

CURRICULUM VITAE

1. **Name:** Atso Raasmaja
2. **Place of birth:** Finland
3. **Current positions:**
Professor in Medicinal Toxicology, Division of Pharmacology and Pharmacotherapy (Pharmacology & Toxicology), University of Helsinki, Helsinki, Finland
Visiting professor, Department of Physiology, Faculty of Medicine, University of Tartu
4. **Education and degrees**
 1. 1982 Bachelor Degree in Biology, University of Turku, Finland
 2. 1983 Master of Science in Zoophysiology, University of Stockholm, Sweden
 3. 1990 Doctor of Philosophy, University of Stockholm, Sweden
 4. 1997 Docent in Animal and Cell Physiology (Senior Lecturer or Reader), University of Turku.
 5. 1997 Docent in Pharmacology (Senior Lecturer or Reader), University of Kuopio
 6. 2003 Teacher education in biology and health science (52ect), University of Joensuu, Finland
 7. 2004 Diploma of Professional Development in University Pedagogy (60ect), Univ of Kuopio
 8. 2006 Diploma of Educational Administration (Opetushallinnon tutkinto), National Board of Education (Helsinki, Finland)
 9. 2009 Nomination of EMEA Expert, European Medicines Agency (London, U.K.) and National Agency for Medicines (Helsinki, Finland)
 10. 2012 Swedish language examination (Official test for excellence), 2012, National Board of Education, (Helsinki, Finland)
5. **Professional appointments and training**
 1. Research Fellow, 1975, Dept. of Zoology, Univ. of Turku and Finnish Academy.
 2. Teacher, 1978-82, Elementary schools, Stockholm, Sweden.
 3. Principal and teacher of the summer camp, 1982-87, Childrens summer camps, Stockholm, Sweden. Administration of economy and staff, supervision of activities.
 4. University Assistant, 1982-87, Institute for Zoophysiology, Univ. of Stockholm, Sweden, Teaching in graduate courses of zoophysiology and cell biology.
 5. Postdoctoral Research Fellow, 1987-88, 'Adrenergic regulation of type II 5'-deiodinase activity in brown fat', Harvard Medical School, Brigham & Womens Hospital, Howard Hughes Medical Institute, Boston, MA, USA.
 6. Senior Research Fellow and Head of Biochemical Laboratory, Principal investigator of the cardiac mechanisms in the Biochemical Laboratory, 1989-91, Department of Pharmacology, Orion Pharmaceuticals, Espoo, Finland.
 7. University Assistant, 1991-92, Department of Medical Physiology, University of Helsinki, Finland.
 8. Principal Investigator, 1992-92, 'Alpha-adrenergic regulation of obesity', Department of Pharmacology, Orion Farnos Pharmaceuticals, Turku, Finland.
 9. Postdoctoral Research Fellow, 1993-1993, 'Noradrenaline and thyroid hormone interaction in the regulation of adipose tissues' and 'Alpha-adrenergic regulation of obesity', Department of Medicine, Lady Davis Institute, McGill University, Montreal, Canada
 10. Visiting Research Fellow, 1994, Alpha-adrenergic regulation of obesity, Pennington Biomedical Research Centre, Louisiana State Univ., Baton Rouge, LA, USA
 11. Senior Researcher, 1995, BBSRC, University of Reading, Reading, and Rowett Research Institute, Aberdeen, U.K
 12. Senior Researcher, 1996, 'Gene therapy in brain diseases', Research assistant, Uppsala University, BMC; A

- senior research position was granted by the Swedish Research Council, Dept. of Medical Pharmacology, Uppsala, Sweden
13. Senior Researcher, 1996-97, 'Gene therapy in brain diseases', Dept. of Pharmacology and Toxicology, University of Kuopio, Finland
 14. Senior Lecturer in Pharmacology and Project Manager, 1997-2003, Department of Pharmacology and Toxicology, University of Kuopio, Finland
 15. Professor in Pharmacology 2003; Department of Pharmacology and Toxicology, University of Kuopio, Finland
 16. Professor in Pharmacology 2004; Division of Pharmacology & Toxicology, University of Helsinki, Finland
 17. Coordinator of Graduate School of Pharmacy, Univ. of Helsinki and Kuopio, 2004-06
 18. Adjunct Professor (Senior Lecturer in Pharmacology), Division of Pharmacology & Toxicology, University of Helsinki, Helsinki, Finland, 2003-12
 19. Nomination of EMEA Expert, from 2008-, European Medicines Agency and National Agency for Medicines, Helsinki, Finland.
 20. Visiting professor, 2014-, Department of Physiology, Faculty of Medicine, Univ. of Tartu, Estonia
 21. Professor in Medicinal Toxicology, 2012-, Division of Pharmacology and Pharmacotherapy, University of Helsinki, Finland

6. Research Awards and Major Grants

6.1 Awards, honours and nominations in research

1. 1990 Award to the best thesis. Awarded by The Faculty of Natural Sciences, University of Stockholm to M.Sc. Atso Raasmaja for best thesis at the faculty in 1989/90. Granted by Society of Stockholm High Schools, Stockholm, Sweden. Department of Metabolic Research, University of Stockholm.
2. 2002 Award to the research innovation. Awarded by The Finnish Innovation Foundation, Espoo, Finland, to docent Atso Raasmaja for investigations of gene therapy being among the best Finnish innovations in 2002. Granted by Runar Bäckström's Foundation, Espoo, Finland. Department of Pharmacology and Toxicology, University of Kuopio, Finland
3. 2004 Award for best thesis. Graduate school of Pharmacy granted one of the doctoral students in the gene therapy project, M.Sc. Pasi Lampela, for the best thesis in 2004 in the Faculty of Pharmacy. The main supervisor of Pasi Lampela's thesis was docent Atso Raasmaja.
4. 2012 CNS Research Group of Division of Pharmacology and Toxicology. Granted for excellent research project to the research group (the group leader professor Tuominen).

6.2 Major Grants and Scholarships

1. 1985 Research Grant, Wenner Gren Foundation, Stockholm, Sweden.
for a research visit in England for the project on 'Alpha- and beta-adrenergic receptors in brown adipose tissue of lean and obese Zucker rats'. For visiting at Department of Biochemistry, University of Southampton and Dunn Nutritional Research Center, University of Cambridge
2. 1987-88 Postdoctoral fellowship, Harvard Medical School, Boston, USA.
For the project on 'Adrenergic regulation of 5'-deiodinase enzymes in brown adipose tissue'. Harvard Medical School, Brigham & Women's Hospital, Boston, USA.
3. 1993 Research Grant, Orion Farnos Pharmaceuticals, Turku, Finland.
'Alpha-adrenergic regulation of obesity', Principal Investigator of the project, in collaboration with prof. Jorma Ohisalo, Dept. of Medical Chemistry, Helsinki, Finland.
4. 1993 Postdoctoral fellowship, McGill University, Montreal, Canada.
'Regulation of brown adipose tissue by thyroid hormones. Dept. of Medicine, Lady Davies Institute, McGill University, Montreal, Canada.
6. 1993 Research Grant, Orion Farnos Pharmaceuticals, Turku, Finland.
'Alpha-adrenergic regulation of obesity'. Principal Investigator of the project, Dept. of Medicine, McGill

- University, Montreal, Canada.
7. 1994 Research Grant, Orion Farnos Pharmaceuticals, Turku, Finland.
'Alpha-adrenergic regulation of obesity', Principal Investigator of the project, Pennington Biomedical Research Centre, Louisiana State University, Baton Rouge, LA, USA.
 8. 1996 Research Grant, University of Kuopio. 'Gene therapy in brain diseases', Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 9. 1997 Research Grant, University of Kuopio. 'Gene therapy in brain diseases', Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 10. 1997 Research Grant, TEKES (Technology Development Center), Finland.
'Gene therapy of brain diseases', Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 11. 1998-2000 Research Grant, TEKES (Technology Development Center), Finland.
'Gene therapy of brain diseases', Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 12. 2000 Teaching Grant, University of Kuopio, Finland.
'Development of teaching methods using new computer-based technology', with Dr. Ewen McDonald, Department of Pharmacology and Toxicology, University of Kuopio.
 13. 1999-2001 Research Grant, Biotechnological funding, University of Kuopio.
'Gene therapy of brain diseases', Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 14. 2002-03 Research Grant of Finnish Innovation Foundation, Espoo, Finland.
'Development of innovations for gene therapy of brain diseases', Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 15. 2003-04 Research Grant, FITBiotech, Tampere, Finland.
'Development of bovine papillomavirus based plasmids for gene therapy. Department of Pharmacology and Toxicology, University of Kuopio. Principal Investigator of the project.
 16. 2004-06 Research Grant of Foundation of Päivikki and Sakari Sohlberg, Helsinki, Finland
'Development of gene therapy in degenerative brain diseases. Division of Pharmacology & Toxicology, University of Helsinki. Principal Investigator of the project.
 17. 2008-12 Research Grant with prof. Raimo Hiltunen, Guangzhou Green Life Pharmaceutical Ltd., China. 'Effects of Citrus grandis var. Tomentosa on the blood cholesterol levels in the obese fa/fa Zucker rats'. University of Helsinki.
 18. 2008-10 Research Grant with prof. Raimo K. Tuominen and the research group. Approved by European Commission and the Finnish Academy. 'Long-term effects of CDFN in rat unilateral 6-OHDA model of Parkinsons disease. University of Helsinki.
 19. 2012. Cultural Foundation in Finland. Research Grant for Ph.D. project of M.Sc. Tiina Lantto, to study the mechanisms of apoptosis in cell culture models. Supervisors Prof. Raimo Hiltunen and Prof. Atso Raasmaja.
 20. 2012-14, Pharmacology of Degenerative Brain Research Group, Div Pharmacology and Toxicology, granted for excellent research in university research project evaluations to the group leader Professor Raimo Tuominen and Principal Investigators (Atso Raasmaja is one of Principal Investigators).
 21. 2014-16 Swedish Cultural Foundation (Svenska Kulturfonden) Mechanisms of apoptosis in neuroblastoma cells. Atso Raasmaja, Div. of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki
 22. 2012-15. Alcohol Research Foundation. Research Grant for Ph.D. project of M.Sc. Johanna Uhari to study the gene therapy and opioidergic mechanisms of alcohol addiction in the model of AA/ANA rats. Supervisors Adj. Prof. Petteri Piepponen, Prof. Kalervo Kiiänmaa and Prof. Atso Raasmaja.
 23. 2012-16. Alcohol Research Foundation. Research Grant for Ph.D. project of M.Sc. Ville Oinio to study the gene therapy and opioidergic mechanisms of addiction in the game model of rats. Supervisors Adj. Prof. Petteri Piepponen, Prof. Kalervo Kiiänmaa and Prof. Atso Raasmaja.

7. Editorial board memberships

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8. Membership in Scientific Societies

1. Finnish Society for Pharmacology, from 1996
2. Finnish Society for Gene Therapy, from 1998
3. Finnish Society for Fungis, from 2010
4. Finnish Society for Obesity Studies, from 2011
5. Finnish Society for Toxicology, from 2012

9. Other Academic and Professional Activities

9.1 Referee and assessment activity

Referee activity for Original Research Publications

1. Pharmacology and Toxicology, from 1997-2003
2. Journal of Enzyme Inhibition, 1998-
3. Journal of Human & Environmental Toxicology, 2004-
4. Biomaterials, 2004-
5. Transactions on Internet Research 2006-
6. European Journal of Pharmaceutical Sciences, 2006-
7. Current Drug Safety, 2007-
8. Food Chemistry 2009-
9. Journal of Cancer Therapy 2010-
10. Acta Biomaterialia 2010-
11. Food Analytical Methods 2011-
12. European Neuropsychopharmacology-
13. Current Pharmaceutical Design 2012-
14. Journal of Food & Nutritional Disorders 2013-
15. Journal: BMC Biology 2013-
16. PlosOne 2013-
17. Frontiers in Pharmacology 2014-
18. Food & Function 2014-

Reviewer of grant applications

1. Graduate School Funding for PhD positions and studies
2. Evaluation of Research Grant Applications, University of Helsinki
3. External Referee of Research grants for scientific projects, a National Research Council of Life Science and Biotechnology

Opponent and Referee of Doctoral and Graduate Thesis

Opponent of dissertations

- 1.1 Opponent of dissertation 'Behavioral and neurogenetic study of mechanisms related to cat odour induced anxiety in rodents' by Tarmo Aruda. University of Tartu, Estonia, 2006.
- 1.2 Opponent of dissertation 'Sex and environmental factors determine the behavioural phenotype of mice lacking CCK2 receptors: implications for the behavioural studies in transgenic lines' by Urho Abramov. University of Tartu, Estonia, 2008.

- 1.3 Opponent of dissertation ‘Animal model of Wolfram Syndrome in mice: behavioural, biochemical and psychopharmacological characterization‘ by Mario Plaas. University of Tartu, 2013.
- 1.4 Opponent of dissertation by Kim Eerola, University of Turku, Finland, 2014
- 1.5 Opponent of dissertation, University of Reykjavik, Iceland, 2014

Reviewer of PhD study plans, doctoral thesis and docentships

- 2.1 2002- Study plans of PhD students for Graduate School of Pharmacy, Univ. of Helsinki and Kuopio
- 2.2 1999 Doctoral thesis by Ilkka Reenilä, 1999, Dept of Pharmacology, Faculty of Medicine, Univ. of Helsinki
- 2.3 2013 Doctoral thesis by Maija Vaittinen, Fac. of Health Sciences, Univ. of Eastern Finland, Kuopio
- 2.4 2013 Doctoral thesis by Janne Orava, Faculty of Medicines, Univ. of Turku
- 2.5 2014 Docentship in Environmental Toxicology, by Khaled Abass, PhD, Faculty of Veterinary Medicine, Univ. Helsinki
- 2.6 2014 Docentship in Molecular and Environmental Toxicology, by Merja Korkkolainen, PhD, Faculty of Environmental Sciences, Univ. of Eastern Finland, Kuopio
- 2.7 2014 Doctoral thesis, Björnär de Hollander, Faculty of Medicine, University of Helsinki, Finland, 2014
- 2.8 2014 Doctoral thesis, Sanna Lensu, No chocolate, please! Dioxin-induced responses in feeding related behaviour and in neuronal activity University of Eastern Finland, autumn 2014

Evaluation of graduate and undergraduate thesis

- 3.1 Evaluation of app. 100 MSc/BSc thesis in pharmaceutical and natural sciences

10. Administration and management

10.1 Membership in Boards and Committees

Faculty Boards and Committees

- 1.1 1999-2001 Member in Executive Committee of Communication and Information, Univ of Kuopio
- 1.2. 2004-2005 Member in Committee for Development of Quality Ass., Faculty of Pharm., Univ of Hki
- 1.3 2004-2006 Member in Committee for Professional Education Programme of Pharmacy, Univ of Hki
- 1.4 2004-05 Member in the Board of Student Qualification, Faculty of Pharmacy, Univ. of Helsinki
- 1.5 2004-06 Acting vice-member of the Board of Education, Faculty of Pharmacy, Univ. of Helsinki
- 1.6 2005-2006 Chairman of the Board of Entrance Committee for Student Qualification, Faculty of Pharmacy, Univ. of Helsinki
- 1.7 2007- Vice member in the Board of Entrance Committee for Student Qualification, Faculty of Pharmacy, Univ of Helsinki
- 1.8 2010- Member and secretary in the Teaching Skills Committee, Fac. of Pharmacy, Univ of Helsinki
- 1.9 2012- Member of division steering group, Div. of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki

University boards and committees

- 2.1 1999 Member in Evaluation Committee for Strategies for Education of Biochemistry and Molecular Biology in Pharmacy, University of Kuopio
- 2.2 2000 Member in Evaluation Committee for Strategies for Health Biology Education, Univ Kuopio
- 2.3 2000 Member in Promotion Committee of University of Kuopio
- 2.4 2001 Member in Committee for Evaluation of Toxicological Effects in Natural Sciences Univ of Kuopio
- 2.5 2001-02 Member and vice member of the Governing Body of University of Kuopio
- 2.6 2004-06 Coordinator of the Pharmacy Research School, University of Helsinki and Kuopio, Finland

- 2.7 2005-2008 Member and vice member in the Board of The Pharmaceutical Learning Centre, Helsinki
- 2.8 2010- Vice member of the Collegial Body of University of Helsinki

11. Social engagement and cooperation

1. Invited teaching activity in folk and other schools.
2. Other nonprofessional activities: Finnish skating clubs, chairman for three years in Espoo and
3. Kuopio Skating Clubs. Administration, employment, collaboration and contracts, arrangements of national and international competitions, number of members about 400 and 200, budget responsibility.
4. Pharmacy Learning Center, Board vice member. Planning of courses and educations, other administrative duties.
5. Association of University Lectures in Helsinki University, member, secretary and vice chair. Preparing and management of different employment, teaching and research related responsibilities and managements.
6. Expert of Fimea/EMA. Assessment of application and reports for the medical agency.
7. Finnish Society of Obesity Research, Board member and secretary (from 04-2014)

11. Supervision of graduate and PhD students

Supervision of Ph. D. students

1. 1989 Dragutin Loncar, Dept. of Metabolic Research, University of Stockholm. Postnatal development of alpha-1- and beta-adrenergic receptors in brown fat from newborn, young and aging rabbits.
2. 1995 Andrea Dicker, Dept. of Metabolic Research, University of Stockholm. Increased α_1 -adrenoceptor density in brown adipose tissue indicates recruitment drive in hypothyroid rats
3. 1996 Hannaleena Wikman, Dept. of Clinical Chemistry, University of Helsinki. Adrenergic regulation of cAMP accumulation and lipolysis in human omental and subcutaneous adipocytes
4. 1997 Eriika Santti, Dept. of Pharmacology and Clin. Pharmacology, University of Turku. Pharmacology and antiobesity efficacy of MPV 1743 A III, an α_2 adrenoceptor antagonist.
5. 2003 Pasi Lampela, Dept. of Pharmacology and Toxicology, University of Kuopio. Bovine papilloma virus-based expression plasmids in gene therapy.
6. 2005 Sarka Manakova, Dept. of Pharmacology and Toxicology, University of Kuopio, Analysis of cell death in the experimental model of Parkinson's disease.
7. 2009 Tanja Vihavainen, Dopaminergic mechanisms of addiction. Division of Pharmacology, Faculty of Pharmacy, University of Helsinki.
8. 2010 Merja Voutilainen. GDNF mediated mechanisms in experimental Parkinson's disease. Division of Pharmacology, Faculty of Pharmacy, University of Helsinki.
9. 2011 Bernardino Ossola. Protective mechanisms against cell death in cell culture models. Division of Pharmacology, Faculty of Pharmacy, University of Helsinki.
10. 2012 Nadia Schendzielorz. 1st supervisor. Characterization of COMT and POP brain distribution in rats and mice. Division of Pharmacology, Faculty of Pharmacy, University of Helsinki.
11. 2014 Susanne Bäck. Studies on the mechanisms of neurodegenerative diseases as Parkinson's disease. Division of Pharmacology, Faculty of Pharmacy, University of Helsinki.
12. 2014 Jaana Palomäki. Immunotoxicological effects induced by engineered nanomaterials. Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy. University of Helsinki.
13. 2016 Martina Hanzlikova, Studies on some specific mechanisms of nonviral gene transfection in cell cultures. Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki.
14. 2016 Tiina Lantto, Mechanisms of plant extracts in the cell death. Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki.
15. 2017 Johanna Uhari. Mechanisms of alcohol addiction in experimental animal models. Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki.

16. 2017 Ville Oinio. Opioidergic mechanisms of addiction. Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki.

Supervision of MSc graduate students

1. Michael Noronha, 1988, Harvard Medical School, Boston, USA, Triiodothyronine causes rapid reversal of alpha-1/cyclic adenosine monophosphate synergism on brown adipocyte respiration and type II deiodinase activity.
2. Päivi Luukkonen, 1991, Dept. of Biology, University of Turku, Turku and Dept. of Pharmacology, Orion Pharmaceutica, Espoo. Measurement of intracellular calcium with fluorescence probes in human platelets.
3. Eija Tuukkanen, 1991, Dept. of Biology, University of Jyväskylä, Finland and Dept. of Pharmacology, Orion Pharmaceutica, Espoo, Finland. The detection of eicosanoids, 5HETE and 5HPETE from blood cell extracts using HPLC.
4. Päivi Jäppinen, 1992, Dept. of Pharmacology, University of Helsinki, Finland and Dept. of Pharmacology, Orion Pharmaceutica, Espoo, Finland. The effect of OR-1259 on the (3H)nitrendipine binding to cardiac calcium channels in guinea-pig heart membranes in vitro.
5. Juha Aintila, 1997, Dept. of Pharmacology and Toxicology, University of Kuopio. The effect of dopamine agonists and histamine ligands in the rat model of Parkinson's disease.
6. Pasi Lampela, 1997, Dept. of Pharmacology and Toxicology, University of Kuopio, Cell cultures as a model to study gene transfer mechanisms.
7. Mirka Niskanen, 1999, Dept. of Pharmacology and Toxicology, University of Kuopio, Bovine papilloma virus- expression plasmids in gene therapy.
8. Johanna Räisänen, 1999, Dept. of Pharmacology and Toxicology, University of Kuopio, Polyethylenimines in the gene transfection.
9. Petri Pohjalainen, 2000, Dept. of Pharmacol and Toxicol, Univ of Kuopio, Western blot analysis of enzymes involved in dopamine metabolism in different tissues from COMT-knock out mice.
10. Anu Harjula, 2000, Dept. of Pharmacology and Toxicology, University of Kuopio, Tyrosine hydroxylase gene transfections in cell cultures.
11. Sanna Ipatti, 2000, Dept. of Pharmacology and Toxicology, University of Kuopio, Comparison of different gene transfection reagents in vitro.
12. Katja Sirviö, 2000, Dept. of Pharmacology and Toxicology, University of Kuopio, Comparison of different gene transfection reagents in vivo.
13. Antti Mäkisalo, 2001, Dept. of Pharmacology and Toxicology, University of Kuopio, Studies on apoptosis in the cell cultures models.
14. Lasse Oinonen, 2002, Dept. of Pharmacology and Toxicology, University of Kuopio, Studies on tyrosine hydroxylase in the cell cultures models.
15. Maria Vuorela, 2002, Dept. of Pharmacology and Toxicology, University of Kuopio, The analysis of adenovirus vector expressing tyrosine hydroxylase gene in CV1-P cell cultures.
16. Päivi Soininen, 2002, Dept. of Pharmacology and Toxicology, University of Kuopio, Development of nonviral methods for gene transfection.
17. Leena Koivikko, 2002, Dept. of Pharmacology and Toxicology, University of Kuopio, The mechanisms of BPV plasmid mediated gene transfection.
18. Maria Paukkunen, 2003, Dept. of Pharmacology and Toxicology, University of Kuopio, The analysis on some pharmaceutical parameters of BPV expression plasmids.
19. Martina Hanzlikova, 2004, Dept. of Pharmacology and Toxicology, University of Kuopio, Mechanisms of nonviral gene transfection in cell cultures.
20. Evanthia Stavrou, 2005, Tyrosine hydroxylase expression in the striatum after adenovirus-TH-gene transfection in PD rats. Erasmus-student, University of Helsinki
21. Bernardino Ossola, 2005, Role of nicotine-treatment in induction of apoptosis in cultured macrophages. Erasmus-student, University of Helsinki.

22. Nadia Schendzielorz, 2005, Tyrosine hydroxylase and dopamine transporter expression in brain of nicotine- and morphine-treated mice. University of Helsinki. Erasmus-student, Univ of Helsinki.
23. Mario Colucci, 2006, Studies of inhibition of apoptosis by plant extracts. Erasmus student, University of Helsinki.
24. Tiina Lantto, 2006, Mechanisms of plant extracts in the cell death. Univ. of Helsinki. (Charles University of Prag), University of Helsinki.
26. Anna-Leena Lehti, 2007, Effects of serum the transfection efficiency in vitro. Univ. of Helsinki
27. Elisa Ketopaikka, 2007, Distribution of COMT enzyme in the rat brain. Univ. of Helsinki
28. Vlasta Zavidova, 2007, Studies on the mechanisms of apoptosis and necrosis. Erasmus student. (Charles University of Prag), University of Helsinki.
29. Tuulia Tamminen, 2012. Gene transfection of growth factors in Parkinsonian rat model. University of Helsinki.
30. Anna Sysi-Aho. 2012. Regulation of apoptosis in plant extract-treated neuronal cell cultures. University of Helsinki
31. Teija Hannila, 2013, Nonviral gene transfection in vitro. University of Helsinki.
32. Emilia Larsson, 2014, Nordplus exchange student, From University of Uppsala. Masterwork in collaboration by Pharmacology and Pharmaceutical technology.
33. Pia Landsberg, 2015, Erasmus student. Regulation of apoptosis in cancer cells. Division of Pharmacology and Pharmacotherapy, University of Helsinki.
34. Tereza Herzegova, 2015, Erasmus student. Regulation of apoptosis in cancer cells. Division of Pharmacology and Pharmacotherapy, University of Helsinki.
35. Merja Ylitalo, 2016, MSc student, Regulation of addiction in the AA rat alcohol model. Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki.
36. Mikko Sundström, 2016, Pharmacologic effect on game addiction in the rat experimental model. MSc student, Division of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki.

Supervision of BSc students

Supervision of several BSc theses (app. 60).

LIST OF PUBLICATIONS

Atso Raasmaja

1. Original publications in international peer-reviewed journals

1. Atso Raasmaja, Nina Mohell and Jan Nedergaard. Increased alpha-1-adrenergic receptor density in brown adipose tissue of cafeteria-fed rats. *Biosc. Rep.* 1984; 10:851-859.
2. Jan Nedergaard, Atso Raasmaja and Barbara Cannon. Parallel increases in amount of (3H)GDP binding and thermogenin antigen in brown adipose tissue mitochondria of cafeteria-fed rats. *Biochem. Biophys. Res. Commun.* 1984; 122:1328-1336.
3. Atso Raasmaja, Nina Mohell and Jan Nedergaard. Increased alpha-1-adrenergic receptor density in brown adipose tissue of cold-acclimated rats and hamsters. *Eur. J. Pharmacol.* 1985; 106:489-498
4. Atso Raasmaja and David A. York. Alpha-1- and beta-adrenergic receptors in brown adipose tissue of lean and obese (fa/fa) Zucker rats: The effect of cold acclimation, sucrose feeding and adrenalectomy. *Biochem. J.* 1987: 249:831-838.
5. Ira Mills, Atso Raasmaja, Norma Moolten, Gary, Lemack, J. Enrique Silva and P. Reed Larsen. Effect of thyroid status on

- catecholamine stimulation of thyroxine 5'-deiodinase in brown adipocytes. *Am. J. Physiol.* 1989; 256 (Endocrinol. Metab.): E74-79.
6. Atso Raasmaja and P. Reed Larsen. Alpha-1- and beta-adrenergic agents cause synergistic stimulation of the iodothyronine deiodinase in rat brown adipocytes. *Endocrinol.* 1989; 125:2502-2509.
 7. Michael Noronha, Atso Raasmaja, Norma Moolten and P. Reed Larsen. Triiodothyronine causes rapid reversal of alpha-1/cyclic monophosphate synergism on brown adipocyte respiration and type II deiodinase activity. *Metabolism* 1991; Vol 40:1-7.
 8. Atso Raasmaja, Antti Talo, Erkki Nissinen, Inge-Britt Linden and Pentti Pohto. Biochemical mechanisms of the novel cardiostimulant agent OR-1259. *J. Mol. Cell. Cardiol.* 1991.
 9. Atso Raasmaja, Antti Talo, Heimo Haikala, Erkki Nissinen, Inge-Britt Lindén and Pentti Pohto. Biochemical properties of OR-1259 - a positive inotropic and vasodilatory compound with an antiarrhythmic effect. *Adv. Exp. Med. Biol.* 1992; 311: 423.
 10. Andrea Dicker, Atso Raasmaja, Barbara Cannon and Jan Nedergaard. Increased alpha-1-adrenoceptor density in brown adipose tissue indicates recruitment drive in hypothyroid rats. *Am. J. Physiol.* 1992; 263 (Endocrinol. Metab.26); E654-E662.
 11. Amalia Rubio, Atso Raasmaja, Ana Luiza Maia, Kiung-Rae Kim and J. Enrique Silva. Effects of thyroid hormone on norepinephrine signal in brown adipose tissue. I: β_1 and β_2 -adrenergic receptors and cyclic adenosine monophosphate generation. *Endocrinology* 1995, 136:3267-3276.
 12. Amalia Rubio, Atso Raasmaja and J. Enrique Silva. Thyroid hormone and norepinephrine signal in brown adipose tissue. II: differential effects of thyroid hormone on β_3 -adrenergic receptors in brown and white adipose tissue. *Endocrinology* 1995, 136:3277-3284
 13. Hannaleena Wikman, Juhamatti Savola, Atso Raasmaja and Jorma Ohisalo. β_2 -Adrenergic regulation of cyclic AMP accumulation and lipolysis in human omental and subcutaneous adipocytes. *Int. J. Obesity* 1996, 20: 185-189.
 14. Atso Raasmaja, Matti Viluksela and Karl Rozman. Decreased liver type I 5'-deiodinase and increased brown adipose tissue type II 5'-deiodinase activity in 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)-treated Long-Evans rats. *Toxicol.*, 1996.
 15. Eriika Savontaus, Atso Raasmaja, Juha Rouru, Markku Koulu, Ullamari Pesonen, Raimo Virtanen, Juha-Matti Savola and Risto Huupponen. Pharmacology and antiobesity efficacy of MPV 1743 A III, an α_2 -adrenoceptor antagonist. *Eur. J. Pharmacol.* 1997.
 16. Marko Huotari, Kaisa Kukkonen, Niina Liikka, Tarja Potasev, Atso Raasmaja and Pekka T. Männistö. Effects of histamine H_3 -ligands on the levodopa-induced turning behaviour of hemiparkinsonian rats. *Parkinsonism and Related Disorders* 2000; 6: 159-164.
 17. Atso Raasmaja, Aksel Soosaar, Pasi Lampela, Sulev Kõks, Andreas Männik, Vallo Volke, Marko Huotari, Susanna Joki, Ene Ustav, Eero Vasar, Mart Ustav and Pekka T. Männistö Tyrosine hydroxylase gene transfer to rat striatum using Bovine Papilloma Virus-1 Expression Plasmids in the experimental model of Parkinson's disease. *Pharm. Pharmacol. Lett.*, 2001, 2: 83-86
 18. Pasi Lampela, Ene Ustav, Mart Ustav, Mirka Niskanen, Pekka Männistö and Atso Raasmaja. Efficient Transfection of Novel Bovine Papillomavirus 1 Expression Plasmids. *Plasmid* 2001; 46: 163-169.
 19. Marko Huotari, Joseph A. Gogos, Maria Karayiorgou, Olli Koponen, Markus Forsberg, Atso Raasmaja, Juha Hyttinen and Pekka T. Männistö. Brain catecholamine metabolism in catechol-O-methyltransferase (COMT)-deficient mice. *European Journal of Neuroscience* 2002, 15: 246-256.
 20. Pasi Lampela, Johanna Räisänen, Pekka T. Männistö, Seppo Ylä-Herttuala and Atso Raasmaja. The use of low-molecular-weight PEIs as gene carriers in the monkey fibroblastoma and rabbit smooth muscle cell cultures. *J. Gene Med.* 2002; 4(2): 205-214.
 21. Pasi Lampela, Matti Elomaa, Marika Ruponen, Arto Urtti, Pekka T. Männistö and Atso Raasmaja. Different synergistic roles of small polyethylenimine and Dospo in gene delivery. *J Control Release.* 2003; 14;88(1):173-83.
 22. Sarka Manakova, Katja A. Puttonen, Atso Raasmaja and Pekka T. Männistö. Ara-C induces apoptosis in monkey fibroblast cells. *Toxicol. In Vitro.* 2003;17(3):367-73.
 23. Liese Romer, Siegfried Wurster, Juha-Matti Savola, and Atso Raasmaja. Identification and characterization of the imidazoline I2b-binding sites in the hamster brown adipose tissue as a study model for imidazoline receptors. *Arch Physiol Biochem.* 2003;111(2):159-66.
 24. Katja A. Puttonen, Sarka Manakova, Atso Raasmaja and Pekka T. Männistö. Increased p53 levels without caspase-3

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6. Patents

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6. Reijo Bäckström, Erkki Honkanen, Atso Raasmaja and Inge-Britt Linden (Inventors). JPB2 published registered patent specification. Date of patent 12.11.2001. Patent number JP 3227155B.

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1. Atso Raasmaja, Pekka T. Männistö and Mart Ustav (Inventors). 'Plasmidi tyrosiinihydroksylaasigeenin ilmentämiseksi aivoissa' (A plasmid for the expression of tyrosine hydroxylase gene in the brain). Patent number FI 107737 B. Date of patent 28.9.1999

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1. Atso Raasmaja, Pasi Lampela and Pekka T. Männistö (Inventors). Kationisten lipidien ja kationisten polymeerien synergiaan perustuva geenitransfektion menetelmä (A method for gene transfection using the synergistic combinations of cationic polymers and lipopolyamines). Finnish application granted. Application number 20001584. January 2003.
2. Atso Raasmaja, Pasi Lampela and Pekka T. Männistö (Inventors). A method for gene the transfection using the synergistic combinations of cationic polymers and lipopolyamines. U.S. application. Application number 09/987,156.

7. Presentations, abstracts and posters in conferences, research visits, institutes and universities

Several contributions with abstracts, posters and/or presentations in scientific conferences and other meetings, mainly about cell death, gene therapy, metabolism, and pharmacological and natural compounds. App. 3-6 contributions yearly by principal investigators and PhD students.

8. Pedagogic publications, works and presentations

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