

Lux Data Summary

Enzyme	Paper	Figure	Graph Type	Ordinate	Variable Substrate	Km (μM)	Enzyme concentration (μM)	Vmax (μM/min)	Substrate concentrations (μM)
Lux AB	1	3A	Static Data	Light intensity	pentadecanal	3.7425	1.93	4.7	FMNH2 2.5
		3B	Static Data	Light intensity	decanal	13.904	1.93	1.465	FMNH2 2.5
	2	2	Time Series	Light intensity			0.0115 (MAV)		FMNH2 22.7, decanal 38.4
		8	Static Data	1/Light intensity	FMNH2	1.1496	0.02 (Pf)	0.178	
Lux D	3	3	Static Data	1/v	myristoyl-ACP	0.3667	0.1453	45.9816 pmol/min/μg	
Lux E	4	1A	Static Data	1/v	tetradecanoic acid	0.4342	0.0163	0.0112	ATP 1000, (NADPH 100)
		1B	Static Data	1/v	ATP	0.02	0.00419	0.00237	tetradecanoic acid 5, (NADPH 100)
		3B	Time Series	[AMP]	N/A		1.86		tetradecanoic acid 10, ATP 1000
Lux C	5	2S	Static Data	1/v	NADPH	4.3691	0.09043	40.9398 nmol/min/mg	tetradecanoyl - CoA 7

Paper 1 Hastings et al 1963, J. Biol Chem 238(9) 3100-3105
 Paper 2 Meighen and Hastings 1971, J Biol Chem 246(24) 7666-7674
 Paper 3 Ferri and Meighen 1991, J. Biol Chem 266(20) 12852-12857
 Paper 4 Rodriguez et al 1985, Can J Biochem Cell Biol 63 1106-1111
 Paper 5 Rodriguez et al 1983, J Biol Chem Cell Biol 258(8) 5233-5237

Sensitivity of light intensity to change in substrate concentrations

S:substrate(s) increased in concentration by five orders of magnitude

L:resulting percentage change in light intensity

S	L
ATP	1.526537624
NADPH	0.004188792
O2	0.002694635
ATP and NADPH	-0.002663999
ATP and O2	0.155348698
NADPH and O2	0.006883651
ATP,NADPH and O2	0.159456669

Sensitivity to Km Values

Species	Parameter	Steady state light intensity	change in light intensity	fractional change	percentage change*
V.harveyi	KmFMN	0.3	0.1112610791	0.0000000000	0.0000000000
		9.2	0.1112610791		
		73	0.1112610791	0.0000000000	0.0000000000
V.fischeri					
KmNADPH					
V.harveyi	KmNADPH	0.02	0.1112610791	0.0000000000	0.0000000000
		24.2	0.1112610791		
		400	0.1112610791	0.0000000000	0.0000000000
V.fischeri					
KmFMNH2					
P.phosph		0.1	0.1112611076	fractional change	
X.lum		1.4	0.1112610878	-0.0000000285	-0.0000256154
		1.9669	0.1112610791	0.0000000087	0.0000078194
		10.0000	0.1112609567	-0.0000001224	-0.0000110011
KmO2					
		0.001	0.1112610786	change	
		0.01980	0.1112610791	fractional change	-0.0000000494
V.fischeri		0.02	0.1112610791		
				0.0000000000	0.0000000000
		18	0.1112616240	0.0000005449	0.0004897490
KmRCHO					
		0.05	0.1112611380	change	
		24.5233	0.1112610791	fractional change	0.0000005294
P.phosph		280	0.1112604625	-0.0000006166	-0.000055419
KmRCOOH					
		0.01	0.1114663205	change	
		0.4342	0.1112610791	fractional change	0.0018446828
P.phosph		0.5	0.1112293113	-0.0000317678	-0.002855248
		10	0.1068270213	-0.0044340578	-0.0398527305
KmATP					
		0.002	0.1112626079	change	
		0.02	0.1112610791	fractional change	0.0000137407
P.phosph		2	0.1112457939	-0.0000152852	-0.0137381375
KmNADPHC					
		0.01	0.1112610867	change	
		5	0.1112610792	0.0000000076	0.0000068038
P.phosph		5.0246	0.1112610791	0.0000000001	0.0000000099
		100	0.1112609063	-0.0000001708	-0.0001535128
KmRCOGA					
		0.01	0.1112619670	change	
		1	0.1112611221	fractional change	0.0000079803
P.phosph		1.0502	0.1112610791	0.0000000430	0.000003865
		100	0.111194201	-0.0001416590	-0.012732125

*percentage change in light intensity from that obtained with parameter value used in model