

Appendix 1 to Ritter P, Wieland F, Skene DJ, et al. Melatonin suppression by melanopsin-weighted light in patients with bipolar I disorder compared to healthy controls. *J Psychiatry Neurosci* 2019.

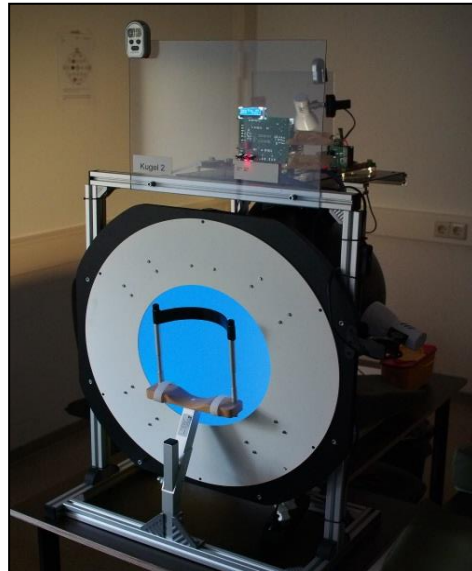
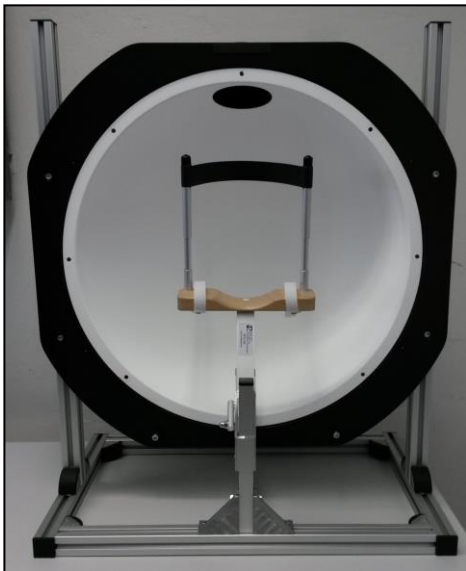
DOI: 10.1503/jpn.190005

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SUPPLEMENT 1:

a)

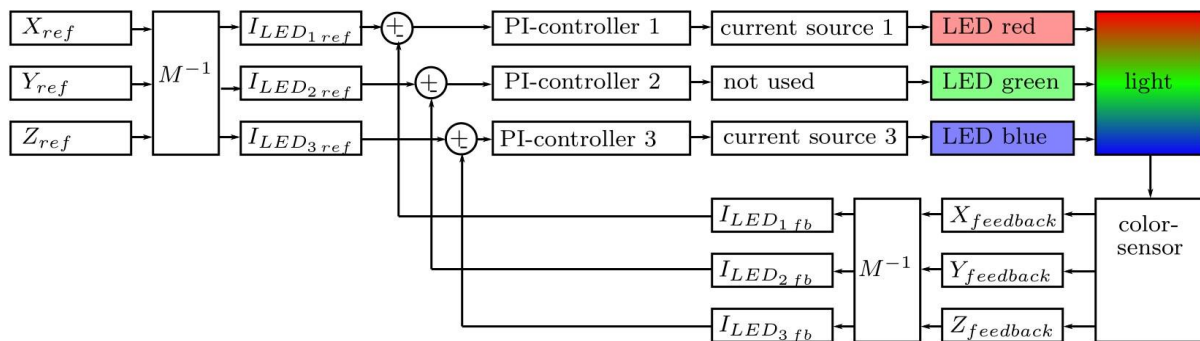


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b)



Supplement 1:

- a) Ganzfeld dome, barium sulfate coated hemisphere (Ø 50 cm)
- b) Electrical signalling circuit providing a negative feedback loop for LED adjustment

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SUPPLEMENT 2:

	df	Mean square	F	p-value
Constant Term	1	712696	33.853	0.000
Mood Stabilizer (Li, VLP)	1	8942	.425	0.519
Error	31	21052		

Supplement 2a: Repeated measures ANCOVA comparing serum melatonin concentration (pg/ml) under dark conditions between BP participants with and without intake of mood stabilizer (Li=lithium, VLP=valproate).

	Mood stabilizer (Li, VLP)	N	Mean	SD	p-value
Relative suppression (%)	-	11	12	22	0.341
	+	19	01	46	
Absolute suppression (pg/ml)	-	11	20.6	34.1	0.972
	+	19	19.9	54.0	

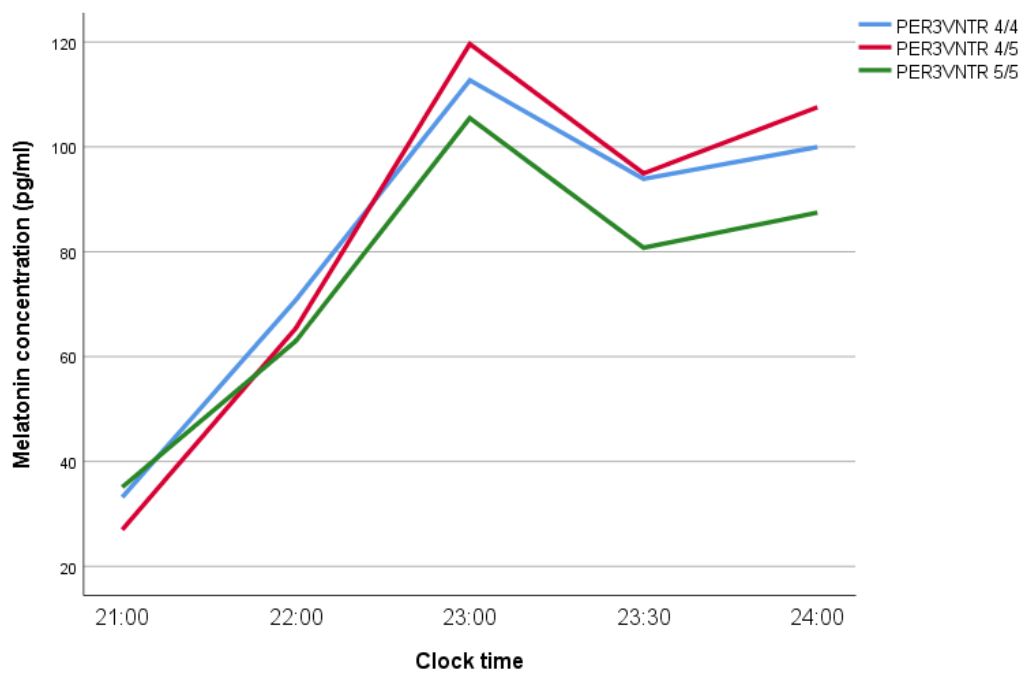
Supplement 2b: Melatonin suppression due to blue light administration in BP participants with and without intake of mood stabilizer (Li=lithium, VLP=valproate).

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Supplement 3:



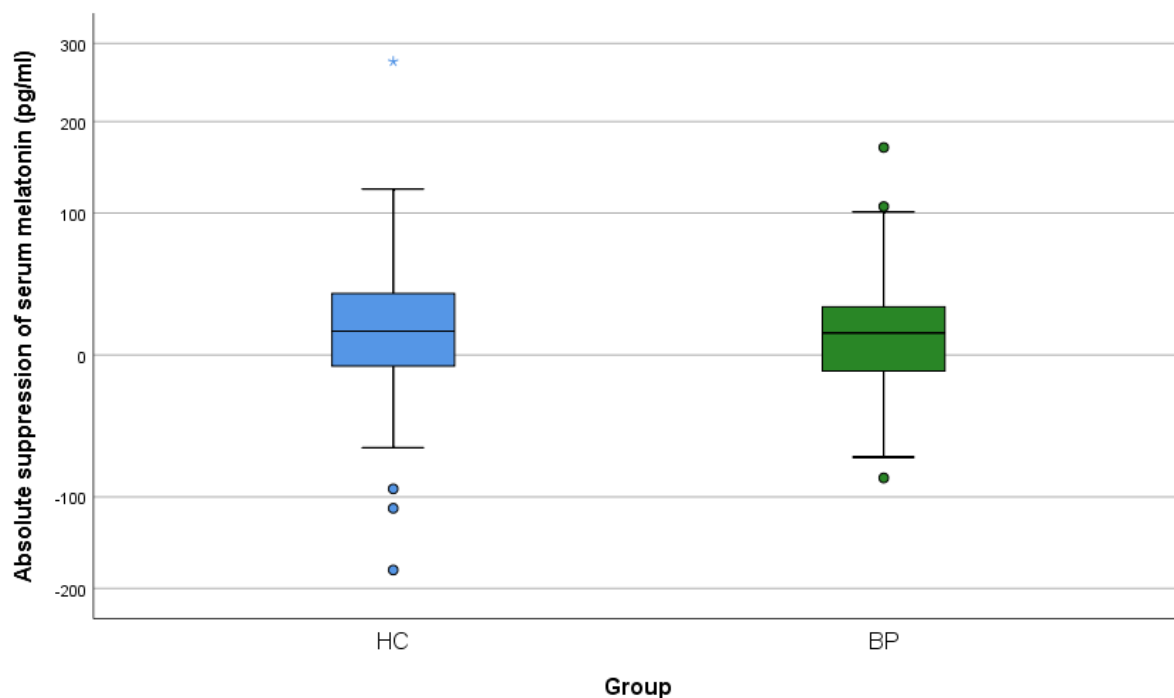
Supplement 3: Melatonin suppression by narrow bandwidth blue light between 23.00 -23.30 h in groups with different *PER3* VNTR polymorphisms.

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SUPPLEMENT 4:



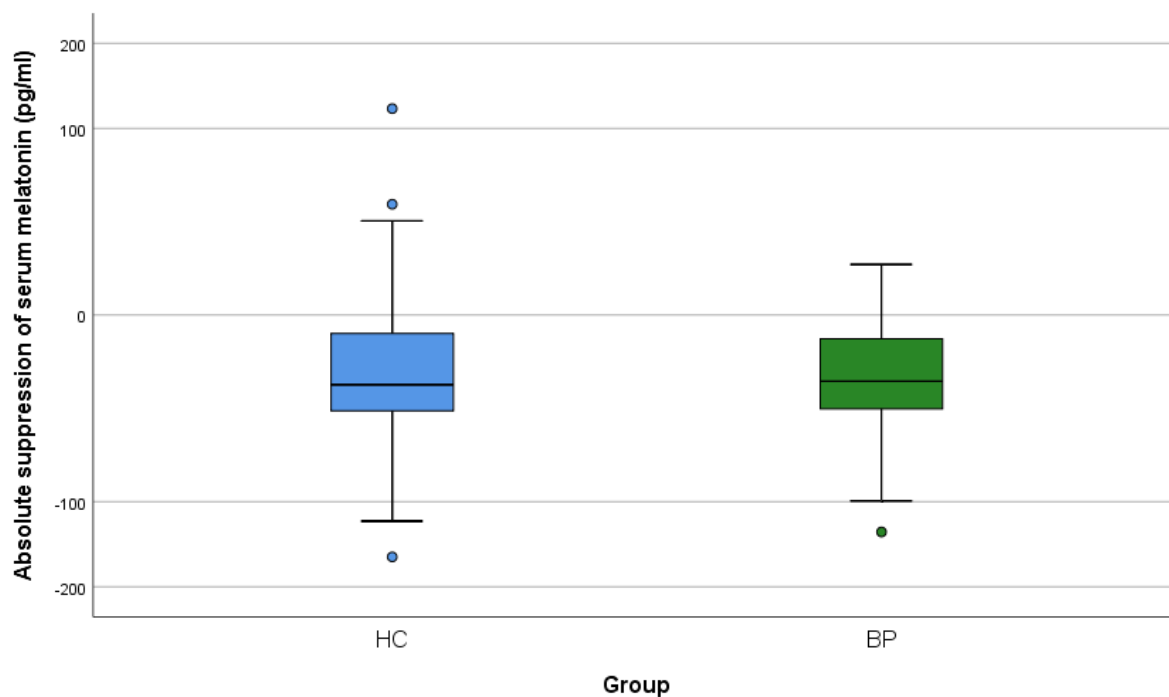
Supplement 4: Box plots of absolute suppression of serum melatonin (pg/ml) by narrow bandwidth blue light. Positive values denote stronger suppression. Y-axis logarithmically scaled for illustration purposes. HC=healthy controls, BP = participants with bipolar disorder

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SUPPLEMENT 5:



Supplement 5: Box plots of absolute suppression of serum melatonin (pg/ml) by narrow bandwidth red light. Positive values denote stronger suppression. Y-axis logarithmically scaled for illustration purposes. HC=healthy controls, BP = participants with bipolar disorder

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SUPPLEMENT 6:

	Melatonin concentration (pg/ml) 21:00	Melatonin concentration (pg/ml) 22:00	Melatonin concentration (pg/ml) 23:00	Melatonin concentration (pg/ml) 23:30	Melatonin concentration (pg/ml) 24:00	Relative suppression (blue) 23.00-23.30
Correlation Coefficient	0.155	0.161	0.078	0.003	-0.003	-0.047
Sig. (2-sided)	0.169	0.151	0.491	0.981	0.978	0.692
N	80	81	80	79	80	75

Supplement 6: Spearman correlations of MEQ with melatonin concentration (pg/ml) at different time points and relative suppression by blue light between 23:00-23:30 h.

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SUPPLEMENT 7:

Distribution	
<i>PER3</i> VNTR repeat number	N
<i>PER3</i> 4/4	33
<i>PER3</i> 4/5	37
<i>PER3</i> 5/5	10

	df	mean square	F	p
Corrected model	2	.171	.611	.546
Constant term	1	.064	.228	.634
<i>PER3</i> VNTR	2	.171	.611	.546
error	77	.280		
total	80			
Corrected total variation	79			

Supplement 7: Linear regression model for *PER3* VNTR genotype as the independent variable and relative suppression by blue light between 23:00-23:30 h as the dependent variable.

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SUPPLEMENT 8:

Blue light: Human retinal photopigment complement (all weighted)			
Prefix	Sensitivity	λ_{\max}	α-opic lux
Cyanopic	S cone	419.0	29.4
Melanopic	Melanopsin	480.0	49.1
Rhodopic	Rod	496.3	36.3
Chloropic	M cone	530.8	20.0
Erythropic	L cone	558.4	11.0

Supplement 8a: Photoreceptor specific illuminance values for the blue for the blue light condition

λ_{\max} =absorption maximum ; α -opic lux=photoreceptor specific illuminance value calculated using the "Irradiance Toolbox" ³⁷

Red light: Human retinal photopigment complement (all weighted)			
Prefix	Sensitivity	λ_{\max}	α-opic lux
Cyanopic	S cone	419.0	0.11
Melanopic	Melanopsin	480.0	0.09
Rhodopic	Rod	496.3	0.26
Chloropic	M cone	530.8	3.29
Erythropic	L cone	558.4	12.2

Supplement 8b: Photoreceptor specific illuminance values for the blue for the red light condition

λ_{\max} =absorption maximum ; α -opic lux= photoreceptor specific illuminance value calculated using the "Irradiance Toolbox" ³⁷