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| **Table S5:** Basal parameter values used in the full model\*  |
| *k*ph1-ph11 | 5 | *k*ph11-ph1 | 5 | *k*ph11-pk11 | 5 | *k*pk11-ph11 | 5 |
| *k*pk11-pk0 | 5 | *k*pk0-pk11 | 5 | *k*pk0-pk1 | 0.16 | *k*pk1-pk0 | 5 |
| *k*pk1-pk2 | 5 | *k*pk2-pk1 | 0.0016 | *k*pk1-pk1h | 5 | *k*pk1h-pk1 | 5 |
| *k*pk1-pk2p | 0.16 | *k*pk2p-pk1 | 5 | *k*pk2-pt2 | 5 | *k*pt2-pk2 | 0.16 |
| *k*pt2-pk1h | 0.16 | *k*pk1h-pt2 | 5 | *k*pk2p-ph2p | 5 | *k*ph2p-pk2p | 0.005 |
| *k*ph2p-pc | 5 | *k*ph1p-pc | 5 | *k*pk3-pk2p | 0.0016 | *k*pk2p-pk3 | 5 |
| *k*pk2-pk3 | 0.16 | *k*pk3-pk2 | 5 | *k*pk3-pt3 | 5 | *k*pt3-pk3 | 0.16 |
| *k*pt3-pk1p | 0.16 | *k*pk1p-pt3 | 5 | *k*pk1p-pk1h | 5 | *k*pk1h-pk1p | 0.16 |
| *k*pk3-pk4 | 5 | *k*pk4-pk3 | 0.0016 | *k*pk4-pt4 | 5 | *k*pt4-pk4 | 0.16 |
| *k*pt4-pk11 | 5 | *k*pk11-pt4 | 0.16 | *k*pc-ph2 | 0.05 | *k*ph2-pc | 5 |
| *k*ph2-ph22 | 0.05 | *k*ph22-ph2 | 5 | *k*ph22-pk22 | 5 | *k*pk22-ph22 | 5e-08 |
| *k*pk22-pk4 | 5 | *k*pk4-pk22 | 5 | *k*ph2-ph12 | 5 | *k*ph12-ph2 | 5 |
| *k*ph1-ph12 | 0.05 | *k*ph12-ph1 | 5 | *k*ph12-pk12 | 5 | *k*pk12-ph12 | 5e-04 |
| *k*pk12-pk2 | 5 | *k*pk2-pk12 | 5 | *k*pch-pck | 0.005 | *k*pck-pch | 5 |
| *k*pck-pkdp | 5 | *k*pkdk-pck | 0.0016 | *k*pkdk-pk22 | 5 | *k*pk22-pkdk | 0.0016 |
| *k*pkdk-pk12 | 5 | *k*pk12-pkdk | 0.16 | *k*pck-pt3h | 5 | *k*pt3h-pck | 0.16 |
| *k*pt3h-pk11 | 5 | *k*pk11-pt3h | 0.16 | *k*pt3h-pk12 | 5 | *k*pk12-pt3h | 0.0016 |
| *k*pt4-pk3h | 0.16 | *k*pk3h-pt4 | 5 | *k*pk3-pk3h | 5 | *k*pk3h-pk3 | 5 |
| *k*pk1p-pk3h | 5 | *k*pk3h-pk1p | 0.0016 | *k*pk3h-pt3h | 5 | *k*pt3h-pk3h | 0.16 |
| *k*pk1p-ph1p | 5 | *k*ph1p-pk1p | 0.005 | *k*syn-dk | 0.015 | *k*deg-dk | 0.005 |
| *k*deg-dkp | 0.005 | *k*j-jk | 1 | *k*jk-j | 0.1 | *k*ph1-ph2 | 10 |
| *k*ph2-ph1 | 5e-03 | *k*pc-ph1 | 5 | *k*ph1-pc | 5 | *k*syn-pld | 0.01 |
| *k*deg-pld | 0.005 | *k*deg-pldp | 0.005 | *k*phos-ph3 | 1 | *k*ph3-phos | 0.1 |
| *k*pk1-pk5 | 10 | *k*pk5-pk1 | 0.31 | *k*pk5-pt5 | 10 | *k*pt5-pk5 | 0.31 |
| *k*pt5-pk1h | 10 | *k*pk1h-pt5 | 0.31 | *k*pk3-pk6 | 10 | *k*pk6-pk3 | 0.31 |
| *k*pk6-pt6 | 10 | *k*pt6-pk6 | 0.31 | *k*pt6-pk3h | 10 | *k*pk3h-pt6 | 0.31 |
| *k*e-ph3 | 0.2 |  |  |  |  |  |  |
| *k*dl-dldk | 1 | *k*dldk-dl | 0.1 | *k*syndl | 0.005 | *k*degdl | 0.005 |
| *k*cp-ck | 1 | *k*cp-ck | 0.1 | *k*cp-ch2 | 1 | *k*ch2-cp | 0.1 |
| *k*syn-ctra | 0.05 | *k*deg-ctr | 0.02 | *k*deg-ctrp | 0.02 | *k*syn-cpdr | 0.05 |
| *k*deg-cpdr | 0.02 | *k*deg-cpdp | 0.02 | *k*ck-ck1 | 1 | *k*ck1-ck | 0.1 |
| *k*ck1-ct1 | 1 | *k*ct1-ck1 | 0.1 | *k*ct1-ck | 1 | *k*ck-ct1 | 0.1 |
| *k*cp-ch1 | 1 | *k*ch1-cp | 0.1 | *k*e-ch1 | 1 | *k*ck-ck2 | 1 |
| *k*ck2-ck | 0.1 | *k*ck2-ct2 | 1 | *k*ct2-ck2 | 0.1 | *k*ct2-ck | 1 |
| *k*ck-ct2 | 0.1 | *k*e-ch2 | 1 |  |  |  |  |
| DivJ\_tot | 0.5 | PleC\_tot | 1 | CckA\_tot | 1 | Phos\_tot | 0.1 |
| *K*dl | 0.75 |  |  |  |  |  |  |
| \*For each reaction of the form $X\rightarrow Y,$ the parameters *k*x-y and *k*y-x are the forward and reverse rate constants (min-1). DivJ\_tot, PleC\_tot, CckA\_tot, Phos\_tot and *K*dl are dimensionless constants representing concentrations. |