

Figure	Assay Performed	Parameter (Unit)	Groups	N	Descriptive Statistics Average \pm SEM	Statistical Analysis				Column statistics						
						Statistical Test		Significance		Factor	Comparison	P value				
2	b	Knockdown efficiency of endogenous AF	Ctrl-miR	20	18.15 \pm 2.404	Unpaired T test	P value	0.0067	t(38)=2.868	Two-tail	Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	0.0033			
			AF-miR	20	10.33 \pm 1.285							Ctrl-miR vs. AF(res)	>0.9999			
		d	Cultured neuron transfected with Ctrl-miR, AF-miR, AF(res)_DIV 6+6_Sholl analysis	No. of crossing intersection_40 μ m	Ctrl-miR	60	13.55 \pm 0.5149	Genotype:: F(2,6661)=56.55, P<0.0001 interaction::F(39,6661)=286, P<0.0001 F(78,6661)=1.561, P=0.0012	Crossing Interaction::	One way ANOVA		Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	<0.0001		
					AF-miR	60	11.77 \pm 0.4918						Ctrl-miR vs. AF(res)	>0.9999		
				No. of crossing intersection_50 μ m	Ctrl-miR	60	13.12 \pm 0.5031						Ctrl-miR vs. AF-miR	<0.0001		
					AF-miR	60	10.78 \pm 0.4964						Ctrl-miR vs. AF(res)	>0.9999		
				No. of crossing intersection_60 μ m	Ctrl-miR	60	12.06 \pm 0.5236						Ctrl-miR vs. AF-miR	0.0049		
					AF-miR	60	10.34 \pm 0.4945						Ctrl-miR vs. AF(res)	>0.9999		
				No. of crossing intersection_70 μ m	Ctrl-miR	60	11.23 \pm 0.5358						Ctrl-miR vs. AF-miR	0.0033		
					AF-miR	60	9.45 \pm 0.4956						Ctrl-miR vs. AF(res)	>0.9999		
	No. of crossing intersection_80 μ m			Ctrl-miR	60	10.14 \pm 0.4928	Ctrl-miR vs. AF-miR				0.0006					
				AF-miR	60	8.117 \pm 0.4865	Ctrl-miR vs. AF(res)				0.7006					
	f	No. of protrusions / 20 μ m	Ctrl-miR	60	14.32 \pm 0.5073	One way ANOVA	Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	>0.999							
			AF-miR	60	14.97 \pm 0.612			Ctrl-miR vs. AF(res)	>0.999							
			AF(res)	60	14.23 \pm 0.557											
			g1	Cultured neuron transfected with Ctrl-miR, AF-miR, AF(res)_DIV 12+6	Cumulative (%) in spine width			Ctrl-miR	858	Statistical Test	KS-test	P value	D	Ctrl-miR vs. AF-miR	<0.0001	0.3137
								AF-miR	898					Ctrl-miR vs. AF(res)	0.3	0.0468
								AF(res)	854							
			g2	Cumulative (%) in spine length	Ctrl-miR			858	Statistical Test	KS-test	P value	D	Ctrl-miR vs. AF-miR	0.124	0.0811	
					AF-miR			898					Ctrl-miR vs. AF(res)	0.525	0.0568	
AF(res)					854											
3			e1	Percentage (%) of PSD95+ protrusion/D endrite	Ctrl-miR			20	75.25 \pm 2.844	One way ANOVA	Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	0.0021			
	AF-miR	20			56.5 \pm 4.429	Ctrl-miR vs. AF(res)	>0.999									
	AF(res)	20			75 \pm 3.663											
	e2	Cultured neuron transfected with Ctrl-miR, AF-miR, AF(res)_DIV 12+6	Intensity of PSD95/protrusion	Ctrl-miR	400	79.17 \pm 2.91	One way ANOVA	Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	<0.0001						
				AF-miR	400	45.77 \pm 1.949			Ctrl-miR vs. AF(res)	0.3912						
				AF(res)	400	73.72 \pm 2.68										
	h1	Percentage (%) of SVP38+ protrusion/D endrite	Ctrl-miR	20	90 \pm 2.46	One way ANOVA	Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	<0.0001							
			AF-miR	20	75.25 \pm 2.844			Ctrl-miR vs. AF(res)	>0.999							
			AF(res)	20	88.75 \pm 1.196											
	h2	Intensity of SVP38/protrusion	Ctrl-miR	400	109.6 \pm 3.204	One way ANOVA	Multiple Comparison Procedures (Bonferroni t-test)	Ctrl-miR vs. AF-miR	<0.0001							
AF-miR			400	78.68 \pm 3.098	Ctrl-miR vs. AF(res)			>0.999								

			AF(res)	400	111.4±3.261					
4	b	No. of protrusions / 20um	Ctrl-miR	60	16.25±0.5249	One way ANOVA F(2,177)=0.06293, P=0.939	Multiple Comparison Procedures (Bonferroni t-test) Ctrl-miR vs. AFmiR >0.999 Ctrl-miR vs. AF(res) >0.999			
			AF-miR	60	16.52±0.492					
			AF(res)	60	16.28±0.6991					
	c1	Cultured neuron transfected with Ctrl-miR, AF-miR, AF(res)_DIV 22+6	Cumulative (%) in spine width	Ctrl-miR	975		Statistical Test KS-test	Ctrl-miR vs. AFmiR <0.0001 Ctrl-miR vs. AF(res) 0.056	P value	D 0.3498
				AF-miR	991					
				AF(res)	976					
	c2	Cultured neuron transfected with Ctrl-miR, AF-miR, AF(res)_DIV 22+6	Cumulative (%) in spine length	Ctrl-miR	975		Statistical Test KS-test	Ctrl-miR vs. AFmiR 0.062 Ctrl-miR vs. AF(res) 0.056	P value	D 0.0591
				AF-miR	991					
				AF(res)	976					
	f	Intensity of F-actin/protrusion		Ctrl-miR	200	127.2±3.589	One way ANOVA F(2,597)=105.5, P<0.0001	Multiple Comparison Procedures (Bonferroni t-test) Ctrl-miR vs. AFmiR <0.0001 Ctrl-miR vs. AF(res) 0.101		
				AF-miR	200	61.6±2.922				
				AF(res)	200	116.9±3.737				
5	e	No. of protrusions / 20um	klh17 +/+	30	16.17±0.7537	One way ANOVA F(2,87)=0.4062, P=0.6674	Multiple Comparison Procedures (Bonferroni t-test) klh17 +/+ vs. klh17 +/- >0.999 klh17 +/- vs. klh17 -/- >0.999			
			klh17 +/-	30	15.27±0.767					
			klh17 -/-	30	15.97±0.7022					
	f1	Cultured neuron with different genotype_D IV 12+6	Cumulative (%) in spine width	klh17 +/+	485		Statistical Test KS-test	klh17 +/+ vs. klh17 +/- <0.0001 klh17 +/- vs. klh17 -/- <0.0001	P value	D 0.2475
				klh17 +/-	458					
				klh17 -/-	479					
	f2	Cultured neuron with different genotype_D IV 12+6	Cumulative (%) in spine length	klh17 +/+	485		Statistical Test KS-test	klh17 +/+ vs. klh17 +/- 0.098 klh17 +/- vs. klh17 -/- 0.333	P value	D 0.0794
				klh17 +/-	458					
				klh17 -/-	479					
	h	Cultured neuron with different genotype_D IV 18	Overlap coefficient	klh17 +/+	60	1.2354±0.00700	Unpaired T test	p<0.0001	t(118)=12.27	Two-tail
				klh17 +/-	60	1.1301±0.00495				
	6	b1	Cultured neuron with different genotype_D IV 18-19	mEPSC frequency	klh17 +/+	12	4.157±0.9095	Unpaired T test	0.9852	t(23)=0.01874
klh17 +/-					13	4.133±0.9053				
b2		Cultured neuron with different genotype_D IV 18-19	mEPSC amplitude	klh17 +/+	12	12.59±0.8143	Unpaired T test	0.0315	t(23)=2.29	Two-tail
				klh17 +/-	13	15.15±0.7697				
c1		Open field	Moving distance	klh17 +/+	10	3566±145.3	Unpaired T test	0.0186	t(18)=2.587	Two-tail
				klh17 +/-	10	4369±274.5				
c2		Open field	Rearing	klh17 +/+	10	51.6±4.41	Unpaired T test	0.0053	t(18)=3.173	Two-tail
				klh17 +/-	10	72.3±4.808				
d		Elevated plus maze	Open arm	klh17 +/+	10	19.22±1.624	Unpaired T test	0.2953	t(18)=1.078	Two-tail
				klh17 +/-	10	23.73±3.864				
e		Reciprocal social interaction	Interaction time	klh17 +/+	10	148.5±13.48	Unpaired T test	0.0164	t(18)=2.645	Two-tail
				klh17 +/-	10	104.8±9.574				
7	d	AF, AF-N, AF-C expressed COS1	AF	50	1±0.08289	One way ANOVA F(2,147)=8.122, P=0.0005	Multiple Comparison Procedures (Bonferroni t-test) AF vs. AF-N 0.0003 AF vs. AF-C 0.1368			
			AF-N	50	1.684±0.1447					
			AF-C	50	1.342±0.1242					
	e	AF, AF-N, AF-C expressed COS1 with LatA treatment_F-actin reorganization	Cell area (LatA+ Recovery)	Ctrl	60	1404±72.79	One way ANOVA F(3,236)=13.27, P<0.001	Multiple Comparison Procedures (Bonferroni t-test) Ctrl vs. AF-N <0.0001 Ctrl vs. AF-C 0.0001 AF vs. AF-N <0.0001 AF vs. AF-C 0.0001		
				AF	60	1363±59.18				
				AF-N	60	1003±40.36				
			AF-C	60	1056±49.15					
b	Cultured neuron	Expression level of AF variants	AF	30	1±0.09282	One way ANOVA F(2,87)=28.82, P<0.0001	Multiple Comparison Procedures (Bonferroni t-test) AF vs. AF-N <0.0001 AF vs. AF-C 0.0024			
			AF-N	30	2.567±0.9621					
			AF-C	30	1.719±0.1568					

8		transfected with AF, AF-N, AF-C_DIV 12+6				One way ANOVA			Multiple Comparison Procedures (Bonferroni t-test)					
f	Intensity of F-actin/protrusion	Ctrl	200	125.5±3.608	F(3,796)=16.52, P<0.0001				Ctrl vs. AF	>0.999				
		AF	200	131.7±3.791					Ctrl vs. AF-N	0.0056				
		AF-N	200	107.5±3.943					Ctrl vs. AF-C	<0.0001				
		AF-C	200	98.06±3.992										
9		No. of protrusions / 20um				One way ANOVA			Multiple Comparison Procedures (Bonferroni t-test)					
b		Ctrl	60	11.05±0.463	F(3,236)=0.2354, P=0.8716				Ctrl vs. AF	>0.999				
		AF	60	10.95±0.5242					Ctrl vs. AF-N	>0.999				
		AF-N	60	10.52±0.4618					Ctrl vs. AF-C	>0.999				
		AF-C	60	10.75±0.4915										
c1	Cultured neuron transfected with AF, AF-N, AF-C_DIV 12+6	Cumulative (%) in spine width	Ctrl	663	F(4,145)=0.5755, P=0.6808	KS-test	Ctrl vs. AF	0.055	0.0733					
			AF	655								Ctrl vs. AF-N	<0.0001	0.3004
			AF-N	629								Ctrl vs. AF-C	<0.0001	0.3147
			AF-C	644										
c2		Cumulative (%) in spine length	Ctrl	663	F(4,145)=0.5755, P=0.6808	KS-test	Ctrl vs. AF	0.115	0.0654					
			AF	655								Ctrl vs. AF-N	0.064	0.0717
			AF-N	629								Ctrl vs. AF-C	0.061	0.0714
			AF-C	644										
e	No. of protrusions / 20um	kih17 +/+ ; Ctrl	30	15.37±0.6806	F(4,145)=0.5755, P=0.6808									
		kih17 -/- ; Ctrl	30	16.47±0.885							kih17 +/+ ; Ctrl vs. kih17 -/- ; Ctrl	>0.999		
		kih17 -/- ; AF	30	15.53±0.786							kih17 +/+ ; Ctrl vs. kih17 -/- ; AF	>0.999		
		kih17 -/- ; AF-N	30	16.9±1.069							kih17 +/+ ; Ctrl vs. kih17 -/- ; AF-N	>0.999		
f1	Cultured neuron transfected with AF, AF-N, AF-C_DIV 12+6	Cumulative (%) in spine width	kih17 +/+ ; Ctrl	461	F(4,145)=0.5755, P=0.6808	KS-test	kih17 +/+ ; Ctrl vs. kih17 -/- ; Ctrl	<0.0001	0.3643					
			kih17 -/- ; Ctrl	494								kih17 +/+ ; Ctrl vs. kih17 -/- ; AF	<0.0001	0.2845
			kih17 -/- ; AF	466								kih17 +/+ ; Ctrl vs. kih17 -/- ; AF-N	0.985	0.0286
			kih17 -/- ; AF-N	507								kih17 +/+ ; Ctrl vs. kih17 -/- ; AF-C	0.967	0.0314
f2		Cumulative (%) in spine length	kih17 +/+ ; Ctrl	461	F(4,145)=0.5755, P=0.6808	KS-test	kih17 +/+ ; Ctrl vs. kih17 -/- ; Ctrl	0.717	0.0447					
			kih17 -/- ; Ctrl	494								kih17 +/+ ; Ctrl vs. kih17 -/- ; AF	0.082	0.0798
			kih17 -/- ; AF	466								kih17 +/+ ; Ctrl vs. kih17 -/- ; AF-N	0.348	0.0585
			kih17 -/- ; AF-N	507								kih17 +/+ ; Ctrl vs. kih17 -/- ; AF-C	0.628	0.047
			kih17 -/- ; AF-C	488	F(4,145)=0.5755, P=0.6808	KS-test	kih17 +/+ ; Ctrl vs. kih17 -/- ; AF-C	0.628	0.047					