

## The Photopic Hill Parameter Output

Input the Photopic hill equation in Fitting Function Builder for non-linear curve fitting in

OriginPro,  $y = (G_b * ((x/\mu)^{(\ln(\mu/x)/B^2)})) + ((V_{bmax} * x)/(x + \sigma))$

where x is I, flash strength and y is b-wave amplitude according to the equation in Hamilton et al 2007 as below.

$$y = G_b \left[ \left( \frac{I}{\mu} \right)^{\frac{\ln(\frac{\mu}{I})}{B^2}} \right] + \frac{V_{bmax} I}{I + \sigma_b}$$

### Summary of the Parameters

Parameter		Value	Standard Error (se)	t-Value	Prob> t	Dependency
<b>ADHD</b>	<b>G<sub>b</sub></b>	14.98598	1.23318	12.15231	2.63E-04	0.57466
	<b>B<sup>2</sup></b>	1.04213	0.22915	4.54771	0.01044	0.8379
	<b>V<sub>bmax</sub></b>	38.18375	1.30555	29.24718	8.14E-06	0.87073
	<b>σ</b>	0.77939	0.07966	9.78431	6.11E-04	0.81452
	<b>μ</b>	2.58022	0.17669	14.6034	1.28E-04	0.55203
<b>Control</b>	<b>G<sub>b</sub></b>	10.08307	1.37531	7.33147	0.00184	0.40139
	<b>B<sup>2</sup></b>	0.65173	0.20702	3.14812	0.03458	0.69191
	<b>V<sub>bmax</sub></b>	30.2382	1.08666	27.82676	9.92E-06	0.7636
	<b>σ</b>	0.70432	0.07328	9.6117	6.55E-04	0.70598
	<b>μ</b>	2.48927	0.22606	11.01153	3.87E-04	0.34536
<b>ASD</b>	<b>G<sub>b</sub></b>	9.32773	1.34887	6.9152	0.00229	0.51131
	<b>B<sup>2</sup></b>	0.93122	0.34906	2.66778	0.05594	0.78923
	<b>V<sub>bmax</sub></b>	26.60796	1.37906	19.29431	4.25E-05	0.85192
	<b>σ</b>	0.65942	0.09477	6.95844	0.00224	0.76431
	<b>μ</b>	2.59064	0.3014	8.59531	0.00101	0.47532

G<sub>b</sub> = Maximal Gaussian amplitude

B<sup>2</sup> = measure of the width of the Gaussian curve

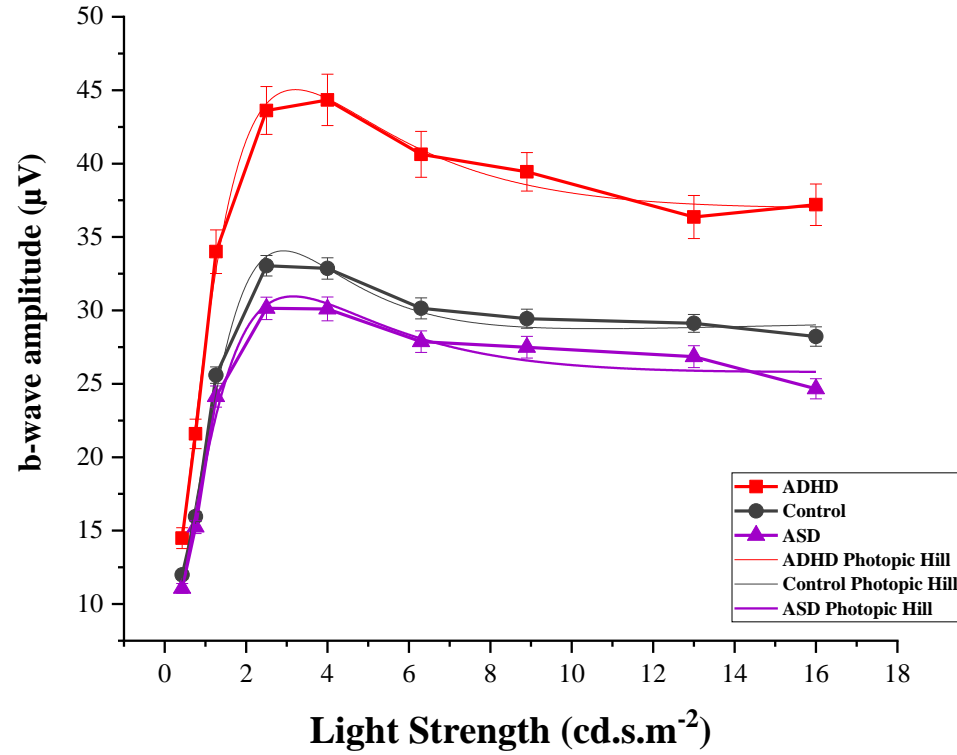
V<sub>bmax</sub> = Maximal saturated amplitude

σ = semi-saturation flash strength that evokes a half-maximal response of the b-wave amplitude

μ = peak flash strength (phot cd.s.m<sup>-2</sup>)

### Statistical of the curve fitting:

	$G_b$		$B^2$		$V_{bmax}$		$\sigma'$		$\mu$		Statistics		Statistics
	Value	se	Value	se	Value	se	Value	se	Value	se	Reduced Chi-Sqr	Adj. R-Square	
<b>ADHD</b>	14.98598	1.23318	1.04213	0.22915	38.18375	1.30555	0.77939	0.07966	2.58022	0.17669	0.61722		0.99394
<b>Control</b>	10.08307	1.37531	0.65173	0.20702	30.2382	1.08666	0.70432	0.07328	2.48927	0.22606	4.55986		0.98547
<b>ASD</b>	9.32773	1.34887	0.93122	0.34906	26.60796	1.37906	0.65942	0.09477	2.59064	0.3014	3.56578		0.98168



### Tukey HSD Post-hoc Test

<b>G<sub>b</sub></b>	ADHD vs Control: Diff=-4.9100, 95%CI=-9.2279 to -0.5921, p=0.0210 ADHD vs ASD: Diff=-5.6600, 95%CI=-9.9779 to -1.3421, p=0.0060 Control vs ASD: Diff=-0.7500, 95%CI=-5.0679 to 3.5679, p=0.9127
<b>B<sup>2</sup></b>	ADHD vs Control: Diff=-0.3900, 95%CI=-1.1791 to 0.3991, p=0.4782 ADHD vs ASD: Diff=-0.1100, 95%CI=-0.8991 to 0.6791, p=0.9429 Control vs ASD: Diff=0.2800, 95%CI=-0.5091 to 1.0691, p=0.6833
<b>V<sub>bmax</sub></b>	ADHD vs Control: Diff=-7.9400, 95%CI=-12.1592 to -3.7208, p=0.0000 ADHD vs ASD: Diff=-11.5700, 95%CI=-15.7892 to -7.3508, p=0.0000 Control vs ASD: Diff=-3.6300, 95%CI=-7.8492 to 0.5892, p=0.1083
<b>σ</b>	ADHD vs Control: Diff=-0.0800, 95%CI=-0.3466 to 0.1866, p=0.7615 ADHD vs ASD: Diff=-0.1200, 95%CI=-0.3866 to 0.1466, p=0.5421 Control vs ASD: Diff=-0.0400, 95%CI=-0.3066 to 0.2266, p=0.9341
<b>μ</b>	ADHD vs Control: Diff=-0.0900, 95%CI=-0.8791 to 0.6991, p=0.9614 ADHD vs ASD: Diff=0.0100, 95%CI=-0.7791 to 0.7991, p=0.9948 Control vs ASD: Diff=0.1000, 95%CI=-0.6891 to 0.8891, p=0.9525

### Multiple pairwise comparison by Tukey HSD post-hoc test:

<b>p-value</b>	<b>ADHD vs Control</b>	<b>ADHD vs ASD</b>	<b>Control vs ASD</b>
<b>G<sub>b</sub></b>	0.021	0.006	0.9127
<b>B<sup>2</sup></b>	0.4782	0.9429	0.6833
<b>V<sub>bmax</sub></b>	<.00001	<.00001	0.1083
<b>σ</b>	0.7615	0.5421	0.9341
<b>μ</b>	0.9614	0.9948	0.9525

### The Photopic Hill parameters of ADHD, Control and ASD groups

	<b>ADHD</b>	<b>Control</b>	<b>ASD</b>	<b>F</b>	<b>Overall p-value</b>
<b>G<sub>b</sub></b>	14.99±1.2	10.08±1.4	9.33±1.3	5.57	0.0038
<b>B<sup>2</sup></b>	1.04±0.2	0.65±0.2	0.93±0.3	0.71	0.49
<b>V<sub>bmax</sub></b>	38.18±1.3	30.24±1.1	26.61±1.4	21.61	<.00001
<b>σ</b>	0.78±0.08	0.70±0.07	0.66±0.09	0.58	0.56
<b>μ</b>	2.58±0.2	2.49±0.2	2.59±0.3	0.054	0.95