

CURRICULUM VITAE

Panagiotis Antonios Tsonis, Ph.D.

Date of Birth: May 13, 1953

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Academic Studies and Positions:

6/71 Graduated, 8th High School of Athens, Greece

10/72 - 6/76 Patras University Biological Department,
Patras, Greece. B.Sc. in February 1977

4/77 - 3/78 Research Student Scholarship from the Japanese
Government, Institute of Molecular Biology, Faculty of
Science, Nagoya University.

4/78 - 3/80 Graduate Student Scholarship, Masters Course,
Institute of Molecular Biology, Nagoya
University.
Master's Thesis: Effects of Carcinogens on
Regenerating and Non-Regeneration Limbs in
Adult Newts. Supervisor: Professor Goro
Eguchi. M.Sc. received March 1980

4/80 - 3/83 Graduate Student Scholarship, Doctoral course,
Institute of Molecular Biology, Nagoya
University.
Doctoral Thesis: (continuing from the Master's
course) Effects of Carcinogens on Regenerating
and Non-Regenerating Limbs in Adult Newts.
Supervisor: Professor Goro Eguchi. Ph.D. degree

received March 1983. **The first Greek Citizen to receive a Ph.D. degree from a Japanese Imperial University**

- 8/83 - 10/84 Postdoctoral Fellow, Immunology Department, Scripps Clinic and Research Foundation. Molecular biology of systemic lupus erythematosus.
- 11/84 - 6/87 Postdoctoral Fellow, La Jolla Cancer Research Foundation. Molecular biology of cartilage.
- 5/86 - 8/88 Adjunct Faculty Member, National University, San Diego, CA. Teaching responsibilities included courses in Human Anatomy and Physiology and General Biology.
- 6/87 - 8/88 Research Associate (Assistant Professor rank), La Jolla cancer Research Foundation. Molecular biology of limb development.
- 7/88 - 12/92 Adjunct Professor of Biology, San Diego State University.
- 9/88 - 8/89 Assistant Professor of Medicine, Department of Medicine, Indiana University. Secondary appointment at the Department of Biophysics and Physiology. Molecular Biology of limb regeneration and development.
- 9/89 - 12/92 Assistant Professor of Molecular Biology, Department of Biology, The University of Dayton. Molecular Biology of limb and eye regeneration and development. Courses taught: Introductory Biology; Molecular Biology (undergraduate and graduate).
- 1/93 - 12/96 Associate Professor (with tenure), Department of Biology, University of Dayton.
- 1/97-present Full Professor
- 7/02-7/06 Leonard A. Mann, S.M., Chair in the Sciences
- 3/06-present Director, Center for Tissue Regeneration and Engineering at Dayton (TREND).

Grants

A six-year scholarship for graduate studies sponsored by the Japanese Government (1977-1983).

Recipient of the Allied-Signal award in Osteoarthritis (Arthritis Foundation Arthritis Investigator Award) 1987-1990. Award of US \$108,000 for 3 years, to conduct research on the identification and characterization of cartilage-specific gene promoter.

New Faculty award, Indiana University School of Medicine, amount of \$22,000 for one year, 1989

Research Council grant, University of Dayton, amount of \$14,000 for one year, 1990

NIH First Award, \$500,000 for 5 years; April 1, 1990-March 31, 1995. "Role of vitamin D in chondrogenesis".

Research Council grant, University of Dayton, amount of \$11,000 for one year, 1991

Fund for Educational Development, University of Dayton, amount of \$2,500 for one year, 1991

Research Council grant, University of Dayton, amount of \$5,000 for one year, 1992

Grant from the Ohio Supercomputer Center, 1992

NSF grant for the organization of the 32nd Midwest Regional Developmental Biology Conference

National Kidney Foundation of Ohio grant, \$5,000 for one year, 1992-1993

NIH: Gene regulation in lens regeneration (Total cost: \$343,855). For three years, 9/1/95-8/30/98

Arthritis Foundation: Role of Hox genes in chondrogenesis (Total cost: \$105,000). For three years, 7/1/95-6/30/98

Research Council Grant, University of Dayton, amount of \$6,900 for one year, 1995

NIH: Gene regulation in lens regeneration (renewed for 4 years; total cost \$700,000), 4/1/99-3/31/03).

NIH: Gene regulation in lens regeneration (renewed for 5 years; total cost \$1,100,000, 5/1/2004-4/30/09).

Wright Center for Innovation (WCI) grant from the State of Ohio. A total of nearly

\$5,000,000 for UD, for equipment. My part: \$600,000

A Wright State University contract to study hair cell regeneration; amount of \$100,000 for two years (3/1/06-3/1/08)

Seed funds from the University of Dayton to establish the Center for Tissue Regeneration and Engineering; amount of \$200,000 for two years (1/1/06-12/31/08)

NIH: Gene discovery in mouse models for secondary cataracts. Total cost \$1,700,000 for five years; 9-09-8-12

Awards

Recipient, Outstanding Engineers and Scientists Award from the Affiliate Societies Council, Dayton, OH. (1994)

Recipient, The George B. Nonald Award for Research from The Sigma-Xi Society of the University of Dayton (1996)

Recipient, 1996 Outstanding Scholarship Award, Arts and Sciences, University of Dayton

Recipient, 1998 Alumni Award in Scholarship, University of Dayton

Memberships

Society for Developmental Biology, USA
Protein Society, USA (1988-1991)
American Society for Bone and Mineral Research(1989-1990)
ARVO (1998-present)

Editorial Boards

In Vivo 1989 - present
Trends in Biochemical Sciences 7/1987 -3/1993
(Journal Club Correspondent)
Oncology Reports 9/1993-1996
Experimental Eye Research 7/2003-present
Wound Repair & Regeneration 1/1/2004-present

Committee Member

Medical and Scientific Committee, Arthritis Foundation, Southwestern Ohio Chapter, 3/1991-2000

Organizer

32nd and 33rd Annual Midwest Regional Developmental Biology meeting for two years (1992 & 1993)
Lens section organizer, ICER 2004, Sydney, Australia

Invited Speaker

Department of Biology, San Diego State University
Medical Science Program, Indiana University, Bloomington (1989)
Department of Medicine, Indiana University (1989)
Center for Biotechnology, UNAM, Cuernavaca, Mexico (1990)
Polytechnic School, UNAM, Mexico City (1990)
Hipple Cancer Center, Dayton, OH
Department of Zoology, Miami University
Department of Biology, University of Toledo
Department of Anatomy and Cell Biology, University of Cincinnati
La Jolla Cancer Research Foundation
Research Institute of City of Hope
Museum for Natural History, Dayton, OH
Department of Molecular Genetics, Ohio State University
Research Center Demokritus, Athens, Greece
Fourth International Conference, Anticancer Research (section chair)
Center for Biotechnology, UNAM, Cuernavaca, Mexico
Okazaki, Japan, 33rd NIBB Conference (section chair)
Department of Pathology, University of Pennsylvania
FASEB, 1994 Summer Research Conference, Saxton's River, VT
Okazaki, Japan, 35th NIBB Conference
University of Xanthi, Greece
Center for Biotechnology, UNAM, Cuernavaca, Mexico
Umea University, Sweden (1996)
University of Patras, Greece
XII International Congress of Eye Research, Yokohama, Japan (1996)
Okazaki, Japan, 37th NIBB Conference
NIH (Eye Institute)
Ohio Vision Research Symposium, Cleveland, OH
XIII International Congress of Eye Research, Paris, France (symposium chair)(1998)
Kumamoto University, Japan
XIV International Congress of Eye Research, Santa Fe, NM (2000)
Euresco Conference: Cellular and Molecular Basis of Regeneration, Castelvecchio
Pascoli, Italy (2002)
XV International Congress of Eye Research, Geneva, Switzerland (2002)
Medical University of South Carolina (2003)
Regenerative Biology and Medicine Conference, Indiana University (2003)
Gordon Conference on Tissue Repair and Regeneration, Barga, Italy (2003)
SUNY Stony Brook, Dept. of Physiology and Biophysics (2003)
7th Great Lakes Vision Research Conference, Oxford, Ohio (2003)
Department of Biology, IUPUI, Indianapolis, IN (2003)
ARVO 2004, Ft. Lauderdale, FL
University of Colorado HSC, School of Pharmacy (2004)
Juan March Conference of Eye Development and Evolution, Madrid, Spain (2004).
XVI International Congress of Eye Research, Sydney, Australia (2004). Lens Section

Organizer

University of California at Berkeley, School of Optometry (2004)
Experimental Biology-AAA, San Diego, CA (2005)
2nd Int. Tissue Engineering Conference, Crete, Greece (2005)
Complement, animal models and diseases, Rhodes, Greece (2005)
42nd Workshop on Inner Ear Biology, Tübingen, Germany (2005)
ARVO WERC, Regenerative Ocular Biology, Laguna Beach; session organizer (2005)
Department of Biological Sciences, Wright State University (2005)
Winter meeting of the Anatomical Society of Great Britain and Ireland, Oxford (2006)
Research Institute of the Academy of Athens, Greece (2006)
Guest lecturer, Medical School of University of Athens, Greece (2006)
Tokyo Medical and Dental School (2006)
The Forsyth Institute, Harvard Medical School (2006)
Wright-Patterson Air Force Base, Dayton (2006)
Ohio Academy of Sciences Meeting, Dayton (2006)
University College London (2006)
3rd Conference on Regeneration (EMBO Series), Ascona, Switzerland (2006)
Baylor Medical College (2006)
XVII International Congress of Eye Research, Buenos Aires, Argentina (2006).
Symposium co-chair
University of Buenos Aires Medical School, Argentina (2006)
Tohoku University, Sendai, Japan (2007)
The Salk Institute for Biological Research (2007)
Miami University, Ohio (2007)
13th Conference of Greek Medical Student and 1st International Forum (Keynote
Speaker), Athens, Greece (2007)
2nd Conference of Bioscience, University of Patras, Patras, Greece (2007)
Wallace-Kettering Neuroscience Institute, Dayton (2007)
4th Complement Conference, Greece (2007)
Pacific Ocular Regenerative Biology Conference XII, Laguna Beach (2007). Session co-
chair
Kettering College of medical Arts, Dayton, OH (2007)
Wright State University-Neuroscience (2008)

Grant Reviewer

International Science Foundation
National Science Foundation
National Research Council, CANADA
NIH (AED study section, 2002-2005)
American Philosophical Society
UK government
Wellcome Trust
Raine Medical Res. Foundation (University of Western Australia)

Agharkar Research Institute, India
Medical Research Council, UK

Journal Reviewer

in vivo, Oncology Reports, Journal of Experimental Zoology, Human Molecular Genetics, Developmental Biology, International Journal of Developmental Biology, Development Genes & Evolution (formerly Roux's), Canadian Journal of Zoology, Science, Experimental Cell Research, Developmental Dynamics, Experimental Eye Research, Investigative Ophthalmology Visual Sciences, Journal of Morphology, Proceedings of the Royal Society, Genesis, Cell & Tissue Research, Journal of Neurobiology, Radiation Research, Wound Repair & Regeneration, Neuroscience Letters, Mechanisms of Development, Molecular Vision, Nature, Journal of Biosciences, Neuroscience, The Scientific World-Development and Embryology, Archives of Ophthalmology, Journal of Anatomy, Journal of Biological Chemistry, Seminars Cell and Developmental Biology, Brain Research, Development, Biologia (Slovakia), Interface (Royal Society), Proceedings of the National Academy of Science USA.

BIBLIOGRAPHY

A. Books/Editions:

1. Tsonis, P.A. (Editor), Recent Trends in Development. Appeared as a special issue of *In Vivo* Vol 5, issue 5, 1991.
2. Tsonis, P.A. Limb Regeneration, Cambridge University Press (1996).
3. Tsonis, P.A. Anatomy of Gene Regulation: A 3-D structural analysis, Cambridge University Press (2003).
4. Tsonis, P.A. (Editor), From DNA to Proteins: The multiple levels of regulation. Talk series, Henry Steward Talks, www.hstalks.com (2006).
5. Tsonis, P.A. and Tsonis, A.A. Aristotelis Valaoritis' Kyra Frossini: An English Translation (under production).
6. Tsonis, P.A. and Wittbrodt, J. (editors). Animal Models for Eye Research, Elsevier (in preparation).

B. Scientific Papers: (Cited > 1,500 times)

1. Kawakami, M., Tsonis, P.A., Nishio, K. and Takemura, S. Abnormal codon recognition of glycyl-tRNA from the posterior silk glands of *Bombyx mori*. **J. Biochem.** 88:1151-1157 (1980).
2. Tsonis, P.A. and Eguchi, G. Carcinogens on regeneration. Effects of MNNG and 4NQO on limb regeneration in adult newts. **Differentiation** 20:52-60 (1981).
3. Tsonis, P.A. and Eguchi, G. Abnormal limb regeneration without tumor production directed by carcinogens 20-methylocholanthrene and benzo(a)pyrene. **Develop. Growth Differ.** 24:183-190 (1982).
4. Tsonis, P.A. and Eguchi, G. Effects of a carcinogen N-methyl-nitro-N-nitrosoguanidine on blastema cells and blastema formation in newt limb regeneration. **Develop. Growth Differ.** 25:201-210 (1983).
5. Tsonis, P.A. Effects of carcinogens on regenerating and non-regenerating limbs in amphibia (review). **Anticancer Res.** 3:195-202 (1983).
6. Tsonis, P.A. and Hang, L. Lack of cellular differentiation with neoplastic-like proliferation in the limbs of the newt *Cynops pyrrhogaster*. **Anticancer Res.**

- 4:251-254 (1984).
7. Tsonis, P.A. Limb regeneration in newts with spontaneous skin cancer. **Can. J. Zool.** 62:2681-2685 (1984).
 8. Tsonis, P.A. Mouse IgK sequence elements in Drosophila. **Nature** 312:314 (1984).
 9. Tsonis, P.A. and Eguchi, G. The regeneration of newt limbs deformed in nature. **Experientia** 41:918-919 (1985).
 10. Tsonis, P.A. Tissue regeneration as a model for cellular activation studies. **Trends Biochem. Sci.** 10:150-151 (1985).
 11. Tsonis, P.A. Neural fold abnormalities induced in newt embryos by a carcinogen. **Can. J. Zool.** 63:1989-1990 (1985).
 12. Tsonis, P.A. Studies on the effects of cancer inducing and promoting chemicals on newt regenerating and non-regenerating limbs. **Arch. Biol.** 96:331-336 (1985).
 13. Tsonis, P.A. Ultrastructural features of intact and dedifferentiating tissues during newt limb blastema formation. **Arch. Biol.** 97:75-80 (1986).
 14. Theofilopoulos, A.N., Kofler, R., Noonan, D., Singer, P., Tsonis, P.A., and Dixon, F.J. Molecular aspects of systemic lupus erythematosus (SLE), In: "**Anti-IA Antibodies in the Treatment of Autoimmune Disease.**" (J. Brochier, J. Clot and J. Sany, eds.) Academic Press, Inc. (London) pp. 31-50 (1986).
 15. Tsonis, P.A. and Lambris, J.D. Sequence similarity between a conserved sequence element of homoeo boxes and other gene regions. **FEBS Lett.** 194:263-266 (1986).
 16. Tsonis, P.A. and Adamson, E.D. Specific expression of homoeobox-containing genes during induced differentiation of embryonal carcinoma cells. **Biochem. Biophys. Res. Commun.** 132:520-527 (1986).
 17. Potamitis, G. and Tsonis, P.A. Molecular organization of gallstones. **Dig. Dis. Sci.** 32:332 (1987).
 18. Tsonis, A.A. and Tsonis P.A. Fractals: A new look at biological shape and patterning. **Persp. Biol. Med.** 30:355-361 (1987).
 19. Tsonis, P.A. Embryogenesis and carcinogenesis: Order and disorder. **Anticancer Res.** 7:617-624 (1987).
 20. Manolagas, S.C., Provvedini, D.M., Murray, E.J., Murray, S.S., Tsonis, P.A. and

- Spandidos, D.A. Association between the expression of the c-myc mRNA and the expression of the receptor protein for 1,25 dihydroxyvitamin D₃. **Proc. Natl. Acad. Sci. USA** 84:856-860 (1987).
21. Tsonis, P.A. The nature of positional information. **Trends Biochem. Sci.** 12:249 (1987).
 22. Goetinck, P.F., Stirpe, N.S., Tsonis, P.A. and Carlone, D. The tandemly repeated sequences of cartilage link protein contain the sites for interaction with hyaluronic acid. **J. Cell Biol.** 105:2403-2408 (1987).
 23. Tsonis, P.A. and Goetinck, P.F. Expression of cartilage matrix genes and localization of their translation products in the embryonic chick eye. **Exp. Eye Res.** 46:753-764 (1988).
 24. Tsonis, P.A. and Goetinck, P.F. Homology of cellular vitamin A-binding protein to DNA-binding proteins. **Biochem. J.** 249:933-934 (1988).
 25. Tsonis, P.A. Oncogenes take a place in pattern formation. **Trends Biochem. Sci** 13:4-5 (1988).
 26. Tsonis, P.A., Manes, T., Millan, J.L. and Goetinck, P.F. CAT constructs with unique sites for cloning and generating deletions. **Nucleic Acids Res.** 16:7745 (1988).
 27. Tsonis, P.A., Argraves, W.S. and Millan, J.L. A putative functional domain of human placental alkaline phosphatase predicted from sequence comparisons. **Biochem. J.** 254:623-624 (1988).
 28. Tsonis, P.A., Sowadski, J. and Goetinck, P.F. A consensus sequence in the N-terminus of exported proteins: Resemblance with metal binding domains and implications in protein translocation across membranes. **Biochem. Biophys. Res. Commun.** 156:99-107 (1988).
 29. Tsonis, P.A. and Del Rio-Tsonis, K. Spontaneous neoplasms in amphibia. **Tumor Biol.** 9:221-224 (1988).
 30. Tsonis, P.A. Pattern formation: From theoretical models to molecular biology. **In Vivo** 2:201-208 (1988).
 31. Tsonis, P.A. and Goetinck, P.F. The Drosophila homoeotic gene *spalt* is structurally related to collagen a1(IV) chain. **Collagen Rel. Res.** 8:451-452 (1988).
 32. Tsonis, P.A. and Manes, T. rapid phage DNA isolation without the use of enzymes. **Biotechniques** 6:950-951 (1988).

33. Tsonis, P.A., Carperos, V. and Siahaan, T. Modeling of the homoeo domain suggests similar structure to repressors. **Biochem. Biophys. Res. Commun.** 157:100-105 (1988).
34. Tsonis, P.A. Enzyme regions in structural and viral proteins. **Protein Sequences & Data Analysis** 2:189-191 (1989).
35. Kiss, I., Deak, F., Holloway, R.G., Delius, H., Mebust, K.A., Frimberger, E., Argraves, W.S., Tsonis, P.A., Winterbottom, N., and Goetinck, P.F. Structure of the gene for cartilage matrix protein, a modular protein of the extracellular matrix. **J. Biol. Chem.** 264:8126-8134 (1989).
36. Tsonis, P.A. and Tsonis, A.A. Chaos: Principles and implications in biology. **Comput. Applic. Biosci.** 5:27-32 (1989).
37. Tsonis, A.A., Elsner, J.B. and Tsonis, P.A. On the dynamics of a forced reaction-diffusion model for biological pattern formation. **Proc. Natl. Acad. Sci. USA** 86:4938-4942 (1989).
38. Tsonis, P.A. Molecular approaches in limb development and regeneration. **Trends Biochem. Sci.** 15: 82-83 (1990).
39. Tsonis, P.A. and Goetinck, P.F. Cell density dependent effect of a tumor promoter on proliferation and chondrogenesis of limb bud mesenchymal cells. **Exp. Cell Res.** 190: 247-253(1990).
40. Zilakos, N. and Tsonis, P.A. A spontaneous melanoma-like tumor in the adult newt *Triturus cristatus*. **Tumor Biol.** 12:120-124 (1991).
41. Tsonis, P.A. 1,25-Dihydroxyvitamin D₃ stimulates chondrogenesis of the chick limb bud mesenchymal cells. **Develop. Biol.** 143: 130-134 (1991).
42. Tsonis, P.A. and Walker, E. Cell populations synthesizing cartilage proteoglycan core protein in the early chick limb bud. **Biochem. Biophys. Res. Commun.** 174: 688-695 (1991).
43. Tsonis, P.A., Del Rio-Tsonis, K., Rothrock, J., Dominguez, J., English, D., Glade, K., and Goetinck, P.F. Inhibitory effects of phospholipase D on chondrogenesis *in vitro*. **Exp. Cell Res.** 195: 551-555 (1991).
44. Tsonis, A.A., Elsner, J.B. and Tsonis, P.A. Periodicity in DNA coding sequences: Implications in gene evolution. **J. Theor. Biol.** 151: 323-331 (1991).
45. Tsonis, P.A., English, D. and Mescher, A.L. Increased content of inositol phosphates in amputated limbs of axolotl larvae, and the effect of beryllium. **J. Exp. Zool.** 259: 252-259 (1991).

46. Tsonis, P.A. Amphibian limb regeneration. *In Vivo* 5: 541-550 (1991).
47. Tsonis, P.A., Mescher A.L., Washabaugh, C. and Del Rio-Tsonis, K. Gene expression during newt limb regeneration. *Monogr. Dev. Biol.* 23: 131-138 (1992).
48. Tsonis, P.A., Mescher, A.L. and Del Rio-Tsonis, K. Protein synthesis in the newt regenerating limb: Comparative 2-D PAGE, computer analysis and protein sequencing. *Biochem. J.* 281: 665-668 (1992).
49. Tsonis, P.A., Washabaugh, C.H. and Del Rio-Tsonis, K. Protein synthesis in the brain of newts undergoing limb regeneration. *Int. J. Dev. Biol.* 36: 331-334 (1992).
50. Washabaugh, C.H. and Tsonis, P.A. Histological analysis of limb regeneration in the California newt *Taricha granulosa*. *In Vivo* 6: 129-134 (1992).
51. Del Rio-Tsonis, K., Washabaugh, C.H. and Tsonis, P.A. The mutant axolotl *short toes* exhibits impaired limb regeneration and abnormal basement membrane formation. *Proc. Natl. Acad. Sci. USA* 89: 5502-5506 (1992).
52. Zilakos, N.P., Tsonis, P.A., Del Rio-Tsonis, K. and Parchment, R. Newt squamous carcinoma proves phylogenetic conservation of tumors as caricatures of tissue renewal. *Cancer Res.* 52: 4858-4865 (1992).
53. Del Rio-Tsonis, K. and Tsonis, P.A. Amphibian tissue regeneration: A model for cancer regulation. *Intl. J. Oncol.* 1: 161-164 (1992).
54. Tsonis, P.A. A two-dimensional gel comparative protein database of the newt intact and regenerating limb. *Electrophoresis* 14: 148-156 (1993).
55. Tsonis, P.A., Del Rio-Tsonis, K. and Washabaugh, C.H. Analysis of the mutant axolotl *Short toes*. In **Limb Development and Regeneration**. (Fallon, J.F et al, eds), Wiley-Liss, 171-179 (1993).
56. Fuentes, E., Mescher, A.L., Ekman, R. and Tsonis, P.A. Expression of Hydra Head Activator in newt tissues and effects on limb regeneration. *In Vivo* 7: 59-64 (1993).
57. Washabaugh, C.H., Del Rio-Tsonis, K. and Tsonis, P.A. Variable manifestations in the *short toes* (*s*) mutation of the axolotl. *J. Morphol.* 218: 107-114 (1993).
58. Tsonis, A.A., Elsner, J.B. and Tsonis, P.A. On the existence of scaling in DNA sequences. *Biochem. Biophys. Res. Commun.* 197: 1288-1295 (1993).
59. Tsonis, P.A., Washabaugh, C.H. and Del Rio-Tsonis, K. Morphogenetic effects of 9-cis retinoic acid on axolotl regenerating limbs. *Roux's Arch. Develop. Biol.* 203:230-234 (1994).

60. Fuentes, P.A., Pachter, R. and Tsonis, P.A. On the three-dimensional structure of the Hydra head activator. *In Vivo* 8: 199-206 (1994).
61. Del Rio-Tsonis, K. and Tsonis, P.A. Presence of oncogene-related sequences in amphibian genomes. *Oncology Reports* 1: 847-848 (1994).
62. Tsonis, P.A., Del Rio-Tsonis, K., Millan, J.L. and Wheelock, M.J. Expression of N-cadherin and alkaline phosphatase in the chick limb bud mesenchymal cells: Regulation by 1,25-dihydroxyvitamin D₃ and TGF-beta1. *Exp. Cell Res.* 213: 433-437 (1994).
63. Burns, J.C., Matsubara, T., Lozinski, G., Yee, J-K., Friedmann, T., Washabaugh, C.H. and Tsonis, P.A. Pantropic retroviral vector-mediated gene transfer, integration, and expression in newt limb blastema cells. *Develop. Biol.* 165:285-289 (1994).
64. Del Rio-Tsonis, K. and Tsonis, P.A. Expression of transforming growth factor-β 1-4 in the chick limb bud mesenchymal cells: Regulation by 1,25 dihydroxyvitamin D₃. *Biochem. Biophys. Res. Commun.* 204: 975-982 (1994).
65. Washabaugh, C.H. and Tsonis, P.A. Mononuclear leukocytes in the newt limb blastema: *in vitro* behavior. *Intl. J. Dev. Biol.* 38: 745-749 (1994).
66. Tsonis, P.A. and Del Rio-Tsonis, K. Protein separation techniques in the study of tissue regeneration. *J. Chromat. A* 698: 361-367 (1995).
67. Del Rio-Tsonis, K., Washabaugh, C.H. and Tsonis, P.A. Expression of pax-6 during urodele eye development and lens regeneration. *Proc. Natl. Acad. Sci. USA* 92: 5092-5096 (1995).
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69. Tsonis, P.A., Washabaugh, C.H. and Del Rio-Tsonis, K. Transdifferentiation as a basis for amphibian limb regeneration. *Seminars Cell Biol.* 6: 127-135 (1995).
70. Washabaugh, C.H. and Tsonis, P.A. Effects of vitamin D metabolites on axolotl limb regeneration. *Develop. Growth & Differ.* 37: 497-503 (1995).
71. Tsonis, A.A., Kumar, P., Elsner, J. and Tsonis, P.A. Wavelet analysis of DNA sequences. *Physical Review E* 53: 1828-1834 (1996)
72. Allenspach, A.L., Maynard, H. and Tsonis, P.A. Visualization of proteoglycans and link protein in the embryonic chick limb cartilage via cryofixation, freeze substitution

and immunochemical techniques. *J. Microscopy* 182: 84-94 (1996).

73. Tsonis, P.A., Sargent, M.T., Del Rio-Tsonis, K. and Jae Chang Jung. 9-cis retinoic acid antagonizes the stimulatory effect of 1,25-dihydroxyvitamin D₃ on chondrogenesis of chick limb bud mesenchymal cells: Interactions of their receptors. *Int. J. Dev. Biol.* 40: 1053-1059 (1996).
74. Tsonis, P.A., Del Rio-Tsonis, K., Wallace, J.L., Burns, J.C., Hofmann, M-C., Millan, J.L. and Washabaugh, C.H. Can insights into urodele limb regeneration be achieved with cell cultures and retroviruses? *Int. J. Dev. Biol.* 40: 813-816 (1996).
75. Del Rio-Tsonis, K., Covarrubias, L., Kent, J., Hastie, N.D. and Tsonis, P.A. Regulation of Wilms' tumor gene during spermatogenesis. *Develop. Dyn.* 207: 372-381 (1996). **Selected for the journal cover.**
76. Tsonis, P.A., Doanne, K. and Del Rio-Tsonis, K. Expression of integrins during amphibian limb regeneration. *Develop. Growth & Diff.* 39: 9-14 (1997).
77. Tsonis, A.A., Elsner, J.B. and Tsonis, P.A. Is DNA a language? *J. Theor. Biol.* 184: 25-29 (1997).
78. Tsonis, P.A. and Tsonis A.A. Simplicity and complexity in gene evolution *Complexity* 2(5): 23-30 (1997).
79. Tsonis, A.A., Schultz, C. and Tsonis, P.A. Zipf's law and the structure and evolution of languages. *Complexity* 2 (5): 12-13 (1997).
80. Del Rio-Tsonis, K., Jung, J.C., I-M. Chiu and Tsonis, P.A. Conservation of FGF function in lens regeneration. *Proc. Natl. Acad. Sci. USA* 94: 13701-13706 (1997).
81. Jung, J.C., Del Rio-Tsonis, K. and Tsonis, P.A. Regulation of homeobox-containing genes in lens regeneration. *Exp. Eye Res.* 66: 361-370 (1998).
82. Jung, J.C. and Tsonis, P.A. Role of 5' HOXD genes in chondrogenesis in vitro. *Intl J. Dev. Biol.* 42: 609-615 (1998).
83. Beauchemin, M., Del Rio-Tsonis, K., Tsonis, P.A., Tremblay, M. and Savard, P. Graded expression of Emx-2 in the adult newt limb and its corresponding regeneration blastema. *J. Mol. Biol.* 279: 501-511 (1998).
84. Del Rio-Tsonis, K., McMahon, G. and Tsonis, P.A. Regulation of lens regeneration by fibroblast growth factor receptor 1. *Develop. Dyn.* 213: 140-146 (1998).
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