**Section 3 Model parameters**

**Supplementary Table 1: Model kinetic rates**

|  |  |  |
| --- | --- | --- |
|  | System 1 (with normalized protein concentrations) | Systems 2 (with absolute protein concentrations) |
| a1 | 627.9894  | 12.9004 |
| a2 | 130.0689  | 296.9649 |
| a3 | 771.4746  | 787.5564 |
| a4 | 991.0612  | 962.5454 |
| a5 | 392.3954  | 117.0922 |
| a6 | 178.0273  | 8.1720 |
| a7 | 303.2468  | 110.5682 |
| a8 | 990.7646  | 22.9655 |
| a9 | 262.2502  | 50.1080 |
| a10 | 30.7684  | 413.9485 |
| a11 | 258.6854  | 578.0903 |
| a12 | 421.6418  | 545.6148 |
| a13 | 934.5998  | 597.8275 |
| a14 | 997.4956  | 715.5311 |
| a15 | 308.2011  | 950.0722 |
| d1 | 966.7549  | 829.0270 |
| d2 | 545.3449  | 269.5801 |
| d3 | 311.4579  | 931.6711 |
| d4 | 81.7033  | 411.4126 |
| d5 | 555.8324  | 461.8659 |
| d6 | 771.3258  | 992.0931 |
| d7 | 868.4128  | 941.7581 |
| d8 | 805.8842  | 542.6078 |
| d9 | 848.7862  | 985.8656 |
| d10 | 616.4328  | 228.2631 |
| d11 | 525.1088  | 683.4208 |
| d12 | 3.5992  | 359.6071 |
| d13 | 648.7319  | 984.9748 |
| d14 | 0.5312  | 310.1609 |
| d15 | 991.2510  | 876.6049 |
| k1 | 378.9429  | 673.1917 |
| k2 | 954.3705  | 347.7281 |
| k3 |  999.2599  | 527.5817 |
| k4 | 711.0431  | 94.4081 |
| k5 | 142.5897  | 966.8493 |
| k6 | 807.5169  | 905.9800 |
| k6 |  202.6541  | 683.1633 |
| k7 | 984.7507  | 860.5174 |
| k9 | 487.7677  | 776.3679 |
| k10 | 105.4593  | 150.1161 |
| k11 | 35.2583  | 486.3171 |
| l12 |  979.5608  | 415.2683 |
| k13 | 142.6479  | 17.8394 |
| k14 | 41.8387  | 625.4545 |
| k15 | 70.9315  | 450.5782 |
| f1 | 359.1159  | 856.2792 |
| f2 | 60.0072  | 981.8249 |
| f3 | 141.0533  | 549.4905 |
| f4 | 15.8959  | 97.4713 |
| f5 | 141.4272  | 5.0669 |
| f6 | 486.5250  | 146.6915 |
| f7 | 328.0910  | 34.3962 |
| f8 | 669.2549  | 858.4803 |
| f9 | 282.8181  | 897.4122 |
| f10 | 955.9907  | 453.4173 |
| f11 | 516.0594  | 951.8842 |
| f12 |  2.2888  | 7.1974 |