

## Curriculum vitae

**Name** Marikki K. Laiho, M.D., Ph.D.

**Current appointments** Professor and Director  
 Willard and Lillian Hackerman Professor in Radiation Oncology  
 Departments of Radiation Oncology and Molecular Radiation  
 Sciences and Oncology  
 The Johns Hopkins University School of Medicine

Professor in Molecular Cancer Medicine  
 University of Helsinki

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## Education and Training

1980 Matriculation examination, Haukilahden lukio, Espoo, Finland

1983 Bachelor of Medicine, University of Helsinki, Helsinki, Finland

1986 Junior house officer, Clinics of Internal Medicine, Surgery and Children's Hospital, Helsinki University Central Hospital, Helsinki

1987 Licentiate of Medicine (M.D.), University of Helsinki

1987 Internship, Helsinki Municipal Health Services, Helsinki

1984-88 Doctor of Medical Science (Ph.D.), University of Helsinki, accepted with distinction

1988-89 Postdoctoral fellow, Department of Biochemistry, University of Massachusetts Medical Center, Worcester, MA, Laboratory of Joan Massagué, Ph.D.

1989-90 Research Associate, Cell Biology and Genetics Program, Memorial Sloan-Kettering Cancer Center, New York, NY, Laboratory of Joan Massagué, Ph.D.

1991 Docent (Senior Lecturer/Reader), Cell Biology, University of Helsinki

2009 Leadership Development Program, Johns Hopkins Medicine, Johns Hopkins University

**Professional Experience**

1983-87	Research and Teaching Assistant, Department of Virology, University of Helsinki
1988-90	Research Associate, Academy of Finland
1990-94	Research and Teaching Assistant, Department of Virology, University of Helsinki
1992-95	Junior Fellow, Academy of Finland
1996-03	Academy Research Fellow (Senior Fellow), Academy of Finland
2001-02	Acting Professor in Cancer Biology, Department of Pathology, University of Helsinki
2003	Senior Scientist, Academy of Finland
2004	Scientific Secretary, Research Council, Faculty of Medicine, University of Helsinki
2005-present	Director, Molecular Imaging Unit, University of Helsinki
2005-2007	Research Professor, Foundation for the Finnish Cancer Institute
2006-present	Professor in Molecular Cancer Medicine, University of Helsinki
2006-6/2007	Director, Molecular Cancer Biology Program, University of Helsinki
2006-8/2007	Coordinator, Helsinki Functional Imaging Center, Helsinki
8/2007-7/2008	Visiting Professor and Director, Division of Molecular Radiation Sciences, Department of Radiation Oncology, The Johns Hopkins University School of Medicine
7/2008-present	Professor and Director, Division of Molecular Radiation Sciences, Department of Radiation Oncology and Department of Oncology, The Johns Hopkins University School of Medicine

***Research activities*****Publications****Citations as of Aug 4, 2009***Peer-reviewed original research articles*

1. Saksela, O., Laiho, M., and Keski-Oja, J. Regulation of plasminogen activator activity in human fibroblastic cells by fibrosarcoma cell-derived factors. *Cancer Res.* 45: 2314-2319, 1985. *Citations:16*

2. Alitalo, K., Saksela, K., Winqvist, R., Alitalo, R., Keski-Oja, J., Laiho, M., Ilvonen, M., Knuutila, S., and de la Chapelle, A. Acute myelogenous leukemia with *c-myc* amplification and double minute chromosomes. *Lancet* 8463: 1035-1039, 1985. *Citations:72*
3. Laiho, M., Saksela, O., and Keski-Oja, J. Transforming growth factor- $\beta$  alters plasminogen activator activity in human skin fibroblasts. *Exp. Cell. Res.* 164: 399-407, 1986. *Citations:102*
4. Keski-Oja, J., Laiho, M. and Vartio, T. Characterization of a novel gelatin-binding 21 kDa protein secreted by cultured adherent cells. *Biochim. Biophys. Acta* 882: 367-376, 1986. *Citations:8*
5. Laiho, M., Saksela O, Andreassen, P.A., and Keski-Oja, J. Enhanced production and extracellular deposition of the endothelial type plasminogen activator inhibitor in cultured human lung fibroblasts by transforming growth factor- $\beta$ . *J. Cell. Biol.* 103: 2403-2410, 1986. *Citations:415*
6. Lund, L.R., Riccio, A., Andreassen, P.A., Nielsen, L.S., Kristensen, P., Laiho, M., Saksela, O., Blasi, F., and Danø, K. Transforming growth factor- $\beta$  is a strong and fast acting positive regulator of the level of type-1 plasminogen activator inhibitor mRNA in WI-38 human lung fibroblasts. *EMBO J.* 5: 1281-1286, 1987. *Citations:233*
7. Laiho, M., Saksela, O., and Keski-Oja, J. Transforming growth factor- $\beta$ -induction of type-1 plasminogen activator inhibitor: Pericellular deposition and sensitivity to exogenous urokinase. *J. Biol. Chem.* 262: 17467-17474, 1987. *Citations:260*
8. Laiho, M. Modulation of extracellular proteolytic activity and anchorage-independent growth of cultured cells by sarcoma cell-derived factors: Relationships to transforming growth factor- $\beta$ . *Exp. Cell. Res.* 176: 297-308, 1988. *Citations:9*
9. Anklesaria, P., Teixido, J., Laiho, M., Pierce, J., Greenberger, J.S., and Massagué, J. Cell adhesion and proliferation mediated by membrane TGF- $\alpha$  binding to EGF receptor. *Proc. Natl. Acad. Sci. USA* 87: 3289-3293, 1990. *Citations:231*
10. Laiho, M., DeCaprio, J.A., Ludlow, J.W., Livingston, D.M., and Massagué, J. Growth inhibition by TGF- $\beta$  linked to suppression of retinoblastoma protein phosphorylation. *Cell* 62: 175-185, 1990. *Citations:781*
11. Laiho, M., Weis, F.M.B., and Massagué, J. Concomitant loss of transforming growth factor- $\beta$  receptor types I and II in TGF- $\beta$ -resistant cell mutants implicates both receptor types in signal transduction. *J. Biol. Chem.* 265: 18518-18524, 1990. *Citations:289*
12. Cheifetz, S., Hernandez, H., Laiho, M., ten Tijke, P., Iwata, K.K., and Massagué, J. Distinct transforming growth factor- $\beta$  (TGF- $\beta$ ) receptor subsets as determinants of cellular responsiveness to three TGF- $\beta$  isoforms. *J. Biol. Chem.* 265: 20533-20538, 1990. *Citations:254*
13. Laiho, M., Rönstrand, L., Heino, J., DeCaprio, J.A., Ludlow, J.W., Livingston, D.M., and Massagué, J. Control of junB and extracellular matrix protein expression by transforming growth factor- $\beta$ 1 is independent of SV40 T antigen sensitive growth inhibitory effects. *Mol. Cell. Biol.* 11: 972-978, 1991. *Citations:102*

14. Laiho, M., Weis, F.M.B., Boyd, F.T., Ignatz, R.A., and Massagué, J. Responsiveness to transforming growth factor- $\beta$  restored by genetic complementation between cells defective in TGF- $\beta$  receptors I and II. *J. Biol. Chem.* 266: 9108-9112, 1991. *Citations:229*
15. Zentella, A., Weis, F. M. B., Ralph, D. A., Laiho, M., and Massagué, J. Early gene responses to transforming growth factor- $\beta$  in cells lacking RB function. *Mol. Cell. Biol.* 11: 4952-4958, 1991. *Citations:114*
16. Wrana, J. L., Attisano, L., Carcamo, J., Zentella, A., Doody, J., Laiho, M., Wang, X.-F., and Massagué, J. TGF- $\beta$  signals through a heteromeric protein kinase receptor complex. *Cell* 71: 1003-1014, 1992. *Citations:1102*
17. Pitkänen, K., Kivinen, L., DeCaprio, J. A., and Laiho, M. Expression of human retinoblastoma gene product in mouse fibroblasts: Effects on cell proliferation and susceptibility to transformation. *Exp. Cell. Res.* 207: 99-106, 1993. *Citations:10*
18. Kivinen, L., Pitkänen, K., and Laiho, M. Human retinoblastoma gene product prevents c-Ha-ras oncogene mediated cellular transformation of mouse fibroblasts. *Oncogene* 8: 2703-2711, 1993. *Citations:9*
19. ten Dijke, P., Yamashita, H., Ichijo, H., Franzén, P., Laiho, M., Miyazono, K., Heldin, C.-H. Ligand binding properties and characterization of type I serine/threonine kinase receptors for TGF- $\beta$  and activin. *Science* 264: 101-104, 1994. *Citations:435*
20. Haapajarvi, T., Kivinen, L., Pitkänen, K., and Laiho, M. Cell cycle dependent effects of UV-radiation on p53 expression and retinoblastoma protein phosphorylation. *Oncogene* 11: 151-159, 1995. *Citations:40*
21. Kivinen, L., Tiihonen, E., Haapajarvi, T., and Laiho, M. p21<sup>ras</sup> mediated decrease of the retinoblastoma protein in fibroblasts occurs through growth factor dependent mechanisms. *Cell Growth Differ.* 7: 1705-1712, 1996. *Citations:3*
22. Haapajarvi, T., Pitkänen, K., Tsubari, M., and Laiho, M. p53 transactivation and protein accumulation are independently regulated by UV light in different phases of the cell cycle. *Mol. Cell. Biol.* 17: 3074-3080, 1997. *Citations:29*
23. Enholm, B., Paavonen, K., Ristimäki, A., Kumar, V., Klefström, J., Kivinen, L., Laiho, M., Olofsson, B., Joukov, V., Eriksson, U., and Alitalo, K. Comparison of VEGF, VEGF-B, VEGF-C and Ang-1 mRNAs regulation by serum, growth factors, oncoproteins, and hypoxia. *Oncogene* 14: 2475-2483, 1997. *Citations:264*
24. Tsubari, M., Tiihonen, E., and Laiho, M. Cloning and characterization of p10, an alternative spliced form of p15 CDK-inhibitor. *Cancer Res.* 57: 2966-2973, 1997. *Citations:17*
25. Pitkänen, K., Haapajarvi, T., and Laiho, M. UV-induction of p53 activation and accumulation is dependent on cell cycle and pathways involving protein synthesis and phosphorylation. *Oncogene* 16: 459-469, 1998. *Citations:17*
26. Haapajarvi, T., Pitkänen, K., and Laiho, M. Human melanoma cell UV-responses show independency of p53 function. *Cell Growth Differ.* 10: 163-171, 1999. *Citations:27*
27. Tsubari, M., Taipale, J., Tiihonen, E., Keski-Oja, J., and Laiho, M. Hepatocyte growth factor releases mink epithelial cells from transforming growth factor- $\beta$ 1 induced growth

- arrest by restoring Cdk6 expression and cyclin E-associated Cdk2-activity. *Mol. Cell. Biol.* 19: 3654-3663, 1999. *Citations:26*
28. Haapajarvi, T., Kivinen, L., Heiskanen, A., des Bordes, C., Datto, M.B., Wang, X.-F., and Laiho, M. UV-radiation is a transcriptional inducer of p21<sup>Cip1/Waf1</sup> cyclin kinase inhibitor in a p53 independent manner. *Exp. Cell Res.* 248: 272-279, 1999. *Citations:50*
29. Kivinen, L., and Laiho, M. Ras and MEK dependent and independent pathways in p21<sup>Cip1/Waf1</sup> induction by FGF-2, PDGF and TGF- $\beta$ . *Cell Growth Differ.* 10: 621-628, 1999. *Citations:27*
30. Kivinen, L., Tsubari, M., Haapajarvi, T., Datto, M.B., Wang, X.-F., and Laiho, M. Ras induces p21<sup>Cip1/Waf1</sup> cyclin kinase inhibitor transcriptionally through Sp1-binding sites. *Oncogene* 18: 6252-6261, 1999. *Citations:48*
31. Taipale, M., Tiihonen, E., Heiskanen, A., and Laiho, M. Accumulation of a p27<sup>Kip1</sup> form not associated with Cdk-cyclin complexes in transforming growth factor- $\beta$  arrested Mv1Lu cells. *Exp. Cell Res.* 259: 107-116, 2000. *Citations:1*
32. Zhang, F., Taipale, M., Heiskanen, A., and Laiho, M. Ectopic expression of Cdk6 circumvents transforming growth factor- $\beta$  mediated growth inhibition. *Oncogene* 20: 5888-5896, 2001. *Citations:4*
33. Latonen, L., Taya, Y., and Laiho, M. UV-radiation induces dose-dependent regulation of p53 response and modulates p53-HMD2 interaction in human fibroblasts. *Oncogene* 20: 6784-6793, 2001. *Citations:43*
34. Buzek, J., Latonen, L., Kurki, S., and Laiho, M. Redox state of tumor suppressor p53 regulates its sequence specific DNA binding in DNA-damaged cells by cysteine 277. *Nucleic Acids Res.* 30: 2340-2348, 2002. *Citations:29*
35. Zhang, F., Mönkkönen, M., Roth, S., Laiho, M. Proteasomal activity modulates TGF- $\beta$  signaling in a gene-specific manner. *FEBS Lett.* 527: 58-62, 2002. *Citations:10*
36. Zhang, F., Mönkkönen, M., Roth, S., Laiho, M. TGF- $\beta$  induced G<sub>1</sub> cell cycle arrest requires the activity of the proteasome pathway. *Exp. Cell. Res.* 281: 190-196, 2002. *Citations:7*
37. Latonen, L., Kurki, S., Pitkänen, K., and Laiho, M. p53 and MDM2 are regulated by PI-3-kinases on multiple levels under stress induced by UV-radiation and proteasome dysfunction. *Cell Signal.* 15: 95-102, 2003. *Citations:15*
38. Zhang, F., Lundin, M., Ristimäki, A., Heikkilä, P., Lundin, J., Isola, J., Joensuu, H., and Laiho, M. Ski-related novel protein N (SnoN), a negative controller of TGF- $\beta$  signaling, is a prognostic marker in ER-positive breast carcinomas. *Cancer Res.* 63: 5005-5010, 2003. *Citations:37*
39. Gentile, M., Latonen, L., and Laiho, M. Cell cycle arrest and apoptosis provoked by UV radiation-induced DNA damage are transcriptionally highly divergent responses. *Nucleic Acids Res.* 31: 4779-4790, 2003. *Citations:23*
40. Kurki, S., Latonen, L., and Laiho, M. Cellular stress and DNA damage invoke temporally distinct Mdm2, p53 and PML complexes and damage-specific nuclear relocalization. *J. Cell. Sci.* 116: 3917-3925, 2003. *Citations:33*

41. Kurki, S., Peltonen, K., Latonen, L., Kiviharju, T., Ojala, P.M., Meek, D. and Laiho, M. Nucleolar protein NPM interacts with HDM2 and protects tumor suppressor protein p53 from HDM2-mediated degradation. *Cancer Cell* 5: 465-475, 2004. *Citations:113*
42. Vaque, J.P., Navascues, J., Shiio, Y., Laiho, M., Ajenjo, N., Mauleon, I., Matallanas, D., Crespo, P., Leon, J. Myc antagonizes Ras-mediated growth arrest in leukemia cells through the inhibition of the Ras-ERK-p21Cip1 pathway. *J. Biol. Chem.* 280: 1112-1122, 2005. *Citations:16*
43. von Willebrand, M., Köhler, K., Alanko, T., Laiho, M. and Saksela, O. FGF-2 prevents decrease in Bcl-2 level and apoptosis induced by TGF- $\beta$ 1 in normal melanocytes but not in nevus or melanoma cells. *Exp. Dermatol.* 14: 202-208, 2005. *Citations:2*
44. Peltonen, K., Kiviharju, T., Järvinen, P. Ra, R., and Laiho, M. Melanoma cell lines are susceptible to histone deacetylase inhibitor TSA provoked cell cycle arrest and apoptosis. *Pigment Cell Res.* 18: 196-202, 2005. *Citations:10*
45. Laine, H., Doetzlhofer, A., Mantela, J., Ylikoski, J., Laiho, M., Roussel, M., Segil, N., Pirvola, U. p19Ink4d and p21Cip1 collaborate to maintain the postmitotic state of auditory hair cells, their codeletion leading to DNA damage and p53-mediated apoptosis. *J. Neurosci.* 27: 1434-1444, 2007. *Citations:9*
46. Sarek, G., Kurki, S., Enbäck, J., Iotzova, G., Haas, J., Laakkonen, P., Laiho, M., and Ojala, P.M. Reactivation of the p53 pathway as a treatment modality for KSHV-induced lymphomas. *J. Clin. Invest.* 117: 1019-1028, 2007. *Citations:16*
47. Kiviharju-af Hällström, T., Jäämaa, S., Mönkkönen, M., Peltonen, K., Andersson, L.C., Medema, R., Peehl, D., and Laiho, M. Human prostate epithelium lacks Wee1A-mediated DNA damage-induced checkpoint enforcement. *Proc. Natl. Acad. Sci. USA* 104: 7211-7216, 2007. *Citations:3*
48. Koopal S, Furuholm JH, Järviluoma A, Jäämaa S, Pyakurel P, Pussinen C, Wirzenius M, Biberfeld P, Alitalo K, Laiho M, and Ojala PM. Viral oncogene-induced DNA damage response is activated in Kaposi's sarcoma tumorigenesis. *PLoS Pathog.* 3:1348-60, 2007. *Citations:4*
49. Latonen, L., Järvinen, P., and Laiho, M. Cytoskeleton-interacting LIM-domain protein CRP1 suppresses cell proliferation and protects from stress-induced cell death. *Exp. Cell Res.* 314: 738-47, 2008. *Citations:1*
50. Band, A.M., Björklund, M., and Laiho, M. Phosphatidylinositol 3-kinase/Akt pathway regulates transforming growth factor- $\beta$  signaling by de-stabilizing Ski and inducing Smad7. *J. Biol. Chem.* 284: 35441-35449, 2009.
51. Latonen, L., Järvinen, P.M., Suomela S., Moore, H.M., Saarialho-Kere, U., Laiho, M. Ultraviolet B radiation regulates cysteine rich protein 1 in human keratinocytes. *Photoderm. Photoimm. Photomed.* 26: 70-77, 2010.
52. Björklund, M.A., Vaahtomeri, K., Peltonen, K., Viollet, B., Mäkelä, T.P., Band, A.M., and Laiho, M.: Non-cdk-bound p27 (p27<sup>NCDK</sup>) is a marker for cell stress and is regulated through the Akt/PKB and AMPK-kinase pathways. *Exp. Cell Res.* 316: 762-74, 2010.

53. Sulg, M., Kirjavainen, A., Pajusola, K., Ylikoski, J., Bueler, H., Laiho, M., Pirvola, U. Differential sensitivity of the inner ear sensory cell populations to forced cell cycle re-entry and p53 induction. *J. Neurochem.* 112: 1513-1526, 2010.
54. Sarek, G., Järviluoma, A., Moore, H.M., Tojkander, S., Vartia, S., Biberfeld, P., \*Laiho, M., \*Ojala, P. Nucleophosmin phosphorylation by v-cyclin-CDK6 controls KSHV latency. *PLoS Path.* 6: e1000818, 2010. \*equal contribution
55. Jäämaa, S., af Hällström, T.M., Sankila, A., Rantanen, V., Koistinen, H., Stenman, U., Zhang, Z., Yang, Z., De Marzo, A., Taari, K., Ruutu, M., Andersson, L.C., and Laiho, M. DNA damage recognition via activated ATM and p53 pathway in non-proliferating human prostate tissue. *Cancer Res.* 2010 In press.
56. Latonen, L., Moore, H.M., Bai, B., Jäämaa, S., and Laiho, M. Proteasome inhibitors induce nucleolar aggregation of proteasome target proteins and polyadenylated RNA by altering ubiquitin availability. *Oncogene* 2010 In press.
57. Peltonen, K., Colis, L., Liu, H., Jäämaa, S., Moore, H.M., Enbäck, J., Laakkonen, P., Vaahtokari, A., Jones, R.J., af Hällström, T.M., and Laiho, M. Identification of novel p53 pathway activating small-molecule compounds reveals unexpected similarities with known therapeutic agents. *PLoS ONE* 10.1371/journal.pone.0012996, 2010.

#### *Review articles*

1. Keski-Oja, J., Laiho, M., and Alitalo, K. Syöpäsolu kiihdyttää kasvuaan. *Tiede* 2000 6: 18-21, 1986. (Cancer cell growth control)
2. Keski-Oja, J., and Laiho, M. Kasvutekijät ja kudonsvaurioiden paraneminen. *Duodecim* 104: 1220-1230, 1988. (Growth factors and wound healing)
3. Laiho, M., and Keski-Oja, J. Growth factors in the regulation of pericellular proteolysis of cultured cells. *Cancer Res.* 49: 2533-2553, 1989. *Citations:341*
4. Keski-Oja, J., Lohi, J., and Laiho, M. Transforming growth factor- $\beta$ :s as modulators of pericellular proteolytic events. *Cytotechnology* 2: 317-332, 1989.
5. Saksela, O., and Laiho, M. Kasvutekijät ja soluväliaine. *Duodecim* 106: 297-306, 1990. (Growth factors and extracellular matrix)
6. Boyd, F.T., Cheifetz, S., Andres, J., Laiho, M., and Massagué, J. TGF- $\beta$  receptors and binding proteoglycans. *J. Cell Sci. Suppl.* 13: 131-138, 1990. *Citations:23*
7. Keski-Oja, J., Koli, K., Lohi, J., and Laiho, M. Growth factors in the regulation of plasminogen-plasmin system in tumor cells. *Semin. Thromb. Hemost.* 17: 231-239, 1991. *Citations:45*
8. Laiho, M., and Alitalo, K. Kasvurajoitegeenien muutokset syövän syntymekanismina. *Duodecim* 107: 1680-1691, 1991. (Tumor suppressor genes)
9. Laiho, M., and Keski-Oja, J. Transforming growth factors- $\beta$  as regulators of cellular growth and phenotype. *Crit. Rev. Oncog.* 3: 1-26, 1992. *Citations:66*
10. Pitkänen, K., Tsubari, M., Kivinen, L., Laiho, M. Kasvurajoitegeenit, solusykli ja syöpä. *Solubiologi* 12: 27-33, 1993. (Tumor suppressor genes, cell cycle and cancer)

11. Latonen, L., and Laiho, M. p53 perimämme vartijana. Solubiologi 17: 15-19, 1999. (p53 as a guardian against genotoxic stress)
12. Laiho, M. Miten syöpä syntyy. Duodecim 118: 1751-1758, 2002. (Genesis of cancer)  
*Citations:1*
13. Laiho, M. and Latonen, L. Cell cycle control, DNA damage checkpoints and cancer. Annals Med. 35: 391-397, 2003. *Citations:12*
14. Zhang, F. and Laiho, M. On and Off: Proteasome and TGF- $\beta$  signaling. Exp. Cell Res. 291: 275-281, 2003. *Citations:24*
15. Kurki, S., Peltonen, K., and Laiho, M. Nucleophosmin, HDM2 and p53 - players in UV damage incited nucleolar stress response. Cell Cycle 3: 976-979, 2004. *Citations:20*
16. Laiho, M. Syövän molekyyli-tason muutokset. Focus Oncologiae 23-26, 2005. (Molecular changes in cancer)
17. Latonen, L. and Laiho, M. Cellular UV damage responses - functions of tumor suppressor p53. BBA Reviews in Cancer 1755: 71-89, 2005. *Citations:45*
18. Laiho, M. and Latonen, L. Solujen ikääntyminen on taistelua syöpää vastaan. (Senescence as a barrier against cancer). Tiede, 3: 20-25, 2008.
19. af Hällström, T. and Laiho, M. Genetic changes and DNA damage responses in the prostate. Prostate, 68: 902-918, 2008. *Citations:4*

### **Inventions, Patents, Copyrights**

1. Laiho, M. and Peltonen K. Patent Application/20070495 “Activators and therapeutic applications thereof”
2. Laiho, M. et al. U.S. Provisional Application No. 61/304,120 “Compositions and methods for treatment and prevention of undesired cell proliferation”

### **Extramural sponsorship**

#### **Current:**

2006-2009 p53 and checkpoint control in cancer

Finnish Cancer Organization, Helsinki, Finland  
 €108,000  
 PI: Laiho  
 Role: PI

2009-2011 Center of Excellence in Cancer Biology  
 129699

Academy of Finland  
€3,000,000  
PI: Kari Alitalo  
Role: Vice-Director and Co-Investigator, share €630,000

2005-2010 Tumor suppressor genes in cell cycle and DNA damage

Biocentrum Helsinki, Helsinki, Finland  
€240,000  
PI: Laiho  
Role: PI

2008-2010 Nordic Network on Cancer and Control of Genomic Integrity

NordForsk, Oslo, Norway  
€110,000  
PI: Laiho  
Role: PI and Coordinator

2008, 2009 Utilization of Prostate Tissue Cultures in Determination of Cellular DNA  
Damage Response and Drug Responses

Patrick C. Walsh Prostate Cancer Research Fund  
\$75,000  
PI: Laiho  
Role: PI, 10% effort: share \$61,840

### Completed:

2006-2008 Center of Excellence in Cancer Biology

213485  
Academy of Finland  
€2,244,000  
PI: Kari Alitalo  
Role: Vice-Director and Co-Investigator, share €600,000

2007 Infrastructure Grant for instrument acquisition

University of Helsinki, Helsinki, Finland  
€560,000  
PI: Laiho  
Role: PI

2003-2007 NorFa Network on p53 and Cell Cycle

NordForsk, Oslo, Norway  
€168,750  
PI: Laiho

Role: PI and Coordinator

## ***Educational activities***

### **Teaching**

#### Teaching: Classroom

- 1983-90 Basic and clinical virology for medical and dentistry students, Teaching assistant, University of Helsinki.
- 1998 Problem-oriented learning for medical students, Scientific consultant, University of Helsinki.
- 1998- Molecular and cancer biology course for medical students, Lecturer, University of Helsinki.

#### Teaching: Invited lecturer at graduate student courses

- 1990,93 Molecular Biology of Cell Growth, Differentiation and Cancer, University of Helsinki
- 1992 Basics of Cell Biology, University of Helsinki
- 1994 Cell Growth and Differentiation, University of Oulu
- 1997 Regulation of Gene Expression, Biocenter Oulu Graduate School, University of Oulu
- 1998 Methods in Cell Biology II, Helsinki Biomedical Graduate School, University of Helsinki
- 1999 Science Fair, Medical Faculty of Helsinki. December 12, 1999. "Cell cycle control and DNA damage repair".
- 2000 Clinical Molecular Pathology and Cancer, University of Helsinki. May 18-19, 2000. "p53 mutations and their clinical significance".
- 2000 IMT Summer School in Molecular Biology, University of Tampere. August 16-24, 2000. "Cell cycle regulation by transforming growth factor- $\beta$ ".
- 2000 Apoptosis: From Molecular Mechanisms to Therapeutic Applications. Helsinki Biomedical Graduate School, University of Helsinki. September 4-7, 2000. "p53-mediated cell death".
- 2003 Murikka Summer School, Institute of Medical Technology, University of Tampere. Cancer, DNA instability and the Cell Cycle. August 8-10, 2003. "Comparative genomic analysis of cell arrest/death pathways induced by UV damage".
- 2004 Advanced Molecular Biology, Helsinki Biomedical Graduate School, University of Helsinki. May 3-6, 2004. "The proteasome-ubiquitin system".
- 2005 Biocentrum Helsinki Summer School. "p53 and DNA damage responses".
- 2006 Biocentrum Helsinki Summer School. "p53 and DNA damage responses".
- 2007 GSBM Course on Cancer Biology. December 11, 2007. Cellular DNA damage response and Cancer.

#### Teaching: Organization of graduate student courses

- 1995 Practical training course in Essentials of Gene Technology, University of Helsinki, Finland
- 2002 Advanced Course on Molecular Biology of Cancer, University of Helsinki, Finland
- 2004 Applications of flow cytometry, University of Helsinki, Finland
- 2010 Genomic Instability in Human Disease, CMM ME:810.716, Johns Hopkins University

**Mentoring**Mentoring: Supervision of Ph.D. theses

<u>Name</u>	<u>Dates</u>	<u>Degree</u>	<u>Present Position</u>
Kimmo Pitkänen	1991-99	Ph.D.	Senior Adviser, Ministry of Social Affairs and Health
Tarja Mälkönen	1993-99	MD.,Ph.D.	(Accepted with distinction) Resident, Helsinki and Uusimaa District Hospital, Helsinki, Finland
Laura Kivinen	1993-99	MD.,Ph.D.	Chief Resident, Helsinki and Uusimaa District Hospital, Espoo, Finland
Minna Taipale	1993-99	Ph.D.	Academy Fellow, Genome Biology Program, University of Helsinki
Fan Zhang	2000-03	Ph.D.	Post-doctoral fellow, University of British Columbia, Canada
Leena Latonen	1998-03	Ph.D.	Post-doctoral fellow, University of Helsinki
Sari Tojkander	2000-07	Ph.D.	(Accepted with distinction) Post-doctoral fellow, University of Helsinki
Taija Kiviharju-af Hällström	2003-07	Ph.D.	Post-doctoral fellow, University of Helsinki

Mentoring: Post-doctoral

<u>Name</u>	<u>Dates</u>	<u>Degree</u>	<u>Present Position</u>
Stina Roth	2000-02	Ph.D.	Research Liaison Officer, University of Helsinki
Jiri Buzek	1999-01	Ph.D.	
Massimiliano Gentile	2002-03	Ph.D.	Bioinformatics specialist, CSC
Runar Ra	2003-05	Ph.D.	Senior postdoctoral fellow, University of Helsinki
Arja Band	2003-present	Ph.D.	Senior postdoctoral fellow, University of Helsinki

Mentoring: pre-doctoral

<u>Name</u>	<u>Dates</u>	<u>Degree</u>	<u>Present Position</u>
Mia Björklund	2000-present	M.Sc.	Graduate student, Helsinki Graduate School in Biotechnology and Molecular Biology
Karita Peltonen	2001-present	M.Sc.	Graduate student, Helsinki Graduate School in Biotechnology and Molecular Biology
Päivi Järvinen	2001-present	M.Sc.	Graduate student, Helsinki Graduate School in Biotechnology and Molecular Biology
Sari Jäämaa	2001-present	M.D.	Graduate student, Helsinki Biomedical Graduate School
Henna Moore	2005-present	M.Sc.	Graduate student, Helsinki Biomedical Graduate School
Ville Rantanen	2007-present	M.Sc.Tech.	Graduate student

Mentoring: thesis committees (member)

<u>Name</u>	<u>Dates</u>	<u>Degree</u>	<u>University</u>
Tiina Santonen	1995-99	Ph.D.	University of Turku
Juha Saharinen	1997-99	Ph.D.	University of Helsinki

Anneli Hotti	1997-00	Ph.D.	University of Helsinki
Anne West	1998-00	Ph.D.	University of Turku
Lila Pirkkala	1998-00	Ph.D.	University of Turku
Arno Pihlak	1998-00	Ph.D.	University of Helsinki
Marika Kärkkäinen	1998-01	Ph.D.	University of Helsinki
Päivi Joki-Korpela	1998-01	Ph.D.	University of Turku
Miina Weckroth	1998-02	M.D.,Ph.D.	University of Helsinki
Tea Vallenius	1999-03	M.D.,Ph.D.	University of Helsinki
Marika Häkli	2000-05	Ph.D.	University of Helsinki
Annika Järviluoma	2004-07	Ph.D.	University of Helsinki
Maria Wirzenius	2004-07	Ph.D.	University of Helsinki
Taru Muranen	2004-07	Ph.D.	University of Helsinki
Helka Parviainen	2004-present	M.D.	University of Helsinki
Mira Heinonen	2005-present	M.Sc.	University of Helsinki
Camilla Norrmén	2005-08	M.Sc.	University of Helsinki
Marilin Sulg	2009-	M.Sc.	University of Helsinki
Yuxi Gu	2010-	M.Sc.	University of Helsinki

#### Pre-examiner of doctoral dissertations

<u>Name</u>	<u>Date</u>	<u>Degree</u>	<u>Field of study/University</u>
Päivi Miettinen	1993	M.D.,Ph.D.	developmental biology, University of Helsinki
Anna-Maija Partanen	1993	D.Ds.,Ph.D.	developmental biology, University of Helsinki
Sirpa Leppä	1994	M.D.,Ph.D.	cell and molecular biology, University of Turku
Tapio Kesti	1994	Ph.D.	molecular biology, University of Oulu
Katri Pajusola	1995	Ph.D.	molecular cancer biology, University of Helsinki
Anne Vaahtokari	1996	Ph.D.	developmental biology, University of Helsinki
Mika Rämetsä	1998	M.D.,Ph.D.	toxicology/ cell biology, University of Oulu
Hesham Attalla	1998	M.D.,Ph.D.	cell biology/ endocrinology, University of Helsinki
Maarit Bärlund	1999	M.D.,Ph.D.	cancer genetics, University of Tampere
Lila Pirkkala	2000	Ph.D.	cell/ molecular biology, University of Turku
Anneli Hotti	2000	Ph.D.	cell/ molecular biology, University of Helsinki
Niina Reunanen	2000	M.D.,Ph.D.	cell/ molecular biology, University of Turku
Päivi Joki-Korpela	2001	M.D.,Ph.D.	virology, University of Turku
Minna Mäkinen	2001	Ph.D.	biochemistry/molecular biology, University of Oulu
Lea Pylkkänen	2002	Ph.D.	genetics and toxicology, University of Joensuu
Pekka Taiminen	2004	M.D.,Ph.D.	cell/molecular biology, University of Turku
Pia Nyberg	2005	Ph.D.	cell/molecular biology, University of Oulu
Teija Aho	2005	Ph.D.	cell/molecular biology, University of Turku
Katri Pylkkäs	2007	Ph.D.	cancer genetics, University of Oulu

#### Official examiner of doctoral dissertations (Opponent)

<u>Name</u>	<u>Date</u>	<u>Degree</u>	<u>Field of study/University</u>
Soheil Naderi	1999	Ph.D.	cell/molecular biology, University of Oslo, Norway
Jonas Fuxe	2001	Ph.D.	cell/molecular biology, Karolinska Institute, Sweden
Song-Ping Li	2003	Ph.D.	cell/molecular biology, University of Turku, Finland

Katerina Pardali	2005	Ph.D.	cell/molecular biology, University of Uppsala, Sweden
Marie Simonsson	2007	Ph.D.	cell/molecular biology, University of Uppsala, Sweden

### Referee for docenture and academic promotion

<u>Name</u>	<u>Date</u>	<u>Degree</u>	<u>Field of study/University</u>
Tomi Mäkelä	1996	M.D., Ph.D.	cell/molecular biology, University of Helsinki
Marianne Tiainen	2003	Ph.D.	cell/molecular biology, University of Helsinki
Nina Nupponen	2006	Ph.D.	cell/molecular biology, University of Helsinki

### Educational Administrative Activities

1994-00	Member, Helsinki Graduate School in Biotechnology Planning and Examination Board
2003,06	Ad Hoc Reviewer, Helsinki Biomedical Graduate School
2007	Member, Doctoral Program Steering Committee Karolinska Institute-University of Helsinki

### Graduate Program Member

1999-	Helsinki Biomedical Graduate School, University of Helsinki
2008-	Member, Graduate Program in Cellular and Molecular Medicine, Johns Hopkins University
2009-	Member, Graduate Program in Pathobiology, Johns Hopkins University

### **Educational publications**

#### *Editorials*

1. Laiho, M. Solusyklin jarrut - uusia kasvunrajoitegeenejä? Duodecim 110: 12-14, 1994. (Cellular brakes - novel tumor suppressor genes?)
2. Latonen, L. and Laiho, M. Kemian Nobelin palkinto proteiinien tuhoamisreitin selvittäjille. Duodecim 120: 2868-2871, 2004. (Nobel Prize in Chemistry to discoverers of the protein destruction pathway)
3. Laiho, M. and Saksela E. Perimän vauriot, vanheneminen ja syöpä – erottamaton triadi. (DNA damage, senescence and cancer – an uncoupled triad). Duodecim 123: 1535-1536, 2007.
4. Syrjäkari, H. and Laiho, M. Välkettä syvyyksistä – kemian Nobelin palkinto vihreän fluoresoivan proteiinin keksijöille. Duodecim 124:2599-601, 2008. (Nobel Prize in Chemistry to the discovery of green fluorescent protein)
5. Laiho, M. Syövän tutkimus Suomessa. (Cancer research in Finland). Duodecim 125: 5-6, 2009.

#### *Book chapters, monographs*

1. Laiho, M. Transforming growth factor- $\beta$  in the regulation of extracellular proteolysis of cultured cells. University of Helsinki, Helsinki. ISBN 951-99925-6-1 71 pages, 1988.
2. Massagué, J., Pandiella, A., and Laiho, M. Growth stimulation by cell to cell contact and growth suppression: Two aspects of the biology of transforming growth factors. In: Cell to Cell Interaction, Karger, Basel, Eds. Burger, M.M., Sordat, B., and Zinkernagel, R.M., pp. 122-142, 1990.
3. Massagué, J., Heino, J., and Laiho, M. Mechanisms of TGF- $\beta$  action. In: Clinical applications of TGF- $\beta$ . Wiley, Chichester, CIBA Foundation Symposium 157, pp. 51-65, 1990.  
*Citations:25*
4. Massagué, J., Cheifetz, S., Laiho, M., Ralph, D. A., Weis, F. M. B., and Zentella, A. Transforming growth factor- $\beta$ . In: Tumour suppressor genes, the cell cycle and cancer. Ed. A. Levine, Cancer Surveys, vol 12, Imperial Cancer Research Fund, pp. 81-103, 1992.  
*Citations:259*
5. Laiho, M. Aberrations of DNA damage response and checkpoints in cancer. In: Apoptosis, Cell Signaling and Human Diseases: Molecular Mechanisms. Ed R. Srivastava, Humana Press, 119-136, 2006.
6. Band A. and Laiho, M. Proteasome in the Control of TGF- $\beta$  Signaling During Development and Cancer. In: Transforming growth factor-beta in cancer therapy, Ed. S. Jakowlew, Humana Press, pp. 243-257, 2008.

### *Books*

1. Laiho, M., Lappalainen, M., and Saxén, L. Molecular biology and biotechnology research in Finland. ISBN 951-715-268-X, 241 pages, 1996.
2. DeWeese, T.L. and Laiho, M. (Editors) Molecular Determinants of Radiation Response. Springer, New York, NY. 2010.

### **Editorial Activities**

*Annals of Medicine*, Editorial Board 2002-2007  
*British Journal of Cancer*, Ad Hoc Reviewer  
*Cancer Research*, Ad Hoc Reviewer  
*Carcinogenesis*, Ad Hoc Reviewer  
*Cell Death Differentiation*, Ad Hoc Reviewer  
*Clinical Cancer Research*, Ad Hoc Reviewer  
*Duodecim*, Ad Hoc Reviewer  
*Endocrine-Related Cancer*, Ad Hoc Reviewer  
*Experimental Cell Research*, Ad Hoc Reviewer  
*FEBS Letters*, Ad Hoc Reviewer  
*International Journal of Cancer*, Ad Hoc Reviewer  
*International Journal of Radiation Biology*, Ad Hoc Reviewer  
*Journal of Cell Biology*, Ad Hoc Reviewer  
*Journal of Cell Science*, Ad Hoc Reviewer  
*Journal of Clinical Investigation*, Ad Hoc Reviewer

*Journal of Endocrinology*, Ad Hoc Reviewer  
*Molecular and Cellular Biology*, Ad Hoc Reviewer  
*Nature Reviews in Cancer*, Ad Hoc Reviewer  
*Nature*, Ad Hoc Reviewer  
*Nucleic Acids Research*, Ad Hoc Reviewer  
*Oncogene*, Ad Hoc Reviewer  
*Prostate*, Ad Hoc Reviewer

### ***Clinical activities***

#### **Certification**

1993 Licensed physician, National Board of Medicolegal Affairs, Finland and Europe

#### **Service responsibilities**

2007 Committee member, Cardiovascular and Metabolic Pharmacology Selection Committee

### ***Organizational activities***

#### **Departmental/Program Administrative Appointments**

1993-95 Member, Governing Board, Department of Virology, University of Helsinki

2006-07 Director, Molecular Cancer Biology Program, University of Helsinki

2007 Member, Governing Board, Haartman Institute, University of Helsinki

#### **Faculty/University Administrative Appointments**

1993-00 Secretary, Biocentrum Helsinki Governing Board, University of Helsinki

2001 Member, Meilahti Campus Planning Working Group, University of Helsinki

2003 Member and Scientific Secretary, Acting Research Council, Faculty of Medicine, University of Helsinki

2004 Scientific Secretary, Research Council, Faculty of Medicine, University of Helsinki

2005-07 Vice-Chair, Medicine Fund, Administrative Committee, University of Helsinki

2007 Member, Research Program Governing Board, University of Helsinki

2007 Member, Governing Board, Biocentrum Helsinki, University of Helsinki

2007 Member, University of Helsinki Colloquium

#### **Conference Organizer**

1997 Cell Proliferation and Differentiation, University of Helsinki, Finland. September 6-8, 1997.

- 2000 Molecular and Cellular Targets in Cancer, University of Helsinki, Finland. September 1-2, 2000.
- 2002 Molecular Genesis of Cancer, Sigrid Jusélius Foundation Symposium, Espoo, Finland. June 6-9, 2002.
- 2004 6<sup>th</sup> NorFa p53 and Cell Cycle Workshop, Svartå, Finland. June 11-13, 2004.
- 2004 Molecular Mechanisms of Cancer, Biomedicum Helsinki, University of Helsinki, Finland. September 3, 2004.
- 2004 Imaging Technologies of Live Cells and Animals, Biomedicum Helsinki, University of Helsinki, Finland. November 1-2, 2004.
- 2006 Advanced Technologies in Biological Imaging, Biomedicum Helsinki, University of Helsinki, Finland. October 26-31, 2006.
- 2007 Translating the Cancer Genome, Biomedicum Helsinki, University of Helsinki, Finland. August 30-31, 2007.
- 2009 DNA Damage Control – from Cancer to Therapeutics, Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University, Baltimore, MD. May 8, 2009.
- 2010 Radiation Oncology and Molecular Radiation Sciences Scientific Retreat, Johns Hopkins University, Baltimore, MD. September 18, 2010.

### **Advisory Committees, Review Groups**

- 1995-97 Secretary, MRC Steering Committee for Biotechnology and Molecular Biology, Academy of Finland
- 1998-present Ad Hoc reviewer, Medical Research Council, Academy of Finland
- 2002-07 Member, Advisory Expert Group, National Agency for Medicines, Finland
- 2004 Ad Hoc reviewer, Austrian Science Fund, Austria
- 2004 Ad Hoc reviewer, Danish Cancer Society, Denmark
- 2004 Health Research Council of New Zealand
- 2004-06 Ad Hoc reviewer, Wellcome Trust, London, UK
- 2005 Scientific Secretary, Evaluation of Technomedicum, University of Helsinki
- 2006 Ad Hoc reviewer, Norwegian Research Council, Norway
- 2006 Ad Hoc reviewer, Medical Research Council, UK
- 2006 Ad Hoc reviewer, L'Oréal Foundation, Finland
- 2007 Ad Hoc reviewer, A\*Star Biomedical Research Council, Singapore
- 2008 Ad Hoc reviewer, European Research Council
- 2008 Ad Hoc reviewer, DoD, CDMRP
- 2009 Ad Hoc reviewer, ASTRO abstract review committee
- 2009 Ad Hoc reviewer, The Prostate Cancer Charity, UK
- 2010 Ad Hoc reviewer, ASTRO abstract review committee
- 2010 Ad Hoc reviewer, Dutch Cancer Society, NL

### **Recognition**

#### **Awards, honors**

- 1989 Duodecim (Finnish Medical Society Duodecim) Literary Award
- 1995 Duodecim (Finnish Medical Society Duodecim) Young Investigator Award
- 2000 Finnish Medical Foundation 40-year Celebration Award

- 2001 Institut des Sciences de la Santé Europe et Médecine Junior Prize  
2003 Helsinki City Science Prize  
2008 The Finnish Academy of Science and Letters, member

**Invited talks**

- 1986 Nordic Cancer Union: Cancer Prevention: Basic and Practical, Espoo, Finland.
- 1987 IX Meeting of the European Association for Cancer Research, Helsinki, Finland. "Transforming growth factor- $\beta$  regulates the proteolytic activity of cultured normal and malignant cells".
- 1990 BioBio Society on Signal transduction, Helsinki, Finland. October 12, 1990. "Action of the TGF- $\beta$  growth inhibitor".
- 1991 Tampere Cancer Scientists, Finnish Cancer Institute and Finnish Society for Pathology, Microbiology and Virology on Molecular mechanisms of malignant growth, Tampere, Finland. May 2-4, 1991. "Receptors and signals of TGF- $\beta$ ".
- 1991 Biochemical Society in Oulu, Oulu, Finland. May 29, 1991. "TGF- $\beta$  receptors and growth regulatory mechanisms".
- 1992 Finnish Cancer Organizations on Gynecological Malignomas, Helsinki, Finland. February 6-7, 1992. "Growth factors and Tumor suppressor genes".
- 1992 ISD on Cellular Programmes for Growth, Differentiation, and Neoplasia, Helsinki, Finland. July 19-23, 1992. "Expression human RB in mouse fibroblasts: regulation by mouse cell factors and effects on cell growth".
- 1998 Biocentrum Helsinki Summer Retreat, Haikko Manor, Finland. June 1-2, 1998. "Bypass of cell cycle breaks".
- 1998 Lung Cancer Symposium, Saariselkä, Finland. American College of Chest Physicians. December 3-5, 1998. "p53 mechanisms and cell cycle checkpoints in lung cancer".
- 1999 Nordic p53 Workshop, NorFA, Otepää, Estonia. June 11-13, 1999. "p53 in the control of cellular UV response".
- 2000 Second p53/Cell Cycle Workshop, NorFA, Lejondals Slott, Sweden. June 9-11, 2000. "Regulation of cell cycle progression".
- 2001 1<sup>st</sup> International MDM2 Workshop, Dundee, Scotland. September 15-18, 2001. "Inhibition of the proteasome causes MDM2 localization to nucleoli".
- 2001 32<sup>nd</sup> Nordic Haematological Spring Meeting, Vaasa, Finland. May 9-12, 2001. "Cell cycle control and tumor suppressors in hematological malignancies".

- 2003 Biocentrum Helsinki Annual Day, Helsinki, Finland. November 28, 2003. "DNA damage induced cell arrest/death responses".
- 2004 First IEO-IFOM Meeting on Cancer, Milan, Italy. March 11-13, 2004. "NPM interacts with HDM2 and protects tumor suppressor protein p53 from HDM2-mediated degradation".
- 2004 Detection and Consequences of p53 Mutations, Kuopio, Finland. July 16-17, 2004. "DNA damage invoked p53 pathways".
- 2004 12<sup>th</sup> International p53 Workshop, Dunedin, New Zealand. November 6-10, 2004. "Stress induced changes in p53 interactions".
- 2005 German Cancer Research Center, Heidelberg, Germany. December 6, 2005. "p53 and the nucleolar stress response".
- 2005 Finnish Cancer Organisation XXXIII Symposium, Tuusula, Finland. February 10-11, 2005. "Molecular changes in cancer".
- 2005 Ludwig Institute for Cancer Research, Uppsala, Sweden. September 26, 2005. Biomedical Center Seminar "p53 and the nucleolar stress response".
- 2005 New Frontiers in Cancer Research and Therapy, Cancer Center Karolinska, Karolinska Institute, Sweden. March 10-11, 2005. "p53 and the nucleolar stress response".
- 2005 Cellular responses to DNA damage, Benzon Symposium, Copenhagen, Denmark. August 22-25, 2005. "NPM and PML interact in DNA damaged cells".
- 2006 4<sup>th</sup> EADV Spring Symposium, Saariselkä, Finland. February 9-12, 2006. "Pathways to melanoma and the DNA damage response".
- 2006 7<sup>th</sup> Bergen International Cancer Conference, Bergen, Norway. May 12-13, 2006. "p53, NPM and PML in DNA damage response and cancer".
- 2006 13<sup>th</sup> International p53 Workshop, New York, NY, USA. May 20-24, 2006. "Human prostate epithelia lack DNA damage-induced p53 response and checkpoint enforcement".
- 2007 National Science Week, University of Helsinki, Finland. January 12, 2007. "Barriers against cancer".
- 2007 Society of Obstetrics and Gynaecology, FinnMEDI, Tampere, Finland. March 16, 2007. "Aging and cellular senescence".
- 2007 Ludwig Institute for Cancer Research, Uppsala, Sweden. March 29, 2007. "Switching on the p53 response in human cancers".
- 2008 Third Annual Prostate Cancer Day, Baltimore, MD. February 9, 2009. "Radiation Oncology Prostate Cancer Overview".

- 2008 3<sup>rd</sup> Baltimore Area Repair Symposium, Baltimore, MD. March 27, 2008. “Aberrant DNA damage checkpoint responses of the human prostate epithelium”.
- 2008 EMBO Workshop on Nucleolus, Leeds, UK. June 23-26, 2008. “Tumor suppression and the nucleolus”.
- 2008 14<sup>th</sup> International p53 Workshop, Shanghai, China. October 31, 2008. “Identification of novel p53 pathway activating small molecule compounds”.
- 2009 Fourth Annual Prostate Cancer Day, Baltimore, MD. February 7, 2009. “Utilization of Prostate Tissue Cultures in Determination of Cellular DNA Damage Response”.
- 2009 DNA Damage Control – from Cancer to Therapeutics, Baltimore, MD. May 8, 2009. “p53 activation in cancer therapies”.
- 2009 Finnish Society for Oncology Annual Radiotherapy Symposium, Helsinki, Finland. May 14-15, 2009. “DNA damage response and new therapeutic approaches”.
- 2009 2<sup>nd</sup> GENICA/CANGENIN Genomic instability Workshop, Athens, Greece. May 16-19, 2009. “Discovery of novel topoisomerase I inhibitors through high-content screen for p53 activators”.
- 2009 Danish Cancer Society, Copenhagen, Denmark. October 30, 2009. “p53, DNA topology and cell stress responses”.

### **Research seminars**

- 1991 Laakso Hospital, Helsinki, Finland. March 8, 1991. “Oncogenes and tumor suppressor genes”.
- 1991 Finnish Red Cross, Helsinki, Finland. December 4, 1991. “Transforming growth factor- $\beta$  control of cell growth and proteolysis”.
- 1992 Department of Clinical Chemistry, Helsinki University Central Hospital. March 6, 1992. “TGF- $\beta$  growth regulatory effects”.
- 1992 Department of Biochemistry, University of Helsinki, Finland. February 14, 1992. “Transforming growth factor- $\beta$  and the retinoblastoma gene product in growth control”.
- 1995 Department of Pathology, University of Helsinki, Finland. March 14, 1995. “Tumor suppressor genes and their action”.
- 1997 Turku Immunology Center, Turku, Finland. February 5, 1997. “p53 in DNA damage control and cell cycle”.
- 1998 Department of Clinical Chemistry, Helsinki University Central Hospital. March 13, 1998. “p53 tumor suppressor protein actions in the control of DNA damage and cell cycle”.

- 2000 AIVirtanen Institute, University of Kuopio, Kuopio, Finland. March 13, 2000. "Cell cycle control by growth factors".
- 2000 Biocity Turku, Turku, Finland. November 8, 2000. "Growth factors in cell cycle control".
- 2000 Department of Pathology, University of Helsinki, Finland. November 14, 2000. "Role of p53 pathway in tumor biology".
- 2001 Department of Dermatology, Helsinki University Central Hospital, Helsinki, Finland. October 10, 2001. "Role of p53 in skin cancer".
- 2002 Institute of Medical Technology, University of Tampere, Finland. March 13, 2002. "Transcriptional control by p53".
- 2002 Developmental and Reproductive Biology Program, Biomedicum Helsinki, Finland. November 26, 2002. "UV damage induced transcriptional and cellular responses".
- 2003 Nordea Research Seminar in Biomedicine, Biomedicum Helsinki, Finland. September 23, 2003. "Genetic changes in cancer".
- 2005 Biocity Turku, Turku, Finland. February 3, 2005. "p53 and the nucleolar stress response".
- 2006 Drug Discovery and Development Center, University of Helsinki, Finland. November 7, 2006. "The p53 pathway as a therapeutic target".
- 2007 Department of Urology, Helsinki University Central Hospital, Finland. February 2, 2007. "Prostate DNA damage responses".
- 2007 Neurobiology Research Program, Biomedicum Helsinki, Finland. February 7, 2007. "DNA damage, cell senescence and cancer".
- 2007 Department of Radiation Oncology, The Johns Hopkins University School of Medicine, Baltimore, MD. April 23, 2007. "Switching on the p53 response in human cancers".
- 2007 Brady Urological Institute, The Johns Hopkins University School of Medicine, Baltimore, MD. November 20, 2007. "DNA damage responses in the prostate".
- 2008 Translational Research Conference, The Johns Hopkins University School of Medicine, Baltimore, MD. December 10, 2008. "p53 and DNA topology".
- 2009 Biennial Meeting of The Johns Hopkins Medical and Surgical Association, The Johns Hopkins University School of Medicine, Baltimore, MD. June 5, 2009. "p53 Pathway in Cancer Therapy".
- 2009 ICMIC Seminar Series, The Johns Hopkins University School of Medicine, Baltimore, MD. September 9, 2009. "Visualizing cell stress responses in organelles, cells and tissues".

- 2010 Breast Cancer Research Program, SKCCC, The Johns Hopkins University School of Medicine, Baltimore, MD. January 12, 2010. “p53, DNA topology and cellular stress response”.
- 2010 IVth Quarter, SKCCC, The Johns Hopkins University School of Medicine, Baltimore, MD. April 12, 2010. “DNA damage pathways in cancer”.
- 2010 Department of Radiation Oncology, Grand Rounds, The Johns Hopkins University School of Medicine, Baltimore, MD. May 17, 2010. “Discovery of small-molecule compounds”.
- 2010 Chemical Therapeutics Research Program, SKCCC, The Johns Hopkins University School of Medicine, Baltimore, MD. May 17, 2010. “Discovery and mechanisms of novel small-molecule compounds”.

### ***Other Professional Accomplishments***

#### **Declared qualified for the following posts**

- 1995 Professor of Cell Biology, University of Jyväskylä (ranked 2<sup>nd</sup>)
- 1998 Professor in Cancer Biology, University of Helsinki
- 2002 Research Professor in Cancer Biology, Finnish Cancer Institute (ranked 2<sup>nd</sup>)
- 2002 Professor in Biochemistry and Molecular Biology, University of Helsinki
- 2003 Professor in Molecular Biology, University of Helsinki (ranked 3<sup>rd</sup>)
- 2003 Professor in Cell and Tissue Biology, University of Helsinki
- 2004 Professor in Cell Biology, University of Jyväskylä (ranked 1<sup>st</sup>)
- 2006 Professor in Molecular Cancer Medicine, University of Helsinki
- 2007 K. Albin Johansson Professor in Cancer Biology, Finland (ranked 1<sup>st</sup>)