

Curriculum Vitae

Piero Carninci

As of Mar/03rd/2021

Personal data

- Born in Trieste, Italy, 07 August, 1965
- Spoken languages: Italian and English (fluent), Japanese (good), Latin (written) and German (beginner).

Education

- July 1984, Graduation at the Scientific Lyceum G. Oberdan, Trieste
- March 1989: Doctor in Biological Science at University of Trieste, mark 106/110, with the experimental thesis "Characterization of a gene specifically expressed during the resting phase (G_0) of cell cycle". Thesis prepared at the International Center for Genetic Engineering and Biotechnology (ICGEB, UNIDO), Trieste, Italy, with Prof. C. Schneider.
- May 1990: National (Italian) Examination for the profession of Biologist, University of Ferrara, Italy.

Positions and summary of achievements

- April 1989-September 1989: researcher, laboratory of Prof. C. Schneider at ICGEB, Trieste, Italy, where he developed a discontinuous buffer system to increase speed and resolution in sequencing electrophoresis and methods for the rapid purification of Genomic DNA from whole blood and yeast.
- October 1989-September 1990: compulsory Italian army duty as a "health assistant". Concurrently, part-time consultant of the biotechnology company, TALENT srl, Trieste, Italy.
- October 1990-March 1995: researcher at TALENT srl. He has developed DNA extraction and DNA sequencing methods and 7 DNA extraction kits for quick and simplified extraction of high-quality DNA from several substrates. He has developed the chemical reactions for an automated DNA extraction instrument. In collaboration with Prof. C. Schneider at the National Laboratory of Italian Consortium for Biotechnology he has also developed a method for capillary slab gel DNA sequencing.
- April 1995-September 1995: researcher at the Genome Science Laboratory, RIKEN Tsukuba Institute, Japan
- October 1995-March 1997: STA Fellow at the Genome Science Laboratory, RIKEN Tsukuba Institute.
- April 1997-September 2001: tenured Scientist at the Genome Science Laboratory, RIKEN Tsukuba Institute.
- October 2001- March 2003: tenured Scientist at the Genome Science Laboratory, RIKEN-Wako Main Campus
- April 2003- March 2008: tenured Senior Scientists" at the Genome Science Laboratory, RIKEN, Wako Main Campus; adjunct appointment as Senior Scientist at RIKEN Genomic Sciences Center, RIKEN Yokohama Institute.

During the activity at RIKEN he has established a comprehensive set of full-length cDNA cloning technologies and widely applied them to construct the mouse full-length cDNA encyclopedia project and other full-length cDNA collections. He has actively lead the Fantom (Functional Annotation of the Mouse) activity, involving functional annotation of cDNA and the discovery of the widespread existence of non-coding RNAs in mammals. He has also established the CAGE technology and other tagging methods to analyze the transcriptome and transcriptional networks, and produced a comprehensive map of mammalian promoters. Altogether, these technologies have originated more than 4 millions of entries in GenBank and more than 235,000 protein sequences.

- April 2006-March 2015: Adjunct Professor at Department of Molecular Biochemistry, Gunma University.
- April 2008- March 2013: Leader of the Functional Genomics Technology Team, Leader of the Omics Resource Development Unit and Deputy Project Director of the LSA Technology Development Group and the Omics Science Center, RIKEN Yokohama Institute. During these 5 years at OSC he has developed the nanoCAGE technology and applied to purified cell populations. He has also lead part of the FANTOM project and provided key contribution to the ENCODE consortium.
- September 2011-: Cooperative Researcher, Tokyo Metropolitan Institute of Gerontology
- December 2011-May2020: Co-founder and CEO of TransSINE Technologies Ltd., a RIKEN Venture, to develop the SINEUPs non-coding RNA to enhance translation of proteins.
- April 2012- March 2013: Senior Research Scientist at RIKEN
- April 2013-Mar 2018: Deputy Director of the Center for Life Science Technologies, Director of the Division of Genomics Technologies, Director of the Life Science Accelerator Technologies Development Group, Leader of the Transcriptome Research Team, RIKEN
- April 2013- : Chief Scientist.
- April 2013- : Visiting Professor, Graduate School of Medical Life Science, Yokohama City University
- Apr. 2014 - Apr. 2015: Leader of Sequencer Technology Team, RIKEN
- December 2014- Mar 2018: Leader of Genome Information Analysis Team, RIKEN
- April 2015-Mar 2017: Adjunct Professor at Gunma University Graduate School of Medicine.
- January 2016-: Foreign Adjunct Professor in Genome Analysis at Karolinska Institutet, Department of Bioscience and Nutrition
- August 2016-March 2021: MICE Ambassador
- July 2017-July 2020: Visiting Professor at Faculdade de Medicina Universidade de Sao Paulo, Brazil
- Apr 2018- : Deputy Director of the Center for Integrative Medical Sciences, Leader of the Laboratory for Transcriptome Technology, and Leader of the Laboratory for Single Cell Technologies, RIKEN

- October – November 2018: Leader of the Laboratory for RIKEN-IFOM Joint Laboratory for Cancer Genomics, RIKEN
- July 2019- June 2020 Scientific Advisor, Consultant, Fondazione Human Technopole
- May 2020- Director, Human Cell Atlas, Inc
- July 2020- Head of Research Center of Genomics Research Centre, Fondazione Human Technopole

Awards

- First prize Biotec Award 2001, for Italian scientists under 40 year old involved in biotechnology, for the “Construction of the full-length cDNA encyclopedia”. Award ceremony on October 29, 2001 in Milan, Italy.
- The Yamazaki-Teiichi Prize 2007 (<http://www.mst.or.jp/prize/2007/jushou.html>) for the development of the cap-trapper technology and its use for the annotation of the transcriptional output of the genome
- RIKEN OSC Award 2009 for the “Development of the Cap Analysis of Gene Expression (CAGE) Method”
- RIKEN OSC Award 2010 for the “Successful Completion of FANTOM4 project”
- 2012: NISTEP Researchers Award from the National Institute of Science and Technology Policy (NISTEP), an institute of MEXT, for the "Comprehensive transcriptome analysis of human ENCODE cells"
- HUGO Chen Award of Excellence 2014
- 2016 Scopus Eureka Prize for Excellence in International Scientific Collaboration (FANTOM5)
- Shimadzu Prize 2016
- 2018 The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, Prizes for Science and Technology, Research Category

Memberships and Chairs

- Member of the Molecular Biology Society of Japan (1995-)
- Member of the International Committee on Standardized Genetic Nomenclature for Mice (2003-2014)
- Associate Editor of the journal “Genomics” (September 2006-2014)
- Scientific Advisory Board of DNAform (January 2009-2013)
- Editorial Board of Nature Communications (2010-2016)
- Editorial Board of BioEssays (2010-2019)
- Member of IMGC Secretariat(2010-2013)
- Member of RIKEN Science Council (2011-)
- Member of the Genetics Society of Japan (2011-)
- Advisory Panel (AP) Member of NPG’s Scientific Data (2013-2018)
- Japan Association for Omics-based Medicine (2013-2018)
- HUGO Council Member (Jan 2015 - Dec 2017)

- HUGO Membership and HUGO Journal Editorial Board (June 2013-)
- Program Committee of The 11th International Workshop on Advanced Genomics (11AGW, February 2014- May 2015)
- Editorial Board of Cell Systems (2015-2019)
- Scientific Advisory Board of International Genome Sample Resource IGSR (2015-2019)
- Organizing committee of The 12th International Workshop on Advanced Genomics (12AGW, April 2016- May 2017)
- The RNA Society of Japan (2016-)
- Genome technology 164 committee (2016-)
- HCA (Human Cell Atlas) Organizing Committee (Oct. 2016-)
- Human Genome Meeting (HGM2018, HUGO) International Program committee (2017-2018)
- EMBO Associate Member (2017-)
- HCA (Human Cell Atlas) Executive Office (Oct. 2017-)
- Meeting planning committee of the HCA General Meeting - Rehovot, Israel 18-19 October 2017
- Meeting Planning committee and Program committee of the HCA General Meeting - Hinxton, UK, 08-09 March 2018
- HCA (Human Cell Atlas) Standards and Technology Working Group (STWG), (May 2018-)
- HCA (Human Cell Atlas) Joint Coordinating committee (JCC), (July 2018-)
- HCA (Human Cell Atlas) Publication committee, (Aug 2018-)
- Meeting Program committee of the HCA General Meeting – Broad, US, 1-2 November 2018
- EASI-Genomics Scientific Advisory Board (SAB), (Jan 2019-)
- Steering committee member for Genome technology 164 committee (2018-)
- Organizing committee of The 12th International Workshop on Advanced Genomics (13AGW, April 2018- May 2019)
- Human Genome Meeting (HGM2019, HUGO) International Program Committee (IPC) (2018-2019)
- Review Editor of the Editorial Board of Human Genomics, a specialty of Frontiers in Genetics (2018-)
- International Science & Technology Advisory board of Life Time Consortium (2018-)
- Meeting Planning committee and Program committee of the HCA General Meeting – Tokyo Japan 23-24 May 2019
- Meeting Planning committee and Program committee of the HCA General Meeting –Barcelona 10-11 October 2019
- Human Genome meeting (HGM2020, HUGO) International program committee (IPC) (2019-2020)

Meetings organized

- Co-organizer (together with Bento Soares) of the “Full-length cDNA Cloning: A Workshop on Problems and Solutions”, The Banbury Center, Cold Spring Harbor Laboratory, NY, USA, March 23-25, 1998.
- Organizing committee of the International mouse genome conference (IMGC) in 2000 in Narita, Japan.
- Organizing committee of the “Systems Neurobiology” meeting at the International School for Advanced Studies (SISSA), Trieste, Italy, December 18-19, 2006.
- Scientific coordinator of the collaborative Fantom 3 “Functional Annotation of the mouse” project and key contribution for other Fantom meetings: annotation organizer (Fantom 1), team organizer (Fantom 2) and core author (Fantom 4)
- Organizing “BRAINTRAIN (European committion) annual meeting” at RIKEN Yokohama, Japan. September 19-20, 2013
- Organizing “MODHEP annual meeting & training session”, at RIKEN, Yokohama, Japan. January 19-23, 2015.
- Chair of organizing committee of the International mouse genome conference (IMGC), Yokohama, Japan. November 8-11, 2015
- Organizing “Human Cell Atlas (Human Cell Atlas) Asia”. Okinawa Japan Nov 30-Dec 1 2017
- Organizing “Human Genome Meeting (HUGO)”, Yokohama Japan. March 13-15, 2018.
- Organizing “EMBO Workshop, Single cell biology”, Tokyo Japan May 20-22 2019
- Organizing “HCA (Human Cell Atlas) General meeting, Tokyo Japan May 23-24 2019
- Organizing “Karolinska Institutet - RIKEN Joint International Doctoral Course”, Stockholm Sweden/Yokohama Japan, 2013- (annual)

Summary of presentations and publications

- Author of over 400 original papers and reviews, (over 92,000 citations in Google scholar, H-index=110)
- Inventor 56 patents and applications
- Author of more than 500 posters and presentations

Students supervised

- 25 students

Granted postdoctoral fellows

- Previously supervised 9 JSPS fellows (2006-2020)

Funding

Current research support:

- RIKEN Institutional Budget for the Laboratory for Transcriptome Technology, Integrative Medical Sciences, FY2020, JPY 56,000,000 (USD ~560,000)

- RIKEN Institutional Budget for the Laboratory for Single cell Technologies, Integrative Medical Sciences, FY2020, JPY 1,800,000 (USD~18,000)
- RIKEN Ageing Project, FY2020, JPY 46,500,000 (USD ~465,000)
- Platform Project for Supporting Drug Discovery and Life Science Research, “Infrastructure development and support for the drug discovery by use of large-scale functional genomics”, main applicant, FY2017-2021, JPY100,000,000(USD~1,000,000)(FY2017),JPY100,000,000(USD~1,000,000) (FY2018), JPY98,000,000(USD~980,000)(FY2019), JPY 46,134,307 (USD ~461,343) (FY2020),

(1€ ≅ \$1.35 and 1\$ ≅ ¥100)

Completed research support:

- Human Frontier Science Program Organization, Human Frontier Science Program (HFSP), “Direct DNA damage response activation by nuclear non-coding short RNAs in mammals,” co-applicant, September 2012 - August 2016, USD 350,000 per year (shared with two other applicants).
- EU Commission, 7th Framework Project, “MODHEP - Systems biology of liver cancer: an integrative genomic-epigenomic approach,” co-applicant, January 2011- June 2016, € 951,000 (USD 1,283,850).
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), Next Generation World-Leading Researchers Program, “Genome-wide identification of non-coding RNA function for cell differentiation,” main applicant, February 2010 - March 2014, JPY 179,400,000 (USD 1,794,000).
- Institute of Physical and Chemical Research (RIKEN), RIKEN Strategic Programs for R&D (Presidential Discretionary Fund), “SineUP RNAs: novel non-coding RNA that enhance protein translation,” main applicant, April 2012 - March 2014, JPY 23,900,000 (USD 239,000).
- EU Commission, 7th Framework Project, “BrainTrain (Integrative neuroscience school on brain function and disease),” co-applicant, November 2009 - October 2013, Euro 227,456 (USD 307,066).
- Institute of Physical and Chemical Research (RIKEN), RIKEN Strategic Programs for R&D (President's Discretionary Fund), “Mapping transcriptional networks that control neuronal structural plasticity and enable neuronal regeneration,” co-applicant, April 2011 - March 2013, JPY 4,300,000 (USD 43,000).
- RIKEN, RIKEN Strategic Programs for R&D (President’s Discretionary Fund), “noncoding RNA alliance: breaking the RNA codes,” main applicant, April 2012 - March 2013, JPY 30,000,000 (US\$ 300,000).
- RIKEN, RIKEN Strategic Programs for R&D (President’s Discretionary Fund), “Understanding of high-order vital function from the viewpoint of epigenetic control system,” co-applicant, April 2012 - March 2013, JPY 1,000,000 (USD 10,000).
- Fund in trust for collaborative research between RIKEN and VU University Medical Center for comprehensive analysis of mammalian genome especially by describing transcriptional network in the various stages of development and

differentiation in time course, main applicant, September 2010 - March 2012, JPY 4,130,000 (USD 41,300).

- EU Commission, 7th Framework Project, “DOPAMINET (Molecular networks of dopaminergic neurons in chordates),” co-applicant, February 2009 - July 2012, Euro 294,000 (USD 396,900).
- Ministry of Education, Culture, Sports, Science and Technology (MEXT), Grant-in-Aid for Scientific Research (A), “Systems biology in individual neurons,” main applicant, April 2008 - March 2012, JPY 11,000,000 per year (USD 110,000 per year).
- University of Birmingham, EuTRACC Research Fund, support and provide with the University of Birmingham practically scientific technologies and technical knowhow. main applicant, June 2009 - March 2011, JPY 2,405,700 (USD 24,057)
- National Institutes of Health (NIH), Lawrence Berkeley National Laboratory, modENCODE, subcontractor (PI: Susan Celniker, Berkeley), to explore the transcription starting site of *Drosophila Melanogaster* with CAGE, co-applicant, February 2011 - March 2011, USD 10,000.
- NIH, ENCODE, Second Round Project (grant 1 U54 HG004557-01, Thomas Gingeras, PI). co-PI at RIKEN with Yoshihide Hayashizaki (PI at RIKEN), for the mapping of the poly-A-minus long RNAs, cytoplasmic nuclear and other cell compartments with CAGE, co-applicant, January 2007 - June 2011, USD 750,000.
- RIKEN, RIKEN Strategic Programs for R&D (President's Discretionary Fund), “High-throughput RNA profiling of Purkinje neuron dendrites, during memory formation and neuronal stress,” co-applicant, September 2009 - August 2011, JPY 21,200,000 (USD 212,000)
- NIH, ENCODE, additional research fund, July 2009 - June 2010, USD 129,000.
- NIH, Lawrence Berkeley National Laboratory, modENCODE, subcontractor (PI: Susan Celniker, Berkeley), to explore the transcription starting site of *Drosophila Melanogaster* with CAGE, January 2009 - June 2009, USD 30,000.
- NIH, ENCODE, additional research fund, January, 2009 - June, 2009, USD 6,080.
- RIKEN, RIKEN Yokohama Institute Center Director fund for “Omics meets Immunology: comprehensive “omics” catalogue of B memory and M cells,” April 2008 - March 2009, JPY 6,000,000 (USD 60,000).
- EU Commission, 6th Framework Program, “Functional genomics of the adult and developing brain,” January 2004 - December 2007, Euro 300,000. (US\$ 405,000).
- RIKEN, RIKEN Presidential Fund, “Expression profiling and network determination of individual neurons from the brain cortex,” main applicant, January 2004 - March 2006, JPY 50,000,000 (USD 500,000).
- RIKEN, RIKEN Rijicho Renkei Kenkyu Fund, “Cloning the unclonable cDNAs: creation of a resource of mouse very long full-length cDNAs for functional studies,” main applicant, January 2002 - March 2003, JPY 10,000,000 (US\$ 100,000).
- European Commission, HORIZON 2020 Project, “ZENCODE (Computational and functional annotation of genomic elements during development of the model

vertebrate zebrafish),” co-applicant, January 2015 - December 2019, Euro 248,282 (USD 335,180).

- Japan Agency for Medical Research and Development (AMED), Basic Science and Platform Technology Program for Innovative Biological Medicine, “Establishing innovative drug development platform with the novel non coding RNA enhancing protein translation,” main applicant, October 2014-March 2019, JPY 15,535,000 (USD 155,350) (FY2014), JPY 27,501,000 (USD 275,010) (FY2015), JPY 20,000,000 (USD 200,000) (FY2016), JPY 20,000,000 (USD 200,000) (FY2017), JPY 23,000,000 (USD 230,000) (FY2018).
- RIKEN Single Cell Project, FY2015-2017, JPY 326,000,000/year (USD 3,260,000/year)
- Japan Agency for Medical Research and Development (AMED), Advanced Research & Development Programs for Medical Innovation (CREST), “Identification of biomarkers and drug targets in Parkinson's disease,” co-applicant, October 2014-March 2020, JPY 27,300,000 (USD 273,000).
- RIKEN Ageing Project, FY2019, JPY 50,000,000 (USD ~500,000)
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