



Curriculum Vitae

Personal information **Marika Ruponen**

Work experience

1. Employer: University of Kuopio
 - Start date: 081997
 - End date: 042004
 - Position: PhD student
 - Activities:

Research topic: Non_viral gene delivery, nanomedicines
2. Employer: University of Kuopio
 - Country: Finland
 - Start date: 042004
 - End date: 062004
 - Position: University teaching assistant
 - Activities:
3. Employer: University of Kansas
 - Country: Finland
 - Start date: 072004
 - End date: 072005
 - Position: Post_doctoral researcher
 - Activities:

Research topic: Physicochemical characterization of nanoparticles, intracellular kinetics of nanomedicines.
4. Employer: University of Kuopio
 - Country: United States
 - Start date: 082005
 - End date: 072006
 - Position: University teaching assistant
 - Activities:

Teaching responsibilities in pharmacokinetics, biopharmacy and preparation of dosage forms.

Research topic: Intracellular kinetics of nanomedicines.
5. Employer: University of Eastern Finland
 - Country: Finland
 - Start date: 082006
 - End date: 122009
 - Position: Post_doctoral fellow
 - Activities:

Research topic: Intracellular kinetics of nanomedicines.
6. Employer: University of Eastern Finland
 - Country: Finland
 - Start date: 012010
 - End date: 122019
 - Position: Senior Scientist
 - Activities:

Research topics:

 - _stem cell research
 - _drug and gene delivery
 - _nanomedicines
7. Employer: University of Eastern Finland
 - Country: Finland
 - Start date: 082019
 - End date:
 - Position: Lecturer in biopharmacy
 - Activities: Teaching: biopharmacy of small molecular weight drugs and biological drugs, drug targeting Research: Ocular drug delivery including formulation development and pharmacokinetics.
8. Employer: Finnish Medicines Agency
 - Country: Finland
 - Start date: 012020
 - End date: 012023
 - Position: Consultant
 - Activities: Evaluation of marketing authorization application (bioanalytics and quality of drug substance and drug product).
9. Employer: Finnish Medicines Agency

- Start date: 022023
- End date:
- Position: Senior Researcher
- Activities: Evaluation of marketing authorization application (bioanalytics and quality assessment of biological drugs)
- Country: Finland

Education and training

1. Subject: University of Kuopio
 - Start date: 081990
 - End date: 041995
 - Qualification: Masters in Pharmacy
 - Organisation:
 - Country: Finland
2. Subject: University of Kuopio
 - Start date: 081996
 - End date: 042004
 - Qualification: Ph.D. in Pharmacy
 - Organisation:
 - Country: Finland
3. Subject: University of Eastern Finland
 - Start date: 052004
 - End date: 122014
 - Qualification: Title of Docent in pharmaceutical nanotechnology
 - Organisation:
 - Country: Finland

Additional information

Publications

1. Hellinen L, Hongisto H, Ramsay E, Kaarniranta K, Vellonen K_S, Skottman H, Ruponen M: Drug flux across RPE cell models: the hunt for appropriate outer blood-retinal barrier model for early drug discovery. *European Journal of Pharmaceutics and Biopharmaceutics*, 2023 2. Balla A, Tran B, Valtari A, Steven P, Scarpellini C, Augustyns K, Urtti A, Vellonen KS, Ruponen M: A novel ferroptosis inhibitor UAMC_3203, a potential treatment for corneal epithelial wound. *Pharmaceutics*, 15, 2022 3. Eriksen JB, Christiansen JJ, Bauer_Brandl A, Ruponen M, Rautio J and Brandl M: In_vitro dynamic dissolution/bioconversion/permeation of fosamprenavir using novel tool with an artificial biomimetic permeation barrier and microdialysis_sampling. *European Journal of Pharmaceutics*, 2022 4. Puranen J, Koponen S, Nieminen T, Kanerva I, Kokki E, Toivanen P, Urtti A, Ylä_Herttua S and Ruponen M. Antiangiogenic gene therapy with truncated form of soluble AAV2 based VEGFR_2 reduces the growth of choroidal neovascularization in mice after intravitreal injection, *Experimental Eye Research*, 2022 5. Krstic L, Jarho P, Ruponen M, Urtti A, Gonzalez_Garcia MJ and Diobold Y. Improved ocular delivery of quercetin and resveratrol: A comparative study between binary and ternary cyclodextrin complexes, *International Journal of Pharmaceutics*, 2022 6. Sadeghi A, Ruponen M, Puranen J, Cao S, Ridolfo R, Tavakoli S, Toropainen E, Lajunen T, Ranta VP, Hest J and Urtti A. Imaging, quantification and kinetic modelling of intravitreal nanomaterials, *International Journal of Pharmaceutics*, 10, 2022 7. Tavakoli S, Puranen J, Bahrpeyma S, Lautala VE, Karumo S, Lajunen T, del Amo E, Ruponen M and Urtti A. Liposomal sunitinib for ocular drug delivery: a potential treatment for choroidal neovascularization, *International Journal of Pharmaceutics*, 2022 8. Rousou C, de Maar J, Qiu B, van der Wurff_Jacobs K, Ruponen M, Santos Oliveira S, Moonen C, Storm G, Mastrobattista E and Deckers R. The effect of ultrasound and microbubbles on molecule permeability across epithelial and endothelial barriers, *Pharmaceutics*, 14 (3): 464, 2022 9. Balla A, Ruponen M, Valtari A, Toropainen E, Tuomainen M, Alvarez_Lorenzo, Del Amo EM, Urtti A and Vellonen KS. Understanding dexamethasone kinetics in the rabbit tear fluid: drug release and clearance from solution, suspension and hydrogel formulations, *European Journal of Pharmaceutics and Biopharmaceutics*, 172: 53_60, 2022 10. Del Amo EM, Hammid A, Taucsh M, Toropainen E, Sadeghi A, Valtari A, Puranen J, Reinisalo M, Ruponen M, Urtti A, Sauer A, Honkakoski P. Ocular metabolism and distribution of drugs in the rabbit eye: Quantitative assessment after intracameral and intravitreal administrations. *International Journal of Pharmaceutics*, 613: 121361, 2022 11. Kickova E, Sadeghi A, Puranen J, Tavakoli S, Sen M, Ranta V_P, Arango_Gonzalez B, Bolz S, Ueffing M, Salmaso S, Caliceti P, Toropainen E, Ruponen M and Urtti A. Pullulan_dexamethasone conjugate for retinal delivery, *Pharmaceutics*, 13 (11): 1782, 2021 12. Pilipenko I, Korzhikov_Vlakh V, Valtari A, Anufrikov Y, Kalinin S, Ruponen M, Krasavin M, Urtti A and Tennikova TB. Mucoadhesive properties of nanogels based on stimuli_sensitive glycosaminoglycan_graft_pNIPAA copolymers, *International Journal of Biological Macromolecules*, 1; 186: 864_872, 2021 13. Balla A, Auriola S, Grey G, Demarais N, Valtari A, Heikkinen EM, Toropainen E, Ranta V_P, Urtti A, Vellonen K_S, Ruponen M. Corneal distribution of seven beta_blocking agents: partitioning, intracellular delivery, and spatial analysis, *Pharmaceutics*, 13 (5): 658, 2021 14. Fayyaz A, Vellonen K_S, Ranta V_P, Toropainen E, Reinisalo M, Valtari A, Puranen J, D'Amico Ricci G, Heikkinen EM, Gardner I, Ruponen M, Urtti A, Jamei M and del Amo EM. Ocular pharmacokinetics of atenolol, timolol and betaxolol cocktail: tissue exposures in the rabbit eye, *European Journal of Pharmaceutics and Biopharmaceutics*, 166: 155_162, 2021 15. Bassetto M, Ajoy D, Orbringer A, Messaddeq N, Poulhes F, Sadeghi A, Puranen J, Ruponen M, Kettunen M, Toropainen E, Urtti A, Dollfus H, Zelphati O, Marion V. Topical, magnetic_assisted eye delivery of anti_unfolded protein response drugs maintains light detection in Bardet Biedl syndrome mouse model, *Pharmaceutics*, 1650, 2021 16. Junnuthula V, Sadeghi A, Cao S, Tavakoli S, Ridolfo R, Toropainen E, Ruponen M, van Hest J, Urtti A. Intravitreal polymeric nanocarriers with long ocular retention and targeted delivery to the retina and optic nerve head region, *Pharmaceutics*, 13 (4): 445, 2021 17. Toropainen E, Fraser_Miller S, Novakovic D, Vellonen K_S, Ruponen M, Viitala T, Korhonen O, Auriola S, Tengvall U, Choi S, Absar M, Strachan C and Urtti A. Biopharmaceutics of topical ophthalmic suspensions: Importance of viscosity and particle size on ocular absorption of indomethacin, *Pharmaceutics*, 13 (4): 452_ , 2021 18. Sadeghi A, Puranen J, Ruponen M, Valtari A, Subrizi A, Ranta V_P, Toropainen E and Urtti A. Pharmacokinetics of intravitreal macromolecules: scaling from rats to rabbit. *European Journal of Pharmaceutical Sciences*, 1; 159: 105720, 2021 19. Ruponen M, Kettunen K, Santiago Pires M, Laitinen R. Co_amorphous formulations of furosemide with arginine and P_glykoprotein inhibitor drugs, *Pharmaceutics*, 13 (2): 171, 2020 20. Tavakoli S, Paynshaert K, Lajunen T, Devoldere J, del Amo EM, Ruponen M, Remaut K, De Smedt SC and Urtti A. Ocular barriers to retinal delivery of intravitreal liposomes: Impact of vitreoretinal interface, *Journal of Controlled Release*, 10; 328: 952_961, 2020 21. Fayyaz A, Ranta V_P, Toropainen E, Vellonen K_S, Valtari A, Puranen J, Ruponen M, Gardner I, Urtti A, Jamei M, del Amo EM. Topical ocular pharmacokinetics and bioavailability for a cocktail of timolol, betaxolol and atenolol in rabbits. *European Journal of Pharmaceutics*, 1; 155: 105553, 2020 22. Ramsay E, Yang C, Ravina M, Sarkhel S, Hehir S, Cameron N, Ilmarinen T, Skottman H, Kjems J, Urtti A, Ruponen M and Subrizi A. Avoiding the pitfalls of siRNA delivery to the retinal pigment epithelium with physiologically relevant cell models, *Pharmaceutics*, 2020 23. Itkonen JM, Annala A, Tavakoli S, Arango_Gonzalez B, Toropainen E, Ruponen M, Casteleijn MG, Urtti A. Characterization, stability, and in vivo efficacy studies of recombinant human CNTF and its permeation into the neural retina in ex vivo organotypic retinal explant culture models, *Pharmaceutics*, 12 (7): 611, 2020 24. Ruponen M, Rusanen H, Laitinen R: Dissolution and permeability properties of hydrochlorothiazide from co_amorphous formulations. *International Journal of Pharmaceutics*, 109 (7): 2252_2261, 2020. 25. Hemmilä S, Ruponen M, Toropainen E, Tengvall_Unadike U, Urtti A, Kallio P: Microflow_based device for in vitro and ex vivo drug permeability studies. *SLAS Technology*, 2020 26. Heikkinen E, Ruponen M, Jasper L_M, Leppänen J, Ranta V_P, Hellinen L, Urtti A, Auriola S, Rautio J, Vellonen K_S: Prodrug approach for posterior eye drug delivery: synthesis of novel ganciclovir prodrugs and in vitro screening with cassette dosing. *Molecular Pharmaceutics*, 2020 27. Turunen

V, Peräniemi S, Tolvanen K, Ruponen M, Kokki H: The permeability of magnesium across the skin is enhanced by menthol cream. *Magnesium Research*, 2019 28. Smedowski A. : Electrical synapses interconnecting axons revealed in the optic nerve head – a novel model of gap junctions' involvement in optic nerve function *Journal: Acta Ophthalmologica*, 2019 29. Kalinin S, Valtari A, Ruponen M, Kovalenko A, Dar'ın D, Urtti A, Supuran C, Krasavin M: Highly hydrophilic 1,3_oxazol_5_yl benzenesulfonamide inhibitors of carbonic anhydrase II for reduction of intraocular pressure. *Bioorganic and Medicinal Chemistry*, 115086. doi: 10.1016/j.bmc.2019.115086, 2019 30. Sormunen H, Ruponen M, Laitinen R: The effect of co_ amorphization of BCS class II drug glibenclamide on dissolution and permeability properties through and MDCKII_MDR1 cell layer. *International Journal of Pharmaceutics*, 570:118653. doi: 10.1016/j.ijpharm.2019.118653, 2019 31. Hellinen L, Hagström M, Knuutila H, Ruponen M, Urtti A, Reinisalo M: Characterization of artificially re_pigmented ARPE_19 retinal pigment epithelial cell model. *Scientific Reports*, 2019 32. Heikkinen E, Auriola S, Ranta V_P, Demarais N, Grey A, del Amo EM, Toropainen E, Vellonen K_S, Urtti A, Ruponen M: Distribution of small molecular weight drugs into the porcine lens: studies on imaging mass spectrometry, distribution coefficients, and implications in ocular pharmacokinetics. *Molecular Pharmaceutics*, 16: 3968_3976, 2019 33. Huttunen J, Peltokangas S, Gynther M, Natunen T, Hiltunen M, Ruponen M, Vellonen K_S, Huttunen K: L_type amino acid transporter 1 (LAT1/Lat1) utilizing prodrugs can improve the delivery of drugs into neurons, astrocytes and microglia. *Scientific Reports*, 9(1):12860. doi: 10.1038/s41598_019_49009_z: 2019 34. Ramsay E, Hagström M, Vellonen K_S, Boman S, Toropainen E, del Amo EM, Kidron H, Urtti A, Ruponen M: Role of retinal pigment epithelium permeability in drug transfer between posterior eye segment and systemic blood circulation. *European Journal of Pharmaceutics and Biopharmaceutics*, 143: 18_23, 2019 35. Serri C, Frigione M, Ruponen M, Urtti A, Borzacchiello A, Biondi M, Mayol L: Electron dispersive X_ray spectroscopy properties of hyaluronic acid decorated microparticles. *Colloids and Surfaces B: Biointerfaces*, 181: 896_901, 2019 36. Bano S, Reinisalo M, Day N, Tavakoli S, Subrizi A, Ganguli M, Ruponen M: Nucleic acid delivery to differentiated retinal cells using cell_penetrating peptide as a carrier. *European Journal of Pharmaceutics and Biopharmaceutics*, 140: 91_99, 2019 37. Subrizi A, Del Amo EM, Korzhakov_Vlakh V, Tennikova T, Ruponen M, Urtti A: Design principles of ocular drug delivery systems: importance of drug payload, release rate, and material properties. *Drug Discovery Today*, 24: 1446_1457, 2019 38. Gynther M, Puris M, Peltokangas S, Auriola S, Kanninen KM, Koistinaho J, Huttunen K, Ruponen M, Vellonen KS: Alzheimer's disease phenotype or inflammatory insult does not alter function of L_type amino acid transporter 1 in mouse blood_brain barrier and primary astrocytes. *Pharmaceutical Research*, 36: 17, 2019 39. Heikkinen EM, del Amo E, Ranta VP, Urtti A, Vellonen KS, Ruponen M: Esterase activity in porcine and albino rabbit tissues. *European Journal of Pharmaceutical Sciences*, 123: 106_110, 2018 40. Lajunen T, Nurmi R, Wilbie D, Ruoslahti T, Johansson NG, Korhonen O, Rog T, Bunker A, Ruponen M, Urtti A: The effect of light sensitizer localization on the stability of indocyanine green liposomes. *Journal of Controlled Release*, 284: 213_223, 2018 41. Ruponen M, Visti M, Ojarinta R and Laitinen R: Permeability of glibenclamide through a PAMPA membrane: The effect of co_ amorphization. *European Journal of Pharmaceutics and Biopharmaceutics*, 129: 247_256, 2018 42. Ramsay E, del Amo EM, Toropainen E, Tengvall_Unadike U, Ranta VP, Urtti A and Ruponen M: Corneal and Conjunctival drug permeability: Systematic comparison and pharmacokinetic impact in the eye. *European Journal of Pharmaceutical Sciences*, 119: 83_89, 2018 43. Vellonen K_S, Pelkonen L, Mannermaa E, Ruponen M, Urtti A, Kidron H: Expression, activity and pharmacokinetic impact of ocular transporters. *Advanced Drug Delivery Reviews*, 126: 3_22, 2018 44. Smedowski A, Liu X, Podracka L, Akhtar S, Trzeciacka A, Pietrucha_Dutczak M, Lewin_Kowalik J, Urtti A, Ruponen M, Kaarimiranta K, Varjosalo M, Amadio M: Increased intraocular pressure alters the cellular distribution of HuR protein in retinal ganglion cells __ a possible sign of endogenous neuroprotection failure, submitted, *BBA _ Molecular Basis of Disease*, 1864: 296_306, 2018 45. Vellonen K_S, Ihalainen J, Boucau M_C, Gosselet F, Picardat T, Gynther K, Kanninen K, White AR, Malm T, Koistinaho J, Forsberg MM., Ruponen M: Disease_induced alterations in brain drug transporters in animal models of Alzheimer's disease, *Pharmaceutical Research*, 34: 2652_2662, 2017 46. Pelkonen L, Tengvall_Unadike U, Ruponen M, Kidron H, del Amo EM, Reinisalo M and Urtti A: Melanin binding study of clinical drugs with cassette dosing and rapid equilibrium dialysis inserts, *European Journal of Pharmaceutical Sciences*, 109: 162_168, 2017 47. Ramsay E, Ruponen M, Picardat T, Tengvall U, Tuomainen M, Auriola S, Toropainen E, Urtti A, del Amo EM: Impact of chemical structure on conjunctival drug permeability: Adopting porcine conjunctiva and cassette dosing for construction of in silico model, *Journal of Pharmaceutical Sciences*, 106: 2463_2471, 2017 48. del Amo EM, Rimpelä A_K, Heikkinen E, Kari OK, Ramsay E, Lajunen T, Schmitt M, Pelkonen L, Bhattacharya M, Richardson D, Subrizi A, Turunen T, Reinisalo M, Itkonen J, Toropainen E, Casteleijn M, Kidron H, Antopolsky M, Vellonen K_S, Ruponen M, Urtti A: Pharmacokinetic aspects of retinal drug delivery, *Progress in Retinal and Eye Research*, 57: 134_184, 2017 49. Holmqvist S, Lehtonen S, Chumarina M, Puttonen KA, Azevedo C, Lebedeva O, Ruponen M, Oksanen M, Djelloul, Collin A, Goldwurm, Meyer M, Lagarkova M, Kiselev S, Koistinaho J, Roybon J: Creation of a library of induced pluripotent stem cells from Parkinson patients, *NPJ Parkinson's disease*, Jun 2; 2: 16009, 2016 50. Soininen SK, Vellonen KS, Heikkinen AT, Auriola S, Ranta VP, Urtti A, Ruponen M: Intracellular PK/PD relationships of free and liposomal doxorubicin: Quantitative analyses and PK/PD modeling, *Molecular Pharmaceutics*, 13: 1358_1365, 2016 51. Puttonen KA.*, Ruponen M*, Naumanenko N*, Kauppinen R, Hovatta O, Tavi P, Koistinaho J: Generation of functional neuromuscular junctions from human pluripotent stem cell lines, *Frontiers in Cellular Neuroscience*, 9: 473, 2015 52. Soininen K, Repo M, Karttunen V, Auriola S, Vähäkangas K, Ruponen M: Low placental cell uptake and human placental transfer of pegylated liposomal doxorubicin, *Toxicology Letters*, 239, 108_114, 2015 53. Ruponen M, Urtti A: Undefined role of mucus as a barrier in ocular drug delivery, *European Journal of Pharmaceutics and Biopharmaceutics*, 96, 442_446 2015 54. Ilina P, Partti S, Niklander J, Ruponen M, Lou J_R, Yliperttula M: Effect of cell differentiation on endocytic profiles of endothelial and epithelial cell culture models, *Experimental Cell Research* 332: 89_101, 2015 55. Pomeschchik Y, Puttonen K, Kidin I, Ruponen M, Malm T, Hovatta O, Koistinaho J: Transplanted human iPSC_derived neural stem cells do not promote functional recovery of pharmacologically immunosuppressed mice with contusion spinal cord injury, *Cell Transplantation* 24: 1799_1812, 2015 56. Nomani A, Hyvönen Z, Pulkkinen E, Hiekkala M, Ruponen M: Intracellular gene delivery is dependent on the type of non_viral carrier and defined by the cell surface glycosaminoglycans, *Journal of Controlled Release* 187: 59_65, 2014 57. Hakkarainen JJ, Rilla K, Suhonen M, Ruponen M, Forsberg MM: Re_evaluation of P_glycoprotein functionality in the bovine brain microvessel endothelial cells in vitro, *Xenobiotica* 44: 283_294, 2014 58. Pajuste K, Hyvönen Z, Petrichenko O, Kaldre D, Skrivele B, Cekavicus B, Ose V, Plotniece M, Rucins M, Birkmane K, Sobolev A, Duburs G, Ruponen M, Plotniece A: Gene delivery agents possessing antiradical activity: self_assembling cationic amphiphilic 1,4_dihydropyridine derivatives, *New Journal of Chemistry* 37: 3062_3075, 2013 59. Qu C, Lindeberg H, Puttonen KA, Ruponen M, Hovatta O, Koistinaho J, Lammi MJ: Chondrogenic differentiation of human pluripotent stem cells in chondrocyte co_culture, *International Journal of Biochemistry and Cell Biology* 45: 1802_12, 2013 60. Puttonen K*, Ruponen M*, Kauppinen R, Wojciechowski S, Hovatta O, Koistinaho J: Improved Method of Producing Human Neural Progenitor Cells of High Purity and in Large Quantities from Pluripotent Stem Cells for Transplantation Studies, *Cell Transplantation* 22:1753_1766, 2013, *equal contribution 61. Ziraksaz Z, Nomani A, Ruponen M, Soleimani M, Tabbakhian M, Haririan I: Cell_surface glycosaminoglycans inhibit intranuclear uptake but promote post_nuclear processes of polyamidoamine dendrimer_pDNA transfection, *European Journal of Pharmaceutical Sciences* 48: 55_63, 2013 62. Ilina P, Hyvönen Z, Saura M, Sandvig K, Yliperttula M, Ruponen M: Genetic block of endocytic pathways reveals differences in the intracellular processing of non_viral gene delivery systems, *Journal of Controlled Release* 163: 385_395, 2012 63. Soininen SK, Lehtolainen_Dalkilic P, Karppinen T, Puustinen T, Dragneva G, Kaikkonen M, Jauhainen M, Allart MB, Selwood DL, Wirth T, Lesch HP, Määttä A_M, Mönkkönen J, Ylä_Herttuala S, Ruponen M: Targeted delivery via avidin fusion protein: Intracellular fate of biotinylated doxorubicin derivative and cellular uptake kinetics and biodistribution of biotinylated liposomes, *European Journal of Pharmaceutical Sciences* 47: 848_856, 2012 64. Hyvönen Z, Hämäläinen V, Ruponen M, Lucas B, Rejman J, Vercauteren D, Demeester J, De Smedt S, Braeckmans K: Elucidating the pre_ and post_nuclear processing of 1,4_dihydropyridine based gene delivery carriers, *Journal of Controlled Release* 162: 167_175, 2012 65. Nomani A, Fouladdel L, Haririan I, Rahimnia R, Ruponen M, Gazori T, Azizi E: Poly (amido amine) dendrimer silences the expression of epidermal growth factor receptor p53 gene in vitro, *African Journal of Pharmacy and Pharmacology* 6: 530_537, 2012 66. Hanzlikova M, Ruponen M, Galli E, Raasmaja A, Aseyev V, Tenhu H, Urtti A, Yliperttula M: Mechanisms of polyethyleneimine_mediated DNA delivery: free carrier helps to overcome the barrier of cell_surface glycosaminoglycans, *Journal of Gene Medicine* 13: 402_409, 2011 67. Huttunen S, Toivanen M, Arkkio S, Ruponen M, Tikkanen_Kaukanen C: Inhibition activity of wild berry juice fractions against *Streptococcus pneumoniae* binding to human bronchial cells, *Phytotherapy Research* 25: 122_127, 2011 68. Egorova A, Kiselev A, Hakli M, Ruponen M,

Baranov V, Urtti A: Chemokine derived peptides as carriers for gene delivery to CXCR4 expressing cells, *Journal of Gene Medicine* 11: 772_781, 2009 69. Ruponen M, Arkko S, Urtti A, Reinisalo M, Ranta VP: Intracellular DNA release and elimination correlate poorly with transgene expression after non_viral transfection, *Journal of Controlled Release* 136: 226_231, 2009 70. Männistö M, Reinisalo M, Ruponen M, Honkakoski P, Tammi M, Urtti A: Polyplex_mediated gene transfer and cell cycle: effect of carrier on cellular uptake and intracellular kinetics, and significance of glycosaminoglycans, *Journal of Gene Medicine* 9: 479_487, 2007 71. Ruponen M, Braun CS, Middaugh CR: Biophysical characterization of polymeric and liposomal gene delivery systems using empirical phase diagrams, *Journal of Pharmaceutical Sciences* 95: 2101_2114, 2006 72. Ruponen M, Hyvönen Z, Urtti A, Ylä_Herttua S: Nonviral gene delivery methods in cardiovascular diseases, *Methods of Molecular Medicine* 108: 315_328, 2005 73. Mannermaa E, Ronkko S, Ruponen M, Reinisalo M, Urtti A: Long_lasting secretion of transgene product from differentiated and filter_grown retinal pigment epithelial cells after nonviral gene transfer, *Current Eye Research* 30: 345_328, 2005 74. Pitkanen L, Pelkonen J, Ruponen M, Ronkko S, Urtti A: Neural retina limits the nonviral gene transfer to retinal pigment epithelium in an in vitro bovine eye model, *AAPS Journal* 6: e25, 2004 75. Lampela P, Soinen P, Puttonen KA, Ruponen M, Urtti A, Mannisto PT, Raasmaja A: Effect of cell_surface glycosaminoglycans on cationic carrier combined with low_MW PEI_mediated gene transfection, *International Journal of Pharmaceutics* 284: 43_52, 2004 76. Ruponen M, Honkakoski P, Tammi M, Urtti A: Cell_surface glycosaminoglycans inhibit cation_mediated gene transfer, *Journal of Gene Medicine*: 6: 405_414, 2004 77. Ruponen M, Honkakoski P, Rönkkö S, Pelkonen J, Tammi M, Urtti A: Extracellular and intracellular barriers in non_viral gene delivery, *Journal of Controlled Release* 93: 213_217, 2003 78. Pitkanen L, Ruponen M, Nieminen J, Urtti A: Vitreous is a barrier in nonviral gene transfer by cationic lipids and polymers, *Pharmaceutical Research* 20: 576_583, 2003 79. Lampela P, Elomaa M, Ruponen M, Urtti A, Männistö P. T, Raasmaja A: Different synergistic role of small polyethyleneimines and Dospin in gene delivery, *Journal of Controlled Release* 88: 173_183, 2003 80. Männistö M, Vanderkerken S, Toncheva V, Elomaa M, Ruponen M, Schacht E, Urtti A: Structure_activity relationships of poly(L_lysines): effects of pegylation and molecular shape on physicochemical and biological properties in gene delivery, *Journal of Controlled Release* 83: 169_182, 2002 81. Hyvönen Z, Ruponen M, Rönkkö S, Suhonen P, Urtti A: Extracellular and intracellular factors influencing gene transfection mediated by 1,4_dihydropyridine amphiphiles, *European Journal of Pharmaceutical Sciences* 15: 449_460, 2002 82. Ruponen M, Rönkkö S, Honkakoski P, Pelkonen J, Urtti A: Extracellular glycosaminoglycans modify cellular trafficking of lipoplexes and polyplexes, *Journal of Biological Chemistry* 279: 33875_33880, 2001 83. Ruponen M, Ylä_Herttua S, Urtti A: Interactions of polymeric and liposomal gene delivery systems with extracellular glycosaminoglycans: physicochemical and transfection studies, *Biochimica et Biophysica Acta* 1415: 331_341, 1999 84. Turunen M, Hiltunen M, Ruponen M, Virkamäki L, Szoka Jr F, Urtti A, Ylä_Herttua S: Efficient adventitial gene delivery to rabbit carotid artery with cationic polymer_plasmid complexes, *Gene Therapy* 6: 6_11, 1999

Projects

EU_projects: 2017_2021 ITN_EU: Integrated training in dry eye disease drug development. 2016_2020 ITN_EU: Educational network in ocular drug delivery and therapeutics 2015_2019 ITN_EU: Nanomedicines: an integrative approach 2014_2016 FP7_MNP: Mucus permeating nanoparticulate drug delivery systems Many projects funded by national sources such as Academy of Finland and Business Finland.

Memberships

MEMBERSHIPS 2015_ Member of the Controlled Release Society Nordic Chapter Board 2015_ Member of review editorial board of *Frontiers in Predictive Toxicity* 2012_2017; 2019_ Member in the steering group of the School of Pharmacy, UEF 2007_2008; 2012_ Member of the quality team in the School of Pharmacy, UEF 2018_ Member of steering group of doctorate program of drug research, UEF AWARDS 2004 Outstanding dissertation work of the year in the University of Kuopio 2004 Albert Wuokko prize for young scientists

Other Relevant Information

Opponent of PhD dissertation (1) Pre_examiner of PhD dissertation (4) Supervision: PhD students (8), Master students (over 50), Bachelor students (35) Patents (4) Guest Editor (2) and pre_reviewer (over 50) in various scientific journals mainly in the field of pharmacy.