

DATE 4TH MAY 2018

PUBLICATION LIST: **RANTAMÄKI, TOMI** (orcid.org/0000-0002-0052-1434)

A. Peer-reviewed publications (*equal contribution)

1. Koponen E, **Rantamäki T**, Vöikar V, Saarelainen T, MacDonald E and Castrén E: Enhanced BDNF signaling is associated with changes in brain monoamines and induces an antidepressant-like behavioral response. *Cellular and Molecular Neurobiology* 25:973-80, 2005. (JUFO: 1)
2. **Rantamäki T**, Knuutila J, Hokkanen M-E and Castrén E: The effects of acute and long-term lithium treatments on TrkB neurotrophin receptor activation in mouse hippocampus and anterior cingulate cortex. *Neuropharmacology* 50:421-7, 2006. (JUFO: 1)
3. Castrén E, Vöikar V and **Rantamäki T**: Role of neurotrophic factors in depression. *Current Opinion in Pharmacology* 7:18-21, 2007. (JUFO: 1)
4. **Rantamäki T**, Hendolin P, Kankaanpää A, Mijatovic J, Piepponen P, Domenici E, Chao M, Männistö P and Castrén E: Pharmacologically diverse antidepressants rapidly activate Brain-derived neurotrophic factor (BDNF) receptor TrkB and induce phospholipase-Cy1 signaling pathways in mouse brain. *Neuropsychopharmacology* 32:2152-62, 2007. (JUFO: 2)
5. Hansen HH*, **Rantamäki T***, Larsen MH, Woldbye D, Mikkelsen JD and Castrén E: Rapid activation of extracellular signal-regulated kinase (ERK) signaling in the rat medial prefrontal cortex is not mediated by TrkB neurotrophin signaling. *Cellular and Molecular Neurobiology* 27:585-594, 2007. (JUFO: 1)
6. Perga S, Martin MG, Trovo L, Rasola A, Holm P, **Rantamäki T**, Harkany T, Castrén E, Chiara F and Dotti CG: Cholesterol loss enhances TrkB signaling in hippocampal neurons aging *in vitro*. *Molecular Biology of the Cell* 19:2101-12, 2008. (JUFO: 2)
7. **Rantamäki T** and Castrén E: Targeting TrkB receptor to treat depression. *Expert Opinion on Therapeutic Targets* 12:705-15, 2008. (JUFO: 1)
8. Sallert M, **Rantamäki T**, Vesikansa A, Anthoni H, Harju K, Yli-Kauhaluoma J, Taira T, Castrén E and Lauri S: BDNF controls activity-dependent maturation of CA1 synapses by down regulating tonic activation of presynaptic kainate receptors. *Journal of Neuroscience* 29:11294-303, 2009. (JUFO: 3)
9. Castrén E and **Rantamäki T**: Role of Brain-Derived Neurotrophic Factor in the Etiology of Depression: Implications for Pharmacological Treatment. *CNS Drugs* 24:1-7, 2010. (JUFO: 1)
10. Castrén E and **Rantamäki T**: The role of BDNF and its receptors in depression and the antidepressant drug action: reactivation of developmental plasticity. *Developmental Neurobiology* 70:289-97, 2010. (JUFO: 1)
11. Gyarfás T, Knuutila J, Lindholm P, **Rantamäki T** and Castrén E: Regulation of Brain-Derived Neurotrophic Factor (BDNF) and Conserved Dopamine Neurotrophic Factor (CDNF) by Anti-parkinsonian Drug Therapy *In Vivo*. *Cellular and Molecular Neurobiology* 30:361–368, 2010. (JUFO: 1)
12. Spulber S, **Rantamäki T**, Nikkilä O, Castrén E, Weihe P, Grandjean P and Ceccatelli S: Effects of maternal smoking and exposure to methylmercury on Brain-Derived Neurotrophic Factor (BDNF) concentrations umbilical cord serum. *Toxicological Sciences* 117:263-9, 2010. (JUFO: 2)
13. Karpova N*, **Rantamäki T***, DiLieto A, Lindemann L, Hoener M and Castrén E: Darkness reduced BDNF expression in the visual cortex and induces repressive chromatin remodeling at the BDNF gene in both hippocampus and visual cortex. *Cellular and Molecular Neurobiology* 30:1117-23, 2010. (JUFO: 1)
14. Louhivuori V, Vicario A, Uutela M, **Rantamäki T**, Louhivuori L, Castrén E, Tongiorgi E, Åkerman K and Castrén M: BDNF and TrkB in neuronal differentiation of *Fmr1* –knockout mouse. *Neurobiology of Disease* 41:469-80, 2011. (JUFO: 1)
15. Kaste K, Kivinummi T, **Rantamäki T**, Castrén E and Ahtee L: Long-term adaptive changes on BDNF and phospho-CREB levels following chronic oral nicotine treatment and its withdrawal in dopaminergic brain areas of mice. *Neuroscience Letters* 491:108-12, 2011. (JUFO: 1)
16. Razzoli M, Domenici E, Carboni L, **Rantamäki T**, Lindholm J, Castrén E and Arban R: A role for BDNF/TrkB.T1 signaling in long-term behavioral and physiological consequences of social defeat stress. *European Journal of Neuroscience* 10:424-33, 2011. (JUFO: 1)
17. **Rantamäki T**, Vesa L*, Anttila H*, Di Lieto A, Tammela P, Schmitt A, Rios M, Lesch KP and Castrén E: Antidepressant drugs transactivate TrkB neurotrophin receptors in the adult rodent brain independently of BDNF and monoamine transporter blockade. *PLoS One* 6:e20567, 2011. (JUFO: 1)
18. Autio H, Mätlik K, **Rantamäki T**, Lindemann L, Hoener MC, Chao M, Arumäe U, Castrén E: Acetylcholinesterase inhibitors rapidly activate Trk neurotrophin receptors in the mouse hippocampus. *Neuropharmacology* 61:1291-6, 2011. (JUFO: 1)
19. Lindholm J, Autio H, Vesa L, Anttila H, Lindemann L, Hoener MC, **Rantamäki T**, Skolnick P and Castrén E: The antidepressant-like effects of glutamatergic drugs are preserved in *bdnf*^{+/−} heterozygous null mice. *Neuropharmacology* 62:391-7, 2012. (JUFO: 1)

20. Di Lieto A*, **Rantamäki T***, Vesa L, Sudhirkumar Y, Antila H, Lindholm J, Rios M, Tessarollo L, and Castrén E: Contrasting postnatal regulation of TrkB autophosphorylation and signalling by antidepressants and BDNF. *PLoS One* 7:e32869, 2012. (JUFO: 1)
21. Kemppainen S, **Rantamäki T**, Jerónimo-Santos A, Lavoie G, Autio H, Karpova N, Kärkkäinen E, Stavén A, Miranda HV, Outeiro TF, Diógenes MJ, Laroche S, Davis S, Sebastião AM, Castrén E and Tanila H: Contribution of TrkB receptor signaling on the neurological phenotype of APP/PS1 transgenic mouse model of Alzheimer's disease. *Neurobiology of Aging* 33:1122.e23-39, 2012. (JUFO: 2)
22. Savelyev SA, **Rantamäki T**, Rytönen KM, Castrén E and Porkka-Heiskanen T: Effect of sleep deprivation on sleep homeostasis in a rodent clomipramine model of depression. *Neuroscience* 212:149-58, 2012. (JUFO: 1)
23. **Rantamäki T**, Kemppainen S, Autio H, Stavén S, Koivisto H, Kojima M, Antila H, Miettinen PO, Kärkkäinen E, Vesa L, Karpova N, Lindemann L, Hoener MC, Tanila H and Castrén E: The impact of Bdnf gene deficiency to the memory impairment and brain pathology of APP^{swE}/PS1^{dE9} mouse model of Alzheimer's disease. *PLoS One* 3;8(7):e68722, 2013. (JUFO: 1)
24. **Rantamäki T**: Masennuslääkkeet edistävät hermoverkkojen muovautuvuutta – mitä hyötyä siitä on aivoille? *Lääkärilehti* 68:2675-2680, 2013. (JUFO 1)
25. Antila H, Autio H, Turunen L, Harju K, Tammela P, Wennerberg K, Yli-Kauhala J, Huttunen HJ, Castrén E and **Rantamäki T**: Utilization of *in situ* ELISA methodology for examining Trk receptor phosphorylation in cultured cells. *Journal of Neuroscience Methods* 222:142-146, 2014. (JUFO: 1)
26. Thakker-Varia S, Behnke J, Doobin D, Dalal V, Thakkar K, Khadim F, Wilson E, Antila H, **Rantamäki T** and Alder J: VGF-induced Neurogenesis Targets Early Phase Neural Progenitor Cells in the Adult Hippocampus and Requires Glutamate Signaling. *Stem Cell Research* 12:762-777, 2014. (JUFO: 1)
27. Uutela M, Lindholm J, **Rantamäki T**, Umemori J, Hunter K, Vöikar V and Castrén M: Distinctive behavioral and cellular responses to fluoxetine in the mouse model for fragile X syndrome, a variant of autism spectrum disorder. *Frontiers in Neuroscience*, 8:150, 2014. (JUFO: 1)
28. Koskimäki J, Matsui N, Umemori J, **Rantamäki T** and Castrén E: Nimodipine activates TrkB neurotrophin receptors and induces neuroplastic and neuroprotective signaling events in the mouse hippocampus and prefrontal cortex. *Cellular and Molecular Neurobiology* 2:189-96, 2015. (JUFO: 1)
29. Aonurm-Helm A, Anier K, Zharkovsky T, Castrén E, **Rantamäki T**, Stepanov V, Järvi J and Zharkovsky A: NCAM-deficient mice show prominent abnormalities in serotonergic and BDNF systems in brain – restoration by chronic amitriptyline. *European Neuropsychopharmacology* 12:2394-403, 2015. (JUFO: 1)
30. **Rantamäki T** and Yalcin I: Antidepressant drug action – from rapid changes on network activity to network rewiring. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 64:285-292, 2016. (JUFO: 1)
31. Kohtala S, Suomi T*, Theilmann W*, Wigren H-K, Stenberg T, Elo LL, Rokka A and **Rantamäki T**: Brief isoflurane anesthesia produces prominent phosphoproteomic changes in the adult mouse hippocampus. *ACS Chemical Neuroscience* 6:749-56, 2016. (JUFO: 1)
32. Leikas J, Kääriäinen T, Jalkanen A, Lehtonen M, **Rantamäki T** and Forsberg M: Combined Ipsilateral Limb Use Score as an Index of Motor Deficits and Neurorestoration in Parkinsonian Rats. *Journal of Neuroscience Research* 95(9):1858-1870, 2017. (JUFO: 1)
33. Gerenu G, Martisova E, Carracedo M, Ferrero H, **Rantamäki T**, Ramirez M and Gil-Bea JF: Modulation of BDNF cleavage by Plasminogen-Activator Inhibitor-1 contributes to Alzheimer's neuropathology and cognitive deficits. *Molecular Basis of Disease Biochim Biophys Acta* 1863(4):991-1001, 2017. (JUFO: 1)
34. Rosenholm M, Paro E, Antila H, Vöikar V and **Rantamäki T**: Repeated brief isoflurane anesthesia during early postnatal development produces negligible changes on adult behavior in male mice. *PLoS One* 5;12(4):e0175258, 2017. (JUFO: 1)
35. Leikas J, Kohtala S, Theilmann W, Jalkanen A, Forsberg M and **Rantamäki T**: Brief isoflurane anesthesia regulates GSK3 β signaling and ameliorates motor deficiency in an early-stage rat model of Parkinson's disease. *Journal of Neurochemistry* 142(3):456-463, 2017. (JUFO: 1)
36. Tammeorg P, Mykkänen A*, **Rantamäki T***, Lakkala M, Muukkonen H: Improving group work practices in teaching life sciences: Triological learning. *Research in Science Education*. doi:10.1007/s11165-017-9649-8, 2017. (JUFO: 2)
37. Antila A, Ryazantseva M, Popova D, Sipilä P, Guirado R, Kohtala S, Vesa L, Lindholm J, Yalcin I, Sato V, Cordeira J, Autio H, Kislin M, Rios M, Joca S, Casarotto P, Khiroug L, Lauri S, Taira T, Castrén E and **Rantamäki T**: Isoflurane produces antidepressant effects and activates TrkB signaling in rodents. *Scientific Report* 7(1):7811, 2017. doi: 10.1038/s41598-017-08166-9. (JUFO: 2)
38. Kleimann A, Theilmann W, Brandt C, **Rantamäki T**, Matsui N, Rhein M, Kornhuber J, Bajbouj M, Sperling W, Bleich S, Frieling H and Löscher W: P11 promoter methylation predicts the antidepressant effect of electroconvulsive therapy. *Translational Psychiatry* 22;8(1):25, 2018. (JUFO: 1)
39. Kohtala S, Järventausta K and **Rantamäki R**: Neurobiologiset ilmiöt nopean masennuslääkeväesteen taustalla. *Duodecim*, in press (JUFO: 1).

B Scientific publications (without peer-review)

1. Antila A, Casarotto P, Popova D, Sipilä P, Guirado R, Kohtala S, Ryazantseva M, Vesa L, Lindholm J, Yalcin I, Sato V, Göös H, Lempiere S, Cordeira J, Autio H, Kislin M, Rios M, Joca S, Khiroug L, Lauri S, Varjosalo M, Grant S, Taira T, Castrén E, **Rantamäki T**: TrkB signaling underlies rapid antidepressant actions of isoflurane. *BiorXiv* Posted November 2, 2016.
2. Kohtala S, Theilmann W, Rosenholm M, Penna L, Kiuru P, Uusitalo S, Järventausta K, Yli-Hankala A, Yli-Kauhaluoma J, Wigren HK, **Rantamäki T**: Putative rapid-acting antidepressant nitrous oxide ("laughing gas") evokes rebound emergence of slow EEG oscillations during which TrkB signaling is induced. *BiorXiv* Posted January, 2018.

In addition >40 conference abstracts

C Scientific books

1. Castrén E and **Rantamäki T**: Neurotrophins in depression and antidepressant effects. Novartis Found Symposium 2008 289:43-52; discussion 53-9, 87-93. *Growth Factors and Psychiatric Disorders*. Published by Wiley, Edited by Derek J. Chadwick. Conference book.

D Publications for professionals

1. **Rantamäki T** and Castrén E: Neurotrofiinit masennuslääkkeiden terapeuttisten vaikutusten välittäjinä. *Dosis* 21:298-307, 2005.
2. **Rantamäki T**: *Lectio*: Brain TrkB neurotrophin receptor as a target for antidepressant treatments. *Dosis* 2/2007, 2007.
3. **Rantamäki T** and Castrén E: Riittääkö että masennuslääke vain otetaan? *Dosis* 26; 209-213, 2010.
4. **Rantamäki T**: Aivoyhdyshenkilö apteekkiin *Apteekkari* 7-8:31, 2010.
5. **Rantamäki T** and Castrén E: Mielipide: Parantuuko masennus vain lääkehoidolla. *Helsingin Sanomat* 15.4.2012.
6. **Rantamäki T**: Puheenvuoro: Yhteiskunnallinen vuorovaikutus on tärkeää - Tutkijan työpäivä koulussa. *Yliopisto* 4: 52, 2012.
7. **Rantamäki T**: Masennuslääkkeet - Kannattaako niitä syödä, onko niillä tehoa ja miten ne oikein vaikuttavat? *Apteekkari*
8. **Rantamäki T**: Lukijalta: Aivolääkkeet toiminnallisen terapian tueksi. *Aamulehti* 3.10.2012.
9. Rantamäki H and **Rantamäki T**: Lukijalta: Mitä tahansa ei kouluissa voi esittää – edes hyvän asian siivellä. *Lempäälä-Vesilahden Sanomat* 4.10.2012.
10. **Rantamäki T**: Lukijalta: Änkytys on kommunikaation häiriö. *Aamulehti* 15.3.2013.
11. **Rantamäki T**: Lääke antaa masentuneelle mahdollisuuden. *Tiede* 33:52-55, 2013.
12. **Rantamäki T**: Fiksuja masennuslääkkeitä. Blogikirjoitus, 2016.

E Publications for general public

1. **Rantamäki T**: Miksi masennuslääke kohottaa mielialaa? *OmaPlus* 3:12, 2005.
2. **Rantamäki T**: Änkytys lähtee aivoista, mutta miten? *Puheenvuoro* 4; 17–18, 2010.
3. **Rantamäki T**: Änkytys – Haaste aivotutkimukselle. *Puheen vuoro* 2; 8-10, 2011.
4. **Rantamäki T** and Castrén E: Mielipide: Parantuuko masennus vain lääkehoidolla. *Helsingin Sanomat* 15.4.2012.
5. **Rantamäki T**: Puheenvuoro: Yhteiskunnallinen vuorovaikutus on tärkeää - Tutkijan työpäivä koulussa. *Yliopisto* 4: 52, 2012.
6. **Rantamäki T**: Masennuslääkkeet - Kannattaako niitä syödä, onko niillä tehoa ja miten ne oikein vaikuttavat? *Apteekkari*
7. **Rantamäki T**: Lukijalta: Aivolääkkeet toiminnallisen terapian tueksi. *Aamulehti* 3.10.2012.
8. Rantamäki H and **Rantamäki T**: Lukijalta: Mitä tahansa ei kouluissa voi esittää – edes hyvän asian siivellä. *Lempäälä-Vesilahden Sanomat* 4.10.2012.
9. **Rantamäki T**: Lukijalta: Änkytys on kommunikaation häiriö. *Aamulehti* 15.3.2013.
10. **Rantamäki T**: Lääke antaa masentuneelle mahdollisuuden. *Tiede* 33:52-55, 2013.
11. **Rantamäki T**: Fiksuja masennuslääkkeitä. Blogikirjoitus, 2016.

G Theses

1. **Nieminen T (née)**: MAO inhibiittorien kliininen vertailu. Farmaseutin lopputyö, 2001.
2. **Nieminen T (née)**: Noradrenaliinin ja serotoniinin osuus masennuslääke imipramiinin aikaansaamassa TrkB reseptorin tyrosiini fosforylaatioissa rotan aivoissa. *Pro gradu* –työ, 2003.
3. **Rantamäki T**: Brain TrkB neurotrophin receptor as a target for antidepressant treatments. *Dissertationes bioscientiarum molecularium Universitatis Helsingiensis in Viikki* 25/2006, 2006.

H Patents and innovation declarations

1. **Rantamäki T**, Castrén E and Antila H: *In situ* ELISA (enzyme-linked immunosorbent assay), 0220/2011, University of Helsinki (*Innovation declaration*)
2. Castrén E and **Rantamäki T**: Neurotrofiinireseptori TrkB:n herkistäjän kuvaus, 0221/2011, University of Helsinki (*Innovation declaration*)
3. **Rantamäki T**, Castrén E and Antila H: Uudet TrkB reseptorin aktiivisuuteen vaikuttavat bioaktiiviset pienmolekyylit, Helsingin yliopisto (*Innovation declaration*)
4. **Rantamäki T**, Castrén E, Matsui N, Antila H: "Uusi TrkB reseptorin aktiivisuuteen *in vivo* vaikuttava pienmolekyylit." (*Innovation declaration*)
5. **Rantamäki T**, Castrén E, Matsui N, Koskimäki J: "Nimodipine aktivoi TrkB reseptorin." (*Innovation declaration*)
6. **Rantamäki T**, Kohtala S, Theilmann W: Methods for determining the therapeutic efficacy of rapid-acting antidepressants and personalized antidepressant therapy related thereto. National Board of patents and registration of Finland (patent pending).

I Audiovisual material

1. Animation for BIO2011 summit. Substance expert. Animation prepared by Woltti Ltd. (theme: neuronal degeneration and neuronal plasticity), 2011.