FULL SYSTEM

Activation: $Q \underset{k_{-l}}{\overset{h\nu,\, k_l}{\rightleftharpoons}} {}^3Q$

$\mathbf{k_l}$	= 1e8 - 1e10	c^{-1}
$\mathbf{k_{-l}}$	= 1e5 - 1e6	c^{-1}

Quenching:

$${}^3Q + DH \underset{k_{-qE}}{\overset{k_{qE}}{\rightleftharpoons}} [Q^{\bullet -}, DH^{\bullet +}]_s \xrightarrow{k_H} [Q^{\bullet}, DH^{\bullet}]_s \xrightarrow{k_{diff}} QH^{\bullet} + D^{\bullet}$$

$$[Q^{\bullet -}, DH^{\bullet +}]_s \xrightarrow{k_{diff}} Q_s^{\bullet -} + DH_s^{\bullet +}$$

$\mathbf{k_{qE}}$	= 1e8 - 1e10	$M^{-1}c^{-1}$
$\mathbf{k_{-qE}}$	= 1e7 - 1e9	c^{-1}
$\mathbf{k_H}$	= 1e8 - 1e10	c^{-1}
$\mathbf{k_{diff}}$	= 1e8 - 1e9	c^{-1}

$${}^3Q + QHH \xrightarrow{k_{qH}} 2QH^{\bullet} \underset{k_{oxQ}}{\overset{k_{redQ}}{\rightleftharpoons}} Q + QHH$$

$\mathbf{k_{qH}}$	= 1e5 - 1e9	$M^{-1}c^{-1}$
$\mathbf{k_{oxQ}}$	= 1	$M^{-1}c^{-1}$
$\mathbf{k_{redQ}}$	= 1e9	$M^{-1}c^{-1}$

$${}^3Q + QHD \xrightarrow{k_{qQD}} QH^{\bullet} + QD^{\bullet} \qquad \mathbf{k_{qQD}} = ? \quad M^{-1}c^{-1}$$

$${}^3Q \xrightarrow{k_{qPh}} \text{prod} \qquad \mathbf{k_{qPh}} = \text{1e9 (1e-5)} \quad c^{-1}$$

Other:

$$Q + D^{\bullet} \underset{k_{-D}}{\overset{k_D}{\rightleftharpoons}} QD^{\bullet}$$

$\mathbf{k_D}$	= ?(1)	$M^{-1}c^{-1}$
$\mathbf{k_{-D}}$	= (0.05)	c^{-1}

$$QH^{\bullet} + D^{\bullet} \xrightarrow{k_r} QHD \xrightarrow{k_p} QHH + \text{N-prod}$$

$\mathbf{k_r}$	= ?(1e9)	$M^{-1}c^{-1}$
$\mathbf{k_p}$	= 1e-5 - 1e-3	c^{-1}

$$2D^{\bullet} \xrightarrow{k_{rD}} \text{N-prod} \qquad \mathbf{k_{rD}} = ? \ (\text{1e9}) \quad M^{-1}c^{-1}$$

SIMPLE SYSTEM

Activation: $Q \underset{k_{-l}}{\overset{h\nu,\, k_l}{\rightleftharpoons}} {}^3Q$

$\mathbf{k_l}$	= 1e8 - 1e10	c^{-1}
$\mathbf{k_{-l}}$	= 1e5 - 1e6	c^{-1}

Quenching:

$${}^3Q + DH \xrightarrow{k_H} QH^\bullet + D^\bullet \qquad \mathbf{k_H} = \text{1e8 - 1e10} \quad M^{-1}c^{-1}$$

$${}^3Q + QHH \xrightarrow{k_{qH}} 2QH^\bullet \xrightarrow{k_{redQ}} Q + QHH$$

$\mathbf{k_{qH}}$	= 1e5 - 1e9	$M^{-1}c^{-1}$
$\mathbf{k_{redQ}}$	= 1e9	$M^{-1}c^{-1}$

Other:

$$QH^\bullet + D^\bullet \xrightarrow{k_r} QHD \qquad \mathbf{k_r} = \text{?(1e9)} \quad c^{-1}$$

$$2D^\bullet \xrightarrow{k_{rD}} \text{N-prod} \qquad \mathbf{k_{rD}} = \text{? (1e9)} \quad c^{-1}$$