**Eero Hemminki Castrén,** born April 4, 1958 in Turku, Finland

Orcid ID: 0000-0002-1402-2791, <http://orcid.org/0000-0002-1402-2791>

**Education:**

Medical Licentiate (MD), University of Kuopio, Finland (1983),

PhD (Neuropharmacology), Department of Pharmacology, University of Kuopio, Finland (1989)

**Present position**:

Academy professor, Neuroscience Center, University of Helsinki (2017-2021)

**Previous positions and Fellowships:**

* Director, Neuroscience Center, University of Helsinki (2013-2017
* Sigrid Juselius Professor, Neuroscience Center, University of Helsinki (2003-12).
* Schaefer Scholar, Department of Neuroscience, Columbia University, NY, USA (sabbatical, 2011)
* Professor of Molecular Pharmacology, A.I. Virtanen Institute, University of Kuopio, (95-02)
* Staff scientist (Wissenschaftlicher Assistent), Max-Planck-Institut für Psychiatrie, Martinsried, Germany, 1993-94)
* Alexander von Humboldt Fellow (postdoc), Max-Planck-Institut für Psychiatrie, Germany, (1990-92)
* Visiting Fellow (Postdoc), National Institute of Mental Health, NIH, Bethesda, MD, USA (1986-89)

**Institutional responsibilities and Commissions of Trust:**

- Secretary General elect, Federation of European Neuroscience Associations, (2016-18)

- Member, Senate (University collegium) of University of Helsinki,

- President, Brain Research Society of Finland, FENS Council member, (2003-06)

- Chair, Department of Neurobiology, A.I. Virtanen Institute, University of Kuopio, (2001-02)

**-** Director, Kuopio University Neuroscience Center, (2000-02)

**Expertise:** I have successfully combined expertise in neuropharmacology, developmental neuroscience and molecular biology to become a leading scientist in the rapidly expanding field of neuronal plasticity in neuropharmacology and the neuropsychiatric disorders. We are a leading lab studying the effects of neurotrophins in adult brain. We were the first to demonstrate that antidepressants activate neurotrophin signalling in brain and that this signalling is required for the behavioural effects of antidepressants. We then demonstrated that antidepressant treatment reactivates critical period-like plasticity in the adult rodent visual cortex; this was the first demonstration that a systemic drug treatment can reactivate brain plasticity. We further showed that antidepressants reactivate juvenile-like plasticity in the fear extinction and aggression extinction networks, findings that may explain the superior efficacy of combined antidepressant treatment and psychotherapy in mood disorders. These groundbreaking discoveries provide direct evidence for the network hypothesis of antidepressant action proposed by me 2005, and suggest a science-based reconciliation between the schools of biologically and psychotherapeutically oriented psychiatrists. This reunion has been enthusiastically welcomed by a wide audience of psychiatrists and psychologists worldwide.

**Awards and Honours:**

2017 Anna-Monika-Prize for research in neurobiology and treatment of depressive disorders.

2016 Commander of the Order of the Lion of Finland

2014- Full member, The European Dana Alliance for the Brain

2014-2017 Member, Biocentrum Helsinki

2013 Advanced investigator award, European Research Council

2011 Schaefer Scholarship, Columbia University

2008-2013 Senior Member, Center of Excellence, Academy of Finland

2004 Member, Finnish Academy of Science and Letters

**Memberships in international scientific advisory boards and committees:**

* Scientific advisory panel member, Program committee member, European College of Neuropsychopharmacology, 2005 - 2017
* Member, Scientific advisory board, ERA-NEURON programme, EU, 2007- present.
* Member, Scientific advisory board, Department of Neuroscience, Karolinska Institute, Sweden, 2013 -.
* Secretary General, Federation of European Neuroscience Societies, 2016-2020
* Chair, Scientific Advisory Board for the MWL Centre of Karolinska Institute in Hong Kong.

**Supervised Graduate students and Postdocs:**

**- 25 supervised postdocs**: From USA, France, UK, Italy, Germany, Ireland, Russia, China, Brazil, Spain, Japan, India and Finland.

**- 21 graduated PhD students**: From: Finland (17), Germany (1), Czech Republic (1), Russia (2).

**Organizer of international scientific conferences:**

- Chair: “Neurotrophins in Neuronal Development and Plasticity”, Rautalampi, Finland, 1996.

- Chair: “Interdisciplinary Summer School on Schizophrenia”: Kuopio, Finland, 2002.

- Chair: “Neurogenesis”. Targeted expert meeting of ECNP, Vienna, Austria, 2007.

- Chair: “10th International Conference on Neurotrophic Factors”, Helsinki, Finland, 2010.

**Scientific referee** for the following granting agents:

- Member of an evaluation panel for:

* European Research Council, Young investigator award panel 2014, 2016;
* Sigrid Jusélius foundation, scientific board, 2016 -,
* Singapore, Academic Research Fund Expert Panel of the Ministry of Education, 2015-18;
* Swedish Research Council, IPD-INCA panel;
* European Community 5th Framework Program;
* National Institutes of Mental Health, USA;
* Danish Agency for Science, Technology and Innovation;
* Academy of Finland.

- *ad hoc* reviewer: European Research Council, European Science Foundation, Human Frontier Science Program, The Royal Swedish Academy of Science Israel Science Foundation, National Science Foundation (USA), Wellcome Trust, Swiss National Science Foundation, Research Council of Norway, Förderung der Wissenschaftlichen Forschung, Austria, Association Francaise Contre les Myopathies, France, Thrasher Fund (USA).

**Industrial activities**

- Finncovery Ltd: Co-founder (drug discovery company, merged to Medikalla Ltd 2004)

- Herantis Pharma LtD (formerly Hermo Pharma): Co-founder.

**Active research funding:**

* 2019-2024 Jane & Aatos Erkko Foundation, € 1 000 000
* 2013-2018 ERC Advanced investigator award, € 2 500 000
* 2014-2017 Biocentrum Helsinki, € 105 000
* 2013-2018 Sigrid Juselius Foundation, large grant € 1 250 000
* 2016-2019 EU Joint Program – Neurodegenerative Diseases € 288 180
* 2016-2020 Academy of Finland research grant € 270 000
* 2017-2019 Academy of Finland, research grant, € 561,026

**Scientific publications:** <http://www.ncbi.nlm.nih.gov/sites/myncbi/1XW15x2Pv9wQh/bibliography/42892071/public/?sort=date&direction=descending>

* **Total number** of publications: **220:**
* **Patents** or patent applications: **2** patents
* **h-index: 56** (ISI), **66** (Google Scholar); **Number of citations: 12264** (ISI), **17767** (Google Scholar).

**Scientific publications:**

* **Total number** of publications: **204**
* **Patents** or patent applications: **2** patents
* **h-index: 54** (ISI), **62** (Google Scholar)
* **Number of citations: 11000** (ISI), **15900** (Google Scholar).

**Ten selected publications** (5 best bolded)

1. **Karpova N.N., Pickenhagen A., Lindholm J., Tiraboschi E., Kulesskaya N., Ágústsdóttir A., Antila H., Popova D., Akamine Y., Bahi A., Sullivan R., Hen R., Drew L.J. and Castrén E. Fear Erasure in Mouse Requres Synergy Between Antidepressant Drug Treatment and Exposure Therapy. Science 334:1731-1734, December 23, 2011.**
2. **Maya Vetencourt JF, Sale A, Viegi A, Baroncelli L., De Pasquale R, O’Leary OF, Castrén E. and Maffei L. The antidepressant fluoxetine restores plasticity in the adult visual cortex. Science, 320, 385-388, 2008.**
3. **Saarelainen T., Hendolin P., Koponen E., Lucas G., MacDonald E., Agerman K., Haapasalo A., Nawa H., Ernfors P., Aloyz R. and Castrén E. Activation of the trkB neurotrophin receptor is induced by antidepressant drugs and is required for antidepressant-induced behavioural effects. J. Neurosci. 23: 349-357, 2003.**
4. **Sairanen M., Lucas G., Ernfors P., Castrén M, and Castrén E. BDNF and antidepressant drugs have different but coordinated effects on neuronal turnover, proliferation and survival in the adult dentate gyrus. J. Neurosci. 25: 1089-1094, 2005.**
5. **Castrén E. Is mood chemistry? Nature Rev. Neurosci. 6: 241-246, 2005.**
6. Rantamäki T., Hendolin P., Kankaanpää A., Mijatovic J., Piepponen P., Domenici E., Chao M.V., Männistö P.T. and Castrén E. Pharmacologically diverse antidepressants rapidly activate Brain-derived neurotrophic factor (BDNF) receptor trkB and induce phospholipase-Cγ signaling pathways in mouse brain. ***Neuropsychopharmacology***, 32: 2152–2162, 2007.
7. Mikics E., Guirado R., Umemori J., Tóth M., Biró L., Miskolczi C., Balázsfi D., Zelena D., Castrén E.\*, Haller J., Karpova N.N. Social learning requires plasticity enhanced by fluoxetine through prefrontal Bdnf-TrkB signaling to limit aggression induced by post-weaning social isolation. ***Neuropsychopharmacology***, 43: 235-245, 2017. \*Corresponding author.
8. Kopra J., Vilenius C., Grealish S., Härmä M.A., Varendi K., Lindholm J., Castrén E., Võikar V., Björklund A.,, Piepponen P., Saarma M. Andressoo J.-O. GDNF is not required for catecholaminergic neuron survival *in vivo*. Nature Neurosci. 18: 319-22. doi: 10.1038/nn.3941, 2015.
9. Castrén E.: Neuronal Network Plasticity and Recovery from Depression. JAMA Psychiatry, 70: 983-989, 2013.
10. Castrén E., Antila H. Neuronal plasticity and neurotrophic factors in drug responses. Molecular Psychiatry, ;22: 1085-1095, 2017**.**