Molecular, Cellular, and Developmental Biology
University of California, Santa Barbara
Santa Barbara, CA 93106-9610

Phone: 805.893.7276

*e-mail*: detomaso@lifesci.ucsb.edu

**Anthony W. De Tomaso**

**PERSONAL INFORMATION**

Born 9 May 1965. Los Angeles, CA USA.

**PRESENT POSITION**

Professor; Department of Molecular, Cellular and Developmental Biology, University of California, Santa Barbara. 7/16-present

**EDUCATION**

• Ph.D., Cellular and Molecular Biology, Department of Cell Biology and Physiology, Washington University School of Medicine, St. Louis, MO 4/94.

• Bachelor of Science, Biological Sciences, Stanford University, Stanford CA 6/87

**RESEARCH AND RELATED EXPERIENCE**

• Associate Professor; Department of Molecular, Cellular and Developmental Biology, University of California, Santa Barbara. 7/10-6/16

Assistant Professor; Department of Molecular, Cellular and Developmental Biology, University of California, Santa Barbara. 1/09-6/10

• Assistant Professor (Research), Institute of Stem Cell Biology and Regenerative Medicine, Stanford University 6/06-11/08

• Instructor, Department of Pathology, Stanford University 6/03-5/06

• Postdoctoral Fellow, Department of Pathology, Stanford University. 05/95-05/03. Dr.Irving Weissman, Advisor.

**AWARDS AND HONORS**

• Ellison Foundation New Scholar Award 2007

• Santa Barbara Cottage Hospital Awards 2009, 2011, 2013

• Marie Curie Award, Villefranche, France 2015

• Visiting Fellow, Kings College, Cambridge U.K. 2016

**PUBLICATIONS**

***Peer-Reviewed Research***

• Kassmer SH, Langenbacher AD, De Tomaso AW (2020) Integrin-alpha-6+ Candidate stem cells are responsible for whole body regeneration in the invertebrate chordate Botrylloides diegensis. *Nat Commun.* 11(1):4435.

• Kassmer SH, Rodriguez D, De Tomaso AW. (2020) Evidence that ABC transporter-mediated autocrine export of an eicosanoid signaling molecule enhances germ cell chemotaxis in the colonial tunicate Botryllus schlosseri. *Development* 147(15):dev184663.

• Madhu R, Rodriguez D, Guzik C, Singh S, De Tomaso AW, Valentine MT, Loerke D. (2020) Characterizing the cellular architecture of dynamically remodeling vascular tissue using 3-D image analysis and virtual reconstruction. *Mol Biol Cell*  31:1714-1725

• Hensley, N.M., Ellis, E.A., Leung, N.Y., Coupart, J., Mikhailovsky A., Taketa, D.A., Tessler M, Gruber DF, De Tomaso AW, Mitani Y, Rivers TJ, Gerrish GA, Torres E, Oakley TH. (2020) Selection, drift, and constraint in cypridinid luciferases and the diversification of bioluminescent signals in sea fireflies. *Mol Ecol.*  doi: 10.1111/mec.15673

• Rodriguez, D., Nourizadeh, S., and De Tomaso, A.W. (2019) The biology of the extracorporeal vasculature of *Botryllus schlosseri* *Dev. Bio.* 448:303-319

• Kassmer, S., Nourizadeh, S., and De Tomaso A.W. (2019) Cellular and molecular mechanisms of regeneration in colonial and solitary ascidians *Dev Bio* 448: 271-278

• Rodriguez D, Braden BP, Boyer SW, Taketa DA, Setar L, Calhoun C, Maio AD, Langenbacher A, Valentine MT, and De Tomaso AW. (2017) In vivo manipulation of the extracellular matrix induces vascular regression in a basal chordate. Mol Biol. Cell. 28:1883-1893.

• Nydam, M.L., Hoang, T.A., Shanley, K.M and De Tomaso A.W. (2013) Molecule evolution of an HSP40-like protein encoded in the histocompatibility locus of an invertebrate chordate. *Dev. Comp. Immunol.* 41:128-136

• Nydam, M.L., Taylor A. A., and De Tomaso, A.W. (2013) Evidence for selection on a chordate histocompatibility locus. *Evolution* 67:487-500

• Nydam, M.L., De Tomaso, A.W. 2011. Creation and maintenance of variation in allorecognition loci: molecular analysis in various model systems. *Frontiers in Molecular Innate Immunity* 2: 79.

***•*** Hellbach, A., Tiozzo, S., Ohn, J., Liebling, M., and De Tomaso A.W. (*2012*)Characterization of HCN2 and cardiac function in a colonial ascidian. *J. Exp. Zool.*

• McKitrick, T.R., Richter, C., Pierce, J.D., Bhattacharya, D., and De Tomaso, A.W. (2011) Allorecognition in a basal chordate consists of independent activating and inhibitory pathways. *Immunity* 34:616-626.

• Carpenter, M.A., Powell, J.H., Ishizuka, K., Palmeri, K., Rendulic, S., and De Tomaso, A.W. (2011) Growth and long-term somatic and germline chimerism following fusion of juvenile *Botryllus schlosseri. Biol. Bull.* 220:57-70.

• Brown, F.D., Tiozzo, S., Ishizuka, K., Swalla, B.J., and De Tomaso A.W. (2009*)* Early lineage specification of long-lived germline precursors in the colonial ascidian*, Botryllus schlosseri*

*Development* 136:3485-3494.

• Tiozzo, S., Murray, M., Degnan, B.M., De Tomaso, A.W. and Croll, R.P. (2009) Development of the neuromuscular system during asexual propagation in an invertebrate chordate. *Dev. Dyn.* 238:2081-2094.

• Tiozzo, S., De Tomaso, A.W. (2009) Functional analysis of Pitx during asexual regeneration in a basal chordate *Evolution and Development* 11:152-162.

• Evans, H., De Tomaso, T., Quail. M., Rogers, J., Gracey A.Y., Cossins, A.R., Berebrink, M. (2008) Ancient and modern duplication events and the evolution of stearoyl-CoA desaturases in teleost fishes. *Physiol. Genomics* 35:18-29

• Tiozzo, S., Voskoboynik, A., Brown, F.B., and De Tomaso, A.W. (2008) A conserved role of the VEGF pathway in angiogenesis of an ectodermally-derived vasculature. *Dev. Biol.* 315:243-255.

• Voskoboynik, A., Blecher, N., Soev, Y., De Tomaso, A.W., Ishizuka, K.J., and Weissman, I.L. (2007) Striving for normality: whole body regeneration through a series of abnormal generations. *Faseb J* 21:1335-1344

• Nyholm, S.V., Passegue, E., Ludington, W., Voskoboynik, A., Mitchel, K., Weissman, I.L., and De Tomaso, A.W. (2006) *fester*, a candidate allorecognition receptor from a primitive chordate *Immunity* 25:163-173

• Frank, P. De Tomaso, A., Hedman, B., and Hodgson, K.O. (2006) A new structural motif for biological iron: iron K-Edge Xas reveals a [Fe4-µ(Or)5(Or)9-10] cluster in the ascidian *Perophora annectens Inorganic Chemistry* 45:3920-3931.

• Laird, D.J., De Tomaso, A.W., and Weissman I.L. (2005) Stem cells are units of natural selection in a colonial ascidian.  *Cell* 123:1351-1360.

• Laird, D.J. and De Tomaso A.W. (2005) Predatory stem cells in the non-zebrafish chordate, Botryllus schlosseri. *Zebrafish* 1:357-361.

• De Tomaso, A.W., Nyholm, S.V., Ishizuka, K.I., Palmeri, K.P., Ludington, W.B., Mitchel, K and Weissman, I.L. (2005) Isolation and characterization of a protochordate histocompatibility locus. *Nature* 438:454-459.

• De Tomaso, A.W., and Weissman, I.L. (2004) Evolution of a protochordate allorecognition locus *Science* 303:977.

• Ludington, W.B., Callicott, K.A. and De Tomaso A.W. (2004) Genetic variation in Mastocarpus papillatus (Rhodophyta) in central California analyzed by AFLPs. *Plant Species Biology* 19:107-113.

• Azumi, K\*., DeSantis, R\*., De Tomaso, A.W\*., Rigoutsos, I\*, et. al., (2003) Genomic analysis of immunity in a basal chordate and evolution of the vertebrate immune system: waiting for Godot. *Immunogenetics* 55:570-581 \* Equal contribution

• De Tomaso, A.W., and Weissman, I.L.(2003) Initial characterization of a protochordate histocompatibility locus *Immunogenetics* 55:480-490

• De Tomaso, A.W., and Weissman, I.L. (2003) Construction and characterization of large-insert genomic libraries (BAC and Fosmid) of Botryllus schlosseri and identification of BAC contigs within a histocompatibility locus. *Marine Biotechnology* 5:103-115.

• Dehal, P. Satou, Y., Azumi, K., Branno, M., Campbell, B., Degnan, B., DeSantis, R., DeTomaso, A.W., et. al., (2002) The complete genome sequence of the ascidian, *Ciona intestinalis*: insights into the evolutionary origins of chordates and vertebrates *Science* 298:2157-2167

• T. N. Schaeffer, G. J. Smith, M. S. Foster and DeTomaso, A.W. (2002) Genetic differences between two growth-forms of Lithophyllum margaritae (Rhodophyta) in Baja California Sur, Mexico *J. Phycology* 38:1090-1098

• Brock, M.W., Lebaric, Z., Neumeister, H., De Tomaso, A., and W.F. Gilly (2001). Temperature-dependent expression of a squid Kv1 channe in Sf9 cells and functional comparison with the native delayed rectifier. *J Membr Biol.*180:147-61.

• De Tomaso, A.W., Saito, Y., Ishizuka, K.I., Palmeri, K.K. and Weissman, I.L. (1998) Mapping the genome of a model urochordate. I. A low resolution genetic map encompassing the Fu/HC locus of Botryllus schlosseri. *Genetics* 149:277-287.

• Rinkevich, B. Weissman, I.L., and De Tomaso, A.W. (1998) Transplantation of Fu/HC

incompatible zooids in Botryllus schlosseri results in chimerism. *Biol. Bull.* 195:98-106.

• Blanco, G., Hatfield, W.R., Minor N.T., Sanchez, G., Koster, J.C., De Tomaso, A.W. and Mercer R.W. (1997) Studies of Na,K-ATPase structure and function using baculovirus. *Ann NY Acad Sci* 834:88-96.

• De Tomaso, A.W., Blanco G., and R. W. Mercer (1994) The and  subunits of the Na,K-ATPase can assemble at the plasma membrane into functional enzyme. *J. Cell Biol.* 127:55-70.

• Blanco, G., De Tomaso, A.W., Xie, Z.J., and R.W. Mercer (1994) The -subunit of the Na,K-ATPase has catalytic activity independent of the -subunit. *J. Biol. Chem.* 269: 23420-23425.

• De Tomaso, A.W., Xie, Z.J., Liu, G., and R.W. Mercer (1993) Expression, targeting and assembly of functional Na,K-ATPase polypeptides in baculovirus-infected insect cells. *J. Biol. Chem.* 268:11470-11478.

• De Tomaso, A.W. and R.W. Mercer (1992) Functional expression of Na,K-ATPase using baculovirus. *Acad. Physiol. Scand.* 146:171-175.

• Fain, S.R., De Tomaso, A.W., and R.S. Alberte (1992) Characterization of disjunct populations of Zostera marina (eelgrass) from California; genetic differences resolved by restriction-fragment length polymorphisms. *Marine Biology* 112:683-689.

***Reviews***

• Winkley, K.M., Kourakis, M.J., De Tomaso, A.W., Veeman, M.T. and Smith W.C. (2020) Tunicate gastrulation. *Curr Top Dev Bio* 136:219-242.

• Kawamura, K., Tiozzo, S., Manni, L., Sunanaga, T., Burighel, P., and De Tomaso, A.W. (2011) Germline cell formation and gonad regeneration in solitary and colonial ascidians. *Dev. Dyn.* 240:299-308.

• McKitrick, T.R. and De Tomaso, A.W. (2010) Molecular mechanisms of allorecognition in a basal chordate. *Semin. Immunol.* 22:34-38.

• De Tomaso, A.W. (2009) Sea squirts and immune tolerance *Disease Models and Mechanisms* 2:440-445.

• Tiozzo, S., Brown, F.B., and De Tomaso, A.W. (2008) Regeneration and Stem Cells in Ascidians In "Stem cells: from Hydra to man", Springer.

• De Tomaso, A.W. (2006) Allorecognition polymorphism vs parasitic stem cells *Trends in Genetics*, 22:485-490.

• Laird, D.J., De Tomaso, A.W., Cooper, M.D., and Weissman, I.L. (2000) 50 million years of chordate evolution: Seeking the origins of adaptive immunity *Proc. Natl. Acad. Sci.* USA 97:6924-6926.

• Magor, B.G., De Tomaso, A.W. Rinkevich, B., and Weissman I.L.. (1999) Allorecognition in colonial tunicates: protection against predatory cell lineages*? Immunol. Rev*.167:69-80.

• Blanco, G., Hatfield, W.R., Minor, N.T., Sanchez, G., Koster J.C., De Tomaso, A.W. and Mercer, R.W. (1996) Studies of Na,K-ATPase structure and function using baculovirus. Annals of the New York Acad. Sci. 834:116-125.

• Mercer, R.W., Blanco, G., De Tomaso A.W., Koster, J.C., and Xie, Z.J.(1994) Expression of functional Na,K-ATPase in insect cells using baculovirus. In The Sodium Pump: Structure Mechanism, Hormonal Control and its Role in Disease. E. Bamberg and W. Schoner, eds. Darmstadt:Steinkopff:New York: Springer.

• Blanco, G., De Tomaso, A.W., Koster, J.C., Xie, Z.J., and Mercer, R.W.(1994) The alpha subunit of the Na,K-ATPase has catlytic activity independent of the beta subunit. In The Sodium Pump: Structure Mechanism, Hormonal Control and its Role in Disease. E. Bamberg and W. Schoner, eds. Darmstadt:Steinkopff:New York: Springer.

• De Tomaso, A.W., Zdankiewicz, P., and R.W. Mercer (1991) Functional expression of the Na,K-ATPase in Spodoptera frugiperda cells. In: The Sodium Pump. pp. 69-73. P. De Weer and J.H. Kaplan eds. Rockefeller University Press, New York.

**FUNDING**

***Current***

• NIH R01 (GM123225) *Cell competition and stem cell parasitism in a basal chordate* (2019-2023)

• NIH R01 (GM123267) *Molecular mechanisms of protochordate allorecognition* (2016-2020)

• Mathers Foundation *Mechanotransduction and vascular regression* (2017-2020)

**PROFESSIONAL AFFILIATIONS**

American Association for the Advancement of Science

American Society for Cellular Biology

American Association of Immunologists

International Society of Developmental and Comparative Immunology

International Society for Stem Cell Research