

CURRICULUM VITAE ROBBERT CRETON

Department of Molecular Biology, Cell Biology and Biochemistry
Brown University
Box G-L127
185 Meeting Street
Providence, RI 02912

Phone: (401) 863-9646
Email: Robbert_Creton@brown.edu

EDUCATION

University	Degree	Year	Field of study
Utrecht University, Netherlands *	B.S.	1990	Biology
Utrecht University, Netherlands	Ph.D.	1994	Developmental Biology

* Utrecht University ranks #1 in the Netherlands and #69 in the World (US News, 2016)

POSTGRADUATE TRAINING

1995-1999	Postdoctoral fellow The laboratory of Lionel F. Jaffe Marine Biological Laboratory Woods Hole, Massachusetts	Developmental Physiology
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HONORS AND AWARDS

1993	Embryology course, Marine Biological Laboratory, Woods Hole, MA
1993	Spiegel fellow, Marine Biological Laboratory, Woods Hole, MA
1995	NATO fellow, Marine Biological Laboratory, Woods Hole, MA
2014	Master of Arts <i>ad eundem</i> degree, Brown University, Providence, RI
2014	Interviewed for 'The Cave Artists', Nature Medicine 20, 228-230
2015 - 2017	Participated in a joint effort of Talbot Middle School and the International Space Station to study tadpoles in space (The Herald News, 9/28/2015)

ACADEMIC APPOINTMENTS

1999 – 2002	Investigator Department of Obstetrics and Gynecology Women and Infants Hospital of Rhode Island
2002 - 2011	Assistant Professor of Medical Science (Research) Department of Molecular Biology, Cell Biology and Biochemistry Brown University
2002 - present	Director, Leduc Bioimaging Facility Brown University

2011 - present Associate Professor of Medical Science (Research)
Department of Molecular Biology, Cell Biology and Biochemistry
Brown University

2012 - present Director, Molecular Pathology Core
Brown University

July 2016 - present Secondary appointment, Associate Professor (Research)
Department of Pathology and Laboratory Medicine
Brown University

OTHER APPOINTMENTS

2010 - present Faculty member, Brown Institute for Brain Science
2014 - present Faculty member, Center for Vision Research

MEMBERSHIP IN SOCIETIES

2004 - present Member of the Society for Developmental Biology
2004 - present Member of the Society for Neuroscience

SERVICE TO THE UNIVERSITY

Director, Leduc Bioimaging Facility (2002-present). The Leduc Bioimaging Facility, open to all investigators, provides equipment and training dedicated to high-resolution imaging in the life sciences. The facility expanded from 3 main imaging systems in 2002 to 9 main imaging systems in 2016. Microscope use increased approximately 6-fold during this time. The facility offers its services in Sidney Frank Hall (SFH) and the Laboratory for Molecular Medicine (LMM) and serves over 250 users. The facility includes a scanning electron microscope, transmission electron microscope, a fluorescence stereo microscope, two fluorescence microscopes, three confocal microscopes and a multiphoton microscope. The following imaging systems have been set up in the Leduc Bioimaging Facility since 2002:

- 1) Zeiss Axiovert 200M light / fluorescence microscope (NIH COBRE supplement, 2003)
- 2) Leica TCS SP2 AOBs spectral confocal microscope (NIH NCRR, 2003 - 2015)
- 3) Zeiss Axiovert 200M light / fluorescence microscope for LMM (Brown University, 2004)
- 4) Zeiss Lumar fluorescence stereo microscope (Brown University, 2006)
- 5) Zeiss LSM510 Meta confocal microscope for SFH (Brown University, 2007)
- 6) Zeiss LSM710 confocal microscope (NIH NCRR, 2009)
- 7) Olympus FV-1000-MPE multiphoton microscope (BIBS Core Facility Funds, 2013)
- 8) Zeiss LSM800 confocal microscope (Brown University, 2015)

See http://www.brown.edu/Facilities/Leduc_Bioimaging_Facility/ for additional information.

Director, Molecular Pathology Core (2012 - present). The Molecular Pathology Core provides researchers in the Superfund Research Program with equipment and technical expertise necessary for the evaluation of molecular and morphological changes in cells, tissues, and organs following exposure to complex environmental contaminants. The core was established in 2004 to support the research projects in the Superfund Research Program at Brown University. Since then, the core has expanded its capabilities and has grown into a dynamic facility visited by investigators from various departments, centers and nearby hospitals, stimulating collaborations between investigators in the Superfund Research Program and the research community at large. In July 2015, Brown University approved the core's application to become a University-wide 'Service Center'. The core is located at

the Laboratories for Molecular Medicine and houses state-of-the-art equipment, including an automated tissue processor, a paraffin embedding center, two automated microtomes, a cryostat, a vibratome for soft-tissue sectioning, a multiheaded light microscope with projection capabilities, a system for laser capture microdissection, and a digital slide scanner with analysis software for the identification and quantification of morphological structures.

See <http://brown.edu/Research/SRP/coreD.shtml> for additional information.

Organizer of the ‘Zebrafish at Brown’ research group (2012 - present). Scientists at Brown University teamed up to form the ‘Zebrafish at Brown’ research group. Members of the group share resources to make efficient use of zebrafish as a model system and pursue collaborative research projects in neuroscience and behavior. Current projects are focused on novel imaging and image analysis methodologies, peripheral neuropathies, brain infections, developmental brain defects and the effects of environmental toxicants on brain development and behavior. The interdisciplinary research group consists of approximately 20 students, staff and faculty from various departments at Brown University and the Warren Alpert Medical School at Brown University: the Department of Molecular Biology, Cell Biology, and Biochemistry (MCB), the Department of Molecular Microbiology & Immunology (MMI), the Department of Ecology and Evolutionary Biology (EEB), the Department of Molecular Pharmacology, Physiology & Biotechnology (MPPB), the Department of Pathology and Laboratory Medicine (PLM), the Department of Cognitive, Linguistic & Psychological Sciences (CLPS), and the Department of Pediatrics at Rhode Island Hospital.

See <http://www.brown.edu/research/projects/zebrafish/> for additional information.

University Committees

Confocal Evaluation Committee (2006)
Stereomicroscope Evaluation Committee (2006)
Advisory Committee for the Brain Science Program Optical Imaging Core (2006)
Small animal imaging task force (2007)
Confocal Evaluation Committee (2009)
Organizer of the first ‘Zebrafish at Brown’ meeting (2012)
Chair of multiphoton microscope steering committee (2012-2013)
Admissions committee MCB graduate program (2014)
User Group for the Leduc Bioimaging Facility (2008-present)

SERVICE TO THE PROFESSION

Manuscript review

Behavioral Neuroscience (2014)
Behavioural Brain Research (2010, 2011, 2013, 2014, 2015, 2016)
Biochimie (2011)
Chemosphere (2015)
Cold Spring Harbor Protocols (2011)
Developmental Biology (2005, 2012)
Developmental Dynamics (2008, 2009)
Development Growth and Differentiation (2009)
Genesis (2009)
Integrative Biology (2016)
International Journal of Developmental Biology (2006, 2010)
Journal of Neuroscience (2007)
Journal of Neuroscience Methods (2007)
Mechanisms of Development (2007)

Molecular Reproduction and Development (2008, 2009, 2014, 2016, 2017)
Pharmacology, Biochemistry and Behavior (2014)
Physiology & Behavior (2015, 2016)
PLOS One (2010, 2011, 2013)
Progress in Neuro-Psychopharmacology & Biological Psychiatry (2010)
Tissue Engineering (2008)
Zebrafish (2015, 2016)

Editorial services

1999 Guest editor, Microscopy Research and Technique

Grant review

2000 The National Science Foundation, Ad Hoc reviewer
2004 The National Science Foundation, Ad Hoc reviewer
2005 The National Science Foundation, Ad Hoc reviewer
2006 The National Science Foundation, Ad Hoc reviewer
2010 The National Science Foundation, Ad Hoc reviewer
2011 The National Science Foundation, Ad Hoc reviewer
2012 Graduate Women in Science, GWIS fellowships

SERVICE TO THE COMMUNITY

The Leduc Bioimaging Facility is visited by approximately 100 middle school and high school students each year. For many students, this is their first visit to a university and their first contact with scientific research.

PUBLICATIONS

Peer-reviewed publications

- 1) Zivkovic D, **Creton R**, Zwaan G, de Bruijn WC and Dohmen R (1990). Polar localization of plasmamembrane $\text{Ca}^{2+}/\text{Mg}^{2+}$ ATPase correlates with the pattern of steady ionic currents in eggs of *Lymnaea stagnalis* and *Bithynia tentaculata* (Mollusca). Roux's Arch. Dev. Biol. 199: 134-145.
- 2) Zivkovic D, **Creton R** and Dohmen R (1991). Cell cycle related fluctuations in transcellular ionic currents and plasmamembrane $\text{Ca}^{2+}/\text{Mg}^{2+}$ ATPase activity during early cleavages of *Lymnaea stagnalis* embryos. Roux's Arch. Dev. Biol. 200: 120-131.
- 3) Zivkovic D, **Creton R**, Zwaan G and Dohmen R (1991). Localized activity of Ca^{2+} -stimulated ATPase and transcellular ionic currents during mesoderm induction in embryos of *Lymnaea stagnalis*. Roux's Arch. Dev. Biol. 200: 320-329.
- 4) **Creton R**, Zivkovic D, Speksnijder JE and Dohmen MR (1992). Manipulation of cytokinesis affects polar ionic current around the egg of *Lymnaea stagnalis*. Roux's Arch. Dev. Biol. 201: 346-353.
- 5) **Creton R**, Zivkovic D, Zwaan G, and Dohmen R (1993). Polar ionic currents around embryos of *Lymnaea stagnalis* during gastrulation and organogenesis. Int. J. Dev. Biol. 37: 425-431.
- 6) **Creton R**, Zwaan G and Dohmen R (1993). Specific developmental defects in molluscs after treatment with retinoic acid during gastrulation. Develop. Growth & Differ. 35: 357-364.
- 7) **Creton R**, Zwaan G and Dohmen R (1994). Retinoic acid modulates the pattern of cell division in embryos of *Lymnaea stagnalis* (Mollusca). Roux's Arch. Dev. Biol. 204: 70-74.

- 8) **Creton R**, Zwaan G and Dohmen R (1994). High pH prevents retinoic acid-induced teratogenesis. *Int. J. Dev. Biol.* 39: 409-414.
- 9) **Creton R** and Jaffe LF (1995). The role of calcium influx during the latent period in sea urchin fertilization. *Dev. Growth & Diff.* 37: 703-709.
- 10) Browne CL, **Creton R**, Karplus E, Mohler PJ, Palazzo RE and Miller AL (1996). Analysis of the calcium transient at NEB during the first cell cycle in dividing sea urchin eggs. *Biol. Bull.* 191: 5-16.
- 11) **Creton R**, Steele M and Jaffe LF (1997). Expression of apo-aequorin during embryonic development, how much is needed for calcium imaging? *Cell Calcium* 22, 439-446.
- 12) **Creton R**, Speksnijder JE and Jaffe LF (1998). Patterns of free calcium in the zebrafish embryo. *J. Cell Science* 111, 1613-1622.
- 13) Messerli MA, **Creton R**, Jaffe LF and Robinson KR (2000). Periodic increases in elongation rate precede increases in cytosolic Ca^{2+} during pollen tube growth. *Dev. Biol.* 222, 84-98.
- 14) **Creton R**, Kreiling JA, and Jaffe LF (2000). Presence and roles of calcium gradients along the dorsal-ventral axis in *Drosophila* embryos. *Dev Biol.* 217, 375-385.
- 15) **Creton R** (2004). The calcium pump of the endoplasmic reticulum plays a role in midline signaling during early zebrafish development. *Developmental Brain Research* 151, 33-41.
- 16) Wong JL, **Creton R**, and Wessel GM (2004). The oxidative burst at fertilization is dependent upon activation of the dual oxidase Udx1. *Dev. Cell* 7, 801-814.
- 17) Kreiling J.A., **Creton R**, Reinisch C. (2007). Early embryonic exposure to polychlorinated biphenyls disrupts heat-shock protein 70 cognate expression in zebrafish. *J Toxicol Environ Health A.* 70, 1005-1013.
- 18) Kreiling J.A., Prabhat, Williams G., **Creton R.** (2007). Analysis of Kupffer's vesicle in zebrafish embryos using a cave automated virtual environment. *Dev. Dyn.* 236, 1963-1969.
- 19) Kreiling J.A., Balantac Z.L, Crawford A., Ren Y., Toure J., Zchut S., Kochilas L., **Creton R.** (2008). Suppression of the endoplasmic reticulum calcium pump during zebrafish gastrulation affects left-right asymmetry of the heart and brain. *Mech Dev* 125, 396-410.
- 20) **Creton, R.** (2009). Automated analysis of behavior in zebrafish larvae. *Behav. Brain Res* 203, 127-136.
- 21) Colwill R.M., **Creton R.** (2011). Locomotor behaviors in zebrafish (*Danio rerio*) larvae. *Behav. Processes* 86, 222-229. PMID: PMC3063417.
- 22) Pelkowski S.D., Kapoor M., Richendrfel H.A., Wang X., Colwill R.M., **Creton R.** (2011). A novel high-throughput imaging system for automated analyses of avoidance behavior in zebrafish larvae. *Behav. Brain Res*, 223:135-44. PMID: PMC3111907
- 23) Richendrfel H., Pelkowski S.D., Colwill R.M., **Creton R** (2012). On the edge: pharmacological evidence for anxiety-related behavior in zebrafish larvae. *Behav. Brain Research* 228, 99 - 106. PMID: PMC3264763.
- 24) Richendrfel H., Pelkowski S.D., Colwill R.M., **Creton R** (2012). Developmental sub-chronic exposure to chlorpyrifos reduces anxiety-related behavior in zebrafish larvae. *Neurotoxicol. Teratol.* 34, 458-465. PMID: PMC3573706.
- 25) O'Neale A, Ellis J, **Creton R**, Colwill RM (2014). Single stimulus learning in zebrafish larvae. *Neurobiol Learn Mem.* 108:145-154. PMID: PMC3946257.
- 26) Clift, D., Richendrfel, H., Thorn, R.J., Colwill, R.M., and **Creton, R.** (2014). High-throughput analysis of behavior in zebrafish larvae: effects of feeding. *Zebrafish* 11, 455-461. PMID: PMC4172468.
- 27) Clift D.E., Thorn R.J., Passarelli E.A., Kapoor M., LoPiccolo M.K., Richendrfel H.A., Colwill R.M., **Creton R.** (2015). Effects of embryonic cyclosporine exposures on brain development and behavior. *Behavioural Brain Research* 282, 117-124. PMID: PMC4323675
- 28) Richendrfel H., **Creton R.** (2015). Chlorpyrifos and malathion have opposite effects on behaviors and brain size that are not correlated to changes in AChE activity. *Neurotoxicology* 49, 50-58. PMID: PMC4523399.

- 29) Lovato AK, **Creton R**, Colwill RM (2016). Effects of embryonic exposure to polychlorinated biphenyls (PCBs) on larval zebrafish behavior. *Neurotoxicol Teratol.* 53, 1-10. PMID: PMC4703504
- 30) Lin CL, Taggart AJ, Lim KH, Cygan KJ, Ferraris L, **Creton R**, Huang YT, Fairbrother WG (2016). RNA structure replaces the need for U2AF2 in splicing. *Genome Res.* 26, 12-23. PMID: PMC4691745
- 31) Gonzalez ST, Remick D, **Creton R**, Colwill RM (2016). Effects of embryonic exposure to polychlorinated biphenyls (PCBs) on anxiety-related behaviors in larval zebrafish. *NeuroToxicology* 53, 93-101. PMID: PMC4808333.
- 32) Mallick EM, Bergeron AC, Jones SK Jr, Newman ZR, Brothers KM, **Creton R**, Wheeler RT, Bennett RJ. (2016). Phenotypic Plasticity Regulates Candida albicans Interactions and Virulence in the Vertebrate Host. *Front Microbiol.* 7 (art. 780), 1-18. PMID: PMC4880793
- 33) Holloway MP, DeNardo BD, Phornphutkul C, Nguyen K, Davis C, Jackson C, Richendrfel H, **Creton R**, Altura RA (2016). An asymptomatic mutation complicating severe chemotherapy-induced peripheral neuropathy (CIPN): a case for personalised medicine and a zebrafish model of CIPN. *Nature Partner Journals (npj), Genomic Medicine* 1, 16016.

Other peer-reviewed publications (reviews, editorials)

- 1) Jaffe LF and **Creton R** (1998). On the conservation of calcium wave speeds. *Cell Calcium*, 24, 1-8.
- 2) **Creton R**, Kreiling JA, and Jaffe LF. (1999). Calcium imaging with chemiluminescence. *Microsc. Res. Tech.*, 46, 390-397
- 3) **Creton R** and Jaffe L.F. (2001). Chemiluminescence microscopy as a tool in biomedical research. *BioTechniques* 31, 1098-1105.
- 4) Colwill R.M., **Creton R**. (2011). Imaging escape and avoidance behavior in zebrafish larvae. *Reviews in the Neurosciences* 22, 63-73. PMID: PMC3092434.
- 5) Richendrfel H.A., **Creton R**. (2013). Automated high-throughput behavioral analyses in zebrafish larvae. *JoVE* 77, e50622. PMID: PMC3731428.

Books and book chapters

- 1) **Creton R** (1994). Ionic currents in embryonic development. PhD Thesis, published by Uitgeverij WCC, Utrecht, The Netherlands, ISBN 90-7128239-2.
- 2) Colwill R.M., **Creton R**. (2010). Chapter 3. Automated imaging of avoidance behavior in larval zebrafish. *Humana Press / Springer Protocols: Zebrafish Neurobehavioral Protocols Series: Neuromethods*, Vol. 51, p. 35-48. 1st Edition. Kalueff, A.V.; Cachat, J.M. (Eds.). ISBN: 978-1-60761-952-9.
- 3) Colwill R.M., **Creton R**. (2012). Chapter 7. Automated imaging of visual recognition memory in larval zebrafish. *Humana Press / Springer Protocols: Zebrafish Neurobehavioral Protocols II*. Kalueff A.V. and Stewart A (Eds.).
- 4) Richendrfel H., **Creton R**., Colwill R.M. (2014). Chapter 12. The embryonic zebrafish as a model system to study the effects of environmental toxicants on behavior. *Nova Science Publishers, Inc: Zebrafish, topics in reproduction, toxicology and development*. p. 245-264. Lessman, C.A., Carver, E.A. (Eds.). ISBN: 978-1-63117-558-9

Other non-peer reviewed publications

- 1) **Creton R**. (1999). Introduction to calcium identification. *Microsc. Res. Tech.* 46, 341. *Introduction to special issue on 'Calcium Identification'*.
- 2) **Creton R**., Wessel G.M. (2011). The passing of a major wave: Lionel F. Jaffe (December 28, 1927 - April 27, 2011). *Mol Reprod Dev.* 78, Issue 6.

ABSTRACTS

- 1) Bretschneider F, **Creton R**, Dohmen MR, Heijmen PS, Versluis JP (1995). Offset currents in catfish electroreceptors measured with the vibrating probe. *Pfluegers Arch. Ges. Physiol.* 430 suppl, R160.
- 2) **Creton R**, Jaffe LF (1996). Aequorin and Ca²⁺ imaging. International Symposium on Bioluminescence and Chemiluminescence.
- 3) **Creton R**, Speksnijder JE, Jaffe LF (1998). Calcium patterns in the zebrafish embryo. Zebrafish development and genetics meeting, Cold Spring Harbor, NY.
- 4) Jaffe LF, Steele M, **Creton R** (1997). Elevation of calcium associated with Dpp (TGF- β) signaling in the *Drosophila* embryo. *Dev. Biol.* 186, p 274, A63.
- 5) **Creton R**, Speksnijder JE, Jaffe LF (1998). Calcium gradients in the developing brain of zebrafish embryos. Zebrafish development and genetics meeting, Cold Spring Harbor, NY.
- 6) **Creton R**, Speksnijder JE, Jaffe LF (1998). Patterns of free calcium in zebrafish embryos. *J. General Physiology* 112, p. 36.
- 7) **Creton R**, Jaffe LF (1998). Local calcium signaling in a large cell with multiple nuclei. *J. General Physiology* 112, p. 46.
- 8) Zchut S., **Creton R.**, Kochilas L. (2005). HDAC inhibition impairs cardiac development in the zebrafish embryo". APS-SPR Annual Meeting, Washington, DC, USA, May 14-17, 2005 (poster presentation).
- 9) Zchut S., **Creton R.**, Kochilas L. (2005). The role of HDAC3 in zebrafish cardiac development. Meeting of the Society for Developmental Biology, San Francisco, CA (poster presentation).
- 10) Zchut S., **Creton R.**, Kochilas L (2005). The role of HDAC3 in zebrafish cardiac development". Junior Investigator Award Lifespan Research Celebration.
- 11) Zchut S, **Creton R.**, Kochilas L (2006). Histone Deacetylase 3 (HDAC3) Is Essential For Embryonic Heart Development In Zebrafish. APS-SPR Annual Meeting, San Francisco, CA.
- 12) Kreiling J.A., Balantac Z.L, Toure J., Zchut S., Kochilas L., and **Creton R** (2006). Calcium manipulation in zebrafish embryos affects left-right asymmetry of the heart and brain. Northeast Regional Meeting of the Society for Developmental Biology.
- 13) Kreiling J., Balantac Z., Toure J., Zchut S., Kochilas L., **Creton R.** (2007). Calcium Manipulation in Zebrafish Embryos Affects Left-Right Asymmetry of the Heart and Brain. APS-SPR Annual Meeting, Toronto, Canada.
- 14) Kreiling J.A., Balantac Z.L., Crawford A., Toure J., Celik A., Kochilas L.K., **Creton R.** (2007). Inhibition of the endoplasmic reticulum calcium ATP-ase affects the early steps of left-right patterning in zebrafish embryos. American Heart Association, Orlando, Florida.
- 15) Williams G., Nathanson J., **Creton R.** (2008). The Leduc Bioimaging Facility. Rhode Island Research Alliance Symposium. Providence, Rhode Island.
- 16) **Creton R.** (2008). The Leduc Bioimaging Facility. Brown University Postdoc Orientation, Resource and Networking Event. Providence, Rhode Island.
- 17) Kreiling J., Colwill R.M., **Creton R.** (2009). Brain defects induced by modulators of calcium signaling. Society for Developmental Biology Northeast Regional Meeting, Woods Hole, Massachusetts.
- 18) Kreiling J., Colwill R.M., **Creton R.** (2009). Modulators of calcium signaling induce developmental brain defects and behavioral changes. 6th European Zebrafish Genetics and Development Meeting, Rome, Italy.
- 19) Colwill R.M., Kreiling J.A., **Creton R.** (2010). Activity in zebrafish (*Danio rerio*) larvae: developmental patterns and effects of PCBs. Eastern Psychological Association Meeting, New York City, NY
- 20) Colwill R.M., Kambe C.J., Kreiling J.A., **Creton R.** (2010). Social behavior in larval zebrafish (*Danio rerio*): an animal model of autism. Eastern Psychological Association Meeting, New York City, NY

- 21) Colwill R.M., Gishen K.E., Cole E.D., **Creton R.** (2010). The development of asymmetric behavior in zebrafish larvae. Society for Developmental Biology Northeast Regional Meeting, Woods Hole, Massachusetts.
- 22) Colwill R.M., Gishen K.E., Cole E.D., **Creton R.** (2010). Automated imaging of avoidance behavior in zebrafish larvae. 9th International Meeting on Zebrafish Development and Genetics, Madison, Wisconsin.
- 23) Pelkowski S.D., Richendrfel H.A., Kapoor M., Wang X., Colwill R.M., **Creton R.** (2011). A novel high-throughput imaging system for automated analyses of behavior in zebrafish larvae. Society for Developmental Biology Northeast Regional Meeting, Woods Hole, Massachusetts.
- 24) Richendrfel H.A., Pelkowski S.D., Kapoor M., Colwill R.M., **Creton R.** (2011). A novel high-throughput system for automated analyses of behavior in zebrafish larvae. New England Science Symposium, J.B. Martin Conference Center at Harvard Medical School, Boston, Massachusetts.
- 25) Lovato A.K., Pelkowski S., **Creton R.**, Colwill R.M. (2011). Embryonic exposure to environmentally relevant concentrations of polychlorinated biphenyls (PCBs) disrupts avoidance behavior in zebrafish larvae. Society for Neuroscience, Washington, DC.
- 26) Richendrfel H., Pelkowski S., Colwill R.M., **Creton R.** (2011). A novel high-throughput method to detect anxiety-related behaviors in zebrafish larvae. Society for Neuroscience, Washington, DC.
- 27) Richendrfel H., Pelkowski S., Colwill R.M., **Creton, R.** (2012). Chlorpyrifos and anxiety: What the zebrafish model can tell us about pesticide exposure during development. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 28) Pelkowski S.D., Richendrfel H.A., Kapoor M., Wang X., Colwill R.M., **Creton R.** (2012). Automated analyses of avoidance behavior in zebrafish larvae. International Meeting on Zebrafish Development and Genetics, Madison, Wisconsin.
- 29) Pelkowski S.D., Richendrfel H.A., Colwill R.M., **Creton R.** (2012). Automated analyses of behavior in zebrafish larvae. Measuring Behavior, Utrecht, Netherlands.
- 30) Richendrfel H. and **Creton R.** (2012). Chlorpyrifos during development reduces anxiety-related behavior in zebrafish larvae. Society of Toxicology, San Francisco, CA.
- 31) Richendrfel H., Pelkowski S., LoPiccolo M., Kapoor M., Colwill R.M., and **Creton R.** (2012). "Developmental toxicity in zebrafish larvae from pharmaceuticals that modulate calcium signaling pathways" Society for Neuroscience, New Orleans, LA
- 32) Richendrfel H, Pelkowski S, Kapoor M, LoPiccolo M, Colwill RM, **Creton R** (2013). Assessment of developmental toxicity by automated analyses of behavior in zebrafish larvae. 5th Strategic Conference of Zebrafish Investigators, Pacific Grove, CA, January 19-23rd.
- 33) Richendrfel H., and **Creton R.** (2013). Chlorpyrifos affects specific types of zebrafish larval behavior if administered during distinct developmental time periods. Society of Toxicology, San Antonio, TX.
- 34) Bestoso D., Regier E., Richendrfel H., **Creton R.** (2013). The behavior of 6 and 7-day-old zebrafish larvae is affected by feeding. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 35) Richendrfel H., Bestoso D, Regier E., **Creton R.** (2013). Zebrafish behavior is affected by modulation of embryonic calcium signaling pathways. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 36) Welch E.S., Gonzales S., Remick D., **Creton R.**, Colwill R.M. (2013). Embryonic exposure to environmentally relevant concentrations of polychlorinated biphenyls (PCBs) affects startle response in zebrafish larvae. Eastern Psychological Association, New York, New York.
- 37) Richendrfel H., **Creton R.** (2013). Several larval zebrafish behaviors are affected by the pesticide chlorpyrifos if it is administered during distinct developmental time periods. 8th European zebrafish meeting. Barcelona.
- 38) Holloway M.P., DeNardo B.D., Davis C.M., Hazin I., **Creton R.**, Altura R. (2013). Zebrafish model of chemotherapy induced neuropathy complicated by Charcot-Marie-Tooth. Zebrafish for Personalized / Precision Medicine Conference, Toronto.

- 39) Richendrfer H., **Creton R.** (2014). Zebrafish brain development is altered by early exposure to the organophosphate chlorpyrifos. Society of Toxicology, Phoenix, Arizona.
- 40) Clift D., Thorn R., Passarelli E., Kapoor M., LoPiccolo M.K., Richendrfer H., Colwill R.M., **Creton R.** (2015). Effects of embryonic cyclosporine exposures on brain development and behavior. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 41) Thorn R., Clift D., **Creton R.** (2015). The role of calcineurin in the developing brain. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 42) Clift D., Richendrfer H., Thorn R., Colwill R.M., **Creton R.** (2015). Improving high-throughput analysis of behavior in zebrafish larvae. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 43) Thorn R, Clift D, **Creton R** (2016). Differing roles for calcineurin regulatory subunits in zebrafish brain development. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 44) Clift D, Passarelli E, Richendrfer H, Thorn R, Colwill RM, **Creton R** (2016). Eye development and regeneration examined by automated analyses of behavior. Society for Developmental Biology, Northeast Regional Meeting, Woods Hole, Massachusetts.
- 45) Thorn R, Clift D, **Creton R** (2016). The regulatory subunits of calcineurin differentially direct zebrafish brain development. 12th International Conference on Zebrafish Development and Genetics, The Allied Genetics Conference (TAGC), Orlando, Florida.
- 46) Clift D., Thorn R, Passarelli E, Colwill RM, **Creton R** (2016). Photoreceptor development and regeneration examined by automated analyses of behavior. 12th International Conference on Zebrafish Development and Genetics, The Allied Genetics Conference (TAGC), Orlando, Florida.

INVITED PRESENTATIONS

- 1) Creton R. (January 2006). Seminar series in Reproductive Biology, Kilguss Research Institute, Providence, RI.; 'A split mind and a change of heart, a story of embryonic midline signaling'.
- 2) Creton R. (October 2007). Cardiovascular Research Data Club, Laboratories for Molecular Medicine, Providence, RI.; 'Some hearts are all right'.
- 3) Creton R. (June 2007). Cardiovascular Research Center, Rhode Island Hospital; 'Microscopes, *in vivo* imaging, and early development of the heart'.
- 4) Creton R. (May 2008). Cardiovascular Research Center, Rhode Island Hospital; 'Introduction to basic methodologies in fluorescence microscopy'.
- 5) Creton R. (September 2009). 21st Annual MCB retreat, Haffenreffer, Bristol, RI; 'What's left and who's right?'.
- 6) Creton R. (October 2009). MCB Graduate Program, Faculty on Parade, Sidney Frank Hall, Providence, RI; 'Brain defects induced by modulators of calcium signaling'.
- 7) Creton R. (September 2010). Basic Methodology in Cardiovascular & Pulmonary Research, Coro West Center, Providence, RI; 'Fluorescence microscopy, image analysis, and asymmetry in the heart and brain'.
- 8) Creton R. (January 2013). Temple University, Department of Biology: "Effects of environmental factors on the developing brain".
- 9) Creton R. (October 2013). Basic Methodology in Cardiovascular & Pulmonary Research, Coro West Center, Providence, RI; 'Fluorescence microscopy'.
- 10) Creton R. (April 2014). Pathobiology Seminar Series, Brown University: "Effects of environmental factors on the developing brain".
- 11) Creton R. (October 2015). Superfund Research Program Retreat, Brown University: "Molecular Pathology Core".
- 12) Creton R. (November 2015). Mason Eye Institute, University of Missouri: "High-throughput analyses of visual defects".
- 13) Creton R. (January 2016). Biology Department, Central Michigan University: "Effects of environmental factors on brain development and behavior"

GRANTS

Completed Grants

- 1) NIH / COBRE, P20 RR15578
 - Project period: 09/30/2000 - 08/31/2005
 - Project title: Center for Genetics and Genomics
 - Role on project: Director of Bioimaging Facility (PI: John Sedivy)
 - Total award amount: \$ 11 million

- 2) NIH / COBRE, P20 RR015578-03 S1
 - Project period: 09/01/2002 - 08/31/2005
 - Project title: Supplement to Brown University COBRE award
 - Role on project: Director of Bioimaging Facility (PI: John Sedivy)
 - Total award amount: \$ 496,937

- 3) NIH / NCRR, grant S10 RR017942
 - Project period: 05/01/2003 - 04/30/2004
 - Project title: Confocal Microscope
 - Role on project: Director of Bioimaging Facility (PI: Gary Wessel)
 - Total award amount: \$ 431,000

- 4) NIH / COBRE, P20 RR018728
 - Project period: 09/30/2003 - 06/30/2008
 - Project title: COBRE for Perinatal Biology
 - Role on project: Consultant for microscopy core (PI: Jim Padbury)
 - Total award amount: \$ 9 million

- 5) National Science Foundation, IOB-0421654
 - Project period: 08/01/2004 - 07/31/2007
 - Project title: Calcium signaling in the developing zebrafish brain
 - Role on project: Principal Investigator
 - Total award amount: \$ 344,239

- 6) The Rhode Island Foundation, grant 20050236
 - Project period: 01/25/2005 - 12/31/2005
 - Project title: The role of HDACs in zebrafish heart development
 - Role on project: Principal investigator
 - Total award amount: \$ 10,000

- 7) NIH / NICHD, R03 HD051895
 - Project period: 07/01/2006 – 06/30/2008
 - Project title: The role of HDAC3 in cardiac growth and development
 - Role on project: Collaborator (PI: Lazaros Kochilas)
 - Total award amount: \$ 150,000

- 8) NIH / NCRR, S10 RR023693
 - Project period: 4/1/2008 - 3/31/2009
 - Project title: Shared Zeiss Meta Confocal Microscope
 - Role on project: Director of Bioimaging Facility (PI: Elaine Bearer)
 - Total award amount: \$ 497,000

- 9) NIH / NIEHS, P42 ES013660

Project period: 04/01/2009 - 03/31/2014 (ext. 03/31/2015)
Project title: Superfund Research Program: "Reuse in RI: A State-based Approach to Complex Exposures", Molecular Pathology Core (Core D)
Role on project: Core Leader, 07/01/2012 - present (PI: Kim Boekelheide)
Total award amount: \$ 14 million

10) NIH / NIEHS, R03 ES017755

Project period: 08/01/2010 - 07/31/2012 (ext. 07/31/2014)
Project title: Zebrafish model of hyperactivity induced by embryonic PCB exposure
Role on project: Collaborator (PI: Ruth Colwill)
Total award amount: \$ 146,277

11) Brown Institute for Brain Science (BIBS) Core Facility Fund

Project period: 11/16/2012 - 11/15/2013
Project title: Multiphoton microscope for the Leduc Bioimaging Facility
Role on project: Principal Investigator
Total award amount: \$ 540,828

12) Brown University Core Infrastructure Award

Project period: 04/08/2014 - 03/31/2015
Project title: Computer, camera and software upgrades for the Bioimaging Facility
Role on project: Principal Investigator
Total award amount: \$ 38,165

13) NIH / NIEHS, F32 ES021342

Project period: 09/03/2012 - 08/31/2015
Project title: The effects of organophosphates on anxiety-related behavior and neurodevelopment
Role on project: Mentor (PI: Holly Richendrfer)
Total award amount: \$ 161,802

14) NIH / NICHD, R01 HD060647

Project period: 03/01/2010 - 01/31/2015 (ext. 01/31/2016)
Project title: Brain defects induced by embryonic exposure to modulators of calcium signaling
Role on project: Principal Investigator
Total award amount: \$ 1,263,230

Current grants

1) NIH / NIMH, R01 MH105442

Project period: 09/16/2014 - 05/31/2019
Project title: Mechanisms of circuit failure and treatments in patient-derived neurons in autism
Role on project: Key personnel (PI: Eric Morrow)
Total award amount: \$ 2,031,250

2) NIH / NIMH, R01MH102418

Project period: 04/01/2015 - 02/28/2019
Project title: Autism-linked endosomal mechanisms in neuronal arborization and connectivity
Role on project: Key personnel (PI: Eric Morrow)
Total award amount: \$ 1,625,000

3) NIH / NIGMS, T32 GM007601

Project period: 07/01/2015 - 06/30/2020
 Project title: Training in molecular and cell biology and biochemistry
 Role on project: Trainer (PI: Kimberly Mowry)
 Total award amount: \$ 1,824,545

4) NIH / NEI, R01 EY024562

Project period: 09/01/2015 - 08/31/2019
 Project title: Automated analyses of behavior in response to visual stimuli
 Role on project: Principal Investigator
 Total award amount: \$ 1,377,294

5) NIH / NIEHS, P42 ES013660

Project period: 09/30/2015 - 03/31/2020
 Project title: Superfund Research Program: "Toxicant Exposures in Rhode Island: Past, Present, and Future", Molecular Pathology Core.
 Role on project: Core leader (PIs: Kim Boekelheide & Robert Hurt)
 Total award amount: \$ 11 million (\$604,849 for the Molecular Pathology Core)

Pending grant applications

1) NIH / ORIP, S10

Project period: 02/01/2017 – 01/31/2018
 Project title: SEM for serial block-face imaging
 Role on project: Principal Investigator
 Total amount: \$ 828,153

TEACHING

Undergraduate academic advising

2011-2013: Concentration advisor in Biology for Andrew Choi, Jeremy Korn, Julio Ma Shum, Lakir Patel, Michael Pico, Riyad Seervai, Michael Sider.

2014-2016: Concentration advisor in Biology for Alana Bhatla, Emma Corcoran, Nancy Holt, Charlotte Kim, Stephanie Pitts, Graciela Rodriguez, Reid Secondo.

Advisor for undergraduate research

1) Jamal Toure	2005	BIOL1950/1960
2) Zaneta L. Balantac	2005-2007	BIOL1950/1960, NSF (summer research)
3) Andrew Crawford	2005-2007	BIOL1950/1960, UTRA (summer research)
4) Theresa McGowan	2006	Co-advisor on UTRA (summer research)
5) Daniel Cho	2006	NSF (summer research)
6) Lauren Hale	2006	NSF (summer research)
7) Alper Celik	2006-2007	NSF (summer research)
8) Christina Parodi	2007-2008	BIOL1950/1960, NSF (summer research)
9) Nicole Fuerst	2007-2008	BIOL1950/1960, NSF (summer research)
10) Xiaoxuan Chen (Abigail)	2008	UTRA (summer research)
11) Emily D. Cole	2009-2010	BIOL1950/1960, UTRA (summer research)
12) Kriya Gishen	2009-2010	BIOL1950/1960

13) Farrah Laliberte	2009	Wheaton volunteer (summer research)
14) Mrinal Kapoor	2010-2012	BIOL1950/1960, UTRA & NIH (summer research)
15) Benjamin Drapcho	2010	NIH (summer research)
16) Xingyue Wang (Star)	2010-2011	BIOL1950/1960
17) Michael Alim	2011	BIOL1950/1960
18) Mary Kate LoPiccolo	2011-2012	BIOL 1950/1960, UTRA (summer research)
19) Emily Regier	2012-2014	BIOL 1950/1960, UTRA & NIH (summer research)
20) Emily Passarelli	2014-2016	BIOL 1950/1960, UTRA (summer research)
21) Abhey Sur	2016-2017	BIOL 1950/1960
22) Joseph Leonard	2017	BIOL 1950/1960
23) Renee Seto	2017	UTRA application

Thesis advisor in undergraduate honors program

1) Andrew Crawford	2007	Honors thesis
2) Zaneta Balantac	2007	Honors thesis
3) Christina Parodi	2008	Honors thesis
4) Emily D. Cole	2010	Honors thesis
5) Kriya Gishen	2010	Honors thesis
6) Xingyue Wang (Star)	2011	Honors thesis
7) Mrinal Kapoor	2012	Honors thesis
8) Emily Regier	2014	Honors thesis
9) Emily Passarelli	2016	Honors thesis

Thesis committees, PhD programs

1) Julian Wong	MCB graduate program, 2002-2005 Project: Molecular Mechanisms of the Block to Polyspermy Role: committee member (Thesis Advisor: Gary Wessel)
2) Samantha Jeschonek	MCB graduate program, 2011-present Project: Vg1 mRNA anchoring in Xenopus oocytes Role: committee chair (Thesis Advisor: Kimberly Mowry)
3) Tara Fresques	MCB graduate program, 2012-present Project: Germ line specification in the sea star Role: committee chair (Thesis advisor: Gary Wessel)
4) April Rodd	Pathobiology graduate program, 2013-2017 Project: development of mechanistic toxicity assays using brine shrimp Role: committee member (Thesis advisor: Agnes Kane)
5) Christy Rhine	MCB graduate program, 2016 - present Project: The contribution of splicing defects in the etiology of Autism Spectrum Disorders Role: committee member (Thesis advisor: William Fairbrother)
6) Xinru Wang	MCB graduate program, 2016 - present Project: Cdk1 phosphorylates a LSPI site to recruit PP2A--B56 during (pro)metaphase to promote cell cycle progression Role: committee member (Thesis advisor: Rebecca Page)
7) Lauren Olinski	MCB graduate program 2017 - present

Project: Mechanisms of opsin signaling in the skin
Role: committee member (Thesis advisor: Elena Oancea)

Advisor for graduate students in M.S. programs

Oladele Ojo 2016 - present: Oladele Ojo, a student in the BioMedical Engineering graduate program joined the Creton laboratory on September 5th, 2016.

Advisor for graduate students in Ph.D. programs

Robert Thorn 2013 - present: Robert Thorn, a student in the MCB graduate program, joined the Creton laboratory in June 2013.

Advisor for postdoctoral fellows

Holly Richendrfer Dr. Richendrfer worked in the Creton laboratory as a postdoctoral fellow and postdoctoral research associate (2010-2016).

Other teaching or academic advising

2002 - present Instructor in microscopy and image analysis for a group of more than 250 facility users, including approximately 50 undergraduate students, 80 graduate students and 40 postdoctoral fellows.

2005 - present Trainer in the MCB graduate program.

2005 - present Trainer in the Biomedical Engineering graduate program.

2014 - present Trainer in the Pathobiology graduate program

Courses at Brown University

Teaching Evaluations: 1=Excellent, 2=Very Good, 3=Good, 4=Fair, 5=Poor

2003 BIOL 2130 Techniques in Molecular and Cell Science
Role in course: Guest lecturer

2004 BIOL 2060 Ultrastructure / Bioimaging
Role in course: Course leader
Overall course rating: 1.63, Instructor's overall effectiveness rating: 1.25

BIOL 2130 Techniques in Molecular and Cell Science
Role in course: Guest lecturer

2005 BIOL 1310 Analysis of development
Role in course: Lecture and Guest lab

BIOL 1940 Selected Topics in Molecular Biophysics
Role in course: Guest lecturer

BIOL 1950/1960 Undergraduate Independent Study
Role in course: Advisor

BIOL 2010 Introduction to MCB Graduate Program Faculty Research

Role in course: Guest lecturer

BIOL 2130 Techniques in Molecular and Cell Science

Role in course: Guest lecturer

BIOL 2950/2960 Graduate Independent Research

Role in course: Advisor

2006 BIOL 1940 Selected Topics in Molecular Biophysics

Role in course: Guest lecturer

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2060 Ultrastructure / Bioimaging

Role in course: Course leader

Overall course rating: 2.17, Instructor's overall effectiveness rating: 1.50

BIOL 2130 Techniques in Molecular and Cell Science

Role in course: Guest lecturer

BIOL 2950/2960 Graduate Independent Research

Role in course: Advisor

2007 BIOL 1050/2050 Biology of the eukaryotic cell

Role in course: Guest lecture

BIOL 1310 Analysis of development

Role in course: Guest lecture and guest lab

BIOL 1940 Selected Topics in Molecular Biophysics

Role in course: Guest lecture

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2030 Foundations for advanced studies in experimental biology

Role in course: Co-Instructor

Overall course rating: 1.29, Instructor's overall effectiveness rating: 2.17

BIOL 2060 Ultrastructure / Bioimaging

Role in course: Course leader

Overall course rating: 1.29, Instructor's overall effectiveness rating: 1.42

BIOL 2130 Techniques in Molecular and Cell Science

Role in course: Guest lecture

2008 BIOL 1310 Analysis of development

Role in course: Guest lecture and guest lab

BIOL 1940 / Ph 2620 Selected Topics in Molecular Biophysics

Role in course: Guest lecture

BIOL 1950/1960 Undergraduate Independent Study
Role in course: Advisor

BIOL 2130 Techniques in Molecular and Cell Science
Role in course: Guest lecture and facility demo

2009 BIOL 1310 Analysis of development
Role in course: Guest lecture and guest lab

BIOL 1950/1960 Undergraduate Independent Study
Role in course: Advisor

2010 BIOL 1310 Analysis of development
Role in course: Guest lecture and guest lab

BIOL 1950/1960 Undergraduate Independent Study
Role in course: Advisor

IMSD Biomed Initiative to Maximize Student Development
Role in course: Guest lecture and facility demo

BIOL 2060 Ultrastructure / Bioimaging
Role in course: Course leader (7 undergraduate and 3 graduate students)
Overall course rating: 1.67, Instructor's overall effectiveness rating: 1.56

BIOL 2130 Techniques in Molecular and Cell Science
Role in course: Guest lecture and facility demo

2011 CLPS 0100 Learning and conditioning
Role in course: Guest lecture (approximately 70 students, used iclickers)

BIOL 1310 Analysis of development
Role in course: Guest lecture and guest lab

BIOL 1950/1960 Undergraduate Independent Study
Role in course: Advisor

Summer Course Basic Methods in Pollen Research
Role in course: Guest lecture and microscope training

Summer Course Center for Biomedical Engineering, Cell Transplantation Design Team
Role in course: Guest lecture

BIOL 2130 Techniques in Molecular and Cell Science
Role in course: Guest lecture and facility demo

BIOL 2060 Ultrastructure / Bioimaging
Role in course: Course leader (1 undergraduate student, 6 graduate students, 1 research assistant).
Overall course rating: 1.56, Instructor's overall effectiveness rating: 1.44

2012 CLPS 0100 Learning and conditioning
Role in course: Guest lecture (44 students, used iclickers)

BIOL 1310/2310 Analysis of development

Role in course: Guest lecture and lab

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2130 Techniques in Molecular and Cell Science

Role in course: Guest lecture and facility demo (8 students)

PHYS 2620 Selected Topics in Molecular Biophysics

Role in course: Guest lecture and facility demo (11 students)

2013 BIOL 1050/2050 Biology of the eukaryotic cell

Role in course: Guest lecture (~40 students)

BIOL 1310/2310 Analysis of development (spring and fall semester)

Role in course: Guest lectures and labs

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2167 In vitro models of disease

Role in course: Guest lecture

BIOL 2130 Techniques in Molecular and Cell Science

Role in course: Guest lecture and facility demo (10 students)

2014 BIOL 1310/2310 Analysis of development

Role in course: Guest lecture and lab

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2167 In vitro models of disease

Role in course: Guest lecture

Initiative to Maximize Student Development

IMSD module on: "Resources, Tools and Techniques in Biomedical Research".

Role in course: Module leader

2015 BIOL 1310/2310 Analysis of development

Role in course: Guest lecture and lab

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2167 In vitro models of disease

Role in course: Guest lecture

Responsible Conduct in Research (RCR) Section on Big Data.

Role in course: Guest lecture

Initiative to Maximize Student Development

IMSD module on: "Resources, Tools and Techniques in Biomedical Research".

Role in course: Module leader

2016 NEUR 1040 Introduction to Neurogenetics

Role in course: Guest lecture

BIOL 1310/2310 Analysis of development

Role in course: Guest lecture and lab

BIOL 1540/2540 Molecular Genetics

Role in course: Guest lecture

BIOL 1950/1960 Undergraduate Independent Study

Role in course: Advisor

BIOL 2060 Ultrastructure / Bioimaging

Role in course: Guest lecture

BIOL 2167 In vitro models of disease

Role in course: Guest lecture

Initiative to Maximize Student Development

IMSD module on: "Resources, Tools and Techniques in Biomedical Research".

Role in course: Module leader