

**Supplementary Table 1. Statistical Analysis**

**1. Two-way ANOVA: Genotype and age effects.**

<b>Fig. 1b-e Effects of promoter IV- BDNF deficiency across ages</b>		Genotype Effects	Age Effects	Genotype X Age Interactions	<i>Test 2 hoc</i> Bonferroni Test Genotype Effects			<i>Test 2 hoc</i> Bonferroni Test Aging Effects			
					ED	YA	OA	ED vs. YA	ED vs. OA	YA vs. OA	
Male	OFT	Total Activity	$F_{(1,84)} = 54.9$ <b>P &lt; 0.001</b>	$F_{(2,84)} = 2.6$ $P = 0.08$	$F_{(2,84)} = 2.6$ $P = 0.08$	$T_{30} = 5.5$ <b>P &lt; 0.001</b>	$T_{25} = 4.7$ <b>P &lt; 0.001</b>	$T_{29} = 2.5$ <b>P &lt; 0.05</b>	$T_{27} = 5.5$ $P > 0.05$	$T_{30} = 3.0$ <b>P &lt; 0.05</b>	$T_{30} = 2.5$ $P > 0.05$
		Distance Moved	$F_{(1,86)} = 3.7$ $P = 0.06$	$F_{(2,86)} = 0.25$ $P = 0.78$	$F_{(2,86)} = 0.25$ $P = 0.78$	$T_{30} = 1.3$ $P > 0.05$	$T_{26} = 1.5$ $P > 0.05$	$T_{30} = 0.6$ $P > 0.05$	$T_{28} = 0.3$ $P > 0.05$	$T_{30} = 0.7$ $P > 0.05$	$T_{30} = 1.0$ $P > 0.05$
		Time in Center	$F_{(1,82)} = 3.3$ $P = 0.07$	$F_{(2,82)} = 0.90$ $P = 0.41$	$F_{(2,82)} = 0.93$ $P = 0.40$	$T_{30} = 0.02$ $P > 0.05$	$T_{25} = 1.8$ $P > 0.05$	$T_{29} = 1.3$ $P > 0.05$	$T_{26} = 1.9$ $P > 0.05$	$T_{30} = 1.2$ $P > 0.05$	$T_{30} = 0.73$ $P > 0.05$
	TST	Immobility Time	$F_{(1,77)} = 39.0$ <b>P &lt; 0.001</b>	$F_{(2,77)} = 1.1$ $P = 0.32$	$F_{(2,77)} = 1.2$ $P = 0.32$	$T_{30} = 4.4$ <b>P &lt; 0.001</b>	$T_{25} = 3.5$ <b>P &lt; 0.01</b>	$T_{29} = 2.8$ <b>P &lt; 0.05</b>	$T_{24} = 1.2$ $P > 0.05$	$T_{26} = 2.1$ $P > 0.05$	$T_{26} = 0.92$ $P > 0.05$
		Total Activity	$F_{(1,86)} = 70.8$ <b>P &lt; 0.001</b>	$F_{(2,86)} = 0.52$ $P = 0.59$	$F_{(2,86)} = 0.50$ $P = 0.61$	$T_{30} = 5.1$ <b>P &lt; 0.001</b>	$T_{28} = 5.4$ <b>P &lt; 0.001</b>	$T_{28} = 4.0$ <b>P &lt; 0.001</b>	$T_{29} = 0.48$ $P > 0.05$	$T_{29} = 0.54$ $P > 0.05$	$T_{29} = 1.0$ $P > 0.05$
		Distance Moved	$F_{(1,90)} = 29.8$ <b>P &lt; 0.001</b>	$F_{(2,90)} = 1.1$ $P = 0.35$	$F_{(2,90)} = 1.1$ $P = 0.35$	$T_{30} = 4.3$ <b>P &lt; 0.001</b>	$T_{30} = 2.4$ $P > 0.05$	$T_{30} = 2.8$ <b>P &lt; 0.05</b>	$T_{30} = 2.0$ $P > 0.05$	$T_{30} = 1.5$ $P > 0.05$	$T_{30} = 0.41$ $P > 0.05$
Female	OFT	Time in Center	$F_{(1,88)} = 11.5$ <b>P &lt; 0.001</b>	$F_{(2,88)} = 0.76$ $P = 0.47$	$F_{(2,88)} = 0.76$ $P = 0.47$	$T_{30} = 1.7$ $P > 0.05$	$T_{25} = 1.2$ $P > 0.05$	$T_{29} = 3.0$ <b>P &lt; 0.05</b>	$T_{28} = 0.39$ $P > 0.05$	$T_{29} = 1.3$ $P > 0.05$	$T_{29} = 1.6$ $P > 0.05$
		Immobility Time	$F_{(1,89)} = 37.1$ <b>P &lt; 0.001</b>	$F_{(2,89)} = 1.2$ $P = 0.30$	$F_{(2,89)} = 1.2$ $P = 0.30$	$T_{30} = 3.0$ <b>P &lt; 0.01</b>	$T_{25} = 4.8$ <b>P &lt; 0.001</b>	$T_{29} = 2.7$ <b>P &lt; 0.05</b>	$T_{30} = 1.8$ $P > 0.05$	$T_{29} = 0.28$ $P > 0.05$	$T_{29} = 2.0$ $P > 0.05$

## 2. Two-way ANOVA: Genotype and EET effects.

Fig. 2a OFT Total Activity			Genotype Effects	Treatment Effects	Genotype X Treatment Interactions	Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		Test 2 <i>hoc</i> Bonferroni Test Treatment Effects (SCT vs EET)	
						SCT	EET	WT	KIV
Male	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,58)</sub> = 36.4 P < 0.0001	F <sub>(1,58)</sub> = 28.0 P < 0.0001	F <sub>(1,58)</sub> = 1.1 P = 0.29	T <sub>30</sub> = 3.6 P < 0.01	T <sub>28</sub> = 4.9 P < 0.0001	T <sub>28</sub> = 4.4 P < 0.0001	T <sub>30</sub> = 3.0 P < 0.01
		YA	F <sub>(1,51)</sub> = 42.8 P < 0.0001	F <sub>(1,51)</sub> = 16.8 P < 0.0001	F <sub>(1,51)</sub> = 0.16 P = 0.69	T <sub>25</sub> = 4.3 P < 0.001	T <sub>26</sub> = 5.0 P < 0.0001	T <sub>26</sub> = 3.2 P < 0.01	T <sub>25</sub> = 2.6 P < 0.05
		OA	F <sub>(1,59)</sub> = 38.9 P < 0.0001	F <sub>(1,59)</sub> = 1.1 P = 0.431	F <sub>(1,59)</sub> = 6.8 P < 0.05	T <sub>29</sub> = 2.5 P < 0.05	T <sub>30</sub> = 6.3 P < 0.0001	T <sub>29</sub> = 2.6 P < 0.0001	T <sub>30</sub> = 1.1 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,58)</sub> = 49.1 P < 0.0001	F <sub>(1,58)</sub> = 19.5 P < 0.0001	F <sub>(1,58)</sub> = 1.1 P = 0.30	T <sub>30</sub> = 4.3 P < 0.001	T <sub>28</sub> = 5.6 P < 0.0001	T <sub>28</sub> = 3.8 P < 0.001	T <sub>30</sub> = 2.4 P < 0.05
		YA	F <sub>(1,44)</sub> = 28.7 P < 0.0001	F <sub>(1,44)</sub> = 10.3 P < 0.005	F <sub>(1,44)</sub> = 2.1 P = 0.15	T <sub>24</sub> = 2.9 P < 0.05	T <sub>20</sub> = 4.6 P < 0.0001	T <sub>21</sub> = 3.2 P < 0.01	T <sub>23</sub> = 1.3 P > 0.05
		OA	F <sub>(1,60)</sub> = 40.3 P < 0.0001	F <sub>(1,60)</sub> = 0.48 P = 0.49	F <sub>(1,60)</sub> = 5.0 P < 0.05	T <sub>30</sub> = 3.3 P < 0.01	T <sub>30</sub> = 5.2 P < 0.0001	T <sub>30</sub> = 1.4 P > 0.05	T <sub>30</sub> = 0.5 P > 0.05
Female	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,58)</sub> = 12.4 P < 0.001	F <sub>(1,58)</sub> = 17.9 P < 0.0001	F <sub>(1,58)</sub> = 0.4 P = 0.53	T <sub>30</sub> = 3.0 P < 0.01	T <sub>28</sub> = 2.0 P > 0.05	T <sub>29</sub> = 2.5 P < 0.05	T <sub>29</sub> = 3.4 P < 0.01
		YA	F <sub>(1,56)</sub> = 32.4 P < 0.0001	F <sub>(1,56)</sub> = 13.9 P < 0.0005	F <sub>(1,56)</sub> = 0.01 P = 0.91	T <sub>28</sub> = 4.2 P < 0.001	T <sub>28</sub> = 4.8 P < 0.0001	T <sub>28</sub> = 2.7 P < 0.05	T <sub>28</sub> = 2.6 P < 0.05
		OA	F <sub>(1,60)</sub> = 55.1 P < 0.0001	F <sub>(1,60)</sub> = 14.0 P < 0.001	F <sub>(1,60)</sub> = 3.4 P = 0.07	T <sub>30</sub> = 4.0 P < 0.001	T <sub>30</sub> = 6.5 P < 0.0001	T <sub>30</sub> = 3.9 P < 0.001	T <sub>30</sub> = 1.4 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,57)</sub> = 6.5 P < 0.05	F <sub>(1,57)</sub> = 1.6 P = 0.22	F <sub>(1,57)</sub> = 4.1 P < 0.05	T <sub>30</sub> = 3.3 P < 0.01	T <sub>27</sub> = 0.4 P > 0.05	T <sub>28</sub> = 0.5 P > 0.05	T <sub>29</sub> = 2.3 P < 0.05
		YA	F <sub>(1,56)</sub> = 30.8 P < 0.0001	F <sub>(1,56)</sub> = 15.3 P < 0.001	F <sub>(1,56)</sub> < 0.01 P = 0.96	T <sub>28</sub> = 4.0 P < 0.001	T <sub>28</sub> = 3.9 P < 0.001	T <sub>28</sub> = 2.7 P < 0.05	T <sub>28</sub> = 2.8 P < 0.05
		OA	F <sub>(1,60)</sub> = 19.9 P < 0.0001	F <sub>(1,60)</sub> = 3.3 P = 0.08	F <sub>(1,60)</sub> = 0.02 P = 0.90	T <sub>30</sub> = 3.1 P < 0.01	T <sub>30</sub> = 3.2 P < 0.01	T <sub>30</sub> = 1.4 P > 0.05	T <sub>30</sub> = 1.2 P > 0.05

Fig. 3a OFT Time in Center			Genotype Effects	Treatment Effects	Genotype X Treatment Interactions	Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		Test 2 <i>hoc</i> Bonferroni Test Treatment Effects (SCT vs EET)	
						SCT	EET	WT	KIV
Male	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,58)</sub> = 0.04 P = 0.83	F <sub>(1,58)</sub> = 13.9 P < 0.001	F <sub>(1,58)</sub> = 0.03 P = 0.87	T <sub>30</sub> = 0.03 P > 0.05	T <sub>28</sub> = 0.26 P > 0.05	T <sub>28</sub> = 2.7 P < 0.05	T <sub>30</sub> = 2.6 P < 0.05
		YA	F <sub>(1,44)</sub> = 6.4 P < 0.05	F <sub>(1,44)</sub> = 5.0 P < 0.05	F <sub>(1,44)</sub> = 1.5 P = 0.22	T <sub>22</sub> = 0.93 P > 0.05	T <sub>22</sub> = 2.7 P < 0.05	T <sub>22</sub> = 2.5 P < 0.05	T <sub>22</sub> = 0.72 P > 0.05
		OA	F <sub>(1,60)</sub> = 11.1 P < 0.001	F <sub>(1,60)</sub> = 5.8 P < 0.01	F <sub>(1,60)</sub> = 3.4 P = 0.070	T <sub>30</sub> = 1.1 P > 0.05	T <sub>30</sub> = 3.7 P < 0.01	T <sub>30</sub> = 3.0 P < 0.01	T <sub>30</sub> = 0.39 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,56)</sub> = 3.2 P = 0.08	F <sub>(1,56)</sub> = 2.1 P = 0.16	F <sub>(1,56)</sub> = 6.0 P < 0.05	T <sub>28</sub> = 0.5 P > 0.05	T <sub>28</sub> = 3.0 P < 0.01	T <sub>28</sub> = 2.7 P < 0.05	T <sub>28</sub> = 0.7 P > 0.05
		YA	F <sub>(1,44)</sub> = 5.2 P < 0.05	F <sub>(1,40)</sub> = 0.04 P = 0.85	F <sub>(1,40)</sub> = 0.01 P = 0.99	T <sub>22</sub> = 1.7 P > 0.05	T <sub>18</sub> = 1.6 P > 0.05	T <sub>20</sub> = 0.15 P > 0.05	T <sub>20</sub> = 0.13 P > 0.05
		OA	F <sub>(1,60)</sub> = 10.1 P < 0.01	F <sub>(1,60)</sub> = 0.20 P = 0.65	F <sub>(1,60)</sub> = 1.0 P = 0.32	T <sub>30</sub> = 1.6 P > 0.05	T <sub>29</sub> = 3.4 P < 0.01	T <sub>29</sub> = 0.39 P > 0.05	T <sub>30</sub> = 1.0 P > 0.05
Female	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,60)</sub> < 0.01 P = 0.95	F <sub>(1,60)</sub> = 5.3 P < 0.05	F <sub>(1,60)</sub> = 4.7 P < 0.05	T <sub>30</sub> = 1.5 P > 0.05	T <sub>30</sub> = 1.6 P > 0.05	T <sub>30</sub> = 0.1 P > 0.05	T <sub>30</sub> = 3.2 P < 0.01
		YA	F <sub>(1,60)</sub> = 3.2 P = 0.08	F <sub>(1,60)</sub> = 0.08 P = 0.78	F <sub>(1,60)</sub> = 2.6 P = 0.11	T <sub>30</sub> = 0.12 P > 0.05	T <sub>30</sub> = 2.4 P < 0.05	T <sub>30</sub> = 0.94 P > 0.05	T <sub>30</sub> = 1.3 P > 0.05
		OA	F <sub>(1,60)</sub> = 30.2 P < 0.0001	F <sub>(1,60)</sub> = 5.2 P < 0.05	F <sub>(1,60)</sub> = 3.6 P = 0.065	T <sub>30</sub> = 2.6 P < 0.05	T <sub>30</sub> = 5.2 P < 0.0001	T <sub>30</sub> = 2.9 P < 0.01	T <sub>30</sub> = 0.28 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,56)</sub> = 1.4 P = 0.24	F <sub>(1,56)</sub> = 2.2 P = 0.14	F <sub>(1,56)</sub> = 0.19 P = 0.66	T <sub>30</sub> = 1.2 P > 0.05	T <sub>26</sub> = 0.5 P > 0.05	T <sub>26</sub> = 1.3 P > 0.05	T <sub>30</sub> = 0.8 P > 0.05
		YA	F <sub>(1,60)</sub> = 7.5 P < 0.01	F <sub>(1,60)</sub> = 0.18 P = 0.68	F <sub>(1,60)</sub> = 1.9 P = 0.18	T <sub>30</sub> = 0.97 P > 0.05	T <sub>30</sub> = 2.9 P < 0.05	T <sub>30</sub> = 0.67 P > 0.05	T <sub>30</sub> = 1.3 P > 0.05
		OA	F <sub>(1,60)</sub> = 9.9 P < 0.005	F <sub>(1,60)</sub> = 0.43 P = 0.52	F <sub>(1,60)</sub> = 0.09 P = 0.77	T <sub>30</sub> = 2.0 P > 0.05	T <sub>30</sub> = 2.4 P < 0.05	T <sub>30</sub> = 0.25 P > 0.05	T <sub>30</sub> = 0.67 P > 0.05

Fig. 4a TST Immobility Time			Genotype Effects	Treatment Effects	Genotype X Treatment Interactions	Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		Test 2 <i>hoc</i> Bonferroni Test Treatment Effects (SCT vs EET)	
						SCT	EET	WT	KIV
Male	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,44)</sub> = 7.6 P < 0.01	F <sub>(1,44)</sub> = 46.1 P < 0.0001	F <sub>(1,44)</sub> = 8.1 P < 0.01	T <sub>22</sub> = 4.0 P < 0.001	T <sub>22</sub> = 0.1 P > 0.05	T <sub>22</sub> = 2.8 P < 0.05	T <sub>22</sub> = 6.8 P < 0.0001
		YA	F <sub>(1,49)</sub> = 21.2 P < 0.0001	F <sub>(1,49)</sub> = 17.5 P < 0.0001	F <sub>(1,49)</sub> = 0.01 P = 0.91	T <sub>25</sub> = 3.1 P < 0.01	T <sub>26</sub> = 3.3 P < 0.01	T <sub>25</sub> = 3.1 P < 0.01	T <sub>26</sub> = 2.9 P < 0.05
		OA	F <sub>(1,60)</sub> = 24.1 P < 0.0001	F <sub>(1,60)</sub> = 3.9 P = 0.05	F <sub>(1,60)</sub> = 2.0 P = 0.17	T <sub>30</sub> = 2.5 P < 0.05	T <sub>30</sub> = 4.5 P < 0.0001	T <sub>30</sub> = 2.4 P < 0.05	T <sub>30</sub> = 0.41 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,43)</sub> = 1.9 P = 0.18	F <sub>(1,43)</sub> = 4.4 P < 0.05	F <sub>(1,43)</sub> = 6.2 P < 0.05	T <sub>22</sub> = 2.8 P < 0.05	T <sub>21</sub> = 0.8 P > 0.05	T <sub>22</sub> = 0.3 P > 0.05	T <sub>21</sub> = 3.2 P < 0.01
		YA	F <sub>(1,54)</sub> = 15.6 P = 0.0002	F <sub>(1,54)</sub> = 0.51 P = 0.48	F <sub>(1,54)</sub> = 0.06 P = 0.80	T <sub>24</sub> = 2.3 P > 0.05	T <sub>21</sub> = 3.6 P < 0.01	T <sub>22</sub> = 0.72 P > 0.05	T <sub>23</sub> = 0.31 P > 0.05
		OA	F <sub>(1,60)</sub> = 7.9 P < 0.01	F <sub>(1,60)</sub> = 0.05 P = 0.82	F <sub>(1,60)</sub> = 2.8 P = 0.10	T <sub>30</sub> = 0.81 P > 0.05	T <sub>30</sub> = 3.1 P < 0.01	T <sub>30</sub> = 1.0 P > 0.05	T <sub>30</sub> = 1.3 P > 0.05
Female	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,60)</sub> = 6.8 P < 0.05	F <sub>(1,60)</sub> = 27.6 P < 0.0001	F <sub>(1,60)</sub> = 2.4 P = 0.12	T <sub>30</sub> = 2.9 P < 0.01	T <sub>30</sub> = 0.7 P > 0.05	T <sub>30</sub> = 2.6 P < 0.05	T <sub>30</sub> = 4.8 P < 0.0001
		YA	F <sub>(1,60)</sub> = 21.3 P < 0.0001	F <sub>(1,60)</sub> = 14.9 P < 0.001	F <sub>(1,60)</sub> = 0.49 P = 0.49	T <sub>30</sub> = 3.8 P < 0.001	T <sub>29</sub> = 2.8 P < 0.05	T <sub>30</sub> = 2.2 P > 0.05	T <sub>29</sub> = 3.2 P < 0.01
		OA	F <sub>(1,60)</sub> = 26.5 P < 0.0001	F <sub>(1,60)</sub> = 0.02 P = 0.89	F <sub>(1,60)</sub> = 2.5 P = 0.12	T <sub>30</sub> = 2.5 P < 0.05	T <sub>30</sub> = 4.8 P < 0.0001	T <sub>30</sub> = 1.0 P > 0.05	T <sub>30</sub> = 1.2 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,55)</sub> = 10.3 P < 0.005	F <sub>(1,55)</sub> = 1.7 P = 0.20	F <sub>(1,55)</sub> = 9.3 P < 0.005	T <sub>30</sub> = 4.6 P < 0.0001	T <sub>25</sub> = 0.1 P > 0.05	T <sub>26</sub> = 1.2 P > 0.05	T <sub>29</sub> = 3.2 P < 0.01
		YA	F <sub>(1,60)</sub> = 11.7 P < 0.005	F <sub>(1,60)</sub> = 0.26 P = 0.61	F <sub>(1,60)</sub> = 0.25 P = 0.62	T <sub>30</sub> = 2.8 P < 0.05	T <sub>30</sub> = 2.1 P > 0.05	T <sub>30</sub> = 0.01 P > 0.05	T <sub>30</sub> = 0.71 P > 0.05
		OA	F <sub>(1,60)</sub> = 9.5 P < 0.005	F <sub>(1,60)</sub> = 2.3 P = 0.13	F <sub>(1,60)</sub> = 0.13 P = 0.72	T <sub>30</sub> = 2.4 P < 0.05	T <sub>30</sub> = 1.9 P > 0.05	T <sub>30</sub> = 1.3 P > 0.05	T <sub>30</sub> = 0.83 P > 0.05

Fig. 5a BDNF ELISA (Males + Females)			Genotype Effects	Treatment Effects	Genotype X Treatment Interactions	Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		Test 2 <i>hoc</i> Bonferroni Test Treatment Effects (SCT vs EET)	
						SCT	EET	WT	KIV
Hippocampus	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,35)</sub> = 9.0 P < 0.005	F <sub>(1,35)</sub> = 50.6 P < 0.0001	F <sub>(1,35)</sub> = 0.90 P = 0.35	T <sub>18</sub> = 2.8 P < 0.05	T <sub>17</sub> = 1.4 P > 0.05	T <sub>18</sub> = 4.4 P < 0.001	T <sub>17</sub> = 5.6 P < 0.0001
		YA	F <sub>(1,28)</sub> = 90.5 P < 0.0001	F <sub>(1,28)</sub> = 14.9 P < 0.001	F <sub>(1,28)</sub> = 4.5 P < 0.05	T <sub>14</sub> = 5.22 P < 0.0001	T <sub>14</sub> = 8.23 P < 0.0001	T <sub>14</sub> = 4.2 P < 0.001	T <sub>14</sub> = 1.2 P > 0.05
		OA	F <sub>(1,28)</sub> = 39.4 P < 0.0001	F <sub>(1,28)</sub> = 1.6 P = 0.21	F <sub>(1,28)</sub> = 3.0 P = 0.094	T <sub>14</sub> = 3.2 P < 0.01	T <sub>14</sub> = 5.7 P < 0.0001	T <sub>14</sub> = 2.1 P > 0.05	T <sub>14</sub> = 0.33 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,34)</sub> = 50.3 P < 0.0001	F <sub>(1,34)</sub> = 7.9 P < 0.01	F <sub>(1,34)</sub> = 1.9 P = 0.18	T <sub>16</sub> = 5.83 P < 0.0001	T <sub>18</sub> = 4.15 P < 0.001	T <sub>17</sub> = 1.02 P > 0.05	T <sub>17</sub> = 2.96 P < 0.05
		YA	F <sub>(1,30)</sub> = 51.4 P < 0.0001	F <sub>(1,30)</sub> = 0.55 P = 0.47	F <sub>(1,30)</sub> = 1.8 P = 0.19	T <sub>14</sub> = 4.1 P < 0.001	T <sub>14</sub> = 6.0 P < 0.0001	T <sub>14</sub> = 1.5 P > 0.05	T <sub>14</sub> = 0.42 P > 0.05
		OA	F <sub>(1,28)</sub> = 12.4 P < 0.005	F <sub>(1,28)</sub> = 0.35 P = 0.56	F <sub>(1,28)</sub> = 1.7 P = 0.20	T <sub>14</sub> = 3.4 P < 0.01	T <sub>14</sub> = 1.6 P > 0.05	T <sub>14</sub> = 1.3 P > 0.05	T <sub>14</sub> = 0.51 P > 0.05
Frontal Cortex	Test 1 (T <sub>1</sub> )	ED	F <sub>(1,36)</sub> = 17.3 P < 0.005	F <sub>(1,36)</sub> = 16.0 P < 0.0005	F <sub>(1,36)</sub> = 0.09 P = 0.77	T <sub>18</sub> = 3.2 P < 0.01	T <sub>18</sub> = 2.7 P < 0.05	T <sub>18</sub> = 2.6 P < 0.05	T <sub>18</sub> = 3.0 P < 0.01
		YA	F <sub>(1,29)</sub> = 27.4 P < 0.0001	F <sub>(1,29)</sub> = 2.1 P = 0.16	F <sub>(1,29)</sub> = 0.20 P = 0.66	T <sub>15</sub> = 3.4 P < 0.01	T <sub>14</sub> = 4.0 P < 0.001	T <sub>15</sub> = 1.4 P > 0.05	T <sub>14</sub> = 0.70 P > 0.05
		OA	F <sub>(1,28)</sub> = 6.3 P < 0.05	F <sub>(1,28)</sub> = 0.35 P = 0.56	F <sub>(1,28)</sub> = 0.73 P = 0.40	T <sub>14</sub> = 2.4 P < 0.05	T <sub>14</sub> = 1.2 P > 0.05	T <sub>14</sub> = 0.19 P > 0.05	T <sub>14</sub> = 1.0 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,36)</sub> = 41.5 P < 0.0001	F <sub>(1,36)</sub> = 0.90 P = 0.35	F <sub>(1,36)</sub> = 0.21 P = 0.65	T <sub>18</sub> = 4.2 P < 0.001	T <sub>18</sub> = 4.9 P < 0.0001	T <sub>18</sub> = 1.00 P > 0.05	T <sub>18</sub> = 0.34 P > 0.05
		YA	F <sub>(1,29)</sub> = 15.6 P < 0.001	F <sub>(1,29)</sub> = 0.58 P = 0.45	F <sub>(1,29)</sub> = 0.13 P = 0.72	T <sub>15</sub> = 3.1 P < 0.01	T <sub>14</sub> = 2.5 P < 0.05	T <sub>15</sub> = 0.29 P > 0.05	T <sub>14</sub> = 0.78 P > 0.05
		OA	F <sub>(1,28)</sub> = 3.9 P = 0.06	F <sub>(1,28)</sub> = 0.06 P = 0.81	F <sub>(1,28)</sub> = 0.23 P = 0.64	T <sub>14</sub> = 1.7 P > 0.05	T <sub>14</sub> = 1.1 P > 0.05	T <sub>14</sub> = 0.17 P > 0.05	T <sub>14</sub> = 0.56 P > 0.05

Suppl. Fig. 1 OFT (Distance Moved)			Genotype Effects	Treatment Effects	Genotype X Treatment Interactions	Test 2 <i>hoc</i> Bonferroni Test		Test 2 <i>hoc</i> Bonferroni Test	
						SCT	EET	WT	KIV
Male	Test 1 (T <sub>1</sub> )	ED	<b>F<sub>(1,57)</sub> = 5.9</b> <b>P &lt; 0.05</b>	<b>F<sub>(1,57)</sub> = 6.4</b> <b>P &lt; 0.05</b>	F <sub>(1,57)</sub> = 0.8 P = 0.37	T <sub>30</sub> = 1.1 P > 0.05	T <sub>27</sub> = 2.3 P > 0.05	<b>T<sub>28</sub> = 2.4</b> <b>P &lt; 0.05</b>	T <sub>29</sub> = 1.2 P > 0.05
		YA	<b>F<sub>(1,52)</sub> = 12.3</b> <b>P &lt; 0.001</b>	<b>F<sub>(1,52)</sub> = 4.3</b> <b>P &lt; 0.05</b>	F <sub>(1,52)</sub> = 2.4 P = 0.13	T <sub>26</sub> = 1.4 P > 0.05	<b>T<sub>26</sub> = 3.6</b> <b>P &lt; 0.01</b>	<b>T<sub>24</sub> = 2.6</b> <b>P &lt; 0.05</b>	T <sub>26</sub> = 0.36 P > 0.05
		OA	<b>F<sub>(1,60)</sub> = 23.2</b> <b>P &lt; 0.0001</b>	F <sub>(1,60)</sub> = 0.07 P = 0.80	<b>F<sub>(1,60)</sub> = 15.7</b> <b>P &lt; 0.001</b>	T <sub>30</sub> = 0.61 P > 0.05	<b>T<sub>30</sub> = 6.2</b> <b>P &lt; 0.0001</b>	<b>T<sub>30</sub> = 2.6</b> <b>P &lt; 0.05</b>	<b>T<sub>30</sub> = 3.0</b> <b>P &lt; 0.01</b>
	Test 2 (T <sub>2</sub> )	ED	F <sub>(1,57)</sub> = 2.0 P = 0.16	F <sub>(1,57)</sub> = 0.7 P = 0.40	F <sub>(1,57)</sub> = 0.22 P = 0.64	T <sub>30</sub> = 1.4 P > 0.05	T <sub>27</sub> = 0.7 P > 0.05	T <sub>28</sub> = 0.3 P > 0.05	T <sub>29</sub> = 0.9 P > 0.05
		YA	<b>F<sub>(1,46)</sub> = 7.5</b> <b>P &lt; 0.01</b>	F <sub>(1,46)</sub> = 0.32 P = 0.57	F <sub>(1,46)</sub> = 0.01 P = 0.93	T <sub>25</sub> = 2.0 P > 0.05	T <sub>21</sub> = 1.9 P > 0.05	T <sub>22</sub> = 0.45 P > 0.05	T <sub>24</sub> = 0.35 P > 0.05
		OA	F <sub>(1,60)</sub> = 1.1 P = 0.29	F <sub>(1,60)</sub> = 0.22 P = 0.64	F <sub>(1,60)</sub> = 0.23 P = 0.63	T <sub>30</sub> = 0.41 P > 0.05	T <sub>30</sub> = 1.1 P > 0.05	T <sub>30</sub> = 0.01 P > 0.05	T <sub>30</sub> = 0.66 P > 0.05
Female	Test 1 (T <sub>1</sub> )	ED	<b>F<sub>(1,59)</sub> = 15.1</b> <b>P &lt; 0.001</b>	F <sub>(1,59)</sub> = 3.2 P = 0.08	<b>F<sub>(1,59)</sub> = 8.5</b> <b>P &lt; 0.01</b>	<b>T<sub>30</sub> = 4.8</b> <b>P &lt; 0.0001</b>	T <sub>29</sub> = 0.7 P > 0.05	<b>T<sub>30</sub> = 3.3</b> <b>P &lt; 0.01</b>	T <sub>29</sub> = 0.8 P > 0.05
		YA	<b>F<sub>(1,59)</sub> = 30.7</b> <b>P &lt; 0.0001</b>	F <sub>(1,59)</sub> = 0.52 P = 0.47	F <sub>(1,59)</sub> = 0.88 P = 0.35	<b>T<sub>29</sub> = 3.2</b> <b>P &lt; 0.01</b>	<b>T<sub>30</sub> = 4.6</b> <b>P &lt; 0.0001</b>	T <sub>30</sub> = 0.15 P > 0.05	T <sub>29</sub> = 1.2 P > 0.05
		OA	<b>F<sub>(1,60)</sub> = 36.4</b> <b>P &lt; 0.0001</b>	F <sub>(1,60)</sub> = 0.01 P = 0.93	F <sub>(1,60)</sub> = 3.1 P = 0.08	<b>T<sub>30</sub> = 3.0</b> <b>P &lt; 0.01</b>	<b>T<sub>30</sub> = 5.5</b> <b>P &lt; 0.0001</b>	T <sub>30</sub> = 1.3 P > 0.05	T <sub>30</sub> = 1.2 P > 0.05
	Test 2 (T <sub>2</sub> )	ED	<b>F<sub>(1,58)</sub> = 12.5</b> <b>P &lt; 0.001</b>	<b>F<sub>(1,58)</sub> = 24.2</b> <b>P &lt; 0.0001</b>	<b>F<sub>(1,58)</sub> = 19.3</b> <b>P &lt; 0.0001</b>	<b>T<sub>30</sub> = 5.7</b> <b>P &lt; 0.0001</b>	T <sub>28</sub> = 0.6 P > 0.05	<b>T<sub>28</sub> = 6.5</b> <b>P &lt; 0.0001</b>	T <sub>30</sub> = 0.4 P > 0.05
		YA	<b>F<sub>(1,60)</sub> = 9.9</b> <b>P &lt; 0.01</b>	F <sub>(1,60)</sub> = 0.16 P = 0.69	F <sub>(1,60)</sub> < 0.001 P = 0.98	T <sub>30</sub> = 2.2 P > 0.05	T <sub>30</sub> = 2.3 P > 0.05	T <sub>30</sub> = 0.30 P > 0.05	T <sub>30</sub> = 0.26 P > 0.05
		OA	<b>F<sub>(1,60)</sub> = 8.1</b> <b>P &lt; 0.01</b>	<b>F<sub>(1,60)</sub> = 5.8</b> <b>P &lt; 0.05</b>	F <sub>(1,60)</sub> = 0.02 P = 0.90	T <sub>30</sub> = 2.1 P > 0.05	T <sub>30</sub> = 1.9 P > 0.05	T <sub>30</sub> = 1.6 P > 0.05	T <sub>30</sub> = 1.8 P > 0.05

### 3. Two-way ANOVA: EET effects on genotype and ages

Fig. 2b OFT Total Activity		Genotype Effects	Age Effects	Genotype X Age Interactions	Test 2 hoc Bonferroni Test Age Effects						Test 2 hoc Bonferroni Test Genotype Effects (WT vs KIV)		
					ED vs YA		ED vs OA		YA vs OA		ED	YA	OA
					WT	KIV	WT	KIV	WT	KIV			
Male	Test 1	$F_{(1, 83)} = 0.10$ $P = 0.75$	$F_{(2, 83)} = 12.3$ $P < 0.001$	$F_{(2, 83)} = 2.4$ $P = 0.10$	$T_{26} = 1.3$ $P > 0.05$	$T_{28} = 1.6$ $P > 0.05$	$T_{27} = 2.4$ $P > 0.05$	$T_{30} = 4.9$ $P < 0.001$	$T_{27} = 1.0$ $P > 0.05$	$T_{28} = 3.2$ $P < 0.05$	$T_{28} = 1.1$ $P > 0.05$	$T_{26} = 0.95$ $P > 0.05$	$T_{29} = 1.6$ $P > 0.05$
	Test 2	$F_{(1, 78)} = 0.65$ $P = 0.42$	$F_{(2, 78)} = 10.1$ $P < 0.001$	$F_{(2, 78)} = 1.5$ $P = 0.22$	$T_{22} = 0.24$ $P > 0.05$	$T_{26} = 2.2$ $P > 0.05$	$T_{28} = 2.0$ $P > 0.05$	$T_{30} = 4.4$ $P < 0.001$	$T_{24} = 1.5$ $P > 0.05$	$T_{26} = 1.9$ $P > 0.05$	$T_{28} = 0.94$ $P > 0.05$	$T_{21} = 0.90$ $P > 0.05$	$T_{30} = 1.4$ $P > 0.05$
Female	Test 1	$F_{(1, 84)} = 5.1$ $P < 0.05$	$F_{(2, 84)} = 2.6$ $P = 0.08$	$F_{(2, 84)} = 2.6$ $P = 0.08$	$T_{28} = 0.22$ $P > 0.05$	$T_{28} = 1.5$ $P > 0.05$	$T_{27} = 0.01$ $P > 0.05$	$T_{29} = 3.2$ $P < 0.05$	$T_{27} = 0.21$ $P > 0.05$	$T_{28} = 1.7$ $P > 0.05$	$T_{28} = 2.8$ $P < 0.05$	$T_{28} = 1.5$ $P > 0.05$	$T_{28} = 0.40$ $P > 0.05$
	Test 2	$F_{(1, 83)} = 14.4$ $P < 0.001$	$F_{(2, 83)} = 1.5$ $P = 0.23$	$F_{(2, 83)} = 3.0$ $P = 0.06$	$T_{28} = 2.2$ $P > 0.05$	$T_{28} = 0.56$ $P > 0.05$	$T_{13} = 1.2$ $P > 0.05$	$T_{13} = 2.0$ $P > 0.05$	$T_{13} = 0.97$ $P > 0.05$	$T_{13} = 1.4$ $P > 0.05$	$T_{27} = 4.1$ $P < 0.001$	$T_{29} = 1.5$ $P > 0.05$	$T_{28} = 0.98$ $P > 0.05$

Fig. 3b OFT Time in Center		Genotype Effects	Age Effects	Genotype X Age Interactions	Test 2 hoc Bonferroni Test Age Effects						Test 2 hoc Bonferroni Test Genotype Effects (WT vs KIV)		
					ED vs YA		ED vs OA		YA vs OA		ED	YA	OA
					WT	KIV	WT	KIV	WT	KIV			
Male	Test 1	$F_{(1, 79)} = 4.0$ $P = 0.05$	$F_{(2, 79)} = 0.90$ $P = 0.41$	$F_{(2, 79)} = 0.77$ $P = 0.47$	$T_{23} = 0.31$ $P > 0.05$	$T_{26} = 1.1$ $P > 0.05$	$T_{28} = 0.16$ $P > 0.05$	$T_{27} = 1.8$ $P > 0.05$	$T_{25} = 0.47$ $P > 0.05$	$T_{26} = 0.49$ $P > 0.05$	$T_{28} = 0.17$ $P > 0.05$	$T_{21} = 1.5$ $P > 0.05$	$T_{30} = 1.8$ $P > 0.05$
	Test 2	$F_{(1, 75)} = 4.6$ $P < 0.05$	$F_{(2, 75)} = 0.92$ $P = 0.40$	$F_{(2, 75)} = 1.8$ $P = 0.17$	$T_{22} = 2.0$ $P > 0.05$	$T_{24} = 0.65$ $P > 0.05$	$T_{27} = 1.8$ $P > 0.05$	$T_{30} = 0.04$ $P > 0.05$	$T_{23} = 0.38$ $P > 0.05$	$T_{24} = 0.68$ $P > 0.05$	$T_{28} = 2.9$ $P < 0.05$	$T_{19} = 0.03$ $P > 0.05$	$T_{29} = 1.2$ $P > 0.05$
Female	Test 1	$F_{(1, 87)} = 0.29$ $P = 0.59$	$F_{(2, 87)} = 1.9$ $P = 0.15$	$F_{(2, 87)} = 4.0$ $P < 0.05$	$T_{30} = 0.53$ $P > 0.05$	$T_{27} = 3.4$ $P < 0.01$	$T_{30} = 1.3$ $P > 0.05$	$T_{29} = 1.9$ $P > 0.05$	$T_{30} = 0.74$ $P > 0.05$	$T_{27} = 1.6$ $P > 0.05$	$T_{30} = 2.6$ $P < 0.05$	$T_{27} = 1.1$ $P > 0.05$	$T_{30} = 0.52$ $P > 0.05$
	Test 2	$F_{(1, 86)} = 0.69$ $P = 0.41$	$F_{(2, 86)} = 0.91$ $P = 0.41$	$F_{(2, 86)} = 0.61$ $P = 0.55$	$T_{26} = 1.7$ $P > 0.05$	$T_{30} = 0.16$ $P > 0.05$	$T_{26} = 1.0$ $P > 0.05$	$T_{30} = 0.28$ $P > 0.05$	$T_{30} = 0.71$ $P > 0.05$	$T_{30} = 0.11$ $P > 0.05$	$T_{26} = 0.29$ $P > 0.05$	$T_{30} = 1.3$ $P > 0.05$	$T_{30} = 0.49$ $P > 0.05$

Fig. 4b TST Immobility Time		Genotype Effects	Age Effects	Genotype X Age Interactions	Test 2 <i>hoc</i> Bonferroni Test Age Effects						Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		
					ED vs YA		ED vs OA		YA vs OA				
					WT	KIV	WT	KIV	WT	KIV	ED	YA	OA
Male	Test 1	$F_{(1,78)} = 0.05$ $P = 0.82$	$F_{(2,78)} = 2.8$ $P = 0.06$	$F_{(2,78)} = 3.6$ $P < 0.05$	$T_{23} = 1.4$ $P > 0.05$	$T_{24} = 2.2$ $P > 0.05$	$T_{26} = 0.06$ $P > 0.05$	$T_{26} = 3.1$ $P < 0.05$	$T_{27} = 1.5$ $P > 0.05$	$T_{28} = 0.89$ $P > 0.05$	$T_{22} = 2.0$ $P > 0.05$	$T_{25} = 1.6$ $P > 0.05$	$T_{30} = 1.0$ $P > 0.05$
	Test 2	$F_{(1,72)} = 0.25$ $P = 0.62$	$F_{(2,72)} = 4.7$ $P < 0.05$	$F_{(2,72)} = 7.3$ $P < 0.001$	$T_{21} = 2.1$ $P > 0.05$	$T_{21} = 2.1$ $P > 0.05$	$T_{26} = 0.6$ $P > 0.05$	$T_{25} = 3.5$ $P < 0.01$	$T_{25} = 1.6$ $P > 0.05$	$T_{26} = 1.4$ $P > 0.05$	$T_{22} = 2.8$ $P < 0.05$	$T_{30} = 2.2$ $P > 0.05$	$T_{30} = 1.6$ $P > 0.05$
Female	Test 1	$F_{(1,90)} = 0.39$ $P = 0.53$	$F_{(2,90)} = 6.6$ $P < 0.005$	$F_{(2,90)} = 6.6$ $P = 0.27$	$T_{29} = 1.3$ $P > 0.05$	$T_{30} = 1.6$ $P > 0.05$	$T_{29} = 1.5$ $P > 0.05$	$T_{29} = 3.5$ $P < 0.01$	$T_{30} = 0.40$ $P > 0.05$	$T_{30} = 2.0$ $P > 0.05$	$T_{29} = 1.2$ $P > 0.05$	$T_{30} = 0.76$ $P > 0.05$	$T_{30} = 0.95$ $P > 0.05$
	Test 2	$F_{(1,85)} = 6.3$ $P < 0.01$	$F_{(2,85)} = 2.4$ $P = 0.10$	$F_{(2,85)} = 4.1$ $P < 0.02$	$T_{26} = 1.6$ $P > 0.05$	$T_{29} = 2.2$ $P > 0.05$	$T_{26} = 0.15$ $P > 0.05$	$T_{29} = 3.1$ $P < 0.05$	$T_{30} = 1.6$ $P > 0.05$	$T_{30} = 0.92$ $P > 0.05$	$T_{26} = 3.6$ $P < 0.01$	$T_{34} = 0.05$ $P > 0.05$	$T_{30} = 0.59$ $P > 0.05$

Fig. 5b BDNF levels		Genotype Effects	Age Effects	Genotype X Age Interactions	Test 2 <i>hoc</i> Bonferroni Test Age Effects						Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		
					ED vs YA		ED vs OA		YA vs OA				
					WT	KIV	WT	KIV	WT	KIV	ED	YA	OA
Hippocampus	Test 1	$F_{(1,45)} = 0.0002$ $P = 0.99$	$F_{(2,45)} = 7.1$ $P < 0.005$	$F_{(2,45)} = 1.5$ $P = 0.23$	$T_{16} = 0.67$ $P > 0.05$	$T_{15} = 3.1$ $P < 0.05$	$T_{16} = 1.9$ $P > 0.05$	$T_{15} = 3.1$ $P < 0.05$	$T_{14} = 1.2$ $P > 0.05$	$T_{14} = 0.01$ $P > 0.05$	$T_{17} = 1.3$ $P > 0.05$	$T_{14} = 1.2$ $P > 0.05$	$T_{14} < 0.001$ $P > 0.05$
	Test 2	$F_{(1,46)} = 3.6$ $P = 0.06$	$F_{(2,46)} = 6.4$ $P < 0.005$	$F_{(2,46)} = 3.4$ $P < 0.05$	$T_{16} = 0.48$ $P > 0.05$	$T_{16} = 2.3$ $P > 0.05$	$T_{15} = 3.0$ $P < 0.05$	$T_{16} = 2.0$ $P > 0.05$	$T_{13} = 3.3$ $P < 0.05$	$T_{14} = 0.25$ $P > 0.05$	$T_{18} = 2.0$ $P < 0.05$	$T_{14} = 1.1$ $P > 0.05$	$T_{13} = 1.9$ $P > 0.05$
Frontal Cortex	Test 1	$F_{(1,46)} = 0.30$ $P = 0.58$	$F_{(2,46)} = 6.0$ $P < 0.005$	$F_{(2,46)} = 0.62$ $P = 0.45$	$T_{16} = 1.0$ $P > 0.05$	$T_{15} = 2.6$ $P > 0.05$	$T_{16} = 2.0$ $P > 0.05$	$T_{15} = 2.6$ $P > 0.05$	$T_{14} = 0.93$ $P > 0.05$	$T_{13} = 0.03$ $P > 0.05$	$T_{18} = 1.1$ $P > 0.05$	$T_{13} = 0.61$ $P > 0.05$	$T_{14} = 0.45$ $P > 0.05$
	Test 2	$F_{(1,48)} = 0.02$ $P = 0.88$	$F_{(2,48)} = 0.72$ $P = 0.49$	$F_{(2,48)} = 0.42$ $P = 0.66$	$T_{16} = 0.12$ $P > 0.05$	$T_{15} = 0.26$ $P > 0.05$	$T_{15} = 1.4$ $P > 0.05$	$T_{15} = 0.28$ $P > 0.05$	$T_{13} = 1.2$ $P > 0.05$	$T_{12} = 0.03$ $P > 0.05$	$T_{18} = 0.23$ $P > 0.05$	$T_{13} = 0.22$ $P > 0.05$	$T_{12} = 0.79$ $P > 0.05$

Suppl. Fig. 1b OFT Distance Moved		Genotype Effects	Age Effects	Genotype X Age Interactions	Test 2 <i>hoc</i> Bonferroni Test Age Effects						Test 2 <i>hoc</i> Bonferroni Test Genotype Effects (WT vs KIV)		
					ED vs YA		ED vs OA		YA vs OA		ED	YA	OA
					WT	KIV	WT	KIV	WT	KIV			
Male	Test 1	<b>F<sub>(1, 83)</sub> = 19.7</b> <b>P &lt; 0.001</b>	F <sub>(2, 83)</sub> = 4.8 <b>P &lt; 0.05</b>	F <sub>(2, 83)</sub> = 3.2 P = 0.05	T <sub>26</sub> = 0.02 P > 0.05	T <sub>27</sub> = 0.87 P > 0.05	T <sub>28</sub> = 0.34 P > 0.05	<b>T<sub>30</sub> = 3.8</b> <b>P &lt; 0.01</b>	T <sub>28</sub> = 0.36 P > 0.05	<b>T<sub>28</sub> = 2.9</b> <b>P &lt; 0.05</b>	T <sub>27</sub> = 1.1 P > 0.05	T <sub>26</sub> = 2.0 P > 0.05	<b>T<sub>30</sub> = 4.7</b> <b>P &lt; 0.001</b>
	Test 2	F <sub>(1, 78)</sub> = 0.26 P = 0.61	F <sub>(2, 78)</sub> = 2.6 P = 0.08	F <sub>(2, 78)</sub> = 1.6 P = 0.21	T <sub>23</sub> = 0.13 P > 0.05	T <sub>25</sub> = 0.64 P > 0.05	T <sub>28</sub> = 0.26 P > 0.05	<b>T<sub>29</sub> = 2.8</b> <b>P &lt; 0.05</b>	T <sub>25</sub> = 0.38 P > 0.05	T <sub>26</sub> = 2.0 P > 0.05	T <sub>27</sub> = 0.78 P > 0.05	T <sub>20</sub> = 0.03 P > 0.05	T <sub>30</sub> = 1.7 P > 0.05
Female	Test 1	F <sub>(1, 85)</sub> = 0.08 P = 0.78	F <sub>(2, 85)</sub> = 0.87 P = 0.42	F <sub>(2, 85)</sub> = 13.8 <b>P &lt; 0.001</b>	<b>T<sub>30</sub> = 3.0</b> <b>P &lt; 0.05</b>	<b>T<sub>29</sub> = 3.3</b> <b>P &lt; 0.01</b>	<b>T<sub>30</sub> = 4.1</b> <b>P &lt; 0.001</b>	T <sub>30</sub> = 2.6 P > 0.05	T <sub>30</sub> = 1.1 P > 0.05	T <sub>30</sub> = 0.79 P > 0.05	<b>T<sub>29</sub> = 4.0</b> <b>P &lt; 0.001</b>	T <sub>30</sub> = 2.3 P > 0.05	<b>T<sub>30</sub> = 2.6</b> <b>P &lt; 0.05</b>
	Test 2	F <sub>(1, 88)</sub> = 3.5 P = 0.07	<b>F<sub>(2, 88)</sub> = 14.4</b> <b>P &lt; 0.001</b>	F <sub>(2, 88)</sub> = 9.3 <b>P &lt; 0.001</b>	T <sub>28</sub> = 0.78 P > 0.05	T <sub>30</sub> = 0.83 P > 0.05	T <sub>28</sub> = 1.9 P > 0.05	T <sub>30</sub> = 0.55 P > 0.05	T <sub>30</sub> = 1.1 P > 0.05	T <sub>30</sub> = 0.29 P > 0.05	<b>T<sub>27</sub> = 4.4</b> <b>P &lt; 0.001</b>	T <sub>30</sub> = 0.05 P > 0.05	T <sub>30</sub> = 1.4 P > 0.05

**3. Student's *t*-test was conducted to compare data between two-groups.** This test was to verify the results of two-way ANOVA and to avoid type II errors. No major discrepancy was found.

Fig. 2 OFT (Total Activity)			Genotype Effect (WT vs KIV)		Treatment Effect (SCT vs EET)	
			SCT	EET	WT	KIV
Male	ED	Test 1	P < 0.001	P < 0.001	P < 0.001	P < 0.005
		Test 2	P < 0.001	P < 0.001	P < 0.005	P < 0.01
	YA	Test 1	P < 0.001	P < 0.001	P < 0.005	P < 0.05
		Test 2	P < 0.01	P < 0.001	P < 0.005	P > 0.05
	OA	Test 1	P < 0.01	P < 0.005	P < 0.05	P > 0.05
		Test 2	P < 0.005	P < 0.005	P > 0.05	P > 0.05
	ED	Test 1	P < 0.001	P > 0.05	P < 0.05	P < 0.001
		Test 2	P < 0.001	P > 0.05	P > 0.05	P < 0.001
Female	YA	Test 1	P < 0.001	P < 0.005	P < 0.05	P < 0.001
		Test 2	P < 0.001	P < 0.001	P < 0.05	P < 0.01
	OA	Test 1	P < 0.005	P < 0.005	P < 0.005	P > 0.05
		Test 2	P < 0.005	P < 0.01	P > 0.05	P > 0.05

Fig. 3 OFT (Time in Center)			Genotype Effect (WT vs KIV)		Treatment Effect (SCT vs EET)	
			SCT	EET	WT	KIV
Male	ED	Test 1	P > 0.05	P > 0.05	P < 0.01	P < 0.05
		Test 2	P > 0.05	P < 0.005	P < 0.05	P > 0.05
	YA	Test 1	P > 0.05	P < 0.005	P < 0.05	P > 0.05
		Test 2	P > 0.05 (0.059)	P > 0.05	P > 0.05	P > 0.05
	OA	Test 1	P > 0.05	P < 0.005	P < 0.05	P > 0.05
		Test 2	P > 0.05	P < 0.005	P > 0.05	P > 0.05
	ED	Test 1	P > 0.05 (0.070)	P > 0.05	P > 0.05	P < 0.01
		Test 2	P > 0.05	P > 0.05	P > 0.05	P > 0.05
Female	YA	Test 1	P > 0.05	P < 0.01	P > 0.05	P > 0.05
		Test 2	P > 0.05	P < 0.005	P > 0.05	P > 0.05
	OA	Test 1	P < 0.05	P < 0.005	P < 0.005	P > 0.05
		Test 2	P < 0.05	P < 0.05	P > 0.05	P > 0.05

Fig. 4 TST (Immobility Time)			Genotype Effect (WT vs KIV)		Treatment Effect (SCT vs EET)	
			SCT	EET	WT	KIV
Male	ED	Test 1	P < 0.001	P > 0.05	P < 0.005	P < 0.001
		Test 2	P < 0.001	P > 0.05	P > 0.05	P < 0.05
	YA	Test 1	P < 0.001	P < 0.005	P < 0.05	P < 0.001
		Test 2	P < 0.01	P < 0.01	P > 0.05 (0.072)	P > 0.05
	OA	Test 1	P < 0.05	P < 0.005	P < 0.05	P > 0.05
		Test 2	P > 0.05	P < 0.005	P > 0.05	P > 0.05
	ED	Test 1	P < 0.005	P > 0.05	P < 0.01	P < 0.001
		Test 2	P < 0.001	P > 0.05	P > 0.05	P < 0.05
Female	YA	Test 1	P < 0.001	P < 0.05	P < 0.05	P < 0.01
		Test 2	P < 0.01	P > 0.05 (0.053)	P > 0.05	P > 0.05
	OA	Test 1	P < 0.05	P < 0.005	P > 0.05	P > 0.05
		Test 2	P < 0.05	P > 0.05	P > 0.05	P > 0.05

Fig. 5 BDNF levels			Genotype Effect (WT vs KIV)		Treatment Effect (SCT vs EET)	
			SCT	EET	WT	KIV
Hippocampus	ED	Test 1	P < 0.001	P > 0.05	P < 0.001	P < 0.001
		Test 2	P < 0.001	P < 0.001	P > 0.05	P < 0.005
	YA	Test 1	P < 0.001	P < 0.001	P < 0.005	P > 0.05
		Test 2	P < 0.001	P < 0.001	P > 0.05	P > 0.05
	OA	Test 1	P < 0.001	P < 0.001	P > 0.05	P > 0.05
		Test 2	P < 0.01	P > 0.05	P > 0.05	P > 0.05
Frontal Cortex	ED	Test 1	P < 0.001	P < 0.05	P < 0.05	P < 0.005
		Test 2	P < 0.001	P < 0.001	P > 0.05	P > 0.05
	YA	Test 1	P < 0.005	P < 0.001	P > 0.05	P > 0.05
		Test 2	P < 0.005	P < 0.05	P > 0.05	P > 0.05
	OA	Test 1	P < 0.01	P > 0.05	P > 0.05	P > 0.05
		Test 2	P > 0.05	P > 0.05	P > 0.05	P > 0.05

Supplementary Fig. 1 OFT (Distance Moved)			Genotype Effect (WT vs KIV)		Treatment Effect (SCT vs EET)	
			SCT	EET	WT	KIV
Male	ED	Test 1	P > 0.05	P < 0.05	P < 0.05	P > 0.05
		Test 2	P > 0.05	P > 0.05	P > 0.05	P > 0.05
	YA	Test 1	P > 0.05	P < 0.005	P < 0.05	P > 0.05
		Test 2	P < 0.05	P > 0.05	P > 0.05	P > 0.05
	OA	Test 1	P > 0.05	P < 0.005	P < 0.05	P > 0.05
		Test 2	P > 0.05	P > 0.05	P < 0.005	P > 0.05
Female	ED	Test 1	P < 0.001	P > 0.05	P < 0.01	P > 0.05
		Test 2	P < 0.001	P > 0.05	P < 0.001	P > 0.05
	YA	Test 1	P < 0.005	P < 0.01	P > 0.05	P > 0.05
		Test 2	P < 0.05	P < 0.05	P > 0.05	P > 0.05
	OA	Test 1	P < 0.01	P < 0.005	P > 0.05	P > 0.05
		Test 2	P < 0.05	P > 0.05	P > 0.05	P < 0.05