0.629260	0.895342	2.660818e-01
C_o	-2.597338	2.657699	6.036027e-02
N_o	-1.020897	1.379953	3.590556e-01
F_o	-1.977932	2.361284	3.833520e-01

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.1930041459115155  
x: [ 6.507e+02 1.626e+04 ... 3.591e-01 3.834e-01]  
nit: 14862  
nfev: 19788  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 3.591e-01, 3.834e-01],  
[ 6.507e+02, 1.626e+04, ..., 3.591e-01, 3.834e-01],  
...,  
[ 6.507e+02, 1.626e+04, ..., 3.591e-01, 3.834e-01],  
[ 6.507e+02, 1.626e+04, ..., 3.591e-01, 3.834e-01]]), array([ 1.193e+00, 1.193e+00, ..., 1.193e+00, 1.193e+00]))

['SM data type data plots for mutation', 'Sensor7', 'using model:', 'model']



time elapsed for this fit  
--- 71.07673597335815 seconds ---

Across all four plots:

RSS (converged)=1.507

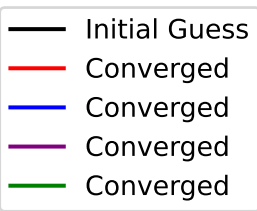
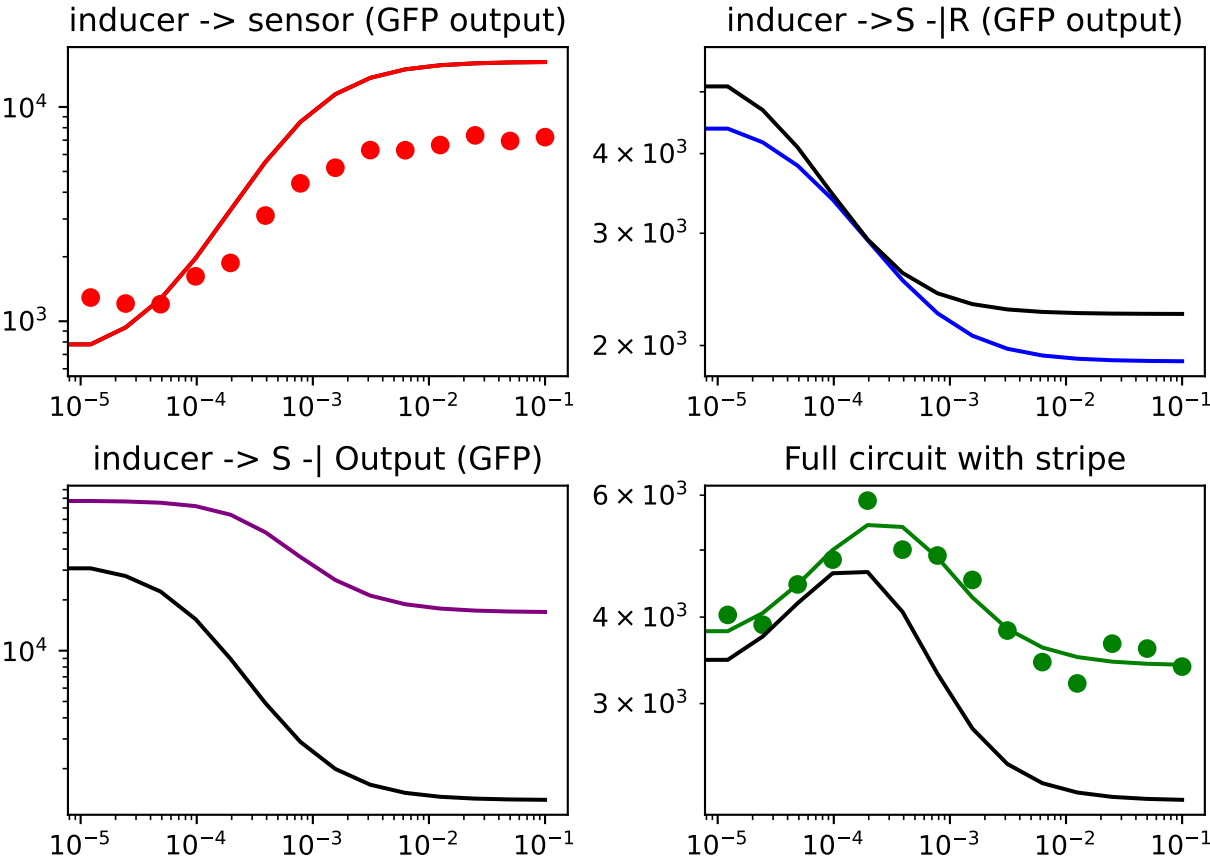
RSS (initial)=2.062

RSS (% reduction)=0.578

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	14.946048	2020.019216	2034.965264
B_r	147351.943924	23688.809187	171040.753111
C_r	-0.010346	0.010358	0.000011
N_r	-0.271838	0.910072	0.638234
A_h	-143.764290	143.802212	0.037922
B_h	-42086.579147	50238.271408	8151.692261
C_h	-0.000904	0.000929	0.000025
A_o	10.065009	1.673894	11.738904
B_o	6.156492	0.895342	7.051834
C_o	-2.195776	2.657699	0.461922
N_o	8.002702	1.379953	9.382654
F_o	24.719446	2.361284	27.080730

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.5068646465980953  
x: [ 6.507e+02 1.626e+04 ... 9.383e+00 2.708e+01]  
nit: 28469  
nfev: 37518  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 9.383e+00, 2.708e+01],  
[ 6.507e+02, 1.626e+04, ..., 9.383e+00, 2.708e+01],  
...,  
[ 6.507e+02, 1.626e+04, ..., 9.383e+00, 2.708e+01],  
[ 6.507e+02, 1.626e+04, ..., 9.383e+00, 2.708e+01]]), array([ 1.507e+00, 1.507e+00, ..., 1.507e+00, 1.507e+00]))

['SM data type data plots for mutation', 'Sensor8', 'using model:', 'model']



time elapsed for this fit  
--- 17.58650517463684 seconds ---

Across all four plots:

RSS (converged)=1.264

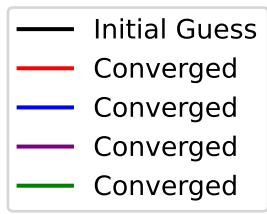
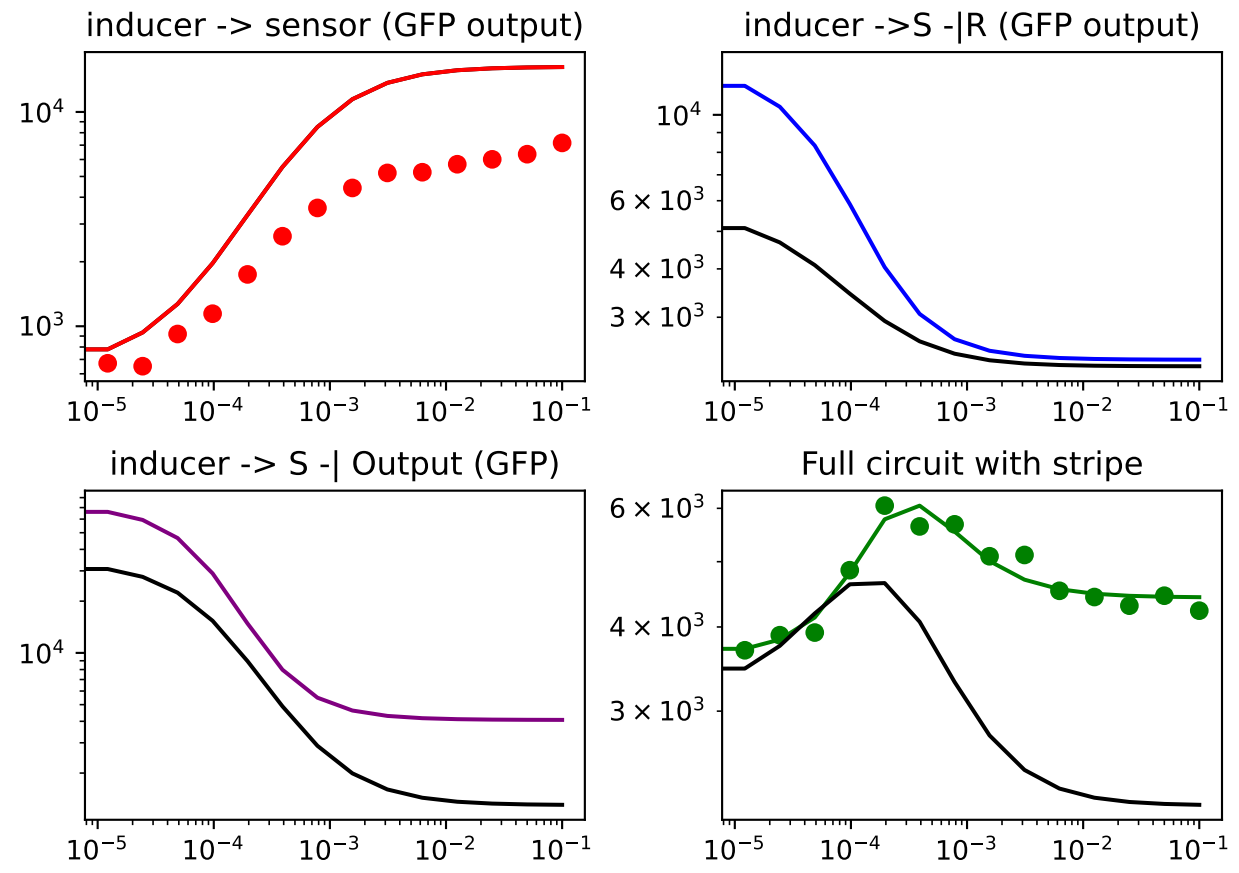
RSS (initial)=1.584

RSS (% reduction)=0.556

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	-1428.167962	2020.019216	591.851254
B_r	-8872.474093	23688.809187	14816.335094
C_r	0.006010	0.010358	0.016368
N_r	-0.490137	0.910072	0.419935
A_h	51.913700	143.802212	195.715912
B_h	28069.984493	50238.271408	78308.255901
C_h	-0.000799	0.000929	0.000130
A_o	1.887949	1.673894	3.561844
B_o	0.614989	0.895342	1.510331
C_o	2.766145	2.657699	5.423843
N_o	0.365542	1.379953	1.745495
F_o	-2.098098	2.361284	0.263186

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.2639544451241065  
x: [ 6.507e+02 1.626e+04 ... 1.745e+00 2.632e-01]  
nit: 6749  
nfev: 9199  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 1.745e+00, 2.632e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.745e+00, 2.632e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.745e+00, 2.632e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.745e+00, 2.632e-01],  
[ 6.507e+02, 1.626e+04, ..., 1.745e+00, 2.632e-01]]), array([ 1.264e+00, 1.264e+00, ..., 1.264e+00, 1.264e+00]))

['SM data type data plots for mutation', 'Sensor9', 'using model:', 'model']



time elapsed for this fit  
--- 40.79175138473511 seconds ---

Across all four plots:

RSS (converged)=1.652  
RSS (initial)=2.353  
RSS (% reduction)=0.588

	epsilon	Initial_guesses	Converged
A_s	0.000000	650.714912	650.714912
B_s	0.000000	16259.979950	16259.979950
C_s	0.000000	1296.448889	1296.448889
N_s	0.000000	1.154067	1.154067
A_r	122.182115	2020.019216	2142.201331
B_r	-3048.723196	23688.809187	20640.085991
C_r	-0.008976	0.010358	0.001382
N_r	0.597446	0.910072	1.507519
A_h	3364.518747	143.802212	3508.320959
B_h	36959.640823	50238.271408	87197.912231
C_h	-0.000132	0.000929	0.000797
A_o	-1.322913	1.673894	0.350982
B_o	0.729575	0.895342	1.624917
C_o	0.455351	2.657699	3.113050
N_o	0.584842	1.379953	1.964795
F_o	0.276290	2.361284	2.637574

message: Optimization terminated successfully.  
success: True  
status: 0  
fun: 1.6515062924967585  
x: [ 6.507e+02 1.626e+04 ... 1.965e+00 2.638e+00]  
nit: 16078  
nfev: 21368  
final\_simplex: (array([[ 6.507e+02, 1.626e+04, ..., 1.965e+00, 2.638e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.965e+00, 2.638e+00],  
...,  
[ 6.507e+02, 1.626e+04, ..., 1.965e+00, 2.638e+00],  
[ 6.507e+02, 1.626e+04, ..., 1.965e+00, 2.638e+00]]), array([ 1.652e+00, 1.652e+00, ..., 1.652e+00, 1.652e+00]))