

CURRICULUM VITAE

Thomas T. Chen

Date and Place of Birth: July 16, 1942, Taiwan **Citizenship:** American

Business Address:

Department of Molecular and Cell Biology, University of Connecticut, 91 N. Eagleville Rd., U-3125, Storrs, CT 06269

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Educational Experience:

1966 - B.Sc.: Food Sciences, National Chung-Hsing University, Taiwan

1970 - M.A.: Microbial Genetics, State University of New York, Plattsburg, New York

1973 - Ph.D.: Genetics, University of Alberta, Edmonton, Alberta, Canada

Professional Experience:

1967 - 1968 - Full-time Teaching Assistant, Department of Food Sciences, National Chung-Hsing University, Taiwan

1968 - 1970 - Graduate Teaching Assistant, Department of Biological Sciences, State University of New York, Plattsburgh, New York

1970 - 1973 - Graduate Teaching Assistant, Department of Genetics, University of Alberta, Edmonton, Alberta, Canada

1973 - 1977 - Post-Doctoral Research Associate, Department of Biology, Queen's University, Kingston, Ontario, Canada

1975 - 1976 - Part-time Head Instructor, Department of Biology, Queen's University, Kingston, Ontario, Canada

1977 - 1981 - Assistant Professor, Department of Biology, McMaster University, Hamilton, Ontario, Canada

1981 - 1986 - Associate Professor, Department of Biology, McMaster University, Hamilton, Ontario, Canada (Tenure Appointment)

1982 - 1992 - Adjunct Professor, Department of Biological Sciences, State University of New York, Plattsburg, New York

1983 - 1984 - Expert, Laboratory of Molecular Oncology, National Institutes of Health, National Cancer Institute, Frederick Cancer Research Facility, Frederick, MD

1986 - 1995 - Professor, Center of Marine Biotechnology, University of Maryland Biotechnology Institute, Baltimore, MD (Tenure Appointment)

1986 - 1989 - Visiting Professor, Department of Biology, Johns Hopkins University, Baltimore, MD

1986 - 1989 - Research Scientist (part-time), Chesapeake Bay Institute, Johns Hopkins University, Shady Side, MD

1987 - 1989 - Professor (Joint Appointment), Department of Zoology, University of Maryland, College Park, MD

1987 - 1990 - Associate Director for Faculty Development, Center of Marine Biotechnology, University of Maryland Biotechnology Institute, Baltimore, MD

1989 - 1995 - Professor (Joint Appointment), Department of Biological Sciences, University of Maryland at Baltimore County, Baltimore, MD

1990 - 1994 - Associate Provost, University of Maryland Biotechnology Institute, College Park, MD

1995 - 2002 - Director, Biotechnology Center, University of Connecticut, Storrs, CT

1995 - Date - Professor, Department of Molecular & Cell Biology, University of Connecticut, Storrs, CT

1996 - Present - Member of the Connecticut Academy of Science and Engineering.

Scholarly and Professional Activities and Honors:

- (1) External grant reviewer for the National Science Foundation, National Sciences and Engineering Research Council of Canada, Hudson River Foundation, National Institute of Health, National Cancer Institute, National Institute of Environmental Health Sciences, AID and National Sea Grant.
- (2) Member of the Study Session of the Comparative Medicine (NCRR, NIH) (1997–2002).
- (3) Executive Editors for Molecular Reproduction and Development (1983-2005).
- (4) Member of the Editorial Board of Molecular Marine Biology and Biotechnology, and Journal Marine Biotechnology (1991-1998).
- (5) U.S. Editor for Marine Biotechnology (1999-2004).
- (6) External Examiner for the Department of Biology and the Department of Biochemistry, the Chinese University of Hong Kong (1991-1995).
- (7) Member of the Agriculture Technology and Biotechnology Advisory Board to the Commissioner of Agriculture of the State of Connecticut (1996-2002).
- (8) Advisory Committee of Biotechnology National Research Initiative of Taiwan (1998–2008).
- (9) Member of the Scientific Advisory Board of the Institute of Cellular and Organismic Biology, Academia Sinica (1995-2001; 2004-present).
- (10) Outstanding Immigrant Award from the Connecticut State General Assembly (1998).
- (11) Member of the Connecticut Academy of Science and Engineering (1996-date).
- (12) Visiting Erskine Fellow, University of Canterbury, New Zealand (May-June, 1999; May-June, 2008).
- (13) Sir Eduard Yude Memorial Fund Visiting Professor Scheme (2000-2001) to the Chinese University of Hong Kong.
- (14) Outstanding Service Award from the State of Connecticut (2003).

Research Interests:

Current research activities in my laboratory center at the following areas: (1) structure, evolution and regulation of growth hormone and growth factor genes in finfish and shellfish; (2) molecular actions of growth hormone and growth factor; (3) expression of foreign growth hormone or anti-microbial peptide gene in transgenic fish; (4) anti-tumor activities of the E-peptides of pro-IGF-I; and (5) molecular toxicology: development of molecular biological probes for assessing stress in fish caused by environmental xenobiotic or other pollutants at sub-lethal levels.

Courses Taught:

	<u>Title</u>	<u>Department</u>	<u>Year</u>
Bio. 1B6	Introductory to Cell Biology	Biology	1977-1979
Bio. 1C6	Genetics	Biology	Summer Sess. of 1978
Bio. 1G6	Biology	Biology	1982-1986
Bio. 3H6	Advanced Cell Biology	Biology	1977-1986
Bio. 3B3	Developmental Genetics	Biology	1978-1980
Bio. 3N6	Developmental Biology	Biology	1985-1986
Bio. 3V6	Current Topics in Biology	Biology	1984-1985
Bio. 4N3	Developmental Genetics	Biology	1980-1982
Bio. 4P6	Molecular Genetics	Biology	1982-1986

Bio. 4C8	Undergraduate Thesis	Biology	1978-1986
Bio. 6N3	Developmental Genetics	Biology	1980-1982
Bio. 7O9	Special Topics in Biology	Biology	1977-1978
Bio. 762	Topics in Developmental Biology	Biology	1985-1986
Zool. 426	Endocrinology	Zoology	1988-1989
Bio. 436/636	Developmental Genetics	Biol. Sci.	1989-1995
<u>In vitro</u> Cell Biol.	Recombinant DNA Technology	Biol. Sci (SUNY at Plattsburgh)	1982-1992
MBL	Marine Molecular Ecology	Woods Hole	1989-1991
Bio 107	Biology	MCB	2003-2006
Bio 102	Biology	MCB	2003-2004
MCB 404	Special Topics in Developmental Genetics	MCB	2005
MCB 3201	Gene Expression	MCB	2007-Date
MCB3210/5210	Molecular Endocrinology	MCB	2007-Date

Supervisorships:

Master Students:

Paul Reid, completed (1977-1981)
Lynn Carr, completed (1981-1984)
Duane Howard, completed (1981-1984)
Susan Cooperstein, completed (1987-1993)
Rachel Jacobs, completed (2000-2002)
Andrew Mowery, completed (2001-2002)
Patrice Lin, completed (2005-2007)
T.-K. Wu, completed (2006-2008)
John Y.-C. Han (2011-present)

Ph.D. Students:

Lou Agellon, completed (1982-1986)
Yan-lin Tang, completed (1986-1993)
Clara Cheng, completed (1989-1995)
Mike Shablott, completed (1990-1995)
Jenn-Kan Lu, completed (1991-1996)
Bih-ying Yang, completed (1990-1997)
Mike Greene, completed (1993-1998)
Aliye Sarmasik, completed (1995-2000)
Ya-Hei Kuo, completed (1996-2001)
Mint Seri, completed (1997-2003)
Anitha Elango, completed (1996-2004)
Chang Zoon Chun, completed (1997-2004)
Ulysses Sallum, completed (1998-2007)
Jay H.-J. Lo, completed (2002-2009)
Rex Liao, in progress (2002-2011)
Jimmy Y.H. Yeh, in progress (2004-present)

Postdoctoral Fellows, Visiting Scientists and Research Fellow:

Becky van Beneden (1983-1985)
Lou Agellon (1986-1987)
H. J. Tsai (Jan. to Sept. 1987)

C.M. Lin (1987-1995)
C.M. Lin (1995-present)
Amy Berndtson (1988-1992)
Su-Fong Chieng (1991-1992, sabbatical)
K.M. Chan (1991-1992)
Adam Marsh (1991-1993)
Nick H. Vrolijk (1993-1996)
Verdi Farmafarmian (1994-1995, sabbatical)
Hussein Elghobashy (1995-1996. Fullbirght Scholar)
Min-Wha Wang (1995-1998)
Sau-Mei Leoung (1996-1997)
In-Kwon Jang (1996-1998)
Wei-Min Zhang (1996-1998)
Cindy Tian (1997-1998)
Jinki Son (1999-2000, sabbatical)
Peter W.-P. Chiou (1997-2007)
Brian S. Shepherd (1998-2000)
Bih-Ying Yang (1999-2003)
P. Zhang (August 1999 – October 1999)
Jenny Khoo (2000-2004)
Chang Zoon Chun (2004-2006)
Z.T. Chiou (2007-2009)
Jay H.-J. Lo (2011-present)

Research Funding:

1. Analysis of the biochemical action of insect juvenile hormone, NSERC Operating Grant, \$8,000/yr., 1978.
2. Mechanism of juvenile hormone-controlled gene expression in insect, NSERC Operating Grant, \$12,710/yr., 1979.
3. Biochemical studies of toxic effects of environmental acids on the reproduction of rainbow trout, Canadian National Sportsmen's Fund Grant, \$ 4,500/yr, 1980.
4. Biochemical analysis of the mechanism of hormone controlled gene expression, NSERC Operating Grant, \$13,000/yr., 1980.
5. Biochemical analysis of the mechanism of hormone controlled gene expression, NSERC Operating Grant, \$14,300/yr., 1981.
6. Biochemical analysis of the mechanism of hormone controlled gene expression, NSERC Operating Grant, \$16,517/yr., 1982.
7. Studies on early pathobiochemical effects of environmental acids on the reproduction of rainbow trout, Canadian National Sportsmen's Fund Grant, \$12,000/yr, 1981.
8. Development of a rapid, sensitive and quantitative biochemical indicator for the assessment of early pathobiochemical effects on reproduction caused by halogenated hydrocarbon in rainbow trout, NSERC Strategic Grant, \$21,430 (yr I), \$25,670 (yr II), 1981.

9. Development of a bioassay for effects of xenobiotic compounds on the expression of genes in fish, DSS Contract Grant, \$26,742/yr., 1982.
10. Feasibility of applying biotechnology in fish culture, DSS Contract Grant, \$30,000/3 mos., 1982.
11. Estrogen control of gene expression in rainbow trout. NSERC Operating Grant \$27,000/yr, 1983-1986 (3 years).
12. Molecular cloning and characterization of fish proto-oncogenes, NSERC International Research Grant, \$ 3,000/3 mos., 1983.
13. Development of an *in vitro* bioassay for assessing effects of xenobiotic on fish reproduction, DFO Grant, \$14,000/yr., 1983.
14. Application of biotechnology in fish culture (Phase I-III), DSS Contract Grant, \$322,631/2 yrs, 1984-1985
15. Preparation of cDNA libraries from photo-synthetic and non-photo-synthetic barley tissue in phage lambda, DSS Contract Grant, \$48,500/yr, 1985.
16. Characterization of fish oncogene (*c-myc*) and its rearrangement in fish tumors. DFO Grant, \$12,000/yr, 1985.
17. Application of bioengineering techniques in fish culture (Phase IV), DSS Contract, \$60,000/6 mos., 1985.
18. Isolation of genes involved in nitrogen assimilation and additional marker genes from cDNA libraries of barley, DSS Contract Grant, \$100,000/yr, 1986, (with Dr. A. Oaks).
19. Mechanism of regulation of growth hormone and prolactin, NSERC Operating Grant, \$30,051/yr, 1986.
20. Application of bioengineering technology in fish culture: large scale production of synthetic trout GH and its growth promotion assay, DSS Contract Grant, \$78,993/1.5 yrs, 1986.
21. Regulation of trout growth hormone gene: cloning, expression and gene transfer, NSF Operating Grant, \$90,000/yr., 1986-1989 (with Dr. D.A. Powers).
22. Isolation of promoters for gene transfer studies, ONR-URI Operating Grant, \$45,000/yr, 1986-1991.
23. Molecular biological probes for assessing effects of environmental xenobiotic at sublethal levels on fish reproduction, US Geological Survey Operating Grant, 345,314/3 yrs, 1987-1990.
24. The use of biosynthetic fish growth hormone to enhance fish growth, Maryland Sea Grant College, Operating Grant, \$161,000/2 yrs, 1987-1989 (with Dr. D.A. Powers).
25. Genetics engineering of finfish and shellfish by gene transfer, Maryland Sea Grant College, Operating Grant, \$132,000/2 yrs, 1990-1991.

26. Gene transfer and expression in farmed fish, BARD Operating Grant, \$250,000/3 yrs, 1990-1992 (with Drs. R.A. Dunham, D.A. Powers, B. Cavari, B. Moav, G. Hulta, and B. Funkenstein).
27. Isolation and characterization of male specific DNA sequences of striped bass, Maryland State DNR, Operating Grant, \$15,000, 1990.
28. The use of biosynthetic GH to enhance oyster growth, Maryland University Agriculture Experimental Station, Operating Grant, \$22,500/yr, 1990.
29. Regulation of trout growth hormone: cloning, expression and gene transfer, NSF Operating Grant, \$273,000/3 yrs, 1991-1994.
30. Transfer, expression, inheritance and effect of trout growth hormone gene in catfish, USDA, Operating Grant \$200,000/2 yrs, 1991-1993 (with Drs. R.A. Dunham and D.A. Powers).
31. Effects of trace metals and organic pollutants on stress-induced proteins in oyster larvae and spat: molecular approach, CBEEC Toxic Program, Virginia and Maryland Sea Grant Colleges, Operating Grant, \$40,000/yr, 1991-1992.
32. Stimulation of growth hormone and growth factor gene expression in shellfish: effects of growth hormone on larval, juvenile and adult life stages of the eastern oysters, *Crassostrea virginica*, Maryland Sea Grant College, Operating Grant, \$155,000/2 yrs, 1992-1993.
33. Improvement of growth by expression rtGH and selection in transgenic catfish. USDA, Operating Grant \$249,950/3 yrs, 1993-1996 (with R.A. Dunham).
34. Basic and applied studies on gonadotropin releasing hormone induction of sperm production, ovulation and spawning in *Morone* species. Maryland Sea Grant College, Operating Grant, \$158,000/2 yrs, 1994-1995 (with Dr. Yoni Zohar).
35. Regulation of expression of fish insulin-like growth factor genes. NSF Operating Grant, \$285,000/3yrs, 1994-1996.
36. Expression and inheritance of growth hormone gene constructs and selective breeding of transgenic farmed fish. BARD Operating Grant, \$350,000/3 years, 1994-1997 (With Rex Dunham, B. Mov, and B. Cavari).
37. Transfer of foreign genes into marine invertebrates with pantropic vector. MAES, \$19,000/yr, 1994-1995.
38. Transgenic fish as a model for environmental toxicology. NIH Operating Grant, \$465,344/3 yrs, 1995-1998.
39. Production of fast-growing transgenic shrimp and crayfish by pantropic viral vectors. Connecticut Sea Grant Program, R/A-18, \$74,388, 1997-1999.
40. Regulation of expression of fish insulin-like growth factors. NSF Operating Grant, \$150,000/3 yrs, 1997-2000.
41. Regulation of teleost growth hormone genes *in vivo* and *in vitro*. USDA Operating Grant, \$200,000/3 yrs, 1998-2001.

42. Production of transgenic tilapia with add-on economic value for commercialization. Yankee Ingenuity Initiative/Charles Goodyear Operating Grant \$183,797/2 yrs, 1998-2000 (Co-P.I. with Frank).
43. Production of transgenic finfish, shellfish and crustacean for commercial aquaculture. CII Operating Grant, \$275,000, 1998-2000 (Co-P.I. with Laufer, Crevillo and Straubghor).
44. Research and development of marine plant (nori) aquaculture in Connecticut water. CII Operating Grant, \$296,896, 1998-2000 (Co-P.I. with Cooper and Yarish).
45. Production of transgenic white bass by introducing a fish growth hormone gene. Kent SeaFarms Corporation Operation grant, \$131,736, 1999-2002.
46. An innovative approach to growth enhancement in two economically important euryhaline teleosts, the rainbow trout. Connecticut Sea Grant Program, \$98,600/2 yrs, 2000-2001.
47. Development of superior rainbow trout broodstocks for aquaculture by transgenesis. ARS-USDA contract, \$2,500,000/yr, 2000-2005.
48. Function and Regulation of IGF-I, IGF-II and IGF type I Receptor Gene. NSF operating grant, \$300,000, 2000-2004.
49. Characterization of the biological function of somatolactin: identification of somatolactin receptor and determination of somatolactin target tissues. Connecticut Sea Grant Program, \$76,002, 2002-2004.
50. Transom active transgenic Xiphophorus. NIH, 1R21RR17412-01, \$56,605/yr, 05/15/02 – 10/30/2003 (a subcontract from Southwest Texas State University).
52. Production of disease resistant shrimps by manipulation of antimicrobial peptide genes. USDA-NRI, \$200,000/yr., 10/02 – 5/05 (Co-PI with S. Moss at O.I., Hawaii).
53. Production of rainbow trout with superior traits for aquaculture. USDA/ARS, \$420,000, 04/14/05 to 04/13/06.
54. Production of rainbow trout with superior traits for aquaculture. USDA/ARS, \$420,000, 04/14/06 to 04/13/07.
55. Production of rainbow trout with superior traits for aquaculture. USDA/ARS, \$420,000, 04/14/07 to 04/13/08. (This contract will be continued till 04/13/2010 with \$420,000/year)
56. Production of rainbow trout with superior traits for aquaculture. USDA/ARS, \$420,000, 04/14/08 to 04/13/09. (This contract will be continued till 04/13/2010 with \$420,000/year)
57. Production of rainbow trout with superior traits for aquaculture. USDA/ARS, \$420,000, 04/14/09 to 04/13/10.
58. Identifying Biochemical Pathways Using Genetically Modified Trout. USDA/ARS, \$420,000, 04/14/10 to 04/13/11.
59. Identifying Biochemical Pathways Using Genetically Modified Trout. USDA/ARS, \$420,000, 04/14/11 to 04/13/12

60. Identifying Biochemical Pathways Using Genetically Modified Trout. USDA/ARS, \$368,321, 04/14/12 to 04/13/13

Published Papers: (*Abstracts are not listed*)

1. **Chen, T.T.:** Intragenic complementation of indole glycerol phosphate synthetase between trpC merodiploids of *E. coli*. **Master Degree Thesis**, SUNY at Plattsburgh, 1970.
2. **Chen, T.T.:** A study of dopa decarboxylase in the fleshfly *Sarcophaga bullata*. **Ph.D. Thesis**, University of Alberta, 1973.
3. Watanabe, M., Phillips, K. and **Chen, T.T.:** Steroid receptor in *P. testosteroni* released by osmotic shock. **J. Steroid Biochem.** 4: 613-621, 1973.
4. **Chen, T.T.** and Hodgetts, R.B.: The appearance of dopa decarboxylase activity in imaginal discs of *Sarcophaga bullata* undergoing development *in vitro*. **Develop. Biol.** 38: 271-284, 1974.
5. **Chen, T.T.** and Hodgetts, R.B.: Biochemical characterization of dopa decarboxylase from *Sarcophaga bullata*. **Comp. Biochem. Physiol.** 53B: 415-418, 1976.
6. Wyatt, G.R., **Chen, T.T.** and Couble, P.: Juvenile Hormone-induced vitellogenin synthesis in locust fat body. In: "**Invertebrate Tissue Culture Application in Biology, Medicine, and Agriculture**", (Eds. K. Jrustak and K. Maramorosch) pp. 195-202, 1976, Academic Press, New York.
7. **Chen, T.T.**, Couble, P., de Luca, F. and Wyatt, G.R.: Juvenile hormone control of vitellogenin synthesis in *Locusta migratoria*. In "**The Juvenile Hormone**", (ed. L.I. Gilbert) pp. 505-528, 1976, Plenum Press, New York.
8. Nemeč, V., **Chen, T.T.** and Wyatt, G.R.: Precocious adult locust, *Locusta migratoria migratorioides*, induced by precocene. **Acta Entomologica Hohenoslovca** 75: 285-286, 1978.
9. **Chen, T.T.**, Strahlendorf, P.W. and Wyatt, G.R.: Vitellin and Vitellogenin of Locust (*Locusta migratoria*): properties and post-translational modification in the fat body. **J. Biol. Chem.** 253: 5325-5331, 1978.
10. Couble, P., **Chen, T.T.** and Wyatt, G.R.: Juvenile hormone-controlled vitellogenin synthesis in *Locusta migratoria* fat body - cytological development. **J. Insect Physiol.** 25: 327-337, 1979.
11. **Chen, T.T.**, Couble, P., Abu-Hakima and Wyatt, G.R.: Juvenile hormone-controlled vitellogenin synthesis in *Locusta migratoria* fat body - hormone induction *in vitro*. **Develop. Biol.** 69: 59-72, 1979.
12. **Chen, T.T.:** Vitellogenin in locust (*Locusta migratoria*): Translation of vitellogenin mRNA in *Xenopus* oocytes and analysis of the polypeptide products. **Arch. Biochem. Biophys.** 201: 266-276, 1980.

13. Nair, K.K., **Chen, T.T.** and Wyatt, G.R.: Juvenile hormone-dependent increase in polyploidy associated with vitellogenin synthesis in adult locust fat body. **Develop. Biol.** 81: 356-360, 1981.
14. Reid, P.C. and **Chen, T.T.**: Juvenile hormone-controlled vitellogenin synthesis in fat body of locusts (*Locusta migratoria*): isolation and characterization of vitellogenin polysomes and their induction *in vivo*. **Insect Biochem.** 11: 297-305, 1981.
15. **Chen, T.T.** and Wyatt, G.R.: Juvenile hormone control of vitellogenin synthesis in *Locusta migratoria*. In "**Regulation of Insect Development and Behavior - International Conference**" (Eds. F. Sehnal and A.Zabaz), pp.535-566, 1981, Technical University of Wroclaw, Wroclaw, Poland.
16. **Chen, T.T.**: Identification and characterization of estrogen-responsive gene products in the liver of rainbow trout. **Can. J. Biochem. Cell Biol.** 61: 802-810, 1983.
17. **Chen, T.T.** and Hillen, L.J.: The expression of vitellogenin gene regulated by insect juvenile hormone (a review). **Gamete Res.** 7: 179-196, 1983.
18. **Chen, T.T.** and Sonstegard, R.A.: Development of a rapid, sensitive and quantitative test for the assessment of the effects of xenobiotics on reproduction in fish. **Marine Environ. Res.** 14: 429-430, 1984.
19. Keoppe, J., Euchs, M., **Chen, T.T.** and Hunt, L.: Role of juvenile hormone in reproduction. In: "**Comprehensive Insect Physiology, Biochemistry and Pharmacology**" (Eds. L.I. Gilbert and G.A. Kerbut). Vol. 8, pp.165-203, 1985, Pergamon Press, Oxford.
20. Sonstegard, R.A. and **Chen, T.T.**: A review of lympho-sarcoma of muskellunge and northern pike in "**Muskellunge Management**", **Am. Fish. Soc. Spec. Publ.** 15: 47-50, 1986.
21. Van Beneden, R.J., Watson, D.K., **Chen, T.T.**, Lautenberger, J.A. and Papas, T.S.: Cellular myc (*c-myc*) in fish (rainbow trout): its relationship to other vertebrate myc genes and to the transforming genes of the MC29 family of viruses. **Proc. Natl. Acad. Sci. U.S.A.** 83: 3698-3702, 1986.
22. Agellon, L.B., **Chen, T.T.**, Van Beneden, R.J., Sonstegard, R.A., Wagner, G.F. and McKeown, B.A.: Rainbow trout growth hormone: *in vitro* translation of pituitary RNA and product analysis. **Can. J. Fish. Aqua. Sci.** 43: 1327-1331, 1986.
23. **Chen, T.T.**, Reid, P.C., Van Beneden, R. and Sonstegard, R.A.: Effect of Aroclor 1254 and Mirex on estradiol induced vitellogenin production in juvenile rainbow trout (*Salmo gairdneri*). **Can. J. Fish. Aqua. Sci.** 43: 169-173, 1986.
24. Agellon, L.B. and **Chen, T.T.**: Supercoiled plasmid sequencing: one buffer for template denaturation, primer annealing and synthesis of labeled strands by reverse transcriptase. **Gen. Analy. Tech.** 3: 86-89, 1986.
25. Powers, D.A., Agellon, L.B., **Chen, T.T.**, Van Beneden, R.J., Smith, M., Frazier, J. and DiMichele, L.: Genetic engineering of fish. In "**Pacific Congress on Marine Technology**". MRM 12/10, 1986.

26. Agellon, L.B., and **Chen, T.T.**: Rainbow trout growth hormone: molecular cloning of cDNA and expression in *E. coli*. **DNA** 5: 463-471, 1986.
27. **Chen, T.T.**, Agellon, L.B. and Van Beneden, R.J.: Genetic engineering of fish. In "**Selection, Hybridization, and Genetic Engineering in Aquaculture**" (ed. Klaus Tiews) pp.347-359, 1987, Schritten der Bundesforschungsanstalt fur Fischerei.
28. **Chen, T.T.**, Van Beneden, B.J., Agellon, L.B., Howard, D.A., and Sonstegard, R.A.: Molecular Toxicology: A New Frontier. In "**New and Innovative Advances in Biology/Engineering with Potential for Use in Aquaculture**" (ed. A.K.Sparks) NOAA Tech. Rep. NMFS 70, Natl. Mar. Fish. Serv., pp.9-13, 1988.
29. Agellon, L.B., Emery, C.J., Jones, J., Davies, S.L., Dingle, A.D., and **Chen, T.T.**: Growth hormone enhancement by genetically-engineered rainbow trout growth hormone. **Can. J. Fish. Aqua. Sci.** 45: 146-151, 1988.
30. **Chen, T.T.**: Investigation of effects of environmental xenobiotics to fish at sublethal levels by molecular biological approaches. **Marine Environ. Res.** 24: 333-337, 1988.
31. Van Beneden, R.J., Watson, D.K., **Chen, T.T.**, Lautenberger, J.A., and Papas, T.S.: Teleost oncogenes: evolution comparison to other vertebrate oncogenes and possible roles in teleost neoplasms. **Marine Environ. Res.** 24: 339-343, 1988.
32. Gonzalez, L.I., Zhang, P., **Chen, T.T.** and Powers, D.A.: Molecular cloning and sequencing of Coho salmon growth hormone cDNA, **Gene** 65: 239-246, 1988.
33. Powers, D.A., Chapman, R.W., **Chen, T.T.**, and Dimichele, L.: A molecular approach to recruitment problem: genetics and physiology. In "**Toward a Theory on Interactions between Biology and Physics**". (Ed. by Rothschild, B.), pp.411-440, 1988, Kluwer Acad. Pub., Bordrecht.
34. Agellon, L.B., Davies, S.L., **Chen, T.T.**, and Powers, D.A.: The nucleotide sequence of a gene encoding rainbow trout growth hormone (GH): implication on the evolution of the GH gene structure. **Proc. Natl. Acad. Sci. U.S.A.** 85: 5136-5140, 1988.
35. Papas, T.S., Bhat, N.K., **Chen, T.T.**, Dubois, G., Fisher, R.J., Fujiwara, S., Pribyl, L.J., Sacchi, N., Seth, A., Showalter, S.D., Watson, D.K., Zweig, M., and Ascione, R.: The ets genes in cells and viruses: implications for leukemias and other human diseases. **Ann. N.Y. Acad. Sci.** 511: 171-191, 1988.
36. Agellon, L.B., Davies, S.L., Lin, C.M., **Chen, T.T.**, and Powers, D.A.: Growth hormone in rainbow trout is encoded by two separate genes. **Mol. Repro. Develop.** 1: 11-17, 1988.
37. **Chen, T.T.**, Agellon, L.B., Lin, C.M., Tsai, H.J., Zhang, P., Gonzalez-Villasenor, L.I. and Powers, D.A.: Evolutionary implications of two trout growth hormone genes. **J. Fish. Biochem. Physiol.** 7: 381-385, 1989.
38. **Chen, T.T.**, Howard, D.A., Agellon, L.B., Lin, C.M. and Davies, S.L.: Estrogen controlled gene expression: induction of two estrogen-responsive genes in the liver of rainbow trout (*Salmo gairdneri*). **Physiol. Zool.** 62: 25-37, 1989.

39. **Chen, T.T.**, Zhu, Z., Dunham, R.A., and Powers, D.A.: Gene transfer, expression and inheritance of rainbow trout and human GH genes in carp and loach. In "**Current Topics in Marine Biotechnology**" (ed. S. Miyachi, L.Karube and Y. Ishida), pp. 271-274, 1989.
40. Powers, D.A., Allendorf, F. and **Chen, T.T.**: Application of molecular techniques to study of marine recruitment problems. In "**Large Marine Ecosystems: Patterns, Processes and Yields**" (eds. K. Sherman, L.M. Alexander and B.D. Gold), pp.104-121, 1990, AAAS, Washington D.C.
41. **Chen, T.T.**, Lin, C.M., Zhu, Z., Gonzalez-Villasenor, L.I., Dunham, R.A., and Powers, D.A.: Gene transfer, expression and inheritance of rainbow trout and human growth hormone genes in carp and loach. In "**Transgenic Models in Medicine and Agriculture**" (ed. R.B. Church), UCLA Symposia on Molecular and Cellular Biology New Series 116: 127-139, 1990.
42. Powers, D.A., Gonzalez-Villasenor, L.I., Zhang, P., **Chen, T.T.**, and Dunham, R.A.: Studies on transgenic fish: gene transfer, expression and inheritance. In "**Transgenic Animals**" (eds. N.L. First and F.P. Haseltine), Butterworth-Heinemann, Boston, MA, pp. 307-324, 1990.
43. Zhang, P., Hayat, M., Joyce, C., Gonzales-Villasenor, L.I., Lin, C.-M., Dunham, R., **Chen, T.T.** and Powers, D.A.: Gene transfer, expression and inheritance of pRSV-Rainbow Trout-GHc-DNA in the carp, *Cyprinus carpio* (Linnaeus). **Mol. Repro. Develop.** 25: 3-13, 1990.
44. **Chen, T.T.** and Powers, D.A.: Transgenic fish. **Trends in Biotechnol.** 8: 209-215, 1990.
45. **Chen, T.T.**, Dunham, R.A., and Powers, D.A.: Gene transfer and transgenic fish: a new approach to aquaculture. **Proceedings of the Forth Pacific Congress in Marine Technology:** 567-570, 1990.
46. Danzmann, R.G., Van Der Kraak, G.J., **Chen, T.T.**, and Powers, D.A.: Metabolic effects of bovine growth hormone and genetically engineered rainbow trout growth hormone in rainbow trout (*Oncorhynchus mykiss*) reared at a high temperature. **Can. J. Fish. Aqua. Sci.** 47: 1291-13016, 1990.
47. Matsunaga, T., **Chen, T.T.**, and Tormanen, V.: Characterization of a complete immunoglobulin heavy-chain variable region germ-line gene of rainbow trout. **Proc. Natl. Acad. Sci. U.S.A.** 87: 7767-7771, 1990.
48. Unger, M.E., **Chen, T.T.**, Murphy, C.M., Vestling, M.M., Fenselau, C., and Roesijadi, G.: Primary structure of molluscan metallothioneins deduced from PCR-amplified cDNA and mass spectrometry of purified proteins. **Biochem. Biophys. Acta** 1074: 371-377, 1991.
49. Hayat, M., Joyce, C.P., Townes, T.M., **Chen, T.T.**, Powers, D.A., and Dunham, R.A.: Survival and integration rate of channel catfish and common carp embryos microinjected with DNA at various developmental stages. **Aquaculture** 99: 245-255, 1991.
50. Vestling, M., Murphy C., Fenselau, and **Chen, T.T.**: Disulfide bonds in native and recombinant fish growth hormones. **Mol. Marine Biol. Biotech.** 1: 73-77, 1991.

51. Paynter, K.T. and **Chen, T.T.**: The regulation of bivalve growth: effects of exogenously applied vertebrate growth hormone. **Biol. Bull.** 181: 459-462, 1991.
52. Powers, D.A., **Chen, T.T.**, Lin, C.M., Hayat, M., Chatakondi, N., Ramboux, P.L., and Dunham, D.A.: Gene expression and growth of common carp (*Cyprinus carpio*) and channel cat fish (*Ictalurus punctatus*) possessing salmonid growth hormone genes. **Proceedings of the Second International Marine Biotechnology Conference**, Baltimore, MD, pp654-657, 1991.
53. Lu, J.K., Chrisman, C.L., Andrisani, O.M., Dixon, J.E., and **Chen, T.T.**: Integration, transmission and expression of human growth gene in medaka (*Oryzia latipes*). **Proceedings of the Second International Marine Biotechnology Conference**, Baltimore, MD, pp687-689, 1991.
54. **Chen, T.T.**, Lin, C.M., and Kight, K.: Application of transgenic fish technology in aquaculture. **Bull. Inst. Zool., Academia Sinica, Monograph** 16: 375-386, 1991.
55. **Chen, T.T.** and Powers, D.A.: Transgenic fish with growth hormone gene insert. In "**A Monograph in Transgenic Fish**" (ed. C.L. Hew). World Scientific Publishing Co. Ltd., Singapore, pp.164-175, 1992.
56. Powers, D.A., **Chen, T.T.**, and Dunham, R.A.: Transgenic fish. In "**Transgenesis - Application of Gene Transfer**" (ed. J. Murray), John Willey & Sons Ltd., Chichester, UK, pp.233-249, 1992.
57. **Chen, T.T.**, Dunham, R.A., and Powers, D.A.: Transgenic fish and aquaculture. In "**Advance in Gene Technology: Feeding the World in the 21st Century**", Proceedings of the 1992 Miami Bio/Technology Winter Symposium pp.65.
58. Watanabe, K., Igarashi, A., Noso, T., **Chen, T.T.**, Dunham, R.A., and Kawauchi, H.: Chemical identification of catfish growth hormone and prolactin. **Mol. Marine. Biol. Biotechnol.** 1: 239-249, 1992.
59. Lu, J.K., Chrisman, C.L., Andrisani, O.M., Dixon, J.E., and **Chen, T.T.**: Integration expression and germ-line transmission of foreign growth hormone genes in medaka, *Oryzias latipes*. **Mol. Marine Biol. Biotechnol.** 1: 366-375, 1992.
60. Dunham, R.A., Ramboux, A.C., Duncan, P.L., Hayat, M., Lin, C.M., Gonzales-Villasenor, L.I., Kight, K., **Chen, T.T.**, and Powers, D.A.: Transfer, expression and inheritance of salmonid growth hormone genes in channel catfish, *Ictalurus punctatus*, and effects on performance traits. **Mol. Marine Biol. Biotechnol.** 1:380-389, 1992.
61. Zhu, Z., Ling, H., and **Chen, T.T.**: Primary structure and evolutionary analyses of the growth hormone gene from grass carp (*Ctenopharyngodon idellus*), **Eur. J. Biochem.** 207: 643-648, 1992.
62. Shambloott, M.J. and **Chen, T.T.**: Identification of a second insulin-like growth factor in a fish species. **Proc. Natl. Acad. Sci. U.S.A.** 89: 8913-8917, 1992.
63. **Chen, T.T.**: Transgenic fish technology: an emerging approach to aquaculture and mariculture. **Bio-Japan '92 Symposium Proceedings**, pp.170-180, 1992.

64. **Chen, T.T.**, Powers, D.A., Lin, C.M., Kight, K., Hayat, M., Chatakondi, N., Ramboux, A.C., Duncan, P.L., and Dunham, R.A.: Expression and inheritance of RSVLTR-rtGH1 cDNA in common carp, *Cyprinus carpio*. **Mol. Marine Biol. Biotechnol.** 2: 88-95, 1993.
65. **Chen, T.T.**, Lin, C.M., Lu, J.K., Shablott, M.J., and Kight, K.: Transgenic fish: a new emerging technology for fish production. In "**Science for the Food Industry of the 21st Century, Biotechnology, Supercritical Fluids, Membrane and Other Advanced Technologies for Low Calories, Healthy Food Additives**" (ed. M. Yalpani). Pp.145-159, 1993. ATL Press.
66. Tsai, H.J., Lin, K.L., and **Chen, T.T.**: Yellowfin porgy (*Acanthopagrus latus* HOUTTUYN) growth hormone cDNA: molecular cloning and expression in *E. coli* cells. **Comp. Biochem. Physiol.** 104B: 803-810, 1993.
67. Cavari, B., Funkenstein, B., **Chen, T.T.**, Gonzalez-Villasenor, L.I., and Scharl, M.: Effect of growth hormone on the growth rate of the gilthead seabream (*Sparus aurata*), and use of different constructs for the production of transgenic fish. **Aquaculture** 111: 189-197, 1993.
68. Tang, Y.L., Lin, C.M., Kawachi, H., Dunham, R.A., Creech, K., Powers, D.A., and **Chen, T.T.**: The structure of channel catfish growth hormone gene and its evolutionary implication. **Mol. Marine Biol. Biotechnol.** 2: 198-206, 1993.
69. **Chen, T.T.**, Lu, J.K., and Kight, K.: Fish, Transgenic. In "**Encyclopedia of Molecular Biology and Biotechnology, Fundamental and Application**" (Ed R. Meyers). VCH Publishers, New York, N.Y. (in press), pp. 910-914, 1993.
70. Powers, D.A., **Chen, T.T.** and Dunham, R.A.: Biotechnology of aquatic animals: a new frontier with implications for both basic and applied research. **Biology International** 28: 17-25, 1993.
71. Shablott, M.J. and **Chen, T.T.**: Age-related and tissue-specific levels of five forms of insulin-like growth factor mRNA in a teleost. **Mol. Marine Biol. Biotechnol.** 2: 351-361, 1993.
72. **Chen, T.T.**, Shablott, M.J., Lin, C.M., Tang, Y.L., Chan, K.M., Cheng, C. M., Yang, B.Y., and Marsh, A.: Structure and evolution of fish growth hormone and insulin-like growth factor genes. In "**Perspectives in Comparative Endocrinology**" (ed. Davey, K.G. and Tobe, S.S.). National Research Council of Canada, Ottawa. pp. 352-364, 1994.
73. **Chen, T.T.**: Gene transfer and transgenic fish: a molecular and physiological approach to explore the action of growth hormone. **Proceedings of the 3rd Asian Fisheries Forum**, 584-590, 1994.
74. **Chen, T.T.**, Marsh, A., Shablott, M.J., Chan, K.M., Tang, Y.L., Cheng, C.M., and Yang, B.Y.: Structure and evolution of fish growth hormones and insulin-like growth factor genes. In "**Fish Physiology**" (eds. by C.L. Hew and N. Sherwood), Academic Press, pp. 179-209, 1994.
75. Berndtson, A. and **Chen, T.T.**: Two unique CYP1 genes are expressed in response to 3-methylcholanthrene treatment in rainbow trout. **Arch. Biochem. Biophys.** 310: 187-195, 1994.
76. **Chen, T.T.**, Shablott, M. and Lu, Jenn-Kan: Fish IGF-I and IGF-II: age-related and tissue-specific expression and transgenesis. In "**Animal Cell Technology: Basic and Applied Aspect**" (Eds by T. Kobayashi, Y. Kitagawa and K. Okumura), Vol. 6, 127-135, 1994.

77. **Chen, T.T.**, Lin, C.-M., Shambloott, M., Lu, J.-K. and Kight, K.: Transgenic fish and aquaculture. in **"Proceedings of the 5th World Congress on Genetics Applied to Livestock Production"** Vol. 21: 324-331, 1994.
78. Cheng, C.M., Lin, C.M., Shambloott, Mike, Gonzalez-Villasenor, L.I., Powers, D.A., Woods, C. and **Chen, T.T.**: Production of a biologically active recombinant teleostean growth hormone in *E. coli* cells. **Mol. Cellular Endocrinol.** 108: 75-85, 1995.
79. Vrolijk, N. and **Chen, T.T.**: Cloning and expression of CYP1A in the butterfly fish, *Chaetodon capistratus*. **J. Marine Biotechnol.** 3: 228-231, 1995.
80. Bols, N.C., Yang, B.-Y., Lee, L.E. and **Chen, T.T.**: Development of a rainbow trout pituitary cell line that express growth hormone and somatolactin genes, **Mol. Marine Biol. Biotechnol.** 4: 1995.
81. Gothilf, Y., Chow, M., Elizur, A., **Chen, T.T.** and Zohar, Y.: Molecular cloning and characterization of a novel gonadotropin-releasing hormone from the gilthead seabream (*Sparus aurata*), **Mol. Marine. Biol. Biotechnol.** 4: 27-35, 1995.
82. Shambloott, M.J., Cheng, C.M., Bolt, D. and **Chen, T.T.**: Growth hormone dependent accumulation of insulin-like growth factor (IGF) mRNA in a teleost liver and pyloric caeca. **Proc. Natl. Acad. Sci. U.S.A.** 92: 6943-6946, 1995.
83. Cheng, Clara M. and **Chen, T.T.**: Synergism of growth hormone (GH) and insulin-like growth factor-I (IGF-I) in stimulation of sulphate uptake by teleostean bronchial cartilage in vitro. **J. Endocrinol.** 147: 67-73, 1995.
84. Marsh, Adam G. and **Chen, T.T.**: A divergent cDNA homologue of the c-myc proto-oncogene in the eastern oyster *Crassostrea virginica*: implication for myc evolution. **Mol. Marine Biol. Biotechnol.** 4: 185-192, 1995.
85. **Chen, T.T.**, Lu, J.-K. Lu, Shambloott, M.J., Cheng, C.M., Lin, C.-M., Burns, J.C., Reimschuessel, R., Chatakondi, N. and Dunham, R.A.: Transgenic Fish: Ideal Models for Basic Research and biotechnological applications. **Zool. Studies** 34: 215-234, 1995.
86. Chatakondi, N., Lovell, R.T., Duncan, P.L., Hayat, M., **Chen, T.T.**, Powers, D.A., Weete, J.D., Cummins, K., and Dunham, R.A.: Body composition of transgenic common carp, *Cyprinus carpio*, containing rainbow trout growth hormone gene. **Aquaculture** 138: 99-109, 1995.
87. **Chen, T.T.**, Lu, J.-K. Lu, Shambloott, M.J., Cheng, C.M., Lin, C.-M., Burns, J.C., Reimschuessel, R., Chatakondi, N. and Dunham, R.A.: Transgenic Fish: Ideal Models for Basic Research and biotechnological applications.in *Molecular Zoology: Advances, Strategies, and Protocols* (ed by Joan D. Ferrairs and Stephen R. Palumbi), Wiley-Liss, pp. 401-433, 1996.
88. **Chen, T.T.**, Vrolijk, N.H., Lu, J.K., Lin, C.M., Reinschuessel, R. and Dunham, R.A.: Transgenic fish and its application in basic and applied research. **Biotechnol. Ann. Rev.** 2: 205-236, 1996.

90. Lu, J.-K., **Chen, T.T.**, Allen, S.K., Matsubara, T. and Burns, J.C.: Production of transgenic dwarf surf clam, *Mulinia lateralis*, with pantropic retroviral vectors. **Proc. Natl. Acad. Sci. U.S.A.** 93: 3482-3486, 1996.
91. **Chen, T.T.**, Lu, J.-K. Lu, Shambloott, M.J., Cheng, C.M., Lin, C.-M., Burns, J.C., Reimschuessel, R., Chatakondi, N. and Dunham, R.A.: Fish, Transgenic. in "**Encyclopedia of Molecular Biology and Biotechnology, Fundamental and Application**" (ed. R. Meyers). 6: 84-99, VCH Verlagsgesellschaft mbH, Federal Republic of Germany, 1997.
92. Yang, B.-Y., Chan, K.-M., Lin, C.-M. and **Chen, T.T.**: Characterization of rainbow trout (*Oncorhynchus mykiss*) growth hormone 1 gene and the promoter region of growth hormone 2 gene. **Arch. Biochem. Biophys.** 340: 359-368, 1997.
93. Yang, B.-Y., Arab, M. and **Chen, T.T.**: The pituitary and non-pituitary expression of somatolactin gene in rainbow trout (*Oncorhynchus mykiss*) **Gen. Comp. Endocrinol.** 106: 271-280, 1997.
94. Shepherd, Brain S., Sakamoto, Tatsuya, Nishioka, Richard S., Richman III, Nurney H., Mori, Ikue, Madsen, S.T., **Chen, Thomas T.**, Hirano, Tetsuya, Bern, Howard A., and Grau, E. Gordon: Somatotropic actions of homologous growth hormone (tGH) and prolactin (tPRL177) in the euryhalin teleost, the tilapia, *Oreochromis mossambicus*. **Proc. Natl. Acad. Sci. U.S.A.** 94: 2068-2072, 1997.
95. Greene, M.W. and **Chen, T.T.**: Temporal expression pattern of insulin-like growth factor mRNA during embryonic development in a teleost, rainbow trout (*Oncorhynchus mykiss*). **Mol. Marine Biol. Biotechnol.** 6: 144-151, 1997.
96. Lu, J.-K., Jane C. Burns, and Chen, T.T.: Pantropic retroviral vector integration, expression and germline transmission in medaka (*Oryzias latipes*). **Mol. Marine Biol. Biotechnol.** 7: 289-295, 1997.
97. Chen, T.T., J.-K. Lu and Fahs, R.: Transgenic fish technology and its application in fish production. In "**Agricultural Biotechnology**" Marcel Dekker, Inc. New York, N.Y. pp.527-547.1997
98. Foster, E.P., Vrolijk, N.H., **Chen, T.T.**, and Curtis, L.R.: Interaction of 2,2',4,4',5,5'-hexachlorobiphenyl with hepatic cytochrome P450 in rainbow trout (*Oncorhynchus mykiss*). **J. Toxicol. Environ. Health**, 53: 313-325, 1998.
99. Powers,Dennis A., Gormez-Chiarri, M., **Chen, T.T.**, and Dunham, R.: Genetic engineering of finfish and shellfish. In "**Gene Transfer in Aquatic Organisms**", (ed by: Jose de la Fuente and Fidel O Castro). pp. 17-34, 1998, Springer-Verlag, New York.
100. **Chen, T.T.** and Lu, J.K.: Transgenic fish technology: basic principle and its application in basic and applied research. In "**Gene Transfer in Aquatic Organisms**", (ed by: Jose de la Fuente and Fidel O Castro), pp. 45-73, 1998, Springer-Verlag, New York.
101. Shambloott, M.J., Leung, S-M, and **Chen, T.T.**: Characterization of a Teleost Insulin-like Growth Factor II (IGF II) Gene: Evidence for Promoter CCAAT/Enhancer-binding Protein (C/EBP) Sites, and the Presence of Hepatic C/EBP. **Mol. Marine Biol. Biotechnol.**, 7: 181-190, 1998.

102. Greene, M.W., Shambloott, M.J. and **Chen, T.T.**: Detection of GH-dependent insulin-like growth factor II mRNA in the diffuse pancreatic tissue of rainbow trout using digoxigenin-labeled cRNA probes. **Comp. Biochem. Physiol. B.** 122: 287-292, 1999.
103. Yang, Bih-Yan, Greene, Mike, and **Chen, T. T.**: Fish growth hormone family genes are expressed prior to the ontogenesis of the pituitary gland. **Mol. Repro. Develop.** 53: 127-34, 1999.
104. Tian, X.C., Chen, M., Pantschenko, A.G., Yang, T.J. and **Chen, T.T.**: Recombinant E-peptides of pro-IGF-I have mitogenic activity. **Endocrinology** 140: 3387-3390, 1999.
105. Greene, M.W. and **Chen, T.T.**: Cloning and characterization of teleost insulin receptor family members. I. Expression of insulin receptor messenger RNAs. **Gen. Comp. Endocrinol.** 115: 254-299, 1999.
106. Greene, M.W. and **Chen, T.T.**: Cloning and characterization of teleost insulin receptor family members. II. expression of insulin-like growth factor type I receptor messenger RNAs. **Gen. Comp. Endocrinol.** 115: 270-281, 1999.
107. Greene, M.W. and **Chen, T.T.**: Quantitation of IGF-I, IGF-II, and multiple insulin receptor family member messenger RNAs during embryonic development in rainbow trout. **Mol. Repro. Develop.** 54: 348-361, 1999.
108. Dunham, Rex A., Chitmanat, C., Nichols, A., Argue, B., Powers, D.A., and **Chen, T.T.**: Predator avoidance of transgenic channel catfish containing salmonid growth hormone genes. **Marine Biotechnol.** 1: 545-551, 1999.
109. Gonzalez-Villasenor, L.I. and **Chen, T.T.**: Antibodies for growth hormone and prolactin using multiple antigen peptide immunogens. **Marine Biotechnol.** 1: 211-220, 1999.
110. Råbergh, C.M., Vrolijk, N.H., **Chen, T.T.**, and Lipsky, M.M.: Characterization of the induction of cytochrome P4501A (CYP1A) in primary cultures of rainbow trout hepatocytes. **Toxicology and Applied Pharmacology** 165: 195-205, 2000.
111. Rathinam, A.V., **Chen, T.T.**, and Grossfeld, R.M.: Cloning and sequence analysis of a cDNA for an inducible 70 Kda heat shock protein (Hsp 70) of the American oyster (*Crassostrea virginica*). **DNA Sequence** 11: 261-264, 2000.
112. Shepherd, Brain S., Eckert, S.M., Parhar, I.S., Vijayan, M.M., Wakabayashi, I., Hirano, T., Grau, E.G. and **Chen, T.T.**: The hexapeptide KP-102 (D-Ala-D-B-Nal-Ala-Trp-D-Phe-Lys-NH₂) stimulates growth hormone release in a cichlid fish (*Oreochromis mossambicus*). **J. Endocrinol.** 167: R7-R10, 2000.
113. Y. Tang, Y, Shepherd, B.S., Nichols, A.J., Dunham, R. and **Chen, T.T.**: Influence of environmental salinity on messenger RNA levels of growth hormone, prolactin and somatolactin in pituitary of the channel catfish (*Ictalurus punctatus*). **Marine Biotechnol.** 3: 205-217, 2001.

114. Sarmasik, A, Jang, I.-K., Chun, C. Z., Lu, J.K., and **Chen, T.T.**: Transgenic live-bearing fish and crustaceans produced by transforming immature gonads with replication-defective pantropic retroviral vectors. **Marine Biotechnol.** 3: 465-473, 2001.
115. Sarmasik, A, Jang, I.-K., Chun, C. Z., Lu, J.K., and **Chen, T.T.**: Production of transgenic life-bearing fish and crayfish by infecting the ovary or testes with defective pantropic retroviral vectors. **Marine Biotechnol.** 3: S177-S184, 2001.
116. Sarmasik, Aliye, Warr, G., and **Chen, T.T.**: Production of Transgenic fish with elevated levels of innate defense activity to bacterial pathogens. **Marine Biotechnol.** 4: 310-322, 2002.
117. Chiou, P. Peter, Lin, Chum-Mean, Perez, L., and **Chen, T.T.**: Effect of cecropin B and a synthetic analog on propagation of fish viruses in vitro. **Marine Biotechnol.** 4: 294-302, 2002.
118. Dunham, R.A., Chatakondi, N., Nichols, A., **Chen, T.T.**, Powers, D.A., and Kucutas, H.: Survival of F₂ transgenic common carp, *Cyprinus carp*, containing pRSVrtGH₁ cDNA when subjected to low dissolved oxygen. **Marine Biotechnol.** 4: 323-327, 2002.
119. Lu, Jenn-Kan, Fu, Bo-Hua, Wu, J.L., **Chen, T.T.**: Production of transgenic sea bream (*Saprus sarbas*) by various gene transfer techniques. **Marine Biotechnol.** 4: 328-337, 2002.
120. Chen, M., Kuo, Ya Huei, Tian, X.C. and **Chen, T.T.**: Anti-tumor activities of pro-IGF-I E-peptides: studies on morphological changes, anchorage-dependent cell division, and invasiveness in tumor cells. **Gen. Comp. Endocrinol.** 126: 342-351, 2002.
121. Kuo, Ya-Huei and **Chen, T.T.**: Novel activities of pro-IGF-I E-peptides: regulation of morphological differentiation and anchorage-independent growth in human neuroblastoma cells. **Experimental Cell Res.** 280: 75-89, 2002.
122. **Chen, T.T.**, Chiou, W.P. Peter, Sarmasik, A., and Lin C.M.: Biotechnological application of transgenic fish technology in aquaculture. **Fisheries Science** 68 (supplement II) 1056-1062, 2002.
123. Dunham, R.A., Chatakondi, N., Nichols, A.J., Kucuktas, H., **Chen, T.T.**, Powers, D.A., Weete, J.D., Cummins, K. and Lovell: Effect of rainbow trout growth hormone complementary DNA on body shape, carcass yield, and carcass composition of F1 and F2 transgenic common carp (*Cyprinus carpio*). **Marine Biotechnol.** 4: 604-611, 2002
124. **Chen, T.T.**, Sarmasik, A., Chun, C.Z., Lu, J.K., and Chiou, Peter: Recent advances in transgenic fish technology. In "**Aquatic Genomics: steps toward a great future**" (ed by N. Shimizu, T. Aoki, I. Hirono and F. Takashima), pp.382-394, 2003, Springer-Verlag, Tokyo.
125. Yang, Bih-Yan and **Chen, T.T.**: Identification of a New Growth Hormone Family Protein, Somatolactin-Like Protein (SLP), in the Rainbow Trout Pituitary Gland. **Endocrinology** 114: 850-857, 2003.
126. Kuo, Ya-Huei and **Chen, T.T.**: Specific binding of pro-IGF-I E-peptides to putative receptors on neuroblastoma cells. **Gen. Comp. Endocrinol.** 132: 231-240, 2003.

127. Chen, Maria J., Chiou¹, P. Peter, Yang, Bih-Yin, Lo, Hung Chieh, Son, Jin-Ki, Hendricks, Jeffrey, Bailey, George and **Chen, Thomas T.**: Development of Rainbow Trout Hepatoma Cell lines and Determining the Effects of Rainbow Trout Pro-IGF-I Ea4-Peptide on Morphological Changes and Anchorage-Independent Cell Growth in These Cell Lines. **In Vitro – Animals** 40: 118-128, 2004.
128. Amali, A.A., Lin, C.-J., Chen, Y.-H., Wang, W.-L., Gong, H.-Y., Lee, C.Y., Ko, Y.-L., Lu, J.-K., Her, G.-M., **Chen, T.T.**, and Wu, J.-L.: Up-regulation of muscle-specific transcription factors during embryonic somitogenesis of zebrafish (*Danio rerio*) by knock-down of myostatin-1. **Develop. Dynamics** 229: 847-856, 2004.
129. Chun, Chang Zoon and **Chen, Thomas T.**: Disruption of embryonic red blood cell development by the Ea4-peptide of rainbow trout pro-IGF-I in medaka (*Oryzias latipes*). **Zebrafish** 1: 227-238, 2004.
130. Chiou, Pinwen Peter; Khoo, Jenny; Chun, Chung Zoon and **Chen, Thomas T.**: Fish, Transgenic, in "**Encyclopedia of Molecular Cell Biology Molecular Medicine**" second edition (ed. by R. Meyers). VCH Verlagsgesellschaft mbH, Federal Republic of Germany, vol. 14 pp. 473-503, 2005.
131. Chiou, Pinwen Peter; Khoo, Jenny and **Chen, Thomas T.**: application of transgenic technology in sea food production. In "Food Biotechnology: Second Edition, Revised and Expanded" (Ed by: Shetty/Pometto/Paliyath) Marcel Dekker, Inc. New York, N.Y. (in press).
132. Chiou, Tze-Ting, Wu, Jen-Leih, **Chen, Thomas T.** and Lu, Jenn-Kan: Molecular Cloning and Characterization of the cDNA of an Antimicrobial Peptide, Monodoncin, from Tiger Shrimp (*Penaeus monodon*). **Marine Biotechnology** 7: 119-127, 2005.
133. Elango, Anitha, Shepherd, Brian and **Chen, Thomas T.**: Effects of endocrine disrupters on the expression of growth hormone and prolactin mRNA in the rainbow trout pituitary. **Gen. Comp. Endocrinol.** 145: 116-127, 2006.
134. Chun, Changzoon, Tsai, H.J. and **Chen, Thomas T.**: Disruption of Embryonic Heart and Red Blood Cell Development by Rainbow Trout Pro-IGF-I Ea4-Peptide in Zebrafish (*Danio rerio*) Embryos. **Mol Repro. Develop.** 73: 1112-1121, 2006.
135. Chiou, P Peter, Bols, Niels, Douglas, Sue and **Chen, Thomas T.**: Regulation of Immune-Relevant Genes in the Trout Macrophage Cell Line RTS11 by Antimicrobial Peptides. **Developmental and Comp. Immunology** 30: 797-806, 2006.
136. Siri, Sineenat, Chen, Maria J. and **Chen, Thomas T.**: Biological activity of rainbow trout Ea4-peptide of pro-insulin-like growth factor (pro-IGF)-I on Promoting Attachment of human breast cells (MDA-MB-231) via $\alpha 2$ and $\beta 1$ integrin. **J. Cellular Biochem.** 99:1524-1535, 2006.
137. Siri, Sineenat, Chen, Maria J. and **Chen, Thomas T.**: Inhibition of human breast cell (MDA-MB-231) invasion by the Ea4-peptide of rainbow trout prop-IGF-I. **J. Cellular Biochem.** 99: 1363-1373, 2006.

138. Chun, C.Z. and **Chen, Thomas T.**: Microinjecting recombinant rainbow trout Ea4-peptide of pro-IGF-I into zebrafish embryos causes abnormal development in heart, red blood cells and vasculature. **Comp. Biochem. Physiol.** 145: 39-44, 2007.
139. Ko, C.F., Chiou, Tze-Ting, **Chen, Thomas T.**, Wu, Jen-Leih, Chen, J.C. and Lu, J.K.: Molecular cloning of myostatin gene and characterization of tissue-specific and developmental stage-specific expression of the gene in orange spotted grouper, *Epinephelus coioides*. **Marine Biotechnology** 9: 20-32, 2007
140. Chiou, Tze-Ting, Lu, Jenn-Kan, Wu, Jen-Leih, Chen, **Thomas T.**, and Chen, Jiann-Chu: Expression and characterization of tiger shrimp *Penaeus monodon* penaeidin (mo-penaeidin) in various tissues, during early embryonic development and molting stages. **Developmental and Comp. Immunology** 31: 132-142, 2007.
141. Chen, Mark H.-C., Li, Y.-H., Chang, Yvonne, Hu, S.-Y., Gong, H.Y., Lin, G.-H., **Chen, Thomas T.**, and Wu, J.-L.: Co-induction of hepatic IGF-I and progranulin mRNA by growth hormone in tilapia, *Oreochromis mossambicus*. **Gen Comp. Endocrinol.** 150: 212-218, 2007.
142. Chen, Maria, Pinwen Peter Chiou, Lin, Patrick, Chun-Mean Lin, Peck, Konan and **Chen, Thomas T.**: Suppression of cancer-Induced angiogenesis of aggressive human breast cancer cells (MDA-MB-231) on the chorioallantoic membrane of developing chicken embryos by the E-peptide of pro-IGF-I. **J. Cellular Biochem.** 101: 1316-1327, 2007.
143. Chiou, Pinwen P., Lin, Chun-Mean, Bols, N.C. and **Chen, Thomas T.**: Characterization of virus/double-stranded RNA-dependent induction of antimicrobial peptide hepcidin in trout macrophages. **Develop. Comp. Immunol.** 31: 1297-1309, 2007.
144. Lo, H.-J. , Chiou, Pinwen P., Lin, C.-M., and **Chen, Thomas T.**: Molecular cloning and expression analysis of rainbow trout (*Oncorhynchus mykiss*) CCAAT/enhancer binding protein genes and their response to induction by growth hormone in vivo and in vitro. **J. Endocrinol.** 194: 1-15, 2007.
145. Chiou, Pinwen Peter; Khoo, Jenny; Chun, Chung Zoon and **Chen, Thomas T.**: Transgenic fish. In "Genomics and Genetics" (ed. by Meyers, R.A.). From "Molecular Details to Analysis and Technique. Volume 2, pp. 831-861, 2007.
146. Sallum, Ulysses W. and **Chen, Thomas T.**: Inducible resistance of fish bacterial pathogens to the antimicrobial peptide cecropin B. **Antimicrobial Agents and Chemotherapy** 53: 3006-3012, 2008.
147. **Chen, Thomas T.**, Chen, Maria J., Chiou, Tzu-Ting and Lu, J.K.: Transfer of foreign DNA into aquatic animals by electroporation. In "**Electroporation and Sonoporation in Developmental Biology**" (Ed by Nakamura, H.). Springer, Tokyo. pp 229-237, 2009.
148. Kim, k.-S., Kim, H.-W., **Chen, T.T.**, and Kim, Y.T.: Molecular cloning, tissue distribution and quantitative analysis of two proopiomelanocortin mRNAs in Japanese flounder (*Paralichthys olivaceus*). **BMB Reports** 42: 206-211, 2009.

149. Chen, Maria J., Chiou, Pinwen P. Chiou, Liao, Y.-H., Lin, C.-M., and **Chen, Thomas T.**: Establishment and characterization of rainbow trout pituitary gland single-cell clones. **J. Endocrinology** 205: 69-78, 2010.
150. Lo, Jay H. and **Chen, Thomas T.**: CCAAT/enhancer binding protein b2 is involved in growth hormone regulated IGF-II gene expression in the liver of rainbow trout (*Oncorhynchus mykiss*). **Endocrinology** 151: 2128-2139, 2010.
151. Sallum, U. and **Chen, Thomas T.**: Molecular cloning of cecropin B responsive endonucleases in *Yersinia ruckeri*. **Marine Biotechnol.** 123: 56-65, 2011.
152. Chen, Maria J., Lin, C.-M., and **Chen, Thomas T.**: Induction of Apoptosis in Human Cancer Cells by Rainbow Trout Ea4- or Human Eb-Peptide of Pro-Insulin-Like Growth Factor-I . In "Targeting New Pathways and Cell Death in Breast Cancer" (ed. By Aft, Rebecca L.), pp. 45-56, InTech, 2012.