

CURRICULUM VITAE

Spyros Artavanis-Tsakonas

EDUCATION

- 1967-1971 **M.Sc. Chemistry**; Federal Institute of Technology, Zurich / ETH Zurich (Eidgenössische Technische Hochschule Zürich) Student in the Chemistry Department; Graduation project (Diplomarbeit) was done in Prof. V. Prelog's division
- 1972-1975 **Ph.D., Molecular Biology**; University of Cambridge, England / Research student; registered for the degree of Ph.D. Member of Darwin College. Work for the Ph.D. was done at the MRC Laboratory of Molecular Biology in Dr. F. Sanger's division under the supervision of Dr. J. I. Harris. Awards received from: The Schilizzi Foundation, The H.E. Durham Fund, Kings College Cambridge, and the Cambridge Philosophical Society
- 1975-1978 **Postdoctoral Research, Mol. & Dev. Gen.**; Biozentrum, University of Basel, Switzerland, with Prof. W. Gehring. EMBO Fellowship
- 1979-1980 **Postdoctoral Research, Mol. & Dev. Gen.**; Biochemistry Department, Stanford University, with Prof. David S. Hogness. Senior Postdoctoral Fellowship Swiss National Foundation

PROFESSIONAL ACTIVITIES

- 1981 Assistant Professor, Department of Biology, Yale University
- 1984 Associate Professor, Department of Biology, Yale University
- 1986 Tenured, Department of Biology, Yale University
- 1988-1989 Visiting Professor, Institut Pasteur, Paris
- 1989 Professor, Department of Biology, Yale University
- 1990 Professor, Department of Cell Biology, Yale University School of Medicine Joint appointment with the Department of Biology
- 1990-1999 Investigator, Howard Hughes Medical Institute
- 1991-1996 Director, Molecular and Developmental Neurobiology Program, Boyer Center for Molecular Medicine, Yale University School of Medicine

1995 Scientific Founder, Exelixis Pharmaceuticals Inc., So. San Francisco, CA

1996 Elected to the American Academy of Arts and Sciences

1997 Elected Fellow, Crete Orth. Academy

1996-1998 Director of the Division of Biological Sciences, Yale University

1997 Founding Member of the interdisciplinary discussion group, Group Droit de Suite (Paris)

1997 Visiting Professor, Collège de France, Paris (Chaire d'état Collège de France)

1998-2001 Scientific Advisor, Paine Webber Development Corporation

1998 Scientific Founder, Cellzome GmbH and Anadys Pharmaceuticals, Inc.

1998-2004 Chairman, Scientific Advisory Board Cellzome GmbH

1998-2004 Member, Scientific Advisory Board, Anadys Pharmaceuticals, Inc.

1999-2007 K. J. Isselbacher- P. Schwartz Professor, Director of Developmental Biology and Cancer, Massachusetts General Hospital, Harvard Medical School

1999-present Professor of Cell Biology, Harvard Medical School

1999-2012 Professeur au Collège de France, Chair, Biology of Genetics and Development

2000-present President and Co-founder of the non-profit foundation, Fondation Santé

2001-2006 Scientific Advisory Board, Tata Institute of Fundamental Research, National Centre for Biological Sciences, India

2002 Elected, Corresponding Member of the Academy of Athens

2004-2010 Founding Director, Department of Developmental Biology and Genetics, Curie Institute, Paris

2006 Elected, Foreign Associate of the European Molecular Biology Organization

2007-present Chairman, Novartis Option Fund Advisory Board

2007-present Director, Developmental Regenerative Biology Graduate Program, Harvard Medical School.

2007-present HHMI, Scientific Review Board Member

2011-2012 Biogen Idec, Scientific Advisor

2012-present Senior Vice President & Chief Scientific Officer, Biogen Idec

Professional Societies

- 1972 - Cambridge Philosophical Society
- 1984 - Genetics Society of America
- 1984 - American Society for Cell Biology
- 1984 - Society for Developmental Biology
- 1984 - American Association for the Advancement of Science
- 1996 - Society for Neuroscience
- 2009 - North American Vascular Biology Organization

Service Related to Professional Work

- 1988-1993 NIH Neurobiology C NIH Study Section
- 2005-2010 Louis Jeantet Foundation Prize Committee
- 2001-2006 Scientific Advisory Board, National Centre for Biological Sciences, TATA Institute, Bangalore, India,
- 2000-Present President and Co-Founder, Fondation Santé, New York (charitable organization)
- 2007-Present Member, HHMI Scientific Review Board

Honors

- American Academy of Arts and Sciences, Fellow
- Cambridge Philosophical Society, Fellow
- Orth. Academy of Crete, Fellow
- Collège de France, Chair
- Corresponding Member, Academy of Athens
- Javits Neuroscience Award
- Foreign Associate of the EMBO
- M.A. Cambridge University
- M.A. Yale University
- M.A. Harvard University

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2. Louvi A, **Artavanis-Tsakonas S.** (2011) *Notch and disease: A growing field.* Semin Cell Dev Biol. 2012 Jun;23(4):473-80. Epub 2012 Feb 20.
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5. Sun Y, Klauzinska M, Lake RJ, Lee JM, Santopietro S, Raafat A, Salomon D, Callahan R, **Artavanis-Tsakonas S** (2011) *Trp53 regulates Notch 4 signaling through Mdm2.* J Cell Sci. 124(Pt 7):1067-76.
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67. **Artavanis-Tsakonas S**, Matsuno, K., Fortini, M.E., (1995). *Notch signaling*. *Science* 268: 225-232. Review.
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79. Dawson, I, Roth, S., Akam, M.E., and **Artavanis-Tsakonas S**, (1993). *Mutation of the *fizzy* locus causes metaphase arrest in Drosophila melanogaster embryos.* *Development* 117: 359-376.
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92. **Artavanis-Tsakonas S**, and Simpson, P., (1991). *Choosing a cell fate: A view from the Notch locus*. *Trends Genet.* 7: 403-408.
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PATENTS

1. U.S. Patent No. 5,648,464 dated July 15, 1997, entitled *Human Notch and Delta, Binding Domains in Toporythmic Proteins, and Methods Based Thereon* by Artavanis-Tsakonas et al.
2. U.S. Patent No. 5,637,471 dated June 10, 1997, entitled *Therapeutic and Diagnostic Methods and Compositions Based on Transducin-Like Enhancer of Split Proteins and Nucleic Acids* by Artavanis-Tsakonas and Stifani.
3. PCT Publication No. WO 93/12141 dated June 24, 1993, entitled *Nucleotide and Protein Sequences of the Serrate Gene and Methods Based Thereon* by Fleming and Artavanis-Tsakonas.
4. PCT Publication No. WO 94/07474 dated April 14, 1994, entitled *Therapeutic and Diagnostic Methods and Compositions Based on Notch Proteins and Nucleic Acids* by Artavanis-Tsakonas et al.
5. PCT Publication No. WO 97/18822 dated May 29, 1997, entitled *Vertebrate Deltex Proteins, Nucleic Acids and Antibodies, and Related Methods and Compositions* by Artavanis-Tsakonas et al.
6. PCT Publication No. WO 96/27610 dated September 12, 1996, entitled *Nucleotide and Protein Sequences of the Vertebrate Serrate Gene and Methods Based Thereon* by Ish-Horowicz et al.
7. PCT Publication No. WO 97/01571 dated January 16, 1997, entitled *Nucleotide and Protein Sequences of Vertebrate Delta Genes and Methods Based Thereon* by Artavanis-Tsakonas et al.
8. PCT Publication No. WO 97/11716 dated April 3, 1997, entitled *Manipulation of Non-Terminally Differentiated Cells Using the Notch Pathway* by Artavanis-Tsakonas et al.
9. U.S. Patent Application entitled *Deltex Proteins, Nucleic Acids and Antibodies, and Related Methods and Compositions* by Artavanis-Tsakonas et al.
10. U.S. Patent Application entitled *Therapeutic and Diagnostic Methods and Compositions Based on Notch Proteins and Nucleic Acids* by Artavanis-Tsakonas et al.
11. U.S. Patent Application entitled *Delta Fragments and Derivatives and Methods Based Thereon* by Artavanis-Tsakonas et al.
12. U.S. Patent Application entitled *Serrate Fragments and Derivatives (pending Patent)* by Artavanis-Tsakonas et al.
13. U.S. Patent Application entitled *Methods for Cell Expansion Based on Manipulation of the Notch Pathway* by Artavanis-Tsakonas et al.
14. U.S. Patent Application entitled *Nucleotide and Protein Sequences of the Serrate Gene and Methods Based Thereon* by Artavanis-Tsakonas et al.

15. U. S. Patent Application entitled *Human Notch and Delta, Binding Domains in Toporythmic Proteins, and Methods Based Thereon* by Artavanis-Tsakonas et al.
16. U.S. Patent Application entitled *Mammalian Deltex Sequences and Methods Based Thereon* by Artavanis-Tsakonas et al.
17. U.S. Patent Application entitled *Nucleotide and Proteins Sequences of the Vertebrate Serrate Gene and Methods Based Thereon* by Artavanis-Tsakonas et al.
18. U.S. Patent Application entitled *Nucleotide and Protein Sequences of Vertebrate Delta Genes and Methods Based Thereon* by Artavanis-Tsakonas et al.
19. U.S. Patent Application entitled *Activated Forms of Notch and Methods Based Thereon* by Artavanis-Tsakonas et al.
20. U.S. Patent Application entitled *Delta Cleavage Products and Methods Based Thereon* by Artavanis-Tsakonas et al.

Current status of Patents (January 2012)

Pub. or Patent No.	Country	Title	Case Status
WO93/12141	PCT	NUCLEOTIDE AND PROTEIN SEQUENCES OF THE SERRATE GENE ANDMETHODS BASED THEREON	Completed
WO92/19734	PCT	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Completed
WO97/18822	PCT	VERTEBRATE DELTEX PROTEINS, NUCLEIC ACIDS, AND ANTIBODIES,AND RELATED METHODS AND COMPOSITIONS	Completed
WO94/07474	PCT	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Completed

0662827	EP	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Completed
WO96/27610	PCT	NUCLEOTIDE AND PROTEIN SEQUENCES OF VERTEBRATE SERRATE GENES AND METHODS BASED THEREON	Completed
WO97/01571	PCT	NUCLEOTIDE AND PROTEIN SEQUENCES OF VERTEBRATE DELTA GENES AND METHODS BASED THEREON	Completed
WO97/11716	PCT	MANIPULATION OF NON-TERMINALLY DIFFERENTIATED CELLS USING THE NOTCH PATHWAY	Completed
WO00/02897	PCT	DELTA CLEAVAGE PRODUCTS AND METHODS BASED THEREON	Completed
WO01/03743	PCT	MANIPULATION OF TISSUE OR ORGAN TYPE USING THE NOTCH PATHWAY	Completed
0930365	EP	BINDING DOMAINS IN SERRATE PROTEIN	Completed
0930366	EP	BINDING DOMAINS IN DELTA PROTEINS	Completed
1175909	EP	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON SERRATE PROTEINS AND NUCLEIC ACIDS	Completed
183832	Israel	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Filed Wait Exam

2010-273685	Japan	NUCLEOTIDE AND PROTEIN SEQUENCES OF VERTEBRATE SERRATE GENES AND METHODS BASED THEREON	Filed Wait Exam
209667	Israel	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Filed Wait Exam
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6,149,902	US	MANIPULATION OF NON-TERMINALLY DIFFERENTIATED CELLS USING THE NOTCH PATHWAY	Registered
6,692,919	US	ACTIVATED FORMS OF NOTCH AND METHODS BASED THEREON	Registered
6,703,489	US	ANTIBODIES TO VERTEBRATE SERRATE PROTEINS AND FRAGMENTS	Registered
5,750,652	US	DELTEX PROTEINS	Registered
E473754	Austria	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Belgium	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
DK/EP 0933082	Denmark	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	France	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Germany	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Greece	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Italy	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Luxembourg	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Monaco	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered

0933082	Netherlands	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
ES2348919	Spain	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Sweden	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	Switzerland	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
0933082	UK	METHODS OF MANIPULATION OF CELL DIFFERENTIATION	Registered
5,856,441	US	SERRATE FRAGMENTS AND DERIVATIVES	Registered
5,849,869	US	DELTA FRAGMENTS AND DERIVATIVES AND METHODS BASED THEREON	Registered
5,648,464	US	HUMAN NOTCH AND DELTA, BINDING DOMAINS AND TOPORYTHMICPROTEINS, AND METHODS BASED THEREON	Registered
6,083,904	US	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ONNOTCH PROTEINS AND NUCLEIC ACIDS	Registered
5,789,195	US	HUMAN NOTCH AND DELTA, BINDING DOMAINS AND TOPORYTHMICPROTEINS, AND METHODS BASED THEREON	Registered
5,869,282	US	NUCLEOTIDE AND PROTEIN SEQUENCES OF THE SERRATE GENE ANDMETHODS BASED THEREON	Registered

5,780,300	US	MANIPULATION OF NON-TERMINALLY DIFFERENTIATED CELLS USING THE NOTCH PATHWAY	Registered
5,637,471	US	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON TRANSDUCIN-LIKE ENHANCER OF SPLIT PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Ireland	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Portugal	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Monaco	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Greece	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0S0662827	Spain	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Netherlands	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered

0662827	Luxembourg	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Denmark	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Sweden	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Austria	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Switzerland	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
3851653	Japan	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
685067	Australia	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Belgium	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered

0662827	Italy	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	France	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	Germany	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0662827	UK	DIAGNOSTIC METHODS AND PHARMACEUTICAL COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
5,786,158	US	THERAPEUTIC AND DIAGNOSTIC METHODS AND COMPOSITIONS BASED ON NOTCH PROTEINS AND NUCLEIC ACIDS	Registered
0576623	EP	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
101728	Israel	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
84505	Ireland	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Monaco	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Greece	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered

0S0576623	Spain	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Netherlands	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Luxembourg	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Denmark	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Sweden	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Austria	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Switzerland	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
675203	Australia	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Belgium	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Italy	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	France	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	Germany	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
0576623	UK	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered
2,102,208	Canada	BINDING DOMAINS IN NOTCH AND DELTA PROTEINS	Registered