

CURRICULUM VITAE

Full Name: BENJAMIN PODBILEWICZ
Date of birth: August 17, 1962
Place of birth: Tel Aviv, Israel
Marital status: Married + two
Web site: <http://www.elegansfusion.org/>

ACADEMIC DEGREES

- 1991 **Ph.D.** in Cell Biology. Yale University, USA. "Reconstitution of receptor-mediated endocytosis and recycling of transferrin in permeabilized cells". Doctoral thesis. Yale University. USA. pp. 185. 1991.
- 1986 **B.Sc.** in Chemistry, Bacteriology and Parasitology. Instituto Politécnico Nacional (IPN). Mexico City, Mexico. "Partial reactions of the oxygenic photosynthesis in *Spirulina maxima*. Use of specific inhibitors of the b/f segment". Research Thesis. National School for Biological Sciences IPN. Mexico. pp. 122. 1986.

ACADEMIC APPOINTMENTS

- 2012- 2013 Radcliffe Institute of Advanced Science Fellow, Harvard University, USA. Visiting Scholar, Tom Rapoport's lab. Department of Cell Biology, Harvard Medical School, Boston, USA.
- 2008- present Full Professor. Department of Biology. Technion. Israel.
- 2003-2008 Associate Professor. Department of Biology. Technion. Israel.
- 2003-2005 Visiting Scientist. Leonid Chernomordik's lab. Laboratory of Cellular and Molecular Biophysics, NIH/NICHHD. Bethesda, USA.
- 1999-2003 Senior Lecturer. Department of Biology. Technion. Israel.
- 1996-1999 Lecturer. Department of Biology. Technion. Israel.
- 1994-1996 Scientific Staff. MRC-Laboratory of Molecular Biology. Cambridge, England.
- 1991-1994 Postdoctoral Fellow. John White's lab. MRC-Laboratory of Molecular Biology. Cambridge, England.

RESEARCH INTERESTS

Mechanism of cell fusion

We identified EFF-1 and AFF-1, two novel type I membrane proteins essential for developmental cell fusion in *C. elegans*. EFF-1 and AFF-1 are the founders of the first family (FF) of developmental cell fusion proteins (fusogens). EFF-1 and AFF-1 from nematodes and other species can fuse heterologous insect and mammalian cells. EFF-1 and AFF-1 are required in both fusing cells and the process is via hemifusion. We will purify and determine the three-dimensional structure of EFF-1 and AFF-1 proteins, we will test their fusogenic activities in cells, pseudotyped viruses and in reconstituted liposomes. Our ultimate goal is to understand the molecular and physicochemical mechanisms of cell membrane fusion. We will also search for additional members of the FF family and similar missing fusogens in other eukaryotes.

Control of cell fusion

We have accomplished a complete description of the cellular events leading to the formation of an organ. Using genetic analyses we identify genes that function in different cell fusion events in *C. elegans* and in other organisms and how this process is regulated in development.

Cell fusion and organ formation

Homotypic cell fusion may control the size of syncytia by limiting fusion with neighboring cells. We focus on fertilization, the development of vulva, epidermis, muscles and pharynx.

Evolution of organogenesis

We study cellular events during morphogenesis of the vulva across species. We found that changes in the direction of cell divisions can result in differences in size and shape of the vulva. We found that evolution of most vulval characters are biased and proposed that evolution of the vulva in nematodes is governed by selection and/or selection-independent constraints and not by stochastic processes.

Pruning of neuronal trees

We discovered that EFF-1 is also required to sculpt complex neuronal trees required for sensing strong mechanical stimuli. We found that EFF-1 trims abnormal or excessive neuronal branches as a novel quality control mechanism. EFF-1 works in specific neurons by fusing excess and abnormal neuronal branches. In addition, EFF-1 retracts branches. We have identified other genes that participate in the generation and maintenance of complex dendritic trees and we hope that our discoveries in *C. elegans* may help to understand and repair degenerative diseases of the nervous system and accidental breaking of neurons.

HONORS AND AWARDS

- 2013 Invited Plenary Speaker, International *C. elegans* Meeting, UCLA, USA.
- 2012 Plenary Speaker, National Congress of Biochemistry, Oaxaca, Mexico.
- 2012 Grass Fellow, Radcliffe Institute for Advanced Study, Harvard University, USA.
- 2012 Bingzhi Forum Professorship, Institute of Zoology, Chinese Academy of Sciences, Beijing, China.
- 2008 The Teva Research Grant, Israel.
- 2005 The Henry Taub Prize for Excellence in Research, Israel.
- 2000 ISF Award from the Charles H. Robson Fund for Basic Research in the Life Sciences, Israel.
- 1989 Distinguished Alumnus (diploma). IPN, Mexico.
- 1986 Diploma for having the highest grades in the five-year program in Chemistry, Bacteriology and Parasitology. Instituto Politecnico Nacional, IPN. Mexico.

TEACHING EXPERIENCE

- 2008 -2014 Sex, Life and Development. Technion, Graduate
- 2006 -2012 Intracellular Traffic Mechanisms. Technion, Graduate
- 2004, 2007, 2009, 2011 Developmental Genetics of *C. elegans*. National Centre for Biological Sciences, Bangalore, India. Graduate
- 2005 Biology I Laboratory. Technion, Undergraduate
- 1997-2002 Cell Biology II. Technion, Undergraduate
- 2005-2014 Developmental Biology. Technion, Undergraduate and Graduate
- 1996-2003 Biostructure: Confocal Microscopy. Technion, Graduate
- 1999-2003 Developmental Genetics. Technion, Graduate
- 1999, 2001, 2003 Developmental Genetics. Technion, Graduate
- 1996-2002 Cell Biology Laboratory. Technion, Undergraduate
- 1995 *C. elegans*. Gulbenkian Institute, Oeiras, Portugal. Graduate
- 1986-1991 Cell Biology and Histology Laboratory. Yale University School of Medicine, USA. Graduate and Medical Students

TECHNION ACTIVITIES

2010-2012	Committee for Academic Prizes
2006-2009	Head of Recruitment for the Faculty of Biology, Lockey Center for Life Sciences and Engineering (LS&E)
2006-present	Life Sciences Steering Committee (LS&E)
2005-2008	Elected Representative of the Department of Biology in the Senate
2002	Life Sciences and Developmental Genetics Center Committees
2002	Participant in the Academic Pre-Board of Governors
2002	Representative in the Medical, Biological, and Molecular Imaging Center
1997-2012	Director of the Light Microscopy Technion Unit (LS&E, RBNI)

PUBLIC PROFESSIONAL ACTIVITIES

Ad hoc reviewer for the following journals:

Biochimica et Biophysica Acta, Biological Chemistry, Biology of the Cell, Cell, Current Biology, Development, Developmental Biology, Developmental Cell, DNA Repair, FEBS Journal, Genes and Function, Genetics, Journal of Biological Chemistry, Journal of Cellular Physiology, Journal of Cell Science, Nature, Nature Methods, Nature Reviews Molecular Cell Biology, PLoS Biology, PLoS Genetics, PNAS, Science, Trends in Cell Biology, WIREs Developmental Biology

Ad hoc reviewer for the following granting agencies:

Israel Science Foundation (ISF), US-Israel Binational Science Foundation (BSF), German-Israeli Foundation for Scientific Research & Development (GIF), Research Grants Council (Hong Kong), Association Francaise contre les Myopathies (AFM) France. Human Frontier Science Program (HFSP). Life and Medical Sciences Centers Committee (iCORE), Biotechnology and Biological Sciences Research Council (BBSRC) UK.

2012-present	Editorial Board, <i>F1000 Research</i>
2011-present	Editorial Board, <i>Worm</i>
2006-present	Contributor to Faculty of 1000 Biology
2006-2015	Editorial Board, <i>Developmental Dynamics</i>

Referee of academic tenure and promotions at the following institutions:

University of Connecticut, National Institutes of Health (NIH), Albert Einstein College of Medicine, Cornell University, The Pennsylvania State University, Yale University, Harvard University, Fred Hutchinson Cancer Research Center, The Jackson Laboratory for Genomic Medicine, Dalhousie University, University of North Carolina, University of Pennsylvania, University of Zurich.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Society for Cell Biology
Genetic Society of America
Israeli Society for Developmental Biology
Israeli Society for Biochemistry and Molecular Biology
Israel Society for Microscopy

GRADUATE STUDENTS (primary supervisor- B. Podbilewicz)

Completed M.Sc. theses

Tamar Gattegno. 1998. Cell fusion in the nematode *C. elegans*. Characterization of a mutant with defects in the fusion processes.

Ira Kolotuev. 2002. Evolution of vulva formation in nematodes.

- Maayan Doron.** 2003. The function of disintegrin-metalloproteases in *C. elegans*.
- Meital Suissa.** 2004. Sufficiency and tissue specific functions of *eff-1* in *C. elegans*.
- Lilach Friedlander.** 2011. Control of AFF-1-mediated cell fusion by heterochronic genes.
- Karen Fridman.** 2012. Ultrastructure and function of EFF-1 and AFF-1 in membrane remodeling
- Julie Grimm.** 2013. The nuclear hormone receptor NHR-25/Ftz-F1 controls dendritic arborization and repair after injury in *Caenorhabditis elegans*

Completed Ph.D. theses

- Vardit Adir.** 1999. The function of the *adm-2* gene in the development of the nematode *Caenorhabditis elegans*.
Current position: Head, Molecular Genetic Laboratory, Bnai Zion Medical Center. Haifa, Israel.
- Gidi Shemer.** 2002. Cell fusion and organogenesis in *Caenorhabditis elegans*.
Current position: Lecturer/Advisor, Department of Biology. University of North Carolina, USA.
- Tamar Gattegno.** 2003. Characterization of a mutant with defects in the fusion process.
Current position: Research Fellow, Podbilewicz lab, Technion, Israel.
- Nirit Assaf.** 2004. EFF-1 and developmental cell fusion in *C. elegans*.
Current position: Postdoctoral Fellow, Ben-Gurion University of the Negev, Israel.
- Ira Kolotuev.** 2007. Evolution of vulva formation and cell fusion in nematodes related to *Caenorhabditis elegans*.
Current position: Microscopy Rennes Imaging Center, Université de Rennes, France.
- Meital Oren-Suissa.** 2012. Mechanisms of Neuronal Branching
Current position: Postdoctoral Fellow at Columbia University and Howard Hughes Medical Institute. Laboratory of Oliver Hobert.
- Ori Avinoam.** 2012. Conserved eukaryotic fusogens can fuse viral envelopes to cells. Current position: Postdoctoral Fellow at EMBL Heidelberg. Labs of John Briggs and Marko Kaksonen
- Hadas Raveh.** 2014. Structure-function analysis of the fusogen EFF-1

Theses in Progress

- Veronika Kravtsov.** M.Sc. Branching and aging of mechanosensory neurons in *C. elegans*
- Ofer Katzir.** M.Sc. Fertilization in *Caenorhabditis elegans* and *Arabidopsis thaliana*
- Omer Yuval.** M.Sc. Dendritic arborization in *C. elegans*
- Anna Frumkin.** Ph.D. Mechanisms of dendrite retraction and fusion
- Lena Matveeva.** M.Sc. Mechanism of EFF-1-mediated cell fusion

Postdoctoral Fellows

- Ranjana Sharma-Kishore.** 1998-1999. Organogenesis of the vulva in *C. elegans*.
Current position: Curator, WormBase, California Institute of Technology, USA.
- Limor Broday.** 2001-2005. Developmental functions of the small ubiquitin like modifier (SUMO) in *C. elegans*. Visiting Scientist from Mount Sinai Medical Center, New York, USA.
Current position: Senior Lecturer, Department of Cell and Developmental Biology, Tel Aviv University, Israel.
- Gidi Shemer.** 2002-2005. Control of EFF-1 cell fusogenic activity by Hox genes.
Current position: Lecturer/Advisor, Biology Department, University of North Carolina, USA.
- Amir Sapir.** 2004-2008. Molecular mechanisms of cell fusion mediated by AFF-1.
Current position: Postdoctoral Fellow at the Laboratory of Paul Sternberg, California Institute of

Technology, USA.

Jorge Verdin Ramos. 2009-2012. Analysis of the mechanism of membrane fusion catalyzed by the fusogenic proteins EFF-1 and AFF-1 of *C. elegans*.

Nof Atamna-Ismaeel. 2011-2012. Cell fusion in prokaryotes

Ksenia Smurova. 2009-present. Endocytosis controls cell fusion.

Boaz Gildor. 2011-present. Deciphering the sperm-egg fusion enigma.

Tamar Gattegno. 2012-present. Dendritic arborization, regeneration and degeneration.

Sharon Inberg. 2014-present. Mechanosensation, learning and behavior

Eduard Baquero. 2015-present. Structural studies of cell-cell fusogens from the fusion family.

Liliana Avila. 2015-present. Functional analyses of plant HAP2/GCS1 proteins and their role as ancestral eukaryotic gamete fusion proteins

RESEARCH GRANTS (primary investigator- B. Podbilewicz)

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| 2008-2012 | The Israel Science Foundation (ISF). Podbilewicz (PI). Deciphering the molecular basis of sperm-egg fusion. 238,000 US dollars. |
| 2012 | EMBO, Germany. Podbilewicz (PI). EMBO Workshop on Cell-Cell Fusion. Role: Organizing committee. 30,000 Euro |
| 2012 | Katzir conference grant. Podbilewicz (PI). EMBO Workshop on Cell-Cell Fusion. Role: Organizing committee. 12,000 US dollars |
| 2012 | Company of Biologists grant. Podbilewicz (PI). EMBO Workshop on Cell-Cell Fusion. Role: Organizing committee. 3,000 Pounds sterling |
| 2011 | R13 HD069130-01 National Institutes of Health, USA. Gray (PI). Cell-Cell Fusion Gordon Research Conference. 13,000 US dollars |
| 2009 | R13 HD061041-01 National Institutes of Health, USA Mohler (PI) Cell-Cell Fusion Gordon Research Conference. Role: Vice-Chair 9,000 US dollars |
| 2007-2010 | German Israeli Foundation (GIF). Podbilewicz and Bossinger (PIs). Disassembly mechanism of junctional complexes in epithelia of <i>C. elegans</i> . 281,400 US dollars |
| 2007-2010 | F.I.R.S.T, Israel Science Foundation (ISF). Podbilewicz (PI). Searching for the mammalian muscle cell fusogenic factors using <i>C. elegans</i> as a test tube 130,000 US dollars |
| 2004-2008 | The Israel Science Foundation (ISF). Regulation of the cell fusion machinery in <i>C. elegans</i> . 255,000 US dollars. |
| 2006 | The Israel Science Foundation (ISF). With Dina Ron and Yoram Reiter. Multi-photon multi-spectral confocal microscope. 70,000 US dollars. |
| 2001-2004 | Human Frontier Science Program (HFSP). Evolution of vulva development in nematodes related to <i>C. elegans</i> (Family Rhabditidae). 750,000 US dollars. With Marie-Anne Felix, David Fitch, and Ralf Sommer. |
| 2000-2004. | The Israel Science Foundation (ISF). Epidermal cell fusion during embryonic development: Molecular and genetic analyses of <i>duf-1</i> in <i>C. elegans</i> . 192,000 US dollars. |
| 2000-2003. | United States-Israel Binational Science Foundation (BSF). Molecular basis of organ formation in <i>Caenorhabditis elegans</i> . With John White. 105,000 US dollars. |
| 1998-2001 | The Israel Science Foundation (ISF). Evolutionary trends in human tooth development analyzed by confocal laser scanning microscopy. Patricia Smith and |

- Rebeca Haydenblit and Co-PI Benjamin Podbilewicz. 140,000 US dollars.
- 1996-1999 United States-Israel Binational Science Foundation (BSF). Molecular basis of organ formation in *Caenorhabditis elegans*. Benjamin Podbilewicz and John White. 117,000 US dollars.
- 1996-1999 The Israel Science Foundation (ISF). Molecular genetic analyses of cell fusion during the development of the nematode *Caenorhabditis elegans*. 148,350 US dollars.
- 1996-1998 Israel Cancer Research Fund (ICRF). Molecular basis of cell fusion during development. 36,000 US dollars.
- 1996 The Israel Science Foundation (ISF). 4D-microscope. 50,000 US dollars
- 1996 Ministry of Absorption. Center for Absorption in Science. Molecular genetic analysis of cell fusion in *Caenorhabditis elegans*. 1,580 US dollars.
- 1994-1995 MRC-Laboratory of Molecular Biology. Molecular genetic analysis of cell fusion in *C. elegans*. 64,450 US dollars.
- 1992-1994 Long Term Fellowship from the Human Frontier Science Program (HFSP). Cell fusion in *Caenorhabditis elegans*: Developmental and genetic analysis. 95,600 US dollars.
- 1991-1992 Bio-Rad Fellowship. Cell fusion during embryonic and postembryonic development. 24,710 US dollars.

Ongoing Research Support

European Research Council Advanced Grant (ERC). Podbilewicz (PI). 2011-2016. Mechanisms of Cell Fusion in Eukaryotes. 2,380,000 Euros.

Our main goals are: (1) To discover the physicochemical mechanism of cell membrane fusion mediated by FF proteins. (2) To find the missing fusogens that act in cell fusion events across all kingdoms of life.

The Israel Science Foundation (ISF). Podbilewicz (PI) 2012-2017. Mechanisms of dendrite auto-fusion and retraction during arborization. 389,000 US dollars.

Our main goal is to determine how neurons generate and regenerate complex dendritic trees during normal development and following experimental dendrotomy.

Binational Science Foundation (BSF). Podbilewicz (PI) with Chernomordik (PI) 2015-2018. Machinery of myoblast fusion. 210,000 US dollars.

Our main goal is to determine how mouse myoblasts fuse.

CONFERENCES

Plenary or Invited Talks

1996

Genetic analyses of cell fusion. The International Meeting on *C. elegans*. Madison, USA (Invited Chair of Session and Invited Talk)

Cell fusions in *C. elegans*. The Israel Society for Developmental Biology. Tel-Aviv University. Israel (Invited Talk)

Genetics of cell fusion during development in *C. elegans*. Israel Society for Microscopy. The Hebrew University of Jerusalem. Israel (Invited Talk)

1998

Organ formation in *C. elegans*: The role of epithelial cell migrations and fusions. Federation of the Israeli Societies of Experimental Biology. Eilat, Israel (Invited Talk)

Cell fusion during organ formation in *C. elegans*. The International Symposium on Membrane Fusion: Mechanisms and applications to cell biology, drug delivery and gene therapy. Salamanca, Spain (Invited Talk)

1999

Membrane fusion as a morphogenetic force in nematode development. European Science Foundation Symposium: Biodiversity in the Phylum Nematoda. Gent, Belgium (Invited Chair of Session and Invited Talk)

2000

The fusomorphogenetic hypothesis: Membrane fusion drives organ formation. The European Meeting on *C. elegans*. Blankenberge, Belgium (Invited Talk)

Fusomorphogenesis: Membrane fusion drives pattern formation. The 3rd International Symposium on Human Genetics in the Post-Genomic Age. Maagan, Israel (Invited Talk)

Ras, cell fusion and ring formation: A new mechanism of invagination in *C. elegans*. Israel Fly Meeting. Bar-Ilan University. Israel (Invited Talk)

2001

Fusomorphogenesis: a tale of monsters, elf tails and cold fusion. The International Meeting on *C. elegans*. Los Angeles, USA (Invited Talk)

2002

LIN-39 represses EFF-1-dependent cell membrane fusion in *C. elegans*. The European Meeting on *C. elegans*. Paestum, Italy (Invited Talk)

The novel transmembrane protein EFF-1 is essential for cell fusion and morphogenesis in *C. elegans*. Federation of the Israeli Societies of Experimental Biology. Eilat, Israel. (Invited Talk)

From gene to organism using 4D-laser scanning confocal microscopy. Workshop on Medical, Biological and Molecular Imaging. Technion. Haifa, Israel (Invited Talk)

2003

Is one EFFicient sculptor sufficient for cell fusion? The International Meeting on *C. elegans*. Los Angeles, USA (Invited Talk)

The novel transmembrane protein EFF-1 is essential and sufficient for cell fusion in *C. elegans*. The Israel Societies of Cell and Developmental Biology. Eilat, Israel (Invited Talk)

2004

Genetics and genomics in developmental biology. National Center for Biological Sciences, Bangalore, India (Invited Talk)

2005

Syncytiogenesis: EFF-1 proteins fuse cells from beginning to end. The International Meeting on *C. elegans*. Los Angeles, USA (Invited Talk)

Dissection of syncytiogenesis: EFF-1 proteins fuse cells from beginning to end. European Life Scientist Organization (ELSO) Meeting. Dresden, Germany (Invited Talk)

2006

Kinetics, mechanisms and functions of cell fusion. The Israel Societies of Cell and Developmental Biology. Eilat, Israel (Invited Talk)

Mechanisms and functions of homotypic cell fusion. The European Meeting on *C. elegans*. Crete, Greece (Invited Talk)

Mechanisms of cell fusion. *C. elegans* Development and Evolution Meeting. Madison, USA (Plenary Talk)

2007

Genetic control of fusion pore expansion in the epidermis of *C. elegans*. Israel Society for Microscopy. Rehovot, Israel (Invited Talk)

The first family of developmental cell fusogens: Identification and functional analysis. Gordon Research Conference on Cell-Cell Fusion. New Hampshire, USA (Invited Talk)

Towards a unified model for developmental cell fusion. Japanese Biochemistry and Molecular Biology Meeting. Yokohama, Japan (Invited Talk)

Cell-cell fusion. Developmental Biology. National Center for Biological Sciences, Bangalore, India (Invited Talk)

2008

- Cell fusion in *C. elegans*. Joint Meeting for the British Societies for Cell and Developmental Biology, Warwick, UK (Chair of Session and Invited Talk)
- FFs: Nanomachines for cell membrane fusion in *C. elegans*. Annual Meeting of the German Society for Cell Biology. Marburg, Germany (Invited Talk)
- Genetics of cell fusion in *C. elegans*. XX International Congress of Genetics. Berlin, Germany (Invited Talk)
- Morphogenesis of the hymen. 2008 *C. elegans* Development and Evolution Topic Meeting. Madison, USA (Invited Talk)
- Cell fusion and tube formation. Developmental Biology Center-Lillehei Heart Institute Symposium at the University of Minnesota: "The Development of Conducting Vessels: Tubes, Loops and Buds". Minneapolis, USA (Invited Talk)

2009

- Cell-cell fusion, self-cell fusion, and formation of neuronal menorahs. Developmental Biology. National Center for Biological Sciences, Bangalore, India (Invited Talks)
- Minisymposium on *Lipid Dynamics* at the 49th Annual Meeting of the American Society for Cell Biology, San Diego, USA (Invited Co-Chair and Invited Talk)
- Fusión celular, tubos y árboles neuronales durante el desarrollo. Symposium on Procesos Moleculares y Celulares en la Biología. La Escuela de Ciencias Biológicas de la Pontificia Universidad Católica del Ecuador. Quito, Ecuador (Invited Talk)
- Workshop on *Live Microscopy* at The International Meeting on *C. elegans*. Los Angeles, USA (Invited Co-Chair and Invited Talk)

2010

- How EFF-1 fuses cell membranes and sculpts epithelia, muscles and neurons. EMBO Conference: *C. elegans* development and gene expression. Heidelberg, Germany (Invited Keynote Speaker)
- Mechanism of neuronal branching. European *C. elegans* Neurobiology Meeting. Crete, Greece (Invited Talk)
- How cells form organs. Conference on Bioscience and Society: Organisms as Living Systems. Ljubljana, Slovenia. (Invited Talk)
- How EFF-1 fuses cell membranes and sculpts mechanosensory dendrites, muscles and epithelia. The Johns Hopkins University School of Medicine. Department of Molecular Biology & Genetics Seminar. (Invited Talk)
- How EFF-1 fuses cell membranes. National Institutes of Health. NICHD. Bethesda, USA (Invited Talk)

2011

- Developmental Biology. National Center for Biological Sciences. Bangalore, India. (Invited Talks)
- Evolution of cell-cell fusion. 2nd Batsheva Seminar on Integrative Perspectives on the Development of the Musculoskeletal System. Ein Gedi, Israel. (Invited Talk)
- La proteína membranaral EFF-1 fusiona células y esculpe epitelios, músculos y árboles neuronales. Centro de Fisiología Celular. UNAM, Mexico City. (Invited Talk)
- Fusogens sculpting cells and organs. Nobel Symposium. Protein Chemistry - Applications to Combat Diseases. Copenhagen. Denmark. (Invited Talk)
- Conserved eukaryotic cell-cell fusogens function in membrane sculpting. SFB 958 colloquium. Freie Universität. Berlin. Germany. (Invited Public Lecture)

2012

- The Role of EFF and AFF Proteins in Cell-Cell Fusion both in vivo and in vitro. Keystone Symposium on Membranes in Motion: From Molecules to Disease. Tahoe City, USA (Invited Talk)
- Conserved eukaryotic cell-cell fusion proteins function in membrane sculpting. 35th Annual Meeting of the German Society for Cell Biology. Dresden. Germany (Invited Talk)
- Cell-Cell fusogens can fuse viral envelopes to cells and sculpt neuronal trees. State Key Laboratory of Reproductive Biology, Institute of Zoology, Chinese Academy of Sciences, Beijing, China (Invited Talk)

Mechanisms of cell-cell fusion and neuronal arborization. University of Nebraska Medical Center, Omaha, USA (Invited Talk)

Mechanisms of neuronal tree generation and regeneration following nano-surgery. DKF Research Conference. Bern. Switzerland (Invited Talk)

Conserved eukaryotic fusogens function in membrane and organ sculpting. European Microscopy Congress. Manchester. England (Invited Talk)

Mechanisms of cell-cell fusion. Argentine Society for Biochemistry and Molecular Biology. Annual Meeting. Mendoza, Argentina. (Invited Talk)

Mechanisms of cell-cell fusion and neuronal arborization. National Meeting of Biochemistry. Mexican Society for Biochemistry. Oaxaca, Mexico. (Plenary Talk)

Mechanisms of biological membrane sculpting. Radcliffe Institute for Advanced Study, Harvard University, Cambridge, USA. (Fellow presentation)

2013

Membrane proteins mediating cell-cell fusion. Harvard Medical School. Department of Cell Biology. Boston, USA. (Invited talk)

Eukaryotic cell-cell fusion proteins function in membrane sculpting. 2nd symposium on Membrane shaping and remodeling by proteins. Xi'an, China (Invited Talk)

Membrane proteins mediating cell-cell fusion. National Institutes of Health, NICHD, Bethesda, USA. (Invited talk)

Cell-cell fusion and membrane sculpting. 19th International *C. elegans* meeting. UCLA, USA (Plenary invited talk)

How cell-cell fusion works in *C. elegans*. Gordon Research Conference (GRC) on Fertilization. Holderness, NH, USA. (Invited talk)

Membrane proteins mediating cell-cell fusion. Yale University. Department of Cell Biology, New Haven, USA. (Invited talk)

Mechanism of Cell-Cell Fusion in Eukaryotes. Virus Entry meeting. Tel Aviv, Israel. (Invited talk)

Control of Cell Fusion in *C. elegans*. The Batsheva de Rothschild Seminar on Developmental Pathways in Health and Disease. Tiberias, Israel. (Invited talk)

Endocytosis controls EFF-1-mediated cell fusion in *C. elegans* embryos. Minerva-Weizmann Workshop: mRNA and protein trafficking in health and disease. Rehovot, Israel. (Invited talk)

Conserved structure of the EFF-1 cell fusion protein uncovers diversification of viral fusion mechanisms. CNRS, Gif-Sur-Yvette, France. (Invited talk)

2014

The hidden link between cell fusion and cancer. SignGene International Differentiation Cancer Workshop. Haifa, Israel. (Invited talk)

How cell fusion sculpts organs. The 7th Congress of the Federation of the Israel Societies for Experimental Biology (ILANIT). Eilat, Israel. (Invited talk)

How cells sculpt organs. Symposium for High school teachers. Haifa, Israel. (Invited talk)

Mecanismos de fusion celular. Instituto de Biotecnologia, Universidad Nacional Autonoma de Mexico, Cuernavaca, Mexico. (Invited talk)

Viral and developmental cell fusion mechanisms: Conservation and divergence. University of North Carolina, Chapel Hill, USA. (Invited talk)

Mechanism of cell-cell fusion in eukaryotes. Universita Vita-Salute San Raffaele. Milano, Italia. (Plenary lecture)

Sculpting and Fusing Eukaryotic Cell Membranes. Pasteur Institute. Paris, France. (Invited talk)

Mechanism of Cell-Cell Fusion in Eukaryotes. Humboldt University of Berlin, Germany. (Invited talk)

How EFF-1 sculpts and fuses cell membranes. Basel Worm Meeting. Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland. (Invited Plenary Speaker)

How cell-cell fusion proteins sculpt and regenerate dendritic trees in *C. elegans*. EMBO Workshop- Mechanisms of Neuronal Remodeling. Ein-Gedi, Israel. (Invited talk)

Participation in Organizing Conferences

2008 The 5th Congress of the Federation of the Israel Societies for Experimental Biology

- (ILANIT). Eilat, Israel. Congress Scientific Committee.
- 2009 Gordon Research Conference (GRC) on Cell-Cell Fusion. USA. Elected Vice-Chair.
- 2009 From Darwin to Evo-Devo, A Symposium in Honor of the 150th anniversary of Darwin's Origin of Species. Technion. Haifa, Israel. Organizing Committee.
- 2011 Gordon Research Conference (GRC) on Cell-Cell Fusion. USA. Elected Chair.
- 2011 The International Meeting on *C. elegans*, Los Angeles, USA. Organizing Committee.
- 2012 6th Israel Live Imaging Forum Symposium, Haifa, Israel. Organizing Committee.
- 2013 Congress of the International Society for Developmental Biology (ISDB) Cancún, México. Consultant to the Organizing Committee.
- 2013 EMBO-Katzir Workshop on Cell-Cell Fusion. Ein Gedi, Israel. Organizing Committee.
- 2014 The 7th Congress of the Federation of the Israel Societies for Experimental Biology (ILANIT). Eilat, Israel. Session co-chair.
- 2015 20th International *C. elegans* meeting. UCLA, USA. Co-chair.

PATENT

- 2012 ANTINEMATODAL METHODS AND COMPOSITIONS. **Podbilewicz, B.**, Avinoam, O. , White, J. M. , WO Patent 2,012,104,837

Benjamin Podbilewicz

List of Publications

Refereed articles

1. **Podbilewicz, B.** and Mellman, I. ATP and cytosol requirements for transferrin recycling in intact and disrupted MDCK cells. *EMBO J.* **9**:3477-3487. 1990.
2. **Podbilewicz, B.** and White, J.G. Cell fusions in the developing epithelia of *C. elegans*. *Dev. Biol.* **161**:408-424. 1994.
3. **Podbilewicz, B.** ADM-1, a protein with metalloprotease- and disintegrin-like domains, is expressed in syncytial organs, sperm and sheath cells of sensory organs in *C. elegans*. *Mol. Biol. Cell.* **7**:1877-1893. 1996.
4. Sharma-Kishore, R., White, J.G., Southgate E. and **Podbilewicz, B.** Formation of the vulva in *Caenorhabditis elegans*: A paradigm for organogenesis. *Development.* **126**:691-699: 1999.
5. Shemer, G., Kishore, R. and **Podbilewicz, B.** Ring formation drives invagination of the vulva in *C. elegans*: Ras, cell fusion and cell migration determine structural fates. *Dev. Biol.* **221**:233-248. 2000.
6. Rabin, Y. and **Podbilewicz, B.** Temperature-controlled microscopy for imaging living cells: apparatus, thermal analysis, and temperature dependency of embryonic elongation in *C. elegans*. *J. Microsc.* **199**:214-223. 2000.
7. Mohler, W.A.* , Shemer, G.* , del Campo, J., Valansi, C., Opoku-Serebuoh, E., Scranton, V., Assaf, N., White, J.G. and **Podbilewicz, B.** The type I membrane protein EFF-1 is essential for developmental cell fusion. *Dev. Cell.* **2**:355-362. 2002.
Reviewed in: *Curr. Biol.* **12**:R467-R469. 2002.
<http://www.f1000biology.com/article/11879640/evaluation>
8. Shemer, G. and **Podbilewicz, B.** LIN-39/Hox triggers cell division and represses EFF-1/Fusogen-dependent vulval cell fusion. *Genes & Dev.* **16**:3136-3141. 2002.
Reviewed in: <http://www.f1000biology.com/article/12502736/evaluation>
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