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EDUCATION

- 2004 Ph.D., Toxinology. Summa Cum Laude. Universidad Central de Venezuela. Caracas, Venezuela.
1999 M.S., Biology. Texas A&M University-Kingsville. Kingsville, TX
1993 B.S., Biology. Cum Laude. Texas A&I University-Kingsville. Kingsville, TX

EMPLOYMENT

- 2017-Present Director, NNTRC
2016-Present Graduate Faculty Member, Texas A&M University, College Station
2016-Present Associate Professor, Department of Chemistry, Texas A&M University-Kingsville (TAMUK)
2012-2017 Executive Co-Director, NNTRC
2010-2016 Asst. Professor, Department of Chemistry, TAMUK
2011-2012 Interim Director, NNTRC, TAMUK
2003-2011 Asst. Director, NNTRC, TAMUK
1996-2003 Laboratory Director, NTRC, TAMUK
1994-1996 Graduate Research Asst., NIH/MBRS Program, TAMUK
1990-1993 Undergraduate Research Asst., NIH/MBRS Program, Texas A&I University

HONORS AND AWARDS

1. Phi Kappa Phi President Elected (2018)
2. Phi Kappa Phi Elected Member (2017)
3. Minority Access, Inc., National Role Model Faculty Research Award (2014)
4. YWCA Hall of Fame of Y Women In Careers (2012)
5. Minority Access, Inc., National Role Model Alumna Award (2005)
6. The Natural Toxins Research Center's Commitment and Scientific Contribution Award (2005)
7. Graduated with honors (Summa Cum Laude, 2004, Ph.D.)
8. Women's Center Bridging the GAP Award (March 1998)
9. NIH-AAMC-SACNAS Biomedical Research Poster Session Award (October 1997)
10. Biology Department Bogusch Memorial Scholarship recipient (1993)
11. Graduated with honors (Cum Laude, 1993, B.S.)
12. National Hispanic Scholarship Fund recipient (1991, 92, 93)
13. Ed Rachel Scholarship recipient (4 yrs)
14. Falfurrias High School Valedictorian (1987)

PUBLICATIONS

Refereed Journal Articles

1. Salazar, E., Salazar, A.M., Taylor, P., Ibarra, C., Rodríguez-Acosta, A., **Sánchez, E.**, Pérez, K.,

- Brito, B., Guerrero, B. (2018). Pro-inflammatory response and hemostatic disorder induced by venom of the coral snake *Micrurus tener tener* in C57BL/6 mice. *Toxicon*. 150, 212-219.
2. Suntravat, M., Langlais, P.R., **Sánchez, E.E.**, Nielsen, V.G. 2018. CatroxMP-II: a heme-modulated fibrinolytic metalloproteinase isolated from *Crotalus atrox* venom. *Biometals*. (Epub ahead of print).
 3. Martin-Martin, I., Chagas, A.C., Guimaraes-Costa, A.B., Amo, L., Oliveira, F., Moore, I.N., DeSouza-Vieira, T.S., **Sanchez, E.E.**, Suntravat, M., Valenzuela, J.G., Ribeiro, J.M.C., Calvo, E. (2018) Immunity to LuloHya and Lundep, the salivary spreading factors from *Lutzomyia longipalpis*, protects against *Leishmania major* infection. *PLoS Pathog*. 3, 14
 4. Dowell, N.L., Giorgianni, M.W. Griffin, S., Kassner, V.A., Selegue, J.E., **Sanchez, E.E.**, Carroll, S.B. (2018) Extremely divergent haplotypes in two toxin gene complexes encode alternative venom types with rattlesnake species. *Curr Biol*. 28, 1016-1026.
 5. **Sánchez, E.E.**, González, R., Lucena, S., García, S. Finol, H.J., Suntravat, M. Girón, M.E. Fernández, I., Rodríguez-Acosta, A. (2018) Crotamine-like from Southern Pacific rattlesnake (*Crotalus oreganus helleri*) venom acts on human leukemia (K562) cell lines and produces ultrastructural changes on mice adrenal gland. *Ultrastruct Pathol*. 42, 116-123.
 6. Girón, M.E., Padrón, V., Ramos, M.I., **Sánchez, E.E.**, Guerrero, B., García, A., Uzcátegui, N.L., Navarrete, L.F., Rodríguez-Acosta, A. (2018) Intraspecies geographical variability in South American tигра mariposa (*Bothrops venezuelensis* Sandner 1952) snake venom activities. *Toxicon*. 144, 23-33.
 7. Dobson, J., Yang, D., Op den Browu, B., Cochran, C. Huynh, T., Kurrupus, S. **Sánchez, E.E.**, Massey, D.J., Baumann, K., Jackson, T.N.W., Nouwens, A., Josh, P., Neri-Castro, E., Alagón, A., Hodgson, W.C., Fry, B.G. (2018) Rattling the border wall: Pathophysiological implications of functional and proteomic venom variation between Mexican and US subspecies of the desert rattlesnake *Crotalus scutulatus*. *Comp Biochem Physiol C Toxicol Pharmacol*. 205, 62-69.
 8. Nielsen, V.G., **Sánchez, E.E.**, Redford, D.T. (2018) Characterization of the rabbit as an in vitro and in vivo model to assess the effects of fibrinogenolytic activity of snake venom on coagulation. *Basic Clin Pharmacol Toxicol*. 122, 157-164.
 9. Schield, D.R., Adams, R.H., Card, D.C., Perry, B.W. Pasquesi, G.M., Jezkova, T., Portik, D.M., Andrew, A.L., Spencer, C.L., **Sanchez, E. E.**, Fujita, M.K., Mackessy, S.P., Castoe, T.A. (2017) Insight into the roles of selection in speciation from genomic patterns of divergence and introgression in secondary contact in venomous rattlesnakes. *Ecol Evol*. 7; 3951-3966.
 10. Rokyta, D.R., Margres, M.J., Ward, M.J. **Sánchez, E.E.** (2017) The genetics of venom ontogeny in the eastern diamondback rattlesnake (*Crotalus adamanteus*). *PeerJ*. (eCollection)
 11. Zhang, Chuchu, Medzihradzsky, K.F., **Sánchez, E.E.**, Basbaum, A.I., Julius, D. (2017) Lys49 myotoxin from the Brazilian lancehead pit viper elicits pain through regulated ATP release. *Proc Natl Acad Sci USA*. 114: E2524-E2532.
 12. Cantu, E, Jr., Mallela, S., Nyguen, M., Báez, R., Parra, V., Johnson, R., Wilson, K., Suntravat, M., Lucena, S. Rodriguez-Acosta, A., **Sánchez, E.E.** (2017) The binding effectiveness of anti-disintegrin polyclonal antibodies against disintegrins and PII and PIII metalloproteases: An immunological survey of type A, B and A+B venoms from Mohave rattlesnakes. *Comp. Biochem. Physiol C Toxicol Pharmacol*. 191, 168-176.
 13. Komives, C.F., **Sanchez, E.E.**, Rathore, A.S., White, B., Suntravat, M., Balderrama, M., Cifelli, A., Joshi, V. (2017) Opossum peptide that can neutralize rattlesnake venom is expressed in *Escherichia coli*. *Biotechnol Prog*. 33, 81-86.
 14. Gutierrez, D.A., Aranda, A.S., Carrillo, D.A., Koshlaychuk, M.A., **Sanchez, E.E.**, Lucena, S.E., Soto, J.G. (2016) Functional analysis of four single (RGDWL, RGDWM, RGDWP, RGDMM) and two double (RGDNM, RGDMP) mutants: The importance of methionine (M) in the functional potency of recombinant mojastin (r-Moj). *Toxicon* 124, 1-7.
 15. Suntravat, M., Helmke, T.J., Atphaisit, C., Cuevas, E., Lucena, S.E., Uzcátegui, N.L. **Sanchez,**

- E.E.***, Rodriguez-Acosta. (2016) Expression, purification, and analysis of three recombinant ECD disintegrins (r-colombistatins) from P-III class snake venom metalloproteinases affecting platelet aggregation and SK-MEL-28 cell adhesion. *Toxicon* 122, 43-49. *Corresponding Author.
16. Dowell, N.L., Giorgianni, M.W., Kassner, V.A., Selegue, J.E., **Sanchez, E.E.**, Carroll, S.B. (2016) The deep origin and recent loss of venom toxin genes in rattlesnakes. *Curr Biol.*26, 2434-45.
 17. Marges, M. Walls, R.I., Suntravat, M., Lucena, S., **Sanchez, E.E.**, Rokyta, D. (2016) Functional characterizations of venom phenotypes in the Eastern diamondback rattlesnake (*Crotalus adamanteus*) and evidence for expression-driven divergence in toxic activities among populations. *Toxicon* 119, 28-38.
 18. Ramos, C.J., Gutierrez, D.A., Aranda, A.S., Koshlaychuk, M.A., Carrillo, D.A., Medrano, R., McBride, T.D. U, A., Medina, S.M., Lombardo, M.C., Lucena, S.E., **Sanchez, E.E.**, Soto, J.G. (2016) Functional characterization of six aspartate (D) recombinant mojastin mutants (r-Moj): A second aspartate amino acid carboxyl to the RGD in r-Moj-D_peptides is not sufficient to induce apoptosis of SK-Mel-28 cells. *Toxicon* 118, 36-42.
 19. **Sánchez, E.E.**, Rodriguez-Acosta, A. (2016) Comparative analysis of biological and biochemical venom characteristics of North and South American *Crotalus* (Serpentes: Viperidae) snake species: An introductory approximation to understand their biological functions. *Saber, Universidad de Oriente, Venezuela* 28, 40-61.
 20. Borja, M., Galan, J.A., Cantu, E., Zugasti-Cruz, A., Rodriguez-Acosta, A., Lazcano, D., Lucena, S., Suntravat, M., **Sánchez, E.E.** (2016) Morulustatin, a disintegrin that inhibits ADP-induced platelet aggregation, isolated from the Mexican Tamaulipan rock rattlesnake (*Crotalus lepidus morulus*). *Revista Científica, FCV-LUZ.* XXVI, 86-94.
 21. Rodriguez-Acosta, A., Lucena, S., Alfonso, A., Goins, A., Walls, R., Guerrero, B., Suntravat, M., **Sánchez, E. E.** (2016) Biological and biochemical characterization of venom from the broad-banded copperhead (*Agkistrodon contortrix laticinctus*): isolation of two new dimeric disintegrins. *Animal Biology* 66, 173-187.
 22. Lucena, S., Rodriguez-Acosta, A., Grilli, E., Alfonso, A., Goins, A., Ogbata, I., Walls, R., Suntravat, M., Uzcategui, N.L., Guerrero, B., **Sánchez, E.E.** (2016) The characterization of trans-pecos copperhead (*Agkistrodon contortrix pictigaster*) venom and isolation of two new dimeric disintegrins. *Biologicals* 44, 191-197.
 23. Suntravat, M., Uzcategui, N.L., Aphisait, C., Helmke, T.J., Lucena, S.E., **Sánchez, E.E.***, Rodriguez-Acosta, A.R. (2016) Gene expression profiling of the venom gland from the Venezuelan mapanare (*Bothrops colombiensis*) using expressed sequence tags (ESTs). *BMC Mol Biol.* 17, 7. *Corresponding Author.
 24. Vivas, J., Ibarra, C., Salazar, A.M., Neves-Ferreira, A.G., **Sánchez, E.E.**, Perales, J., Rodriguez-Acosta, A., Guerrero, B. (2016) Purification and characterization of tenerplasminin-1, a serine peptidase inhibitor with antiplasmin activity from the coral snake (*Micrurus tener tener*) venom. *Comp Biochem Physiol C Toxicol Pharmacol* 179, 107-115.
 25. Suntravat, M., Barret, H.S., Jurica, C.A., Lucena, S.E., Perez, J.C., **Sánchez, E.E.** (2015) Recombinant disintegrin (r-Cam-dis) from *Crotalus adamanteus* inhibits adhesion of human pancreatic cancer cell lines to laminin-1 and vitronectin. *J Venom Res* 6, 1-10.
 26. Lucena, S.E., Castro, R., Lundin, C., Hofstetter, A., Alaniz, A., Suntravat, M., **Sánchez, E.E.** (2015) Inhibition of pancreatic tumoral cells by snake venom disintegrins. *Toxicon* 93, 136-143.
 27. Lomonte, B., Tsai, W.C., Ureña-Díaz, J.M., Sanz, L., Mora-Obando, D., **Sánchez, E.E.**, Fry, B.G., Gutiérrez, J.M., Gibbs, H.L., Sovic, M.G., Calvete, J.J. (2014) Venomics of New World pit vipers: genus-wide comparisons of venom proteomes across *Agkistrodon*. *J Proteomics* 96, 103-116.
 28. Lucena, S.E., Romo, K. Suntravat, M., **Sánchez, E.E.** (2014) Anti-angiogenic activities of two

- recombinant disintegrins derived from the Mohave and Prairie rattlesnakes. *Toxicon* 78, 10-17.
29. **Sánchez, E.E.**, Girón, M.E., Uzcátegui, N.L., Guerrero, B., Saucedo, M., Cuevas, E., Rodríguez-Acosta, A. (2014) Biochemical and biological characterization of lancehead (*Bothrops venezuelensis* Sander 1952) snake venom from the Venezuelan Central Coastal range. *Boletín De Malariología y Salud Ambiental* LIV, 138-149.
 30. Aguilar, I., **Sánchez, E.E.**, Girón, M.E., Estrella, A., Guerrero, B., Rodríguez-Acosta, F.A. (2014) Coral snake antivenom produced in chickens (*Gallus domesticus*). *Rev Inst Med Trop Sao Paulo*. 56, 61-66.
 31. Borja M, Lazcano D, Martínez-Romero G, Morlett J, **Sánchez E**, Cepeda-Nieto AC, Garza-García Y, Zugasti-Cruz A. (2013) Intra-specific Variation in the Protein Composition and Proteolytic Activity of Venom of *Crotalus lepidus morulus* from the Northeast of Mexico. *Copeia*. 4, 707-716.
 32. Suntravat, M., Jia, Y., Lucena, S.E., **Sánchez, E.E.**, Perez, J.C. (2013). cDNA cloning of a snake venom metalloproteinase from the eastern diamondback rattlesnake (*Crotalus adamanteus*), and the expression of its disintegrins domain with anti-platelet effects. *Toxicon* 64, 43-54.
 33. Girón, M.E., Rodríguez-Acosta, A., Salazar, A.M., **Sánchez, E.E.**, Galán, J., Ibarra, C., Guerrero, B. (2013). Isolation and characterization of two new non-hemorrhagic metalloproteinases with fibrinolytic activity from the mapanare (*Bothrops colombiensis*) venom. *Arch Toxicol*. 1, 197-208.
 34. Lucena, S.E., Jia, Y., Soto, J.G., Parral, J., Cantu, E., Brannon, J., Lardner, K., Ramos, C.J., Seoane, A.I., **Sánchez, E.E.*** (2012) Anti-invasive and anti-adhesive activities of recombinant disintegrin, r-*viridistatin 2*, derived from the Prairie rattlesnake (*Crotalus viridis viridis*). *Toxicon* 60, 31-39.
 35. Massey, D.J., Calvete, J.J., **Sánchez, E.E.***, Sanz, L, Richards, K., Curtis, R., Boesen, K. (2012) Venom variability and envenoming severity outcomes of the *Crotalus scutulatus scutulatus* (Mojave rattlesnake) from Southern Arizona. *J Proteomics* 75, 2576-2587.*Corresponding Author
 36. Barrios, M., Taylor, P., Rodríguez-Acosta, A., **Sánchez, E.E.**, Arocha-Pinango, C.L., Gil, A., Salazar A.M., Carvajal, Z., Abad, M.J., Guerrero, B. (2012) A mouse model to study the alterations in haemostatic inflammatory parameters induced by *Lonomia achelous* caterpillar haemolymph. *Toxicon* 59, 547-554.
 37. Calvete, J.J., Pérez, A., Lomonte, B., **Sánchez, E.E.**, Sanz L. (2012) Snake venomomics of *Crotalus tigris*: The minimalist toxin arsenal of the deadliest nearctic rattlesnake venom. Evolutionary clues for generating a Pan-specific antivenom against Crotalid type II venoms. *J Proteome Res*. 11, 1382-1390.
 38. Carey, C.M., Bueno, R., Gutierrez, D.A., Petro, C., Lucena, S.E., **Sánchez, E.E.**, Soto, J.G. (2012) Recombinant rubistatin (r-Rub), an MVD disintegrin, inhibits cell migration and proliferation, and is a strong apoptotic inducer of the human melanoma cell line SK-Mel-28. *Toxicon* 59, 241-248.
 39. Khunsap, S., Pakmanee, N., Khaw, O., Chanhom, L., Sitprija, V., Suntravat, M., Lucena, S.E., Perez, J.C., **Sánchez, E.E.*** (2011) Purification of a phospholipase A2 from *Daboia russelii siamensis* venom with anticancer effects. *J Venom Res*. 2, 42-51.*
 40. Bohlen, C.J., Chesler, A.T., Sharif-Naeini, R., Medzihradzky, K.F., Zhou, S., King, D., **Sánchez, E.E.**, Burlingame, A.L., Allan I. Basbaum, A.I., Julius, D. (2011) A Heteromeric toxin from Texas coral snake targets acid-sensing ion channels to produce pain. *Nature*. 479, 410-414.
 41. **Sánchez, E.E.***, Hotle, D., Rodríguez-Acosta, A. (2011) Neutralization of *Bitis parviocula* (Ethiopian Mountain Adder) Venom by the South African Institute of Medical Research (SAIMR) Antivenom. *Revista do Instituto de Medicina Tropical de São Paulo* 53, 213-217.

42. Guerrero, B., Arocha-Piñango, C.L., Salazar, A.M., Gil, A., **Sánchez, E.E.**, Rodríguez-Acosta, A., Lucena, S. (2011) The effects of Lonomin V, a toxin from the caterpillar (*Lonomia achelous*), on hemostasis parameters as measured by platelet function. *Toxicon* 58, 293-303.
43. Salazar, A.M., Vivas, J., **Sánchez, E.E.**, Rodríguez-Acosta, A., Ibarra, C., Gil, A., Carvajal, Z., María E. Girón, M.E., Estrella, A., Navarrete, L.F., Guerrero, B. (2011) Hemostatic and toxicological diversities in venom of *Micrurus tener tener*, *Micrurus fulvius fulvius* and *Micrurus isozonus* coral snakes. *Toxicon* 58, 35-45.
44. Lucena, S., **Sanchez, E.E.**, Perez, J.C. (2011) Anti-metastatic Activity of the Recombinant Disintegrin, r-Mojastin 1, from the Mohave Rattlesnake. *Toxicon* 57, 794-802.
45. Teklemariam, T., Seoane, A.I., Ramos, C.J., **Sanchez, E.E.**, Lucena, S.E., Perez, J.C., Mandal, S.A., Soto, J.G. (2011) Functional analysis of a recombinant PIII-SVMP, GST-acocostatin; an apoptotic inducer of HUVEC and HeLa, but not SK-Mel-28 cells. *Toxicon* 57, 646-656.
46. Girón, M.E., Estrella, A., **Sánchez, E.E.**, Galán, J., Tao, W.A., Guerrero, B., Salazar, A.M., Rodríguez-Acosta, A. (2011) Purification and characterization of a metalloproteinase, Porthidin-1, from the venom of Lansberg's hog-nosed pitvipers (*Porthidium lansbergii hutmanni*). *Toxicon* 57, 608-618.
47. Estrella, A.†, **Sánchez, E.E.†**, Galán, J.A., Tao, W.A., Guerrero, B., Navarrete, L.F., Rodríguez-Acosta, A. (2011) Characterization of toxins from the broad-banded water snake *Helicops angulatus* (Linnaeus, 1758): isolation of a cysteine-rich secretory protein. *Arch Toxicol.* 85, 305-313. †Authors contributed equally.
48. Reyes-Lugo, M., Reyes-Contreras, M., Salvi, I., Gelves, W., Avilán, A., Llavaneras, D., Navarrete, L.F., Cordero, G., **Sánchez, E.E.**, Rodríguez-Acosta A. (2011). The association of *Triatoma maculata* (Ericsson 1848) with the gecko *Thecadactylus rapicauda* (Houttuyn 1782) (Reptilia: Squamata: Gekkonidae): A strategy of domiciliation of the Chagas disease peridomestic vector in Venezuela? *Asian Pacific J Trop Biomed* 279-284.
49. Rodríguez-Acosta, A.†, **Sánchez, E.E.†**, Marquez, A., Salazar, A.M., Giron, M.E., Carvajal, Z., Gil, A., Guerrero, B. (2010) Hemostatic properties of Venezuelan *Bothrops* snake venoms with special references to *Bothrops isabelae* venom. *Toxicon* 56, 926-935. †Authors contributed equally.
50. **Sánchez, E.E.**, Lucena, S.E., Reyes, S., Soto, J.G., Cantu, E., Lopez-Johnston, J.C., Guerrero, B., Salazar, A.M., Rodríguez-Acosta, A., Galán, J.A., Tao, W.A., Pérez, J.C. (2010). Cloning, expression, and hemostatic activities of a disintegrin, r-mojastin 1, from the Mohave rattlesnake (*Crotalus scutulatus scutulatus*). *Thrombosis Research* 126, e211-e219.
51. Seoane, A.I., Tran, V.L., **Sanchez, E.E.**, White, S.A., Choi, J.L., Gaytán, B., Chavez, N., Reyes, S.R., Ramos, C.J., Tran, L.H., Lucena, S.E., Sugarek, M., Perez, J.C., Mandal, S.A., Ghorab, S., Rodríguez-Acosta, A., Fung, B.K., Soto, J.G. (2010) The mojastin mutant Moj-DM induces apoptosis of the human melanoma SK-Mel-28, but not the mutant Moj-NN nor the non-mutated recombinant Moj-WN. *Toxicon* 56, 391-401.
52. Gracheva, E.O., Ingolia, N.T., Kelly, Y.M., Cordero-Morales, J.F., Hollopeter, G., Chesler, A.T., **Sánchez, E.E.**, Perez, J.C., Weissman, J.S., Julius, D. (2010) Molecular basis of infrared detection by snakes. *Nature* 464, 1006-1011.
53. Guerrero, B., Finol, H.J., Reyes-Lugo, M., Salazar, A.M., **Sánchez, E.E.**, Estrella, A., Roschman-González, A., Ibarra, C., Salvi, I., Rodríguez-Acosta, A. (2010) Activities against hemostatic proteins and adrenal gland ultrastructural changes caused by the brown widow spider *Latrodectus geometricus* (Araneaea: Theridiide) venom. *Comp Biochem Physiol, C Toxicol Pharmacol.* 151, 113-121.
54. Rodríguez-Acosta, A., **Sánchez, E.E.**, Navarrete, L.F. (2010) Intensa reacción alérgica en paciente mordido por la hormiga negra (*Odontomachus bauri*). *Rev Cubana Med Trop* 62, 77-80.

55. Reyes-Lugo, M., Sánchez, T., Finol, H.J., **Sánchez, E.E.**, Suárez, J.A., Guerrero, B., Rodríguez-Acosta, A. (2009) Neurotoxic activity and ultrastructural changes in muscles caused by the brown widow spider *Latrodectus geometricus* Koch, 1841 (Araneae: Theridiidae) venom. *Revista do Instituto de Medicina Tropical de São Paulo Rev. Inst. Med. Trop. S. Paulo.* 51, 95-101.
56. Jia, Y., Lucena, S., Cantu, E., **Sánchez, E.E.**, Pérez, J.C. (2009) cDNA cloning, expression and fibrin(ogen)olytic activity of two low-molecular weight snake venom metalloproteinases. *Toxicon* 54, 233-243.
57. Barrios, M., Rodríguez-Acosta, A., Gil, A., Salazar, A.M., Taylor, P., **Sánchez, E.E.**, Arocha-Piñango, C.L., Guerrero, B. (2009) Comparative hemostatic parameters in BALB/c, C57BL/6 and C3H/He mice. *Thromb Res.* 124, 338-343.
58. **Sánchez, E.E.**, Rodríguez-Acosta, A., Palomar, R., Lucena, S.E., Bashir, S., Soto, J.G., Pérez, J.C. (2009) Colombistatin: a disintegrin isolated from the venom of the South American snake (*Bothrops colombiensis*) that effectively inhibits platelet aggregation and SK-Mel-28 cell adhesion. *Arch Toxicol.* 83, 271-279.*
59. Da Silva, M., Lucena, S., Aguilar, I., Rodríguez-Acosta, A., Salazar, A.M., **Sánchez, E.E.**, Giron, M.E., Caravajal, Z., Arocha-Piñango, C.L., Guerrero, B. (2009) Anti-platelet effect of cumastatin 1, a disintegrin isolated from venom of South American *Crotalus* rattlesnake. *Thromb Res.* 123, 731-739.
60. Salazar, A.M., Guerrero, B., Cantu, B., Cantu, E., Rodríguez-Acosta, A., Perez, J.C., Galan, J.A., Tao, A., **Sánchez, E.E.** (2009) Venom variation in hemostasis of the southern Pacific rattlesnake (*Crotalus oreganus helleri*): Isolation of hellerase. *Comp Biochem Physiol C Toxicol Pharmacol.* 149, 273-277.*
61. Pineda, M.E., Giron, M.E., Estrella, A., **Sánchez, E.E.**, Aguilar, I., Fernandez, I., Vargas, A.M., Scannone, H., Rodríguez-Acosta, A. (2008) Inhibition of the hemorrhagic and proteolytic activities of Lansberg's hognose pit viper (*Porthidium lansbergii hutmanni*) venom by opossum (*Didelphis marsupialis*) serum: isolation of *Didelphis marsupialis* 0.15Dm Fraction on DEAE-cellulose chromatography. *Immunopharmacol Immunotoxicol.* 30, 883-896
62. **Sánchez, E.E.**, Rodríguez-Acosta, A. (2008). Inhibitors of snake venoms and development of new therapeutics. *Immunopharmacol Immunotoxicol.* 30, 647-678.
63. Salazar, A.M., Aguilar, I., Guerrero, B., Giron, M.E., Lucena, S., **Sánchez, E.E.**, Rodríguez-Acosta, A. (2008) Intraspecies differences in hemostatic venom activities of the South American rattlesnakes, *Crotalus durissus cumanensis*, as revealed by a range of protease inhibitors. *Blood Coagulation and Fibrinolysis.* 19, 525-530.
64. Pornmanee, P., Perez, J.C., **Sánchez, E.E.**, Khoo, O., Pakmanee, N., Chulasugandha, P., Chanhom, L., Petsom, A. (2008) pH gradient electrophoresis and biological activity analysis of proteins from Malayan pit viper (*Calloselasma rhodostoma*) venom. *ScienceAsia* 34, 273-277.
65. Pornmanee, P., **Sánchez, E.E.**, López, G., Petsom, A., Khoo, O., Pakmanee, N., Chanhom, L., Sangvanich, P., Pérez, J.C. (2008) Neutralization of lethality and proteolytic activities of Malayan pit viper (*Calloselasma rhodostoma*) venom with North American Virginia Opossum (*Didelphis virginiana*) serum. *Toxicon.* 52, 186-189.
66. Jia, Y., Cantu, B., **Sánchez, E.E.**, Pérez, J.C. (2008) Complementary DNA sequencing and identification of mRNAs from venomous gland of *Agkistrodon piscivorus leucostoma*. *Toxicon* 51, 1457-1466.
67. Galán, J.A., **Sánchez, E.E.**, Rodríguez-Acosta, A., Soto, J.G., Bashir, S., McLane, M.A., Paquette-Straub, C., Pérez, J.C. (2008) Inhibition of lung tumor colonization and cell migration with the disintegrin crotatroxin 2 isolated from the venom of *Crotalus atrox*. *Toxicon* 51, 1186-1196.*
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91. Pérez, J. C., **Sánchez, E. E.**, (1999) Natural protease inhibitors to hemorrhagins in snake venoms and their potential use in medicine. *Toxicon* 37, 703-728.
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The "*" indicates corresponding author.

Book Chapters

1. **Sánchez, E.E.**, Rodriguez-Acosta, A., Cantu, E., Guerrero, B. (2010) Antivenoms and Coagulation. In: Kini, R.M., McLane, M.A., Clemetson, K., Markland, F.S., Morita, T., (Eds.), *Toxins and Hemostasis From Bench to Bedside*, Springer, Dordrecht Heidelberg London New York, pp. 711-721.
2. Rodriguez-Acosta, A., Guerrero, B., **Sánchez, E.E.** (2010) The theory of intraspecies variation is not the exception, but simply the rule: the diverse hemostatic activities of snake venoms. In: Kini, R.M., McLane, M.A., Clemetson, K., Markland, F.S., Morita, T., (Eds.), *Toxins and Hemostasis From Bench to Bedside*, Springer, Dordrecht Heidelberg London New York, pp. 97-112.
3. Pérez, J. C., Finberg, R., **Sánchez, E. E.** (2008). Important Considerations in Developing Antivenom. In: Hayes, W.K., Kent, R.B., Cardwell, M.D., Bush, S.P., (Eds.), *The Biology of Rattlesnakes*. Loma Linda University Press, Loma Linda, CA.

Book Reviews

1. **Sánchez, E.E.**, (2016) [Review of the book *Venomous Reptiles & Their Toxins. Evolution, Pathophysiology & Biodiscovery*, by B. G. Fry (ed.)]. *Herpetological Review*, 47 (3). 488-489.

INVITED ORAL PRESENTATIONS

1. Rotary Club. The National Natural Toxins Research Center. Cherry Tree Tea Room. Kingsville, TX. Oct. 16, 2018.
2. Venom Week VI. Polyclonal Antibodies Against a Recombinant Disintegrin: Their Diverse

- Uses. Venom Week VI, Texas A&M University-Kingsville, Kingsville, TX. March 14-17, 2018.
3. Oso Bay Wetlands Preserve. The Past, Present and Future of the National Natural Toxins Research Center. Corpus Christi, TX. Dec. 21, 2017.
 4. Audubon Outdoor Club of Corpus Christi. The National Natural Toxins Research Center: An Overview. South Texas Botanical Garden, Corpus Christi, TX. Nov. 8, 2016.
 5. Texas Rattlesnake Festival. Current research in venoms in the treatment of diseases and envenomations. Lone Star Convention Center, Conroe, TX. March 12-13, 2016.
 6. Keynote Speaker: Venom Week V. Neutralization of crotoamine isoforms with a chemically-modified DNA aptamer: Development of a synthetic antivenom. East Carolina University, Greenville, NC. March 9-12, 2016.
 7. Texas A&M University-Kingsville President's Leadership Council. National Natural Toxins Research Center at Texas A&M University-Kingsville. Marriott Plaza San Antonio. San Antonio, TX. Dec. 3, 2015.
 8. 18th World Congress of the International Society on Toxinology. Neutralization of Snake Venom Myotoxins with a DNA-Modified Aptamer: An Approach to the Development of Universal Antivenom. University of Oxford, Oxford, UK. Sept. 25-30, 2015.
 9. The TAMIU GREAT Program. The Venom Gland cDNA Library of the Southern Pacific Rattlesnake (*Crotalus oreganus helleri*): The Quest for Novel Therapeutic Molecules. Texas A&M International University. Laredo, TX, April 11, 2014.
 10. College of Pharmacy Colloquium. "The venom-gland, cDNA library of the Southern Pacific Rattlesnake: A valuable tool for identifying new therapeutics and targeting agents for various cell types." Irma Rangel College of Pharmacy, Texas A&M Health Science Center, Kingsville, TX, June 27-28, 2013.
 11. Industry Day. "The National Natural Toxins Research Center." Texas A&M University-Corpus Christi, Corpus Christi, TX. June 12, 2013.
 12. NIH Grand Writing Workshop, Lexington, KY, May 6-8, 2013
 13. AVID Summer Institute, Dallas, TX, June 24-27, 2012.
 14. Keynote speaker at the Falfurrias High School Graduation. Falfurrias, TX, June 2, 2012.
 15. Kingsville Rotary Club. "The Inhibition Processes Involved In Cancer Progression by Snake Venom Molecules." Kingsville, TX, Jan. 10, 2012.
 16. Presentation for the Chancellor of the Texas A&M System. "The Inhibition Processes Involved In Cancer Progression by Snake Venom Molecules." Texas A&M University-Kingsville. June 14, 2011.
 17. The University of the Future-5th Conference on the Scholarship of Teaching and Learning, Winds of Change. "Success with Undergraduate Researchers is Possible." Texas A&M University-Kingsville, Kingsville, TX, Feb. 10-11, 2011.
 18. American Chemical Society local meeting, Texas A&M University-Kingsville, Kingsville, TX, Nov. 19, 2010. "Preventing blood coagulation with a venom molecule (disintegrin) of the Mohave rattlesnake."
 19. Coordinator for the North American Session of Antivenoms. 9th International Meeting of Experts in Venomous Animal Poisoning. Cuernavaca, Mexico. Oct. 18-21, 2010.
 20. Society of Forensics Toxicology meeting, Oklahoma City, OK, Oct. 19, 2009. "Toxicity and Biochemistry of Venoms from Snakes of North America."
 21. North American Congress of Clinical Toxicology (NACCT) meeting, San Antonio, TX, Sept. 25, 2009. "Antivenoms"
 22. Venom Week, Albuquerque, NM, June 1-5, 2009. "The Recombinant Disintegrin of the Mohave Rattlesnake"
 23. Exogenous Factors Affecting Thrombosis and Hemostasis, Boston, MS, July 17-19, 2009. "The Battle of Neutralizing and Treating Snakebites in the 21st Century: Have We Made

Progress?”

24. Taller Internacional Sobre Toxinas De Animales Venenosos, Universidad De Los Andes, Merida, Venezuela, Jan. 17 & 18, 2008. “Desintegrinas En Veneno De Serpientes: Una Revisión.” And “Estudio De La Variación Intraespecie En El Veneno De Serpientes De La Familia Viperidae, Como Un Aporte Para El Diseño De Sueros Antiofídicos.”
25. Venom Week, Tucson, AZ, Sept. 3-7, 2007. “Hemorrhagic, Fibrinolytic, Coagulant and Lethal Activities of Venom from the Southern Pacific Rattlesnakes, *Crotalus oreganus helleri*.”
26. Universidad Central de Venezuela. Caracas, Venezuela, June 15, 2007. “Desintegrinas En Veneno De Serpientes: Una Revisión.”
27. Texas A&M University Health Science Center, Institute of Biosciences and Technology, Houston, TX, Nov. 9, 2005. “Snake Venom Disintegrins: Their Role in Biomedical Research.”
28. Seminar speaker at San Jose State University, San Jose, CA, Oct. 26, 2005. “Snake Venom Biomedical Research at the Natural Toxins Research Center.”
29. Snakebites in the New Millennium: A State-of-the-Art Symposium, Omaha, Nebraska, Oct. 23, 2005. “Inhibition of Two North American Coral Snake Venoms by the United States and Mexican Coral Snake Antivenoms.”
30. 7ta Reunion de Expertos en Envenenamiento por Animales Ponzñosos, Cuernavaca, Morelos, Mexico, March 2005. “Neutralization of Two U.S. Coral Snake Venoms: A Comparative Study.”
31. Biology of the Rattlesnakes Symposium, Loma Linda , California, Jan. 15-18, 2005. “Isolation of two disintegrins from *Crotalus scutulatus scutulatus* (Mojave Rattlesnake) venom lacking Mojave toxin.” and “ Important considerations of developing antivenom.”
32. Border Health Lecture Series, Brownsville, Texas, Dec. 10, 2004. “Isolation of two disintegrins from *Crotalus scutulatus scutulatus* (Mojave Rattlesnake) venom lacking Mojave toxin.” and “ Important considerations of developing antivenom.”
33. 2nd Interamerican Workshop on Natural Toxins. Universidad Central de Venezuela, Caracas, Venezuela, Dec. 2004. “*Actividad de desintegrinas en veneno de serpientes Norteamericanas y Venezolanas.*”
34. 6ta Reunion de Expertos en Envenenamiento por Animales Ponzñosos, Cuernavaca, Morelos , Mexico, March 2003. “*Utilización del Sonoclot y Agregometro de Plaquetas para Determinar la Eficacia de los Antivenenos.*”
35. “Taller Internacional”- Instituto Bioclón, Mexico City, Mexico. Metodos de equivalencia de antivenenos contra la picadura de alacran y morderura por serpiente (Bothrops). 2002. “Methods for determining the efficacy of antivenoms vs. venom of North American pit vipers.”
36. North American Congress of Clinical Toxicology. Palm Springs, CA. 2002. “Efficacy of two antivenoms vs. venom of North American pit vipers.”
37. 6th PanAmerican Congress on Animal, Plant and Microbial Toxins. 1998. Margarita Island, Venezuela. “Comparison of Viperidae Venoms by High Performance Liquid Chromatography and Proteolytic Assays.”
38. 7th Symposium of the Pan American Section. The International Society of Toxinology of Plant, Animal and Bacterial Toxins. University of Virginia, Charlottesville, VA. 2001. “Quick method of measuring the effects of snake venom on the human clotting cascade and neutralization of the venom.”
39. International Conference on Exogenous Factors Affecting Thrombosis and Haemostasis. Institute Pasteur, Paris, France. 2001. “Quick method of measuring the effects of snake venom on the human clotting cascade and neutralization of the venom.”
40. 1st InterAmerican Workshop on Natural Toxins. Universidad Central de Venezuela,

Caracas, Venezuela. July, 2000. "Detection of proteolytic proteins in snake venom by five step western blot using monoclonal antibodies."

RESEARCH AND CREATIVE ACTIVITIES

Ongoing Research Support

Sanchez (PI)	09/01/2017-08/30/2020
DoD/Uniform Services University of the Health Sciences. <i>Development of Universal Antivenom using Display Phage</i> \$269,000	
Sanchez (Co-PI)	03/31/2017-03/31/2020
NIH/AREA <i>The Acute Effects of Snake Venom CRiSPs Toxins on Blood and Lymphatic Endothelial Cell Premeability: New Insights into the Pathology of Snakebite</i> \$429,000	
Sanchez (PI)	02/10/2017-02/28/2020
Texas A&M University <i>Chancellor's Research Initiative</i> \$369,000	
Sanchez (PI)	07/10/2016-02/28/2019
NIH/BMRG <i>Viper Resource Center Supplement Proposal to Promote Diversity in Higher Education</i> \$78,818	
Sanchez (PI)	07/27/2015
NIH/BMRG <i>A Supplement Proposal for the Acquisition of an Amino Acid Sequencer to Support Research and Education Programs at Texas A&M University-Kingsville.</i> \$138,880	
Sanchez (PI)	06/01/2014 – 02/28/2019
NIH/BMRG <i>Viper Resource Center at Texas A&M University-Kingsville</i> \$2,548,610	
Sanchez (PI)	08/29/2014
NIH/BMRG <i>A Supplement Proposal for the Acquisition of an Inverted Fluorescence Microscope to Support Research and Education Programs at Texas A&M University-Kingsville.</i> \$49,834.79	

Completed Research Support

Sanchez (Co-PI) 09/01/2013 – 08/31/2015
Texas A&M University- Kingsville and Texas A&M University-Kingsville

Intrasystem Cooperation Contract
“Texas A&M Viper Venomics Program”
\$200,000
PI: Peter Davies, MD, Ph.D.

Sanchez (Sub-Contractor) 10/01/2014 – 03/31/2015
SBIR/DARPA
“Universal Antivenom-Phase I”
\$33,000
PI: Mark Shumbera, Ph.D. (AMBiotech)

Sanchez (PI) 05/01/2013 – 04/30/2014
NIH/BMRG
Viper Resource Center at Texas A&M University-Kingsville
\$402,253

Sanchez (PI) 11/13/2012 – 08/31/2013
TAMUK Council for Undergraduate Research (TCUR), Texas A&M University-Kingsville
Inhibition of Proliferation of a Pancreatic Tumoral Cell Line by Snake Venom Disintegrins.
\$3,000

Sanchez (PI) 02/02/2012 – 05/31/2013
University Research Award, Texas A&M University-Kingsville.
Expression and Isolation of Recombinant Crotamines: Their Roles in Ion Channels
\$9,950

Sanchez (Co-PI) 04/01/2008 – 03/31/2013
NIH/NCRR
Viper Resource Center at Texas A&M University-Kingsville
\$2,457,401

Sanchez (PI) 10/15/2011 – 08/31/2012
TAMUK Council for Undergraduate Research (TCUR), Texas A&M University-Kingsville
Inhibition of Angiogenesis by Snake Venom Disintegrins.
\$2,000

Sanchez (PI) 12/16/2011 – 05/01/2012
PPOH Equipment Grant, Texas A&M University-Kingsville
BD Accuri C6 Flow Cytometer
\$40,000

Sanchez (PI) 01/01/2011 – 05/01/2012
Research and Scholarly Activity Award, College of Arts and Sciences, Texas A&M University-Kingsville.
Applications of Recombinant Snake Venom Derived Components in Hemostatic Disorders

\$10,000

Sanchez (PI)

01/01/2006 – 05/01/2007

Laboratorio Silanes/Bioclon

Evaluation of Instituto Bioclon Coralymn™ Coral Snake Antivenoms on Two North American Coral Snake Venoms

\$15,000

Sanchez (PI)

01/01/2006 – 05/01/2007

Wyeth Pharmaceutical

Evaluation of Wyeth North American Coral Snake Antivenom on Two North American Coral Snake Venoms

\$15,000