

**Education**

<b>Ph.D.</b> Biology	Madrid Autonoma University (Madrid, Spain). <i>Incidence and regulation of programmed cell death during early neurogenesis in the embryo retina.</i>	1999
<b>M.S.</b> Cell Biology	Madrid Complutense University (Madrid, Spain). <i>Effect of glucocorticoids on fetal rat liver development.</i>	1994
<b>B.S.</b> Biology	Madrid Complutense University (Madrid, Spain)	1992

**Research Interests**

- Hypoxia, Notch and EGFR signaling in cancer invasion and resistance to therapy
- Redox signaling and cancer cell invasiveness
- Regulation of invadopodia formation and activity

**Research Experience**

- **Research Assistant Professor.** Cancer Center, Sanford-Burnham Medical Research Institute, San Diego, California. *Novel functions of PDK1 in the nucleus of cancer cells.* 2013-
- **Staff Scientist.** Cancer Center, Sanford-Burnham Medical Research Institute, San Diego, California. Supervisor: Dr. Sara A. Courtneidge. *Novel isoforms of Tks5 in mammalian development. Regulation of cancer invasiveness by hypoxia through Notch and ADAM12-dependent shedding of EGFR ligands. NADPH oxidase-dependent redox signaling and cancer invasiveness.* 2007-2013
- **Staff Scientist.** Molecular Oncology Program. Spanish National Cancer Center, Madrid (Spain). Supervisor: Dr. Eduardo Moreno. *Cell competition between germline stem cells in Drosophila.* 2005-2007
- **Associate Specialist, Step II.** Molecular and Cell Biology Department, University of California at Berkeley, Berkeley, California. Supervisor: Dr. G. Steven Martin. *RhoA activity in Src-mediated transformation.* 2003-2004
- **Post-doctoral Scholar.** Molecular and Cell Biology Department, University of California at Berkeley, Berkeley, California. Supervisor: Dr. G. Steven Martin. *Oncogenic Src in E2F-1 phosphorylation and activity.* 1999-2003
- **Ph.D. Candidate.** Spanish National Research Council and Madrid Autonoma University, Madrid (Spain). *Regulation of neuroblast survival by pro-insulin during early retinal neurogenesis.* 1995-1999
- **Masters Thesis Candidate.** Cell Biology Department. Complutense University of Madrid, Madrid (Spain). *Effects of glucocorticoids in the structure of the rat fetal liver.* 1994-1992

- **Undergraduate Research Assistant.** Cell Biology Department. Complutense University of Madrid, Madrid (Spain). *Perfusion and isolation of proteins from rat liver.* 1990–1992

## Publications (peer-reviewed)

- P. Cejudo-Martin, A. Yuen, N. Vlahovich, P. Lock, S.A. Courtneidge and **B. Díaz**. Genetic disruption of the Sh3pxd2a gene reveals an essential role in mouse development and the existence of a novel isoform of Tks5. *PLoS ONE* 9 (9): e107674. 2014  
<http://www.ncbi.nlm.nih.gov/pubmed/25259869>
- K.L. Burger, B.S. Learman, A.K. Boucherle, S.J. Sirintrapun, S. Isom, **B. Díaz**, S.A. Courtneidge and D.F. Seals. Src-dependent Tks5 phosphorylation regulates invadopodia-associated invasion in prostate cancer cells. *The Prostate* Feb; 74(2): 134–48. 2014  
<http://www.ncbi.nlm.nih.gov/pubmed/24174371>
- **B. Díaz\***, A. Yuen, S. Iizuka, S. Higashiyama and S.A. Courtneidge. Notch increases the shedding of HB-EGF by ADAM12 to potentiate invadopodia formation in hypoxia. *Journal of Cell Biology* 201 (2), 279–292. (\*) **Corresponding Author** 2013  
<http://www.ncbi.nlm.nih.gov/pubmed/23589494>
- J. M. Munson, L. Fried, S.A. Rowson, M.Y. Bonner, L. Karumbaiah, **B. Díaz**, S.A. Courtneidge, U. Knaus, DJ. Brat, JL. Arbiser, RV. Bellamkonda. Anti-invasive adjuvant therapy with Imipramine Blue enhances chemotherapeutic efficacy against glioma. *Science Translational Medicine* 4,127ra36. <http://www.ncbi.nlm.nih.gov/pubmed/22461640> 2012
- **B. Díaz** and S.A. Courtneidge. Redox signaling at invasive microdomains in cancer cells. *Free Radical Biology and Medicine* Jan 15; 52(2): 247–56. 2012  
<http://www.ncbi.nlm.nih.gov/pubmed/22033009>
- DA Murphy, **B. Díaz**, PA. Bromann, JH Tsai, Y Kawakami, J Maurer, RA Stewart, JC Izpisua-Belmonte and SA Courtneidge (2011). A Src-Tks5 pathway is required for neural crest migration during embryonic development. *PLoS ONE* 6(7): e22499. 2011  
<http://www.ncbi.nlm.nih.gov/pubmed/21799874>
- **B. Díaz**, G. Shani, I. Pass, D. Anderson, M. Quintavalle and S.A. Courtneidge. Tks5-dependent, Nox-mediated generation of reactive oxygen species is necessary for invadopodia formation. *Science Signaling* Sep 15; 2(88): ra53. 2009  
<http://www.ncbi.nlm.nih.gov/pubmed/19755709>
- D. Gianni, **B. Díaz**, N. Taulet, B. Fowler, S.A Courtneidge and GM Bokoch. Novel p47<sup>phox</sup>-related organizers regulate NADPH oxidase 1 (Nox1) activity and localization. *Science Signaling* Sep 15; 2(88): ra54. <http://www.ncbi.nlm.nih.gov/pubmed/19755710> 2009
- C. Rhiner\*, **B. Díaz\***, M. Portela, JF. Poyatos, I. Fernández-Ruiz, JM. López-Gay, O. Gerlitz and E. Moreno. Persistent competition among stem cells and their daughters in the Drosophila ovary germline niche. *Development* 136, 995–1006. (\*) Equal contribution 2009  
<http://www.ncbi.nlm.nih.gov/pubmed/19211674>

- B. Blouw, D.F. Seals, I. Pass, **B. Díaz**, and S.A. Courtneidge. A role for the podosome/invadopodia scaffold protein Tks5 in tumor growth in vivo. *European Journal of Cell Biology* 87, 555-567. <http://www.ncbi.nlm.nih.gov/pubmed/18417249> 2008
- D.E. Shvartsman, J.C. Donaldson, **B. Díaz**, O. Gutman, G.S. Martin, and Y.I. Henis. Src kinase activity and SH2 domain regulate the dynamics of Src association with lipid and protein targets. *Journal of Cell Biology* 178 (4), 675-86. <http://www.ncbi.nlm.nih.gov/pubmed/17698610> 2007
- **B. Díaz** and Moreno E. The competitive nature of cells. *Experimental Cell Research* 306, 317-322. <http://www.ncbi.nlm.nih.gov/pubmed/15925586> 2005
- R.L. Berdeaux\*, **B. Díaz\***, L.C. Kim, and G.S. Martin. Active Rho is localized to podosomes induced by oncogenic Src and is required for their assembly and function. *Journal of Cell Biology* 166 (3), 317-323. (\*) Equal contribution. <http://www.ncbi.nlm.nih.gov/pubmed/15289494> 2004
- B.L. Webb, **B. Díaz**, G.S. Martin and F. Lai. A reporter system for reverse transfection cell arrays. *Journal of Biomolecular Screening* 8, 620-624. <http://www.ncbi.nlm.nih.gov/pubmed/14711387> 2003
- C. Machín, C. Rua C., **B. Díaz** and RM Arahuetes. Effects of endogenous and exogenous glucocorticoids on liver differentiation. *Acta Biologica Hungarica* 52, 63-74 <http://www.ncbi.nlm.nih.gov/pubmed/11396842> 2001
- **B. Díaz**, J. Serna, F. de Pablo and E.J. de la Rosa. In vivo regulation of cell death by embryonic (pro) insulin and the insulin receptor during early retinal neurogenesis. *Development* 127,1641-1649. <http://www.ncbi.nlm.nih.gov/pubmed/10725240> 2000
- **B. Díaz**, B. Pimentel, F. de Pablo and E.J. de la Rosa. Apoptotic cell death of proliferating neuroepithelial cells in the embryonic retina is prevented by insulin. *European Journal of Neuroscience* 11, 624-1632. <http://www.ncbi.nlm.nih.gov/pubmed/10215915> 1999
- A.V. Morales, M. Hadjiargyrou, **B. Díaz**, C. Hernandez-Sanchez, F. de Pablo and E.J. de la Rosa. Heat shock proteins in retinal neurogenesis: identification of the PM1 antigen as the chick Hsc70 and its expression in comparison to that of other chaperones. *European Journal of Neuroscience* 10, 3237-3245. <http://www.ncbi.nlm.nih.gov/pubmed/9786217> 1998
- E.J. de la Rosa, **B. Díaz** and F. de Pablo. Organoculture of the chick embryonic neuroretina. *Cellular and Molecular Procedures in Developmental Biology. Current Topics in Developmental Biology Volume* 36, 133-144. Academic Press. <http://www.ncbi.nlm.nih.gov/pubmed/9342525> 1998
- F. de Pablo, C. Alarcon, **B. Díaz**, M. Garcia-de Lacoba, A. Lopez-Carranza, A.V. Morales, B. Pimentel, J. Serna and E.J. de la Rosa. Complementary roles of the insulin family of factors and receptors in early development and neurogenesis. *International Journal of Developmental Biology. Supplement* 1, 109-110. <http://www.ncbi.nlm.nih.gov/pubmed/9087719> 1996

- C. Machín, J. Sierra, **B. Díaz**, and Rua C. Ultrastructural variations of the rat fetal adrenal cortex after maternal bilateral adrenalectomy and exogenous glucocorticoid administration. 1995  
*Acta Biologica Hungarica* 46 (87-98). <http://www.ncbi.nlm.nih.gov/pubmed/8714766>

### Additional peer-reviewed publications/Editorial Highlights

- A. Yuen and **B. Díaz**. The impact of hypoxia in pancreatic cancer invasion and metastasis. 2014  
*Hypoxia* July 2014. Vol 2014: 2; 91-106. <http://dx.doi.org/10.2147/HP.S52636>
- **B. Díaz**. Invadopodia detection and gelatin degradation assay. *Bio-protocol*. Vol 3, Iss 24. 2013  
Dec. 20. <http://www.bio-protocol.org/e997>
- B. Short. Hypoxia takes invadopodia up a Notch. *Journal of Cell Biology* 201 (2):168. 2013  
Highlight of **B. Díaz** et al. (Journal of Cell Biology, 2013).  
<http://jcb.rupress.org/content/201/2/168.3.full>
- *Faculty of 1000 Prime*. Article Recommendation for **B. Díaz** et al. (Journal of Cell Biology, 2013). 2013  
<http://f1000.com/prime/718018380?subscriptioncode=ad612d69-bcd2-489b-83f6-2a37d9dfa9c3>
- K. Legg. Two-leg trip to invasion. *Cell Migration Gateway*. Featured Article of May: 2013  
**B. Díaz** et al. (Journal of Cell Biology, 2013).  
[http://www.cellmigration.org/cmng\\_update/2013/130501/full/cmng178.shtml](http://www.cellmigration.org/cmng_update/2013/130501/full/cmng178.shtml)
- Block and Gorin. Aiding and abetting roles of NOX oxidases in cellular transformation. 2012  
*Nature Reviews in Cancer*. Highlights and recommends **B. Díaz** and Courtneidge (Free Radical Biology and Medicine 2012).  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711509/>
- A.M. Weaver. Regulation of cancer invasion by reactive oxygen species and Tks family scaffold proteins. *Science Signaling* Sep15; 2(88): pe56. Highlight of **B. Díaz** et al. and Gianni et al. (Science Signaling 2009). 2009  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2893140/>
- W.A. Wells. Rho in podosomes. *Journal of Cell Biology* 166 (3): 305. Highlight of R. Berdeaux, **B. Díaz** et al. (Journal of Cell Biology, 2004). 2004  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2253780/>

### Invited talks

- Mechanisms and Models of Cancer Symposium. The Salk Institute, La Jolla (California). Aug 2013  
*Notch increases the shedding of HB-EGF by ADAM12 to potentiate invadopodia formation in hypoxia.*
- Annual Cancer Center Retreat. Sanford-Burnham Medical Research Institute. La Jolla (California). July 2013  
*Notch increases the shedding of HB-EGF by ADAM12 to potentiate invadopodia formation in hypoxia.*

- Gordon Research Conference in Matrix Metalloproteinases. Barga (Italy). *Notch increases the shedding of HB-EGF by ADAM12 to potentiate invadopodia formation in hypoxia.* May 2013
- Cold Spring Harbor Laboratory Meeting on Phosphorylation, Signaling, and Disease. Cold Spring Harbor, (New York). *Reactive Oxygen Species are necessary for invadopodia formation.* May 2009
- VII National Congress of the Spanish Society of Cell Biology. Córdoba (Spain). *Regulation of proliferation and cell death during retinal neurogenesis.* Sept 1997

### Editorial Positions and Contributions

- Editorial Board Member, Mutations & Cancer Studies. 2013-
- Editorial Board Member, Applied Scientific Reports 2013-
- Invited Reviewer for Journal of Cell Biology, Molecular Human Reproduction, Oncogene, Cell Adhesion & Migration, Bio-Protocol, Onco-Targets and Therapy 2013-
- Reviewer of over 20 manuscripts for high-impact journals. 2007-

### Affiliations/Memberships

- *Invadosome Consortium*. Regular Member. 2013-
- *American Association for Cancer Research (AACR)*. Regular Member. 2009-
- *Spanish Society of Biochemistry and Molecular Biology*. Regular Member. 1999-

### Honors and Awards

- Top Abstract Presentation Award. Second Annual Sanford-Burnham Institute Cancer Center Retreat. 2013
- Pre-doctoral Fellowship from the Researcher Training Program of the Madrid Region. Competitive International Award. 1995-1999

### Teaching Experience

- Teaching Assistant, Madrid Autonoma University. Graduate course on Stem Cells. Lecture on: *Competition between stem cells in Drosophila*. 2005
- Teaching Assistant, Madrid Complutense University. Graduate course on Animal Histology. Laboratory courses. 1993-1994

### Laboratory training experience (Students)

- *Bernardo Lara*, Intern Student. UCSD Minority Undergraduate Student Program. 2010-2012  
Currently a Graduate student at UCSD. *Small compounds in invadopodia formation in human cells* (tissue culture, immunofluorescence and microscopy, IC50 calculation).
- *Christopher Abdullah*. Graduate Student, Biomedical Sciences Program. UCSD, San Diego, California. Contact time: 12 weeks. Currently Ph.D. candidate at UCSD, San Diego. 2011  
*Optimization of HIF-1 $\alpha$  depletion in human cells* (tissue culture, siRNA transfection, immunofluorescence and immunoblotting).
- *Marshall Peterman*. Graduate Student, Biomedical Sciences Program. UCSD, San Diego, California. Contact time: 12 weeks. Currently a Ph.D. candidate at UCSD, San Diego. 2008  
*Cdk5, Src, MAPK and PI3K inhibitors in invadopodia formation* (tissue culture, IC50 calculation, immunofluorescence, immunoblotting)
- *Cora Bergantiños*. Graduate Student. Molecular Biology Department. Madrid Autonoma University. Spain. Contact time: 16 weeks. Currently a Post-Doctoral Researcher at Columbia University (New York). 2006  
*Generation of a new Drosophila line* (Drosophila crosses, dissection and staining of imaginal discs).
- *Andrea Tu*. Molecular and Cellular Department at UC Berkeley. Contact time: 6 weeks. 2003  
She obtained her Ph.D. and is currently Applications Manager at ProteinSimple (San Francisco). *Isolation of Rhotekin-GST fusion protein for Rho activity assays* (bacteria transformation, bacteria culture, recombinant protein purification).
- *Daniel Ballon*. Molecular and Cellular Department at UC Berkeley. Contact time: 12 weeks. He obtained her Ph.D. and is currently Principal Consultant at California Legislature (Sacramento). 2001  
Analysis of E2F-1 phosphorylation by Src (tissue culture, transfection, immunoprecipitation, immunoblotting)

### Laboratory supervision and training experience (Laboratory and Research Assistants)

- *Jonathan Lo*, undergraduate student from UCSD. Laboratory Assistant at Sanford Burnham Medical Research Institute. 2012-2014  
*Labware cleaning, autoclaving, preparation of laboratory solutions and tail digestion for mouse genotyping*.
- *Angela Yuen*, B.S. from UCSD. Research Assistant I at Sanford Burnham Medical Research Institute. Currently a Pharmacy Intern at University Medical Center of Southern Nevada. 2010-2013  
*High-throughput screening for Nox inhibitors* (tissue culture, transfection, assay optimization); *Stability and phosphorylation of a novel isoform of tks5* (immunoprecipitation, immunoblotting, molecular cloning). Co-authored three manuscripts under my supervision.
- *Lomi Kim*. M.S. from Ohio State University. Research Assistant at UC Berkeley. She is currently Project Manager at OmniVision Technologies (San Francisco). 2011  
*Analysis of E2F-1 tyrosine phosphorylation* (tissue culture, immunoprecipitation, immunoblotting,

molecular cloning and site-directed mutagenesis). Co-authored one manuscript under my supervision.

- *Vanessa Tse*, undergraduate student from UCSD. Laboratory Assistant at Sanford Burnham Medical Research Institute. She is currently B.S. from UCSD and Lead Veterinary Technician at Irvine Great Park Animal Hospital (Irvine). *Labware cleaning, autoclaving, preparation of laboratory solutions and plates for bacterial growth.* 2010-2012
- *Maria Fernanda Camargo*. M.S. from Mexico National Autonomía University. Laboratory Assistant at Sanford Burnham Medical Research Institute. She is currently Staff Research Associate III at UCSD. *Analysis of Tks5 mRNA expression in breast cancer cell lines* (cDNA synthesis by retrotranscription, tissue culture, molecular cloning). 2009
- *Waisen Tong*, undergraduate student from UCSD. Laboratory Assistant at Sanford Burnham Medical Research Institute. He is currently a Pharmacy Student at Thomas Jefferson University. *Labware cleaning, autoclaving, preparation of laboratory solutions and plates for bacterial growth.* 2008-2009

## Meetings and Courses

- Mechanisms and Models of Cancer Symposium. The Salk Institute for Biological Studies, La Jolla (California) Aug 2013
- Gordon Research Conference in Matrix Metalloproteinases. Italy. May 2013
- Mechanisms and Models of Cancer Symposium. The Salk Institute for Biological Studies, La Jolla (California). Aug 2011
- Molecular Therapeutics of Cancer Research Conference. Asilomar, (California). July 2010
- Protein Phosphorylation and Cell Signaling Meeting. The Salk Institute for Biological Studies. La Jolla, California. Aug 2010
- San Diego Lab Management Course. The Salk Institute for Biological Studies. La Jolla, California. Feb 2008
- Tyrosine phosphorylation and Cell signaling Meeting. The Salk Institute for Biological Studies. La Jolla, California. Aug 2002
- Programmed Cell Death Regulation: Basis Mechanisms and Therapeutic Opportunities. Incline Village, Nevada. Mar 2000
- VI Symposium in Oncogenes. Ramón Areces Foundation. Madrid (Spain) Oct 1998
- VII National Congress of the Spanish Society for Cell Biology. Cordoba (Spain). Sep 1997
- International Course on Advances in Molecular Bases of Neurobiology. Ramón Areces Foundation. Madrid (Spain) May 1996
- Madrid Complutense University, Summer Courses Series: Brain Development. El Escorial, Madrid (Spain). Aug 1995
- X International Course for Post-graduates in Perinatal Biochemistry. Madrid Mar 1994



Autonoma University and Ramón Areces Foundation. Madrid (Spain).

### Abstract/Poster Presentations

- **B. Díaz**, A. Yuen, S. Iizuka, S. Higashiyama and SA. Courtneidge. *Notch increases the shedding of HB-EGF by ADAM12 to potentiate invadopodia formation in hypoxia.* Aug 2013  
Mechanisms and Models of Cancer Symposium. The Salk Institute for Biological Studies, La Jolla.
- **B. Díaz**, A. Yuen, S. Iizuka, S. Higashiyama and SA. Courtneidge. *Notch increases the shedding of HB-EGF by ADAM12 to potentiate invadopodia formation in hypoxia.* May 2013  
Gordon Research Conference in Matrix Metalloproteinases. Barga (Italy).
- R.L. Berdeaux, **B. Díaz** L.C. Kim, and G.S. Martin. *Active Rho is localized to Src-induced podosomes and is required for their assembly and function.* Jun 2004  
Protein Phosphorylation and Cell Signaling Meeting. The Salk Institute for Biological Studies. La Jolla.
- E.J. de la Rosa, **B. Díaz**, E. Rubio, B. Pimentel and Flora de Pablo. *Distribution and regulation of cell death occurring in early neural development.* II Meeting of the Spanish Society of Developmental Biology. Barcelona (Spain). Jun 1999
- **B. Díaz**, B. Pimentel, E.J. de la Rosa and F. de Pablo. *Apoptosis in proliferating neuroepithelial cells during neurogenesis.* May 1998  
Workshop on Cellular Regulatory Mechanisms: Choices, Time and Space Instituto Juan March de Estudios e Investigaciones. Madrid (Spain).
- E.J. de la Rosa, **B. Díaz**, B. Pimentel and Flora de Pablo. *Are apoptosis and proliferation balanced by insulin in retinal neurogenesis?* Sep 1997  
Meeting on Programmed Cell Death Cold Spring Harbor Laboratory. Cold Spring Harbor (New York)
- B. Pimentel, **B. Díaz**, F. de Pablo and E.J. de la Rosa. *Proliferation-Differentiation-Apoptosis: a balance that drives neurogenesis.* Jul 1997  
13<sup>th</sup> Lecture Course on Biophysics and Molecular Biology. Molecular Mechanisms of Embryonic Development University of Trieste and Udine. Udine (Italy).
- F. de Pablo, B. Pimentel, **B. Díaz** and E.J. de la Rosa. *Insulin and IGF in early development and retinal neurogenesis.* Sep 1997  
European Society for Comparative Physiology and Biochemistry. Barcelona (Spain).
- F. de Pablo, M. García de Lacoba, **B. Díaz**, C. Alarcón and E.J. de la Rosa. *The insulin/IGFs system in retinal neurogenesis.* Apr 1997  
Workshop on Signal Transduction in Neuronal Development and Recognition. Instituto Juan March de Estudios e Investigaciones. Madrid (Spain)
- **B. Díaz**, F. de Pablo and E.J. de la Rosa. *Regulation of proliferation and cell death during retinal neurogenesis.* Sep 1997  
VII National Congress of the Spanish Society of Cell Biology. Córdoba (Spain).