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**Name:** Olli Kallioniemi  
<https://orcid.org/0000-0002-3231-0332>  
 Researcher ID: H-5111-2011  
<https://www.scilifelab.se/researchers/olli-kallioniemi/>

**Education:** 1985 M.D., University of Tampere, Finland  
 1988 Ph.D., University of Tampere, Finland

**Present position:** - Director of the Science for Life Laboratory (2015-) and Professor of Molecular Precision Medicine at the Karolinska Institutet, Stockholm, Sweden

**Adjunct position:** - Research Director, Institute for Molecular Medicine Finland (2015-2020) (FIMM), Nordic-EMBL Partnership, University of Helsinki (15%)

**Previous positions:**

2007-2015	Professor and founding director of the Institute for Molecular Medicine Finland (FIMM), Nordic-EMBL Partnership, University of Helsinki
2004-2007	Professor of the Academy of Finland
2002-2011	Professor and Founding Director, Medical Biotechnology, VTT Technical Research Centre of Finland/ University of Turku, Finland (2008-2011 with only 5% effort)
1995-2002	Section Head and Founding Faculty, National Human Genome Research Institute, National Institutes of Health, Bethesda, MD, USA (tenured at the NIH in 2000)
1995	Professor, Institute of Medical Technology, University of Tampere
1993-1995	Assoc. Chief Physician, Department of Clinical Chemistry, Tampere University Central Hospital and Principal Investigator, Academy of Finland
1990-1992	Postdoctoral Fellow, Dept. Laboratory Medicine, Univ. California, San Francisco, CA (first year at Lawrence Livermore National Laboratory)
1985-1990	Resident and Research Scientist, Dept. of Clinical Chemistry, Tampere University Central Hospital, Tampere, Finland

**Certification:** 1984 Licensed physician (Finland)  
 1991 Board Certification in Clinical Chemistry (Finland)

**Additional positions and professorship nominations:**

1998	Selected as professor of Cancer Biology at the Univ. Helsinki
2001	Selected as professor of Clinical Chemistry at the Univ. Helsinki
2001-2007	Part-time senior investigator (5-30%) , Translational Genomics Res. Institute (TGEN), Phoenix, AZ.
2010-2015	Director of the European Biomarkers platform in EATRIS (ESFRI-infrastructure)
2014-2017	Selected as chair and professor of Clinical Chemistry at the Univ. Helsinki
2017-	Elected member of The Nobel Assembly

**Short summary of leadership experience and past career steps:**

Director of the Science for Life Laboratory (2015-ongoing): Development of SciLifeLab as a leading life science infrastructure and a research hub in Sweden ([www.scilifelab.se](http://www.scilifelab.se)). SciLifeLab operates 40 national infrastructure facilities in collaboration with its host Universities, KI, KTH, UU and SU with a community of 1200 researchers.

Founding Director of the Institute for Molecular Medicine of Finland (2007-2015): Directing the launch and build-up of FIMM as a new international EMBL-associated institute ([www.fimm.fi](http://www.fimm.fi)) Today FIMM has a staff of 210 people, 20M€ budget, >70% external funding, and 50% of the research staff is international. Significant part of the funding comes from international industrial collaborations.

Founding Director of the Medical Biotechnology Unit at VTT in Turku (2002-2007) and director of an Academy of Finland Center of Excellence (2006-2011): Launching a new unit for the VTT Technical Research Center of Finland (<http://www.vttresearch.com>) in Turku in collaboration with the University of Turku. The unit grew from 1 to 75 people in 5 years.

Head of the Translational Cancer Genomics Section, Cancer Genetics Branch, National Human Genome Research Institute (NHGRI) at the NIH in Maryland (1995-2002). Served as a founding faculty of the newly-established NHGRI (<http://www.genome.gov>) on the NIH Bethesda campus, and was tenured at the NIH in 2000.

**Supervisor of dissertations (27 times):**

Tapio Visakorpi (1992, now professor), Anne Kallioniemi (1994, now professor), Eija Hyytinen (1996), Minna Tanner (1996, now oncologist), Pasi Koivisto (1997, nominated to a professor), Ritva Karhu (1998, laboratory director), Maarit Barlund (2000, now oncologist), Mika Matikainen (2001, now Chief of Urology in Helsinki), Kirsi Syrjäkoski (2004), Annika Rökman (2004), Nina Mononen (2005), Farahnaz Forozan (2000), Pekka Tiikkainen (2010), Sami Kilpinen (2011, now CEO), Juha Rantala (2011, previously ass. prof. in Oregon, now CEO), Santosh Gupta (2011), Paula Vainio (now oncologist) (2011), Kirsi Ketola (2011), Sirkku Pollari (2012), Henrik Edgren (2012, now CSO), Mari Björkman (2013), John-Patrick Mpindi (2016), Anna Aakula (2016), Samuli Eldfors (2018), Khalid Saeed (2018), Poojitha Ojames (2018), Susanne Hultsch (Oct 2018), 3 PhD students under supervision

**Postdoctoral research advisor (27 times):**

Tapio Visakorpi (now professor), Juha Kononen (now oncologist), Meelis Kolmer, Lukas Bubendorf (now professor), Johanna Schleutker (now professor), Pasi Koivisto (nominated to a professor), Tarja Ikonen (now scientist in industry), Spyro Mousses (now professor/CEO), Outi Monni (now head of laboratory), Maarit Barlund (now oncologist), Pia Huusko (now oncologist), Urs Wagner, Galen Hostetter (now Principal investigator), Mark Basik (now associate professor), Maija Wolf (now project leader in industry), Kristiina Iljin (now team leader), Riikka Kinos, Saija Haapa-Paananen (now senior scientist, UTU), Kirsi Ojala, Tao He, Päivi Östling (now senior scientist and co-PI, KI), Pekka Kohonen, Suvi Leivonen, Sara Kangaspeska (now research analyst, HIS), Astrid Murumägi (now senior scientist), Teijo Pellinen (now senior scientist), Maija Puhka, Brinton Seashore-Ludlow (now Forskar Assistant), Tom Erkers, Sandra Jernström

**Editorial Positions:**

Cytometry, associate editor (1993-2002), Genes Chrom Cancer, editorial board (1997-2008), Cytogenetics Cell Genetics, editor (1997-2003), Cellular Oncology, editorial board (1999-), Molecular Cancer Therapeutics / AACR (2001-present), Cancer Biology and Therapeutics (2001-present), Genomics and Proteomics (2002-present), Critical Reviews in Oncogenesis (2006-present), Molecular Oncology (2006-present)

**Institutional responsibilities**

- University of Helsinki, Medical Research Council (member, 2008-2015)
- Biocenter Finland, National research infrastructure network, board member, 2008-2015
- Biocentrum Helsinki, Univ. Helsinki bioscience infrastructure, board member, 2008-2010
- Helsinki Biomedical Graduate School (HBGS), board member, 2008-2013
- Biocenter Finland: Co-coordinator of the Drug Discovery and Chemical Biology (DDCB) initiative (2010-2014)
- University of Helsinki, infrastructure committee (member, 2014-2018)
- University of Helsinki, Scientific Council (member, 2014-2018)
- Univ. Helsinki: Rector's special committee to plan the Univ. Helsinki focus areas (2014-2015)
- SciLifeLab Management Group, National Board & Rectors' council (2015-)
- Precision Cancer Medicine Group at Karolinska Institutet, steering group (2015-)
- StratCan Strategic Research Area funding, Karolinska Institutet, steering group (2017-)
- National Molecular Medicine Partnership in Sweden between SciLifeLab and the Wallenberg Centers for Molecular Medicine in Linköping, Umeå, Gothenburg and Lund, board (2017-)

**Commissions of trust**

- Human Protein Atlas, Royal Technical University, Stockholm (SAB member, 2006-2011)
- CREATE-Health Center of Excellence, Lund (SAB member, 2007-2011)
- International Cancer Genome Sequencing Consortium (EU representative, 2007-2008)
- Oslo Cancer Biomedicine Center of Excellence (member of the SAB, 2008-2018)
- Nordic-EMBL molecular medicine partnership steering committee (2008-2015)
- WIN-consortium for personalized medicine in cancer, committee member (2009-2010)
- Bioinformatics Advisory Committee, European Bioinformatics Institute / EBI-EMBL (2009-2014)
- European Strategic Science Infrastructures (ESFRI): National coordination of European Advanced - Translational Research Infrastructure (EATRIS) Director of the European Biomarkers infrastructure platform of EATRIS (2010-2015)

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- Scientific Council of U900 bioinformatics department at Institut Curie (2010-2015)
  - Cancer Research UK grant review panel (2012)
  - Breakthrough Breast Cancer, scientific advisory board (2012-2015)
  - Cancer Research UK grant review panel (2012)
  - Breakthrough Breast Cancer, scientific advisory board (2012-2015)
  - Vetenskapsrådet, infrastructure grant review (2013)
  - Ingvar Carlsson Award Committee, Swedish Foundation for Strategic Research (2013)
  - EU Life network (<https://eu-life.eu/content/about-us>), board of directors (2012-2015)
  - Breakthrough Breast Cancer, quinquennial review (QR) panel of the Institute for Cancer Research, London (2014)
  - ERC starting grant review panel LS4 (2014-2015)
  - Editorial board positions: Cytometry, associate editor (1993-2002), Genes Chrom Cancer, editorial board (1997-2008), Cytogenetics Cell Genetics, editor (1997-2003), Cellular Oncology, editorial board (1999-), Molecular Cancer Therapeutics / AACR (2001-present), Cancer Biology and Therapeutics (2001-present), Genomics and Proteomics (2002-present), Critical Reviews in Oncogenesis (2006-present), Molecular Oncology (2006-present)
  - Knut & Alice Wallenberg Foundation, scientific consultant (2015-)
  - Chair of the site visit and 5-year evaluation of EMBL's Genome Biology Programme (2016)
  - Norwegian Center for Molecular Medicine (NCMM), Nordic-EMBL Partnership, scientific advisory board (2017-)
  - Danish Genome Centre, Scientific Advisory Board (2017-)
  - Nobel Assembly (2017-)

#### **Memberships of scientific societies**

- 2005 Member of the Finnish Academy of Science and Letters
- 2006 EMBO member (European Molecular Biology Organization)
- 2009 European Academy of Cancer Sciences, founding member
- 2017 Elected member of the Nobel Assembly

#### **Awards and Honors (2000-):**

- 2000 Tenured as senior faculty and unit leader at NIH
- 2004 Medal of the Swedish Medical Society
- 2005 Member of the Finnish Academy of Science and Letters
- 2004 Marie Curie Centre of Excellence Award, European Commission (2004-2008)
- 2004 Academy of Finland Professorship (2004-2008)
- 2006 Centre of Excellence award, Academy of Finland (2006-2011)
- 2006 Harold G. Pritzker Memorial Lecture (Mount Sinai, University of Toronto)
- 2006 EMBO member (European Molecular Biology Organization)
- 2007 AACR nomination of CGH as one of the 100 key cancer research breakthroughs of the past 100 years
- 2008 AACR Team Science Award for the development of comparative genomic hybridization
- 2009 Abbot-IFCC award for Molecular Diagnostics
- 2009 European Academy of Cancer Sciences, founding member
- 2012 Citation classic on tissue microarrays (2900 citations, Clinical Chemistry)
- 2017 Elected member of the Nobel Assembly
- 2019 Matti Äyräpää prize (main medical prize in Finland)

#### **Selected invited lectures (national/international, since 2014)**

- Center in Molecular Medicine of the Austrian Academy of Sciences, Vienna, Jan 13, 2014
- Cancer Research UK Cambridge Institute Distinguished Lecturer Series, March 20, 2014
- Personalized medicine. The Swiss Initiative in Systems Biology, Bern, March 31, 2014
- California Institute for Biomedical Research, San Diego, CA, Apr 8, 2014
- WIN Symposium on personalized cancer medicine, Paris, June 23-24, 2014
- EACR Annual meeting, Munich, July 7, 2014
- EMBO Chemical Biology Meeting, Heidelberg, Aug 20, 2014
- ELRIG meeting, Manchester, Plenary on personalized medicine, Sep 2, 2014
- Personalized medicine, Tallinn, Estonia, Sep 9, 2014

Opening of Ceitec, the Central European Institute of Technology, Brno, Sep 12, 2014  
 Center for Cancer Biology, Univ. Oslo, Farris Bad, Norway, Sep 18-19, 2014  
 Oncology Forum, Oslo, Holmenkollen, Norway, Nov 20, 2014  
 NCATS/NIH Translational Research Workshop, Bethesda, MD, Dec 9-10, 2014  
 1st Danish Symposium on Biomarkers and Personalized Medicine, Jan 13, 2015  
 SLAS (Society of Laboratory Automation and Screening) Annual meeting, Washington, DC, Feb 10, 2015  
 SciLifeLab Day, keynote lecture, Apr 29, 2015  
 EU-Life Strategy meeting, Copenhagen, May 11, 2015  
 34<sup>th</sup> Sapporo International Cancer Symposium, Sapporo, Japan, June 23-26, 2015  
 Sino-Finn Life Science Forum - From Systems Biology to Translation, Helsinki, Aug 17-18, 2015,  
 Personalized and precision health care: impact on laboratory medicine, Copenhagen, Sep 1-3, 2015  
 Past, present and future of FIMM. Nordic EMBL Partnership meeting, Aarhus, Sep 8, 2015  
 KI Cancer retreat, plenary lecture on precision cancer medicine, Djurönäset, Nacka, Sep 28-29, 2015  
 SEB/Wallenber Asia Forum, Plenary lecture, Stockholm, Sweden, May 27, 2016  
 HER2-State of the art, Plenary lecture, Karolinska University Hospital, Stockholm, Sweden, Sep 2, 2016  
 The 9th Nordic HER2 State of the Art Symposium, Marriot Courtyard, Stockholm, Sep 2, 2016  
 19th International Congress of Cytology ICC2016, Presidential guest lecture, Yokohama, Japan  
 KI Cancer retreat, plenary lecture on Personalised Cancer Medicine, Djurönäset, Nacka, Sweden, Sep 26-27, 2016  
 4th Swedish Cancer Research Meeting, Keynote speech, Gothenburg, Sweden, Nov 7-8, 2016  
 Ingvar Carlsson Award, Plenary lecture, Stockholm, Sweden, Nov 10, 2016  
 Danish Cancer Society, Plenary lecture, Copenhagen, Denmark, Nov 30, 2016  
 Cancer Core Europe Annual Meeting, German Cancer Research Center (DKFZ), Heidelberg, Germany, Jan 31, 2017  
 Nordic Precision Medicine Conference, Plenary lecture, Copenhagen, April 26, 2017  
 Danish Cancer Society, Annual Meeting, Plenary lecture on Precision Cancer Medicine, Apr 28, 2017  
 NOPHO Annual Meeting, Plenary lecture, Stockholm, Sweden, May 21, 2017  
 NelC, Plenary lecture, Umeå, Sweden, May 31, 2017  
 Sigrd Jusélius Symposium, Helsinki, Finland, Jun 14, 2017  
 Swedish Royal Academy, Lecture on Precision Medicine, Stockholm, Sweden, Jun 14, 2017  
 WIN2017 Symposium, Lecture, Paris, France, Jun 27, 2017  
 EACR Cancer Genomics, Plenary lecture, Cambridge, United Kingdom, Jun 28, 2017  
 1<sup>st</sup> Nordic Summit for Doctoral Studies, Keynote lecture, Karolinska Institutet Stockholm, Sweden, Aug 21, 2017  
 Emerging topics in biological networks and system biology, Uppsala University, Uppsala, Sweden, Oct 10, 2017  
 Summer School in translational cancer research, Plenary lecture, Albufeira, Portugal, Oct 18, 2017  
 4<sup>th</sup> RIKEN/KI/SciLifeLab joint Symposium, Kobe, Japan, Nov 16, 2017  
 Frontiers in Cancer Research and Therapy, Plenary lecture, Karolinska Institutet, Stockholm, Sweden, Mar 9, 2018  
 Keystone Symposia, Stockholm, Sweden, May 9, 2018  
 EACR Cancer Genomics, Plenary lecture, Amsterdam, Netherlands, Jul 2, 2018  
 GAP 2018, Stockholm, Sweden, May 15, 2018  
 Danish Cancer Research Days, Keynote lecture, Odense, Denmark, Aug 31, 2018  
 1<sup>st</sup> Curie Intl Course Systems Biology of Cancer, Keynote lecture, Sep 28, 2018

#### Past research grants in Finland (PI or co-PI role, active grants underlined)

1 039 163€	Academy of Finland Center of Excellence in Translational Cancer Biology (Academy of Finland, 2014-2016, n:o 12718453, personal share indicated, PI of the consortium Kari Alitalo)
<u>831 330 €</u>	Center of Excellence in Translational Cancer Biology (second 3-year period, 2017-2019)
<u>928 130€</u>	Digital Health Revolution (DHR) (2014-2016, TEKES)
<u>350 000€</u>	Digital Health Revolution (DHR) second part (2016-2018, TEKES)
310 085€	Univ. Helsinki matching funds for the AoF Center of Excellence (2014-2016)
267 765€	Genomics, bioinformatics and systems medicine to facilitate therapy of ovarian cancer, Japanese-Finnish collaboration (2014-2017, Academy of Finland, n:o 278741).
88 121€	AML Federation, collaborative grant with SAGE, Univ. Oregon, Univ. Washington, Children's hospital Phoenix (St. Baldrick's Foundation (2014-2016)

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558 556€	Translational cancer biology (Academy of Finland, 2012-2016, n:o 1259777)
446 836€	Individualized and combinatorial therapy of AML (2012-2016, Academy of Finland, n:o 259777)
270 000€	Bringing new drugs to cancer patients faster and in a personalized way (2014-2016, Sigrid Juselius Foundation)
<u>1 250 000€</u>	Personalized cancer treatments: A systems medicine strategy in AML and solid tumors, (Sigrid Juselius Foundation big grant, 2015-2021)
100 000€	Individualized cancer care (2015-2016, Finnish Cancer Society)
<u>70 000€</u>	Systems precision medicine to optimize cancer therapies: From leukemias to solid tumors. (2017, Cancer Society of Finland)
650 000€	Systems microscopy (2010-2015, EU-FP7)
776 352€	PREDECT-IMI: New Models for Preclinical Evaluation of Drug Efficacy in Cancer (2011-2016, Innovative Medicines Initiative)

**Previous infrastructure grants:**

2 400 000€	Next-generation biobanking of urological cancers (2011-2015, Tekes n:o 40294/11)
1 064 000€	Coordination of the European Infrastructure for Translational Medicine EATRIS in Finland (2015-2018, Academy of Finland, n:o 292223)
164 298€	Finnish EATRIS network (2015, Academy of Finland, n:o 283625)
456 016€	BioMedBridges: Building data bridges between biological and medical infrastructures in Europe (2012-2016, EU-FP7)
606 000€	National Drug Discovery and Chemical Biology platform (Biocenter Finland, 2014-2016, co-PI with Krister Wennerberg)

**Other selected previous grants:**

EU-FP6: Moltools, Prima, Marie-Curie Ext, RIGHT, Epitron, EU-FP7: Genica, Meta-Cancer, Enlight, Apo-sys, Proteomebinders. ESFRI: EATRIS and EU-Openscreen coordination funding to set up ESFRI Infrastructure.

Sigrid Juselius Foundation: Individual grants (50-100,000 €/year) annually since 2000

Finnish Cancer Society: Individual grants (50-100,000 €/year) annually since 2000

Academy of Finland: Center of Excellence funding (2006-2011), Academy Professorship (2006-2008)

**Innovations, technology transfer and industrial collaborations:**

- Co-inventor of gene-specific Fluorescence in situ hybridization (1991), including first paper/patent application of HER-2 FISH Test (Licensed by UCSF to Vysis-Abbott, today an FDA approved diagnostics)
- Co-inventor of widely used genomics and cancer research techniques: comparative genomic hybridization (CGH in 1992, licensed by UCSF) and tissue microarrays (in 1998, licensed by NIH).
- 21 issued US patents, 19 patent applications, plus European patents.
- Co-founder of Medisapiens Inc, a spin-off company in computational biomedicine, now 30 employees
- Innovative Medicines Initiative -project PREDECT (2011-2016) with in-kind contributions from 8 big pharma companies
- Industrial collaborations with e.g. Bayer-Schering Pharma, Hoffman La Roche, Pfizer, Astra-Zeneca, Labcyte

**Publications and citation summary (Aug 15, 2018):**

Total number of publication in PubMed: 378

Total number of publications in Web Of Science: 548

Sum of Times Cited without self-citations in Web of Science: 42,848

h-index: 102