

CURRICULUM VITAE

Vivian Morera Córdova, PhD



PERSONAL DATA

Name: Vivian Morera Córdova

Born in: Havana, Cuba, and November 26th, 1961

Sex: female

Citizenship: Cuban

Profession: Chemist, MSc in Chemistry, PhD in Biological Sciences

Health: good. No disabilities or physical limitations

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Employment (working places):

1. from August 1984 until April 2011: Center for Genetic Engineering and Biotechnology (CIGB). Ave 31 entre 158 Y 190, Cubanacán. La Habana. CP 10600. Cuba.
2. from May 2011 until June 2014: Biochemistry Department. Faculty of Biology. Havana University, Street 25, No 455 entre Street J and Street I. Vedado, Plaza de la Revolución. La Habana. CP 10400. Cuba.
3. from August 2014 until October 2017: Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Street Queri s/n, Av. Granados y Av. Eloy Alfaro. Quito. Pichincha. Ecuador.
4. from November 2017 until now: Yachay Experimental Technology Research University. School of Chemical Sciences and Engineering.

Foreign languages: Spanish, English and Russian, good

CAREER GOAL

To transmit theoretical and practical knowledge acquired in the different disciplines of Chemistry, Biochemistry, Biology, and Biotechnology to students of the careers of Chemistry, Chemical Engineering, Engineering in Biotechnology, Biomedicine, Microbiology, Biology, Agroindustry, and Biochemistry. To combine teaching with scientific research, motivate students to scientific research with applicability in Chemistry, Molecular Biosciences, and Biotechnology. Contribute to the arsenal of ethical and human values of future professionals of excellence.

DEGREES

- Bachelor of Chemistry and Master in Chemical Sciences (MSc)

State University "M.V. Lomonosov", Moscow, Russia, 1977-1984

Thesis title: "Determination of metals (Fe, Mn, Ti) and halogens (Cl, Br, I) in rocks of the Magnitogorsk region (Urals) by atomic absorption spectroscopy with flame atomizer "

- Doctor of Biological Sciences (PhD)

Havana University, Havana, Cuba, 1994-1997

Title of degree thesis: "Determination of the primary structure of three proteins isolated from *Stichodactyla helianthus* and one recombinant protein using a combination of Edman sequencing and mass spectrometry"

- Sistema Nacional de Información de la Educación Superior del Ecuador (SNIESE). Registration Number in SENESCYT (Ecuador): 7923R-14-16684. Title of Doctor or PhD valid for the exercise of teaching, research and management in Higher Education.

PROFESSIONAL EXPERIENCE

- Functional-structural studies of bioactive natural and recombinant peptides and proteins
- Study of autoimmune diseases using proteomics and immunochemistry techniques
- Bioanalytics
- Natural products
- Instrumental analysis

ABILITIES

- Excellent capacity for insertion in multicultural environments
- Excellent ability to work in multidisciplinary teams
- Excellent organizational skills
- High capacity for analysis
- Excellent communication skills
- Leadership
- Experience in organizing international events
- Academic management experience

SCIENTIFIC PUBLICATIONS

1. Isaac Iglesias, Mayra Jiménez, Andrea M. Gallardo, Edward E. Ávila, **Vivian Morera**, Alfredo Vilorio, Marvin Ricaurte and Juan P. Tafur (2021) Mechanical properties and X-ray diffraction analyses of

clay/sand pellets for CO₂ adsorption: the effects of sand content and humidity. Accepted in OGST - Revue d'IFP Energies Nouvelles.

2. Irina Francesca González Mera, Orestes Darío López Hernández and **Vivian Morera Córdova** (2020) Phytochemical screening and in vitro anti-inflammatory activity of ethanolic extract of *Epidendrum coryophorum* leaves. *Bionatura*, Volumen 5, Number 4, pages: 1387–1393. DOI. 10.21931/RB/2020.05.04.18
3. Irina Francesca González Mera, Daniela Estefanía González Falconí and **Vivian Morera Córdova** (2019) Secondary metabolites in plants: main classes, phytochemical analysis and pharmacological activities. *Bionatura*, Volumen 4, Number 4, pages: 1000–1009. DOI. 10.21931/RB/2019.04.04.11.
4. **Vivian Morera Córdova** (2019) Breaking Paradigms: Towards a Multi-, Inter- and Transdisciplinary Science” In commemoration of the 250th Anniversary of Alexander von Humboldt. *Bionatura*, Conference Series Vol 2. No 1. CS 2019.02.01.1.
5. **Vivian Morera** (2018) Determination of the specific absorptivity coefficient of the recombinant human epidermal growth factor. *Bionatura*, Volumen 3, Number 4, pages: 715 – 722. DOI. 10.21931/RB/2018.03.04.5
6. Yanet Támbara; Alberto Álvarez; Karen Álvarez; Ania Cabrales and **Vivian Morera** (2018) Determination of absolute protein concentration of surface and nucleocapsid antigens of hepatitis B virus. Book of Abstracts. Fourth International Symposium on Infectious Diseases. Varadero, Matanzas, Cuba. Page 54.
7. Santana, F.L.; Estrada, K.; Hernández-Vargas, M.J.; Milián García, Y.; Montero-Alejo, V.; **Morera, V.** and Corzo, G. (2017) Bioinformatic identification of crocodylians beta-defensins. Book of Abstracts. IV International Symposium on Synthetic Peptides. Cayo Santa María, Cuba. Pages 67-68.
8. **Vivian Morera**, Arline Fernández, Claudia Puentes, Etiam Pérez, Gustavo Sosa, Leiter Guerra, Félix Santana and Yoamel Milian (2016) Evaluación del proteinograma plasmático del cocodrilo Cubano (*Crocodylus rhombifer*) *Bionatura*, Volumen 1, Number 3, pages: 107-117.
9. Pilco, A.; Velasteguí, E. and **Morera, V.** (2016) Optimización del medio de crecimiento de un hongo filamentoso para la producción de ureasa y su posterior inmovilización enzimática. Book of Abstracts. III Congreso Internacional de Biotecnología y Biodiversidad. XIII Foro Internacional del Banano. Guayaquil, Ecuador. Page 165.
10. Yanet Támbara Hernández, Alberto Álvarez González, Karen Álvarez Pérez, Vladimir Besada Pérez and **Vivian Morera Córdova** (2015) Peptide content and amino acid composition determinations by the EZ: FFAST amino acid analysis procedure. Book of Abstracts. 2ST International Symposium on Synthetic Peptides as Pharmaceutical Products: Autoimmunity, Cancer and Infection Diseases. Varadero, Matanzas, Cuba. s/p.
11. PATENTE: María del Carmen Domínguez Horta, Gabriel Ramón Padrón Palomares, Nelía López Marín, Norailys Lorenzo Pérez, Ariana Barbera Betancourt, Ariadna Hernández García, **Vivian Morera Córdova**, Carelia Cosme Días, Nelson J Merino García, Ariel Vázquez Bonachea and José Suarez Alba (2013) ALTERED PEPTIDE LIGAND DERIVED FROM HSP60 AND PHARMACEUTICAL COMPOSITIONS. United States Patent. Patent N°: US 8,383,771 B2. Date of Patent: Feb. 26, 2013.

12. Jeovanis Gil, Ania Cabrales, Osvaldo Reyes, **Vivian Morera**, Lázaro Betancourt, Aniel Sánchez, Gerardo García, Galina Moya, Gabriel Padrón, Vladimir Besada and Luis Javier González (2012) Development and validation of a bioanalytical LC–MS method for the quantification of GHRP-6 in human plasma. *Journal of Pharmaceutical and Biomedical Analysis* 60: 19– 25.
13. PATENTE: María del Carmen Domínguez Horta, Gabriel Ramón Padrón Palomares, Nelia López Marín, Norailys Lorenzo Pérez, Ariana Barbera Betancourt, Ariadna Hernández García, **Vivian Morera Córdova**, Carelia Cosme Días, Nelson J Merino García, Ariel Vázquez Bonachea and José Suarez Alba (2012) PEPTIDE AND ALTERED PEPTIDE LIGAND DERIVED FROM HSP60 AND PHARMACEUTICAL COMPOSITIONS. United States Patent. Patent No: US 8,324,164 B2. Date of Patent: Dec. 4, 2012.
14. Tamara Menéndez, Hilda E Garay, Osvaldo Reyes, Yoelys Cruz, Edelgis Coizeau, Nelson F Santiago, Glay Chinae, Karem Cobas, Evelyn Caballero, **Vivian Morera**, Jesús Noda, Tania Carmenate, Yordanka Soria, Emma Brown, Alejandro Martín, Daniel Yero, Sonia González and Gerardo E Guillén (2011) Protective immune response against *Neisseria meningitidis* serogroup B after immunization with peptides mimicking a capsular polysaccharide epitope. *Biotecnología Aplicada* 28: 113-115.
15. Hilda Garay, Tamara Menéndez, Yoelys Cruz-Leal, Edelgis Coizeau, Jesus Noda, **Vivian Morera**, Gerardo Guillén, Fernando Albericio and Osvaldo Reyes (2011) Study of Various Presentation Forms for a Peptide Mimetic of *Neisseria meningitidis* Serogroup B Capsular Polysaccharide. *Bioconjugate Chem* 22: 33–4.
16. David Pentón, Victor Pérez-Barzaga, Iscel Díaz, Mey L. Reytor, Javier Campos, Rafael Fando, Loany Calvo, Eduardo M. Cilli, **Vivian Morera**, Lila R. Castellanos-Serra, Fabiola Pazos, María E. Lanio, Carlos Álvarez, Tirso Pons and Mayra Tejuca (2011) Validation of a mutant of the pore-forming toxin sticholysin-I for the construction of proteinase-activated immunotoxins. *Protein Engineering, Design & Selection* 24: 485–493.
17. Aniel Sánchez, Lázaro Betancourt, Luis J González, Yassel Ramos, Jeovanis Gil, Yanni Solano, **Vivian Morera**, Yairet García, Félix Álvarez, Galina Moya, Jorge Fernández de Cossío, Gabriel Padrón, Vladimir Besada (2008) Desarrollo de nuevos métodos para el estudio del péptido N-terminal de proteínas y sus aplicaciones en la industria biotecnológica. *Biotecnología Aplicada* 25: 384-387.
18. Norailys Lorenzo, María del C. Domínguez, Ariadna Hernández, Ariana Barberá, Nelson Merino, Ariel Vazquéz, José Suárez, **Vivian Morera** and Gabriel Padrón (2008) “Characterization of two experimental rodent models for evaluating novel drugs for *Rheumatoid arthritis*” *Biotecnología Aplicada* volumen 25, número 3.
19. Pérez L., Pimentel G., Ravelo R., Ayala M., Bell H., Miranda M., Martínez Y. R., Sánchez I., Musacchio A., **Morera V.**, Canaán L., Oliva J. P. and Gavilondo J. V. (2008) Biochemical characterization and experimental tumor targeting properties of an anti-CEA antibody fragment produced in *E. coli*”. *Minerva Biotecnologica* 20: 103- 115.
20. F. Pazos, A. Valle, D. Martínez, A. Ramírez, L. Calderon, A. Pupo, M. Tejuca, **V. Morera**, J. Campos, R. Fando, F. Dyszy, S. Schreier, E. Horjales, C. Álvarez, M.E. Lanio and E. Lissi (2006) Structural and

- functional characterization of a recombinant sticholysin I (rStI) from the sea anemone *Stichodactyla helianthus*. *Toxicon* 48: 1083-1094.
21. Martínez, D.; **Moreira, V.**; García, Y.; Casallanovo, F.; Potrich C.; Dalla Serra M.; Schreier, S.; Menestrina, G.; Lissi, E.; Raida, M; Alvarez, C. and Lanio, M.E. (2006) "N-terminal peptide (1-92) of Sticholysin II generated by the cleavage with cyanogen bromide interacts with lipid bilayer but does not promote the pore formation" *Biotecnología Aplicada* 23: 300-304.
 22. Domínguez M. C., N. Lorenzo, A. Barbera, M. V. Hernández, A.M. Torres, M. Nazabal, H. Camacho, I. Hernández, **V. Moreira** and G. Padrón (2006) Caracterización de moléculas HLA tipo II y evaluación de citocinas en pacientes cubanos con *Artritis Reumatoide*. *Revista Cubana de Reumatología*. Volumen VIII, No 9 and 10: 43-51.
 23. **Vivian Moreira** (2004) EULAR 2004: magna cita de la Reumatología. *Biotecnología Aplicada* 21: 234-238.
 24. Diana Martínez, **Vivian Moreira**, Carlos Álvarez, Mayra Tejuca, Fabiola Pazos, Yairet García, Manfred Raida, Gabriel Padrón and Maria Eliana Lanio (2002) Identity between cytolysins purified from two morphos of the Caribbean sea anemone *Stichodactyla helianthus*. *Toxicon* 40: 1219-1221.
 25. Galina Moya; Luis Javier González; Vivian Huerta; Yairet García, **Vivian Moreira**; Danny Pérez; Fidel Breña and Manuel Araña (2002) Isolation and characterization of modified species of a mutated (Cys125 – Ala) recombinant human interleukin-2. *Journal of chromatography A*, 971: 129-142.
 26. L. Betancourt; V. Besada; L.J. Gonzalez; **V. Moreira**; G. Padrón; T. Takao and Y. Shimonishi (2001) Selective isolation and identification of N-terminal blocked peptides from tryptic protein digest. *Journal of Peptide Research* 57: 1-10.
 27. V. Huerta; **V. Moreira**; Y. Guanche; G. China; L.J. González; L. Betancourt; D. Martínez; C. Alvarez; M.E. Lanio and V. Besada (2001) Primary structure of two cytolysin isoforms from *Stichodactyla helianthus* differing in their hemolytic activity. *Toxicon* 39: 1253-1256.
 28. Lanio, M.E.; **Moreira, V.**; Alvarez, C.; Tejuca, M.; Gómez, T.; Pazos, F.; Besada, V.; Huerta, V.; Padrón, G. and Chávez, M.A. (2001) Purification and characterization of two hemolysins from *Stichodactyla helianthus*. *Toxicon* 39: 187-194.
 29. R. Martínez; J. Juncal; C. Zaldívar; A. Arenal; I. Guillén, **V. Moreira**; O. Carrillo; M. Estrada; A. Morales and M.P. Estrada (2000) Growth Efficiency in Transgenic Tilapia (*Oreochromis sp.*) *Biochem. Biophys. Res. Com.* 267 (1): 466-472.
 30. Campos, A.M.; Lissi, E.A.; Vergara, C.; Lanio, M.E.; Alvarez, C.; Pazos, I.; **Moreira, V.**; García, Y. and Martínez, D. (1999) Kinetics and mechanism of StI modification by peroxy radicals. *J. Protein Chem.* 18 (3), 297-306.
 31. A.M. Campos, F.D. Gonzalez, E. Lissi, **V. Moreira**, V. Huerta and Y. Guanche (1999) Homology Modeling Study of Sticholysin I. Book of Abstracts. 5^{ta} Conferencia Latinoamericana de Físicoquímica Orgánica. Viña del Mar, Chile. P25.
 32. D. Martínez, C. Álvarez, M.E. Lanio, F. Pazos, **V. Moreira**, G. Menestrina and E. Lissi (1999) Properties of the N-terminal Bearing Polipeptide from a Cytolysin from *Stichodactyla helianthus*.

- Book of Abstracts. 5ta Conferencia Latinoamericana de Fisicoquímica Orgánica. Viña del Mar, Chile. P42.
33. Vivian Huerta, Yazmin Guanche, **Vivian Morera**, Vladimir Besada, Glay China, et al. (1999) Primary and Secondary Structure of a New Sea Anemone Cytolysin. Book of Abstracts. Biotecnología Habana'99. Medical Applications of Biotechnology. La Habana, Cuba. Volumen 5. ISSN: 1027-2860.
 34. G. Moya, L.J. González, Y. García, V. Huerta, M. Araña, L. Castellanos and **V. Morera** (1999) Characterization of Less Hydrophobic Species of a Mutated (Cys126-Ala) Recombinant Human Interleukin-2. Book of Abstracts. Biotecnología Habana'99. Medical Applications of Biotechnology. La Habana, Cuba. Volumen 5. ISSN: 1027-2860.
 35. Lazaro H. Betancourt, Vladimir Besada, Gabriel Padrón, **Vivian Morera**, Luis Javier Gonzalez, Toshifumi tkao and Yasutsugu Shimonishi (1999) Selective Isolation and identification of N-terminal blocked peptides from low picomole tryptic protein digests. Book of Abstracts. Biotecnología Habana'99. Medical Applications of Biotechnology. La Habana, Cuba. Volumen 5. ISSN: 1027-2860.
 36. Lanio, M.E.; Álvarez, C.; **Morera, V.**; Pazos, F.; Tejuca, M.; Martínez, D.; Menestrina, G.; Campos, A.M. and Lissi, E. (1998) Some structural characteristics of Sticholysins I and II, cytolysins from the sea anemone *Stichodactyla helianthus* and their implications for the interaction with membranes. Book of Abstracts. V Simposio "Compreensao e Exploracao de Toxinas para o Seculo XXI. Angra dos Reis, Brasil. C10.
 37. Lanio, M.E; Alvarez, C.; **Morera, V.**; Pazos, F. et al. (1998) Comparison of StI and StII primary structures, two cytolysins from *Stichodaactyla helianthus*. Their modification and implications for the interaction with membranes. . Book of Abstracts. 6th Panamerican Congress on Animal, Plant and Microbial Toxins. Islas Margarita, Venezuela. Mo-Or-03.
 38. R. Martínez, J. Támara, J. Juncal, C. Zaldívar, I. Guillén, A. Arenal, **V. Morera**, M. Estrada et al. (1998) Biochemical and metabolic correlates of growth rate in fast-growing transgenic tilapia expressing low ectopic levels of homologous growth hormone. Book of Abstracts. Biotecnología Habana'98. Transgénesis: del laboratorio al mercado. Biotecnología aplicada a la Industria. La Habana, Cuba. Volumen 5. 30. ISSN: 1027-2860.
 39. Vivian Huerta; **Vivian Morera**; Nelía López; Lázaro Betancourt; Vladimir Besada; Gabriel Padrón; Gipsi Lima; María de los Ángeles Chávez; Julieta Delfín and Joaquín Díaz (1998) Characterization and 3D model of a new proteinase inhibitor isolated from *Stichodactyla helianthus*. Biotecnología Aplicada 15, 2: 108.
 40. I.F. Pazos; C. Alvarez; M.E. Lanio; D. Martínez; **V. Morera**; E.A. Lissi and A.M. Campos (1998) Modification of Sticholysin II haemolytic activity by free radicals. Toxicon 36, 1383-1393.
 41. Gerardo Guillén; Anabel Alvarez; Ricardo Silva; **Vivian Morera**; Sonia González; Alexis Musacchio; Vladimir Besada; Edelgis Coizeau; Evelin Caballero; Consuelo Nazabal; Tania Carmenate; Luis J. González; Regla Estrada; Yanet Támara; Gabriel Padrón and Luis Herrera (1998) Expression in *Escherichia coli* of the Lpd A gene, protein sequence analysis and immunological characterization of the P64K protein from *Neisseria meningitides*. Biotechnol. Appl. Biochem 27, 189-196.

42. José M. Cruz; Vivian Huerta; **Vivian Morera**; Sergio López; Rolando del Rey; Jesús Randulfe; Alicia Rodríguez-Maribona; Elio Doncel; Irene Niubó and Nelson Menéndez (1997) Diseño y construcción de un secuenciador de proteínas automático y compacto, a partir de elementos disponibles comercialmente. *Biotecnología Aplicada* 14, 33-39.
43. PATENTE: Hernan R. Campana; Bianca M. Garcia Garcia; Julio M. Delgado Boada; Jose A. Cremata Alvarez; Maria E. Gonzalez Martinez; Emilio M. Clark; Dania M. Curbelo; Luis S. Herrera Martinez; Manuel R. Raices Perez-Castaneda, Efrain R. Jiminez; Rossana G. Fernandez; **Vivian M. Córdova**; Carlos E. Patron (1997) DEXTRANASE ENZYME, METHOD FOR ITS PRODUCTION AND DNA ENCODNG THE ENZYME. United States Patent. Patent Number: 5,637.491. Date of Patent: Jun. 10, 1997.
44. Gil, Sh.; Chávez, M.; Fernandez, A.; García, Y.; Abreu, L.; **Morera, V.**; Díaz, J. et al. (1997) A new proteinase inhibitor from *Condylactis gigantea*. Book of Abstracts. *Biotecnología Habana'97. Medical Applications of Biotechnology. Avances en Biotecnología Moderna. La Habana, Cuba. Volumen 4. E30. ISSN: 1027-2860.*
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46. Diana Martínez, **Vivian Morera**, Carlos Álvarez, et al. (1997) Comparación estructural de dos morfos de la anemona *Stichodactyla helianthus*. Book of Abstracts. *Biotecnología Habana'97. Medical Applications of Biotechnology. Avances en Biotecnología Moderna. La Habana, Cuba. Volumen 4. E24. ISSN: 1027-2860.*
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48. Vivian Huerta, **Vivian Morera**, Nelia López, Lázaro Betancourt, et al. (1997) Characterization and 3D model of a new proteinase inhibitor isolated from *Stichodactyla helianthus*. Book of Abstracts. *Biotecnología Habana'97. Medical Applications of Biotechnology. Avances en Biotecnología Moderna. La Habana, Cuba. Volumen 4. E19. ISSN: 1027-2860.*
49. PATENTE: Margolles Clark, Emilio; Delgado Boada, Julio Marcos; Herrera Martinez, Luis Saturnino; Cremata Alvarez, José A.; Raices Castaneda, Manuel Rafael; González Martínez, María Elena; Fernández Padrón, Carlos; Roca Campaña, Hernán; Mateu Curbelo, Dania; Rodríguez Jiménez, Efraín; García Fernández, Rossana; **Morera Córdova, Vivian**; García García and Bianca María (1996) PROCEDIMIENTO PARA EL AISLAMIENTO Y EXPRESIÓN DE UN GEN QUE CODIFICA PARA UNA DEXTRANASA DEL HONGO PENICILLIUM MINIOLUTEUM. Oficina Cubana de la Propiedad Industrial. Número de patente: CU 22430 A1. Fecha de publicación: 1996.10.05.

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52. Guillén G.; Silva, R.; Alvarez, A.; Novoa. L.I.; González, S.; Musacchio, A.; Selman, M.; Martín, A.; **Morera, V.**; Fernández, J.; Morales, J.; Sierra, G.; Besada, V.; Coizeau, E.; Caballero, E.; Nazábal, C.; Carmenate, T.; Niebla, O.; del Valle, J.; Tamargo, B.; González, J.; Estrada, R.; Támbara, Y.; Padrón; G. and Herrera, L. (1995) Cloning, expression and characterization of the P64K outer membrane protein from *Neisseria meningitidis*. *Biotecnología Aplicada* 12: 72.
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58. **Morera, V.**; Estrada, R. and Cruz, A. (1994) Amino acid analysis in the quality control of recombinant human alpha-interferon. *Biotecnología Aplicada* 11: 43-46.
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61. Fernández, C.; **Morera, V.**; Musacchio, A.; Madrazo, J. Rodríguez, P. and Castellanos, L. (1992) Imidazole-zinc reverse staining of SDS-PAGels: sensitive detection of unmodified proteins for subsequent efficient electroblotting. Book Abstracts. Biotecnología Habana'92. Advances in modern biotechnology 1: 15.15. ISSN: 1027-2860.
62. García R.; Montesino, R.; Besada, V.; **Morera, V.** and Cremata, J. (1992) Detección de glicopéptidos por DOT BLOT utilizando conjugado concanavalina A-peroxidasa. . Book Abstracts. Biotecnología Habana'92Advances in modern biotechnology 1: 19.19. ISSN: 1027-2860.
63. López, S.; Doncel, E.; Cruz, J.M.; Rodríguez-Maribona, A.; del Rey, R.; Medina, F. and **Morera, V.** (1992) Secuenciador de proteínas. Concepción. Revista CID electrónica y proceso de datos en Cuba. 28-3.
64. Raíces, M.; Moleiro, M.C.; Li, I.M.; **Morera, V.**; Roca, H.; Delgado, J.; Cremata, J. and Herrera, L. (1991) Purificación Y caracterización parcial de una enzima dextranasa a partir de una cepa de hongo del género *Penicillium*. Biotecnología Aplicada 8: 248-255.
65. **Morera, V.**; Richardson, M.; Mateo de Acosta, C.; Mata, H.; Araña, M.; López, P.; Besada, V. and Castellanos, L. (1990) Caracterización de la estructura primaria de la interleucina-2 humana recombinante. Biotecnología Aplicada 7: 72-79.
66. **Morera, V.**; Shemiakyn, V.; Nazimov, I. and Castellanos, L. (1989) Caracterización química del interferón humano alfa-2. Interferón y Biotecnología 6: 44-51.
67. Quiñones, Y.; Agraz, A.; Silva, A.; Padrón, G.; Mella, C.; Díaz, R.; Quintana, M.; González, M.; Besada, V.; Duarte, C.; Sierra, G.; Fernández, J.; Ubieta, R.; Morales, J.; Castellanos, L.; **Morera, V.**; Furrázola, G.; Montero, M. Santos, A. Díaz, A. and Herrera, L. (1989) High purity recombinant human alpha-2 interferon free from oligomeric forms in *E. coli*. Highlights Modern Biochem. 2: 1237-1246.
68. Herrera, L.; de la Fuente, J.; Quiñones, Y.; Padrón, G.; Agraz, A.; Vega, J.; Pérez, L.; Silva, A.; Santizo, C.; Alvarez, R.; Pérez, A.; Quintana, M.; Díaz, R.; Duarte, C.; Castellanos, L.; Rodríguez, P.; Hernández, L.; Muzio, V.; **Morera, V.**; Pentón, E.; García, A.; Tamayo, A.; González, M.; Chuay, C. and Serrano, R. (1988) Biologicals production by recombinant DNA technology in Cuba. Develop. Biol. Standard 70: 257-269.

ATTENDED COURSES

1. Workshop: "PRIMER WEBINAR INTERNACIONAL DE QUÍMICA: Las varias Caras de la Química. Grandes Mentes con Extraordinarias Experiencias" (2020) Yachay Experimental Technology Research University, Urucuquí, Imbabura, Ecuador.
2. DIPLOMADO EN DOCENCIA VIRTUAL (2020). Politécnico de Colombia. Medellín, Colombia.

3. Workshop: "CHEMWORKSHOP Undergraduate Winter Research, Making the Difference" (2020) Yachay Experimental Technology Research University, Urcuquí, Imbabura, Ecuador.
4. Workshop: "CHEMICAL TECHNIQUES FOR THE CHARACTERIZATION OF CULTURAL HERITAGE MATERIALS" (2019) Yachay Experimental Technology Research University, Urcuquí, Imbabura, Ecuador.
5. Course: "CURSO TEORICO PRACTICO DE MANEJO DE UPLC I CLASS" (2019) Yachay Experimental Technology Research University, Urcuquí, Imbabura, Ecuador.
6. Course: "English Language – Certification Level C1" (2019). Illinois English School, Ibarra, Ecuador.
7. Course: "Chromatography: Operation of the Ultimate 3000 SD Liquid Chromatograph – Thermo Fischer Scientific and the Chromelon 7.2 software" (2019). Yachay Experimental Technology Research University, Urcuquí, Imbabura, Ecuador.
8. Course: "Workshop of Pedagogical Regulations" (2019). Yachay Experimental Technology Research University, Urcuquí, Imbabura, Ecuador.
9. Course: "Research, Grants and Internationalization" (2017). Yachay Experimental Technology Research University, Urcuquí, Imbabura, Ecuador.
10. Course: "Teaching Portfolio" (2017). University of the Americas. Quito Ecuador.
11. Course: "Media Training" (2017). University of Las Américas, Quito, Ecuador.
12. Theoretical-practical course: "Células Madre". (2016). University of San Francisco de Quito, Quito, Ecuador.
13. Course: "School of Leadership for Deans and Directors". (2015). University of Las Américas, Quito, Ecuador.
14. Course: "Evaluation and Rubrics". (2015). University of Las Américas, Quito, Ecuador.
15. Course: "Occupational Health". (2014). University of Las Américas, Quito, Ecuador.
16. Course: "Moodle". (2014). University of Las Américas, Quito, Ecuador.
17. Course. "Biosafety in biomedical areas" (2010). Center of Genetic Engineering and Biotechnology. Havana. Cuba.
18. Course: "Good Laboratory Practices" (2010). Centre for Genetic Engineering and Biotechnology, Havana, Cuba.
19. Course: "Mass spectrometry" (2008). Center of Genetic Engineering and Biotechnology. Havana. Cuba.
20. Course: "Good Manufacturing Practices" (2006). Centre for Genetic Engineering and Biotechnology, Havana, Cuba.
21. Course: "Proteins, Membranes and its interaction" (2004). Biology Faculty, Havana University, Havana, Cuba.
22. Course: "Emotional Intelligence in Management of the Company" (2003). AGRINFOR: Information and Communication for Agriculture, Agriculture Ministry, Havana, Cuba.
23. Course: "Spectroscopy" (2000). Faculty of Biology. Havana University, Havana, Cuba.
24. Course: "Philosophy" (1994). Philosophy Faculty, Havana University, Havana, Cuba.
25. Course: "High Efficiency Liquid Chromatography" (1992). Knauer Company. Berlin Germany.

26. Course: "Philosophy" (1989). National Centre for Scientific Research, Havana, Cuba.
27. Course: "English Language" (1989). National Centre for Scientific Research, Havana, Cuba.
28. Course: "Molecular Biology" (1984-1985). Centre for Genetic Engineering and Biotechnology, Havana, Cuba.
29. Course: "Russian Language" (1977-1984). State University "M.V. Lomonosov", Moscow, Russia.

PATENTS

1. Silva, R.; Selman, M.; Guillén G.; Herrera, L.; Fernández, J.; Novoa. L.I.; Morales, J.; **Morera, V.**; González, S.; Tamargo, B.; del Valle, J.; Caballero, E.; Alvarez, A.; Coizeau, E.; Cruz, L. and Musacchio, A. Title: Nucleotide sequence coding for an outer membrane protein from *Neisseria meningitides* and use of said protein in vaccine preparations:

- a. European Patent Office. Publication number: 0 474 313 A2. Application number: 91202291.0.
- b. Patent in United States, Patent number: 5, 286, 484.
- c. European Patent Office, Accepted patent number: 0474313.

2. Campana, H.R.; García, B.; Margollez; E.; Curbelo, D.; Delgado, J.; Herrera, M.; Cremata, J.A.; Raíces, M.; González, M.E.; Jiménez, E.; García, R.; Patrón, C. and **Morera, V.**: Dextranase enzyme, method for its production and DNA encoding the enzyme.

- a. National Office of Inventions, Technical Information and Marks. Certificate No. 22430.
- b. Patent in United States, application number: 354618.
- c. European Patent Office, application number: 94203614.6. Priority: 14.12.93.

3. National Office of Inventions, Technical Information and Marks (2004):

- a) Péptidos y derivados tipo APL de la *Hsp60h* y composiciones farmacéuticas.

Autores: MC Domínguez, N. López, N. Lorenzo, A. Barbera, A. Hernández, A. Vázquez, N. Merino, **V. Morera**, K. Cosme, G. Padrón.

Application number: 2004-0207

- b) European Patent Office (2007):

Peptides and APL-type derivatives of Hsp60 and pharmaceutical compositions.

Autores: MC Dominguez, N. López, N. Lorenzo, A. Barbera, A. Hernández, A. Vázquez, N. Merino, **V. Morera**, K. Cosme, G. Padrón.

Application number: 05794474.6-1212-CU2005000008

SCIENTIFIC AND TECHNICAL ASSOCIATIONS

1. Ibero-Latin American Society for Interferon Research, 1987, Cuba, Member
2. Cuban Society of Immunology, 2004, Cuba, Member

3. Since 2004 - Member of the National Permanent Jury for Assertion the PhD theses in Molecular and Cellular Biology. Biology Faculty, Havana University, La Habana, Cuba.
4. Cuban Society of Chemistry, 2009, Cuba, Member
5. Humboldt Club of Cuba, 2010, Cuba, President
6. Centro Ecuatoriano de Biotecnología del Ambiente, 2015, Ecuador, Member
7. Humboldt Club of Ecuador, 2017, Ecuador, Member

CONGRESS PRESENTATIONS 1987- 2020: 60 Presentations in National and International Meetings held in Cuba, Mexico, Germany, Japan, Sweden, USA, Spain, France, Brazil, Venezuela, and Ecuador.

1. Congress "Ciencias Farmacéuticas'87", Havana, Cuba, 1987. "Estudio de la estructura primaria del Interferon alfa recombinante".
2. XIII Inter-American Conference on Chemical Engineering, Mexico, 1988. "Expression and purification of recombinant proteins".
3. X Scientific Seminar. National Center for Scientific Research, Havana, Cuba, 1988. "Reactivación de interleuquina-2 recombinante (IL-2)".
4. VII International Conference on Protein Sequence Analysis, West Berlin, Germany, 1988. "Protein sequence analysis and FAB-mass spectrometry of recombinant alpha-2 interferon".
5. III Cuban and International Seminar on Interferon, II Cuban e International Seminar on Biotechnology and I Iberoamerican Congress on Biotechnology, Havana, Cuba, 1989. "Producción de IFN alfa-2 recombinante: una proteína asociada al debris celular. Un producto final con bajo contenido de oligómeros".
6. III Cuban and International Seminar on Interferon, II Cuban e International Seminar on Biotechnology and I Iberoamerican Congress on Biotechnology, Havana, Cuba, 1989. "Caracterización de la estructura primaria de la interleucina-2 humana recombinante".
7. III Cuban and International Seminar on Interferon, II Cuban e International Seminar on Biotechnology and I Iberoamerican Congress on Biotechnology, Havana, Cuba, 1989. "Caracterización química del Interferon humano alfa-2 recombinante".
8. III Cuban and International Seminar on Interferon, II Cuban e International Seminar on Biotechnology and I Iberoamerican Congress on Biotechnology, Havana, Cuba, 1989. "Purificación y caracterización molecular de una fosfolipasa A2 de la anémona *Stichodactyla helianthus*".
9. VII International Conference on Protein Sequence Analysis, Kiruna, Sweden, 1990. "Sequencing of a protease inhibitor isolated from a sea anemone".
10. International Congress "Biotecnología Habana'92", Havana, Cuba, 1992. "Genetic and physico-chemical characterization of recombinant Hepatitis B surface antigen (HBsAg)".
11. International Congress "Biotecnología Habana'92", Havana, Cuba, 1992. "Imidazole/zinc reverse staining of SDS-PAGels: sensitive detection of unmodified proteins for subsequent efficient electroblotting".

12. International Congress "Biotecnología Habana'92", Havana, Cuba, 1992. "Detección de glicopéptidos por Dot Blot utilizando conjugado Concanavalina A - peroxidasa".
13. VII PAABS Congress, Mexico, 1992. "Protease inhibitors from the sea anemone *Stichodactyla helianthus* (Coelenterate): Purification and characterization".
14. International Congress "Biotecnología Habana'94", Havana, Cuba, 1994. "Algunas características de Sticholysina, una nueva citolisina de *Stichodactyla helianthus*. Estructura primaria".
15. International Congress "Biotecnología Habana'94", Havana, Cuba, 1994. "Primary structure analysis of the haemolytic Polypeptide STICHOLYSIN isolated from a sea anemone".
16. International Congress "Biotecnología Habana'94", Havana, Cuba, 1994. "Protein sequencing and antigenic sites identification of P64k from *Neisseria meningitidis*".
17. International Congress "Biotecnología Habana'94", Havana, Cuba, 1994. "Cloning, expression and characterization of the P64k outer membrane protein from *N. meningitidis*".
18. I International workshop: La bioquímica en la Biotecnología Marina, Havana, Cuba, 1995. "Purificación y caracterización del inhibidor fundamental de proteasas de *Stichodactyla helianthus*".
19. I International workshop: La bioquímica en la Biotecnología Marina, Havana, Cuba, 1995. "Nuevo Inhibidor de proteasas de *Stichodactyla helianthus*".
20. 5th Pan-American Symposium on Toxins from microorganism, plants and animals, Maryland, USA, 1995. "Purification, Characterization and Immobilization of Proteinases Inhibitors from de *Stichodactyla helianthus*".
21. 5th Pan-American Symposium on Toxins from microorganism, plants and animals, Maryland, USA, 1995. "Novel primary structure of Sticholysin and its interaction with membrane".
22. 3rd International Symposium on Applied Mass Spectrometry in the Health Sciences. European Tandem Mass Spectrometry Conference, Madrid, Spain, 1995. "Chemical characterization of a *Neisseria meningitidis* membrane protein".
23. 6th Congress of the Cuban Society of Pharmaceutical Sciences, Havana, Cuba, 1995. "Obtención de eritropoyetina humana recombinante en células de ovario de hámster chino".
24. Sixth International Conference on Methods in Protein Structure Analysis, Annecy, France, 1996. "Purification and partial characterization of two haemolysins from *Stichodactyla helianthus*".
25. XXV Annual Meeting of Brazilian Society for Biochemistry and Molecular Biology, Caxambu, Brazil, 1996. "Structural characteristics of Sticholysin I relevant to its interaction with membranes".
26. International Congress "Biotecnología Habana'97", Havana, Cuba, 1997. "A new proteinase inhibitor from *Condylactis gigantea*".
27. International Congress "Biotecnología Habana'97", Havana, Cuba, 1997. "Prediction of the secondary structure of Sticholysin II".
28. International Congress "Biotecnología Habana'97", Havana, Cuba, 1997. "Structural comparison of cytolytic proteins isolated from green and brown morphs of *Stichodactyla helianthus*".
29. International Congress "Biotecnología Habana'97", Havana, Cuba, 1997. "Proteinase inhibitors from marine organisms".

30. International Congress "Biotecnología Habana'97", Havana, Cuba, 1997. "Characterization and 3D model of a new proteinase inhibitor isolated from *Stichodactyla helianthus*".
31. XII International Congress on Toxins from microorganism, plants and animals, Cuernavaca, Mexico, 1997. "Modification of Sticholysin II by free radicals".
32. XII International Congress on Toxins from microorganism, plants and animals, Cuernavaca, Mexico, 1997. "Purification and partial characterization of a novel proteinase inhibitor from the sea anemone *Stichodactyla helianthus*".
33. 17TH International Congress on Biochemistry and Molecular Biology. 1997 Annual Meeting of the American Society for Biochemistry and Molecular Biology, San Francisco, California, USA, 1997. "Some structural features of Sticholysin II: a cytolysin from the Caribbean Sea anemone *Stichodactyla helianthus*".
34. International Congress "Biotecnología Habana'98", Havana, Cuba, 1998. "Biochemical and metabolic correlates of growth rate in fast-growing transgenic tilapia expressing low ectopic levels of homologous growth hormone".
35. 6th Pan-American Congress on Animal, Plant and Microbial Toxins, Islas Margarita, Venezuela, 1998. "Comparison of StI and StII primary structures, two cytolysins from *Stichodactyla helianthus*, their modifications and implications for the interaction with membranes".
36. International Congress "Biotecnología Habana'99", Havana, Cuba, 1999. "Selective isolation and identification of N-terminal blocked peptides from low picomole tryptic protein digests".
37. International Congress "Biotecnología Habana'99", Havana, Cuba, 1999. "Characterization of less hydrophobic species of a mutated (Cys126-Ala) recombinant human interleukin-2".
38. International Congress "Biotecnología Habana'99", Havana, Cuba, 1999. "Primary and secondary structure of a new sea anemone cytolysin".
39. IV International Congress on Chemistry. XIII Caribbean Conference of Chemistry and Chemical Engineering, Havana, Cuba, 2001. "Micro heterogeneity of human recombinant Erythropoietin. Carbohydrate analysis by electrospray mass spectrometry".
40. International Congress "Biotecnología Habana 2003", Havana, Cuba, 2003. "Development of an animal model for rheumatoid arthritis using collagen type II as inductor".
41. International Congress "Biotecnología Habana 2003", Havana, Cuba, 2003. "A comparative study between two animal models for rheumatoid arthritis".
42. IV National Congress on Immunology, Santa Clara, Cuba, 2004. "Desarrollo de un modelo animal para artritis reumatoide empleando el colágeno tipo II como inductor".
43. IV Workshop on Inflammation. Cuban Society of Pharmacology. Havana, Cuba, 2004. Delegate.
44. International Congress on Rheumatology EULAR 2004. Berlin, Germany, 2004. "Genotyping HLA type II and evaluation of the cytokines pattern in Cuban patients with rheumatoid arthritis".
45. I International Congress on Oncology 2005, Havana, Cuba, 2005. Organized by I INOR, Cuba. Delegate.
46. International Congress "Biotecnología Habana 2006", Havana, Cuba, 2006. "Specific anti-CEA single chain Fv antibody fragment with short linker showed in vitro biological activity in both form dimer and monomer".

47. International Congress on Proteomics MPSA, Varadero, Cuba, 2007. "Fractionation of serum proteins by strong anion-exchange chromatography"
48. International Congress "Biotecnología Habana 2009", Havana, Cuba, 2009. Delegate.
49. International Congress "Biotecnología Habana 2010", Havana, Cuba, 2009. "Determination of the specific absorptivity coefficient of recombinant human Epidermic Growth Factor".
50. Humboldt kolleg: "Retos y Fronteras de la Física y la Química a la Biología Moderna", La Habana, Cuba, 2012. Evaluation of probiotic capacity of *Bacillus licheniformis* on immune-nutritional and quality parameters of white shrimp (*Litopenaeus vannamei*) cultured from larvae to post larvae stages".
51. Colloquium of Educational Experiences. Cuban Association of Pedagogues. Havana University. February 2013. "Inclined balance to experimental education: pro experimental education: updating Curriculum in Biochemistry and Molecular Biology".
52. IX International Symposium "Humedales 2013", November 2013, Ciénaga de Zapata, Matanzas, Cuba, "Caracterización preliminar del proteinograma plasmático de *Crocodylus rhombifer*".
53. XIV Encuentro de la Red Académica de Carreras de Ingeniería en Biotecnología del Ecuador (RACIBE), noviembre 2014, Escuela Superior del Chimborazo, Facultad de ciencias, Escuela de Ciencias Químicas, Riobamba, Ecuador.
54. 2st International Symposium on Synthetic Peptides as Pharmaceutical Products: Autoimmunity, Cancer and Infection Diseases. Varadero, Matanzas, Cuba, 2015. "Peptide Content and Amino Acid Composition Determinations by the EZ: FFAST Amino Acid Analysis Procedure".
55. III Congreso internacional de Biotecnología y Biodiversidad. XIII Foro Internacional del Banano. Guayaquil, Ecuador, 2016. "Optimización del medio de crecimiento de un hongo filamentoso para la producción de ureasa y su posterior inmovilización enzimática".
56. Evento: "Día de la Biotecnología - Día B", enero 2016, Universidad de Las Américas, Facultad de Ingeniería y Ciencias Agropecuarias, Quito, Ecuador. "Herramientas de análisis molecular de proteínas aplicadas en la Biotecnología".
57. IV International Symposium on Synthetic Peptides. Cayo Santa María, Cuba, 2017. "Bioinformatic identification of crocodylians beta defensins".
58. Fourth International Symposium on Infectious Diseases. Varadero, Matanzas, Cuba. 2018 "Determination of absolute protein concentration of surface and nucleocapsid antigens of hepatitis B virus".
59. JORNADAS DE BIOLOGÍA, Urcuquí, Imbabura, Ecuador. 2019. "Phytochemical Screening and Total Phenolic Content on the Leaves of *Epidendrum coryophorum*".
60. JORNADAS DE BIOLOGÍA, Urcuquí, Imbabura, Ecuador. 2019. "Phytochemical Screening and Total Phenolic Content of *Alternanthera porrigens* (Jacq.) Kuntze)".

RELEVANTS RESULTS AND AWARDS

1. CIGB Anual Award, 1990: "Establecimiento del servicio de síntesis de péptidos y secuenciación de proteínas".

2. CIGB Anual Award, 1990: "Caracterización genética e inmunológica de la proteína 80K de *N. Meningitidis* B4-P1.15".
3. National Award of the Academy of Sciences of Cuba, 1990: "Secuenciación de un inhibidor de proteinazas aislado de una anémona marina (*Stichodactyla helianthus*)".
4. National Award of the Academy of Sciences of Cuba, 1990: "Establecimiento y escalado de un proceso de producción para la obtención de Interferón alfa 2b Humano Recombinante".
5. National Award of the Academy of Sciences of Cuba, 1990: "Obtención de una vacuna contra el virus de la Hepatitis B por recombinación del ADN en levaduras".
6. CIGB Anual Award, 1993: "Aislamiento, clonaje y expresión del gen que codifica para la dextranasa de *Penicillium sp.* en levadura".
7. Scientific-Technical Award of the Central Institute for Digital Research, ICID 1994: "Secuenciador de Proteínas S6000".
8. National Award of the Academy of Sciences of Cuba, 1994: "Secuenciador de Proteínas S6000".
9. National Award of the Academy of Sciences of Cuba, 1994: "Expresión y caracterización de la proteína PM6 de *Neisseria meningitidis*".
10. National Award of the Academy of Sciences of Cuba, 1996: "*Stichodactyla helianthus*: fuente de polipéptidos bioactivos. Aislamiento, purificación y estudio de estructura-función".
11. CIGB Anual Award, 1996: "Obtención de eritropoietina humana recombinante expresada en células de ovario de Hámster chino".
12. National Award of the Academy of Sciences of Cuba, 1997: "Aislamiento, caracterización y expresión en levadura del gen codificante para la enzima dextranasa del hongo *Penicillium minioluteum*".
13. National Award of the Academy of Sciences of Cuba, 1997: "Estudio del mecanismo de acción de Sticholisina I y II, dos citolisinas purificadas de la anémona marina *Stichodactyla helianthus*".
14. CIGB Anual Award, 1998: "Caracterización bioquímica y metabólica de la línea de tilapias transgénicas IG/91-03f70".
15. National Award of the Academy of Sciences of Cuba, 1998: "Estudio de la respuesta inmune a PME que portan epítopes de diferentes aislamientos de VIH en modelos animales".
16. CIGB Anual Award, 2000: "Caracterización del HbsAg y de la cadena ligera del Mab vs. HbsAg para validación OMS".
17. CIGB Anual Award, 2002: "Certificación OMS de la vacuna anti hepatitis B".
18. CIGB Anual Award, 2003: "Unidad Docente destacada de la UH de la Facultad de Biología por tercer año consecutivo. Mejor Unidad Docente de la UH en el año 2003".
19. CIGB Anual Award, 2004: "Obtención de péptidos terapéuticos bloqueadores del curso de la AR".
20. National Award of the Academy of Sciences of Cuba, 2005: "Los lípidos de la membrana actúan como moduladores de la actividad permeabilizante de Sticholisina II, una toxina formadora de poros con potenciales aplicaciones biomédicas".
21. CIGB Anual Award, 2005: "Demostración de 12 meses de estabilidad real de la formulación del CIGB 300 como necesidad para la autorización del estudio clínico fase 1. Producción y liberación de un lote para la clínica bajo condiciones GMP".

22. CIGB Anual Award, 2005: "Implementación de la tecnología y la metodología de análisis para aplicar métodos de proteómica sin 2DE, con alto flujo de datos".
23. CIGB Anual Award, 2005: "Producción y liberación analítica de 8 lotes del péptido CIGB 300 en condiciones de buenas prácticas para estudios clínicos".
24. CIGB Anual Award, 2006: "Aprobación por el CECMED del Ensayo Clínico Fase 1 con el Fragmento del Ac anti-CEA para "marcaje" del carcinoma de colon y tumores CEA+".
25. National Award of the Academy of Sciences of Cuba, 2006. SCAPE: "Nuevo método para estudios de proteómica sin empleo de electroforesis bidimensional".
26. National Award of the Academy of Sciences of Cuba, 2007: "Identificación del péptido N-terminal".
27. National Award of the Academy of Sciences of Cuba, 2008: "Caracterización por espectrometría de masas de proteínas recombinantes".
28. National Award of the Academy of Sciences of Cuba, 2008: "Fragmento de anticuerpo recombinante contra el antígeno carcinoembrionario".
29. CIGB Anual Award, 2008: "Implementación de una metodología para la determinación del coeficiente de extinción y su aplicación a péptidos y proteínas producidos en el CIGB".
30. CIGB Anual Award, 2008: "Obtención de una formulación estable con el péptido CIGB 228 para el tratamiento del HPV. Demostración de 24 meses de estabilidad".
31. CIGB Anual Award, 2008: "Diseñar, lograr aprobación y comenzar a ejecutar la primera Versión de una maestría propia del CIGB Tendencias de la Biotecnología Contemporánea".
32. CIGB Anual Award, 2008: "Preparación y respuesta efectiva ante los huracanes Gustav e Ike".
33. CIGB Anual Award, 2008: "Participación en la aprobación de registro de la vacuna EGF-p64k del CIM".
34. CIGB Anual Award, 2009: "Elementos satisfactorios en la gerencia de la actividad de Recursos Humanos de la Planta de Producción".
35. CIGB Anual Award, 2009: "Renovación del Registro de Heberprot-P por el CECMED".
36. CIGB Anual Award, 2009: "Evaluación de un fragmento multivalente de anticuerpo anti-CEA radio marcado en pacientes con cáncer colorectal".
37. CIGB Anual Award, 2010: "Servicio de Espectrometría de Masas para caracterización de Heberprot-P y péptidos sintéticos".
38. CIGB Anual Award, 2010: "Realización exitosa de Congreso BH 2010 dedicado a la Atención Integral de Pacientes con Ulceras del Pie Diabético con el uso de Heberprot P".
39. National Award of the Academy of Sciences of Cuba, 2010: "Inducción de respuesta inmune protectora contra *Neisseria meningitidis* serogrupo B mediante la inmunización con péptidos que mimetizan las propiedades antigénicas e inmunológicas de un epitopo exclusivo del polisacárido capsular bacteriano".
40. SENESCYT ACCREDITED INVESTIGATOR, 2020. Ecuador.

TEACHING ACTIVITIES

1. 1989, Professor in the post-congress course: "Análisis y caracterización de proteínas recombinantes", in the III Cuban and International Seminar on Interferon, II Cuban e International Seminar on Biotechnology and I Iberoamerican Congress on Biotechnology, Havana, Cuba.
2. 1995, Professor in the International Course sponsored by CIGB and Latin-American Red of Biotechnology: "Caracterización Química de Proteínas: Aplicaciones a la Biotecnología y Productos Farmacéuticos", Physic-Chemistry Division. Center for Genetic Engineering and Biotechnology, Havana, Cuba.
3. 1994-2013, Professor in the Mastery Course (10 editions): "Biotechnological Process". Chemistry Engineering Faculty, IPSJAE, Havana, Cuba.
4. 1994-2013, Professor of Biochemistry. Biology Faculty, Havana University, Havana, Cuba.
5. 1994-2013, Professor in the Mastery Course in Biochemistry. Biology Faculty, Havana University, Havana, Cuba.
6. 2002-2004, Professor in the Bioinformatics Course, CIGB-Biology Faculty, Havana University, Havana, Cuba.
7. 2005-2013, Professor in the PhD Program in Biological Sciences. Biology Faculty, Havana University, Havana, Cuba.
8. 2006, Professor "International Course for Development of Analytical Techniques", CIGB, Havana, Cuba.
9. 2007-2013, Professor in the PhD Program in Molecular Biosciences. Biology Faculty, Havana University, Havana, Cuba.
10. 2008-2013, Professor in the Mastery Course in the CIGB "Trends in Modern Biotechnology", Subjects: Protein Chemistry, Proteomics, and Analytical Techniques. CIGB, Havana, Cuba.
11. 2008- Conference on "Antigenic Sites Mapping". Physiology and Pharmacodynamics Department, Institute Osvaldo Cruz, Río de Janeiro, Brazil.
12. 2014 – 2017, Full Time Professor. Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Pichincha, Ecuador. Subjects: Human Biotechnology and Investigation methodology.
13. 2017 – until now, Full time professor. Career: Chemistry. School of Chemical Sciences and Engineering. Universidad de Investigación de Tecnología Experimental Yachay, Urcuquí, Imbabura, Ecuador. Subjects: Elucidation of Chemical Structures, Biochemistry, Genetic Engineering and Biotechnology, and Chromatographic Techniques.

DIRECTION OF UNDERGRADUATE THESIS

1. 1991-1992, Advisor of Bachelor in Sciences Thesis "Caracterización primaria de una fosfolipasa A2 de la anémona marina *Stichodactyla helianthus*". Institute of Nuclear Science and Technology, Havana, Cuba.

2. 1992-1993, Advisor of Bachelor in Sciences Thesis "Composición aminoacídica y calidad de la proteína del camarón de cultivo y del medio natural (*Penaeus smith*)". Institute for Pharmacy and Foods. Havana, Cuba.
3. 1993-1994, Advisor of Bachelor in Sciences Thesis "Caracterización parcial de los sitios antigénicos de una proteína de la membrana externa de *Neisseria meningitidis*". Chemistry Faculty. Havana University, Havana, Cuba.
4. 1996-1997, Advisor of Bachelor in Sciences Thesis "Caracterización de un inhibidor de proteasas de la anémona *Stichodactyla helianthus*". Biology Faculty, Havana University, Havana, Cuba.
5. 1996-1998, Advisor of Bachelor in Sciences Thesis "Determinación de la estructura primaria de la Sticholisina I aislada de *Stichodactyla helianthus*". Institute of Nuclear Science and Technology, Havana, Cuba.
6. 2002-2003, Advisor of Bachelor in Sciences Thesis "Evaluación de dos péptidos inmunomoduladores de la proteína de estrés térmico de *Mycobacterium tuberculosis* en un Biomodelo para la Artritis Reumatoide". Biology Faculty, Havana University, Havana, Cuba.
7. 2002-2003, Advisor of Bachelor in Sciences Thesis "Obtención de un Biomodelo de Artritis Reumatoide en ratas Lewis. Evaluación de un péptido inmunomodulador de la proteína Hsp 60 de *Mycobacterium tuberculosis*". Chemistry Faculty. Havana University. Havana, Cuba.
8. 2002-2003, Advisor of Bachelor in Sciences Thesis "Eliminación de proteínas mayoritarias del suero de ratas Lewis para el estudio por Proteómica de un modelo animal de Artritis Reumatoide". Biology Faculty, Havana University, Havana, Cuba.
9. 2011-2013, Advisor of Bachelor in Sciences Thesis "Plasma proteinogram from *Crocodylus rhombifer* in captivity". Biology Faculty, Havana University, Havana, Cuba.
10. 2016, Advisor of Bachelor in Sciences Thesis "Evaluación comparativa de dos tipos de floculantes para la cosecha de Biomasa de microalgas a escala piloto". Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.
11. 2016, Advisor of Bachelor in Sciences Thesis "Evaluación comparativa del crecimiento de la microalga CMIE-H2-001 en fotobiorreactores discontinuos de tipo tubular y panel". Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.
12. 2016, Advisor of Bachelor in Sciences Thesis "Selección de cepas bacterianas acumuladoras de boro en suelos cultivados con brócoli en la provincia de Cotopaxi-Ecuador". Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.
13. 2017, Advisor of Bachelor in Sciences Thesis "DETERMINACIÓN DE LA INTERACCIÓN DE UNA CELULASA RECOMBINANTE CON LA EXPANSINA PcEx11 DE *Pectobacterium carotovorum*". Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.

14. 2017, Advisor of Bachelor in Sciences Thesis "DETERMINACION DE LA UNION DE LA EXPANSINA PcEx11 AL XILEMA DE PLANTAS POR MICROSCOPIA CONFOCAL". Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.
15. 2017, Advisor of Bachelor in Sciences Thesis "OPTIMIZACION DE LAS CONDICIONES DE CULTIVO DE UNA BACTERIA DEL GENERO *Stenotrophomonas* PARA LA PRODUCCION DE BIOSURFACTANTES". Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.
16. 2019, Advisor of Bachelor in Sciences Thesis "Preliminary phytochemical characterization of extracts of the orchid *Epidendrum coryphorum*". Career: Chemistry. Yachay Experimental Technology Research University. School of Chemical Sciences and Engineering.
17. 2019, Advisor of Bachelor in Sciences Thesis "Determinación de la actividad biológica de los componentes presentes en el veneno del alacrán endémico ecuatoriano *Teuthraustes aff. atramentarius*". Career: Chemistry. Yachay Experimental Technology Research University. School of Chemical Sciences and Engineering.
18. 2019, Advisor of Bachelor in Sciences Thesis "Qualitative photochemical study, preliminary phytochemical characterization, total phenolic count, UV-VIS analysis, and antimicrobial and anti-inflammatory activity of *Alternanthera porrigens*". Career: Chemistry. Yachay Experimental Technology Research University. School of Chemical Sciences and Engineering.

DIRECTION OF MAGISTER THESIS

1. 2011-2013, Advisor of Mastery in Sciences Thesis "Evaluation of the health and dietetic-nutritional status of the Cuban crocodile's population in the Zapata Swamp. Biology Faculty, Havana University, Havana, Cuba.

DIRECTION OF DOCTORAL THESIS

1. 2005-2006, Advisor of PhD Thesis. "Desarrollo de dos nuevas formulaciones líquidas de interferón alfa 2b con gran estabilidad en condiciones reales y aceleradas de almacenamiento". Institute for Pharmacy and Foods. Havana, Cuba.

[HTTP://TESIS.SLD.CU/INDEX.PHP?P=FULLRECORD&ID=102](http://tesis.sld.cu/index.php?p=fullrecord&id=102)

OTHER RESPONSABILITIES AND ACTIVITIES

1. 1986 -1987 – Manager of Public Relations, CIGB, Havana, Cuba.
2. 1993 - 2011 – Manager of Amino Acid Analysis and Protein Sequencing Laboratory, CIGB, Havana, Cuba.

3. 2000 – 2005 - Manager of Education Department at the Biomedical Research Division. CIGB, Havana, Cuba.
4. 2007 – 2011 – Assistant chief of Proteomic Department, CIGB, Havana, Cuba.
5. Organizer of International Events: MPSA 2007 (CIGB), Oncology 2005 y Oncology 2007 (INOR), Humboldt Kolleg (2012), Cuba, and Humboldt Kolleg (2019), Ecuador.
7. Referee editor in the scientific journal “Biotecnología Aplicada”. Cuba.
9. Member of numerous thesis and thesis advisory committees.
10. Expert-evaluator of the National Accreditation Council. (JAN) Ministry of Education. Havana, Cuba.
11. 2011 – 2014, Assistant chief of Biochemistry Department. Biology Faculty. Havana University. Havana, Cuba.
12. 2014 – 2017, Academic Director. Career: Engineering in Biotechnology. Faculty of Engineering and Agricultural Sciences. Universidad de Las Américas (UDLA), Quito, Ecuador.
13. 2018 – 2020, Chairman of the Internal Curricular Commission School of Chemical Sciences and Engineering
14. 2021- Member of the Masters Permanent Committee of the School of Chemical Sciences and Engineering.
15. 2021 – Dean. School of Chemical Sciences and Engineering. Yachay Experimental Technology Research University. Imbabura, Ecuador.

PERSONAL REFERENCES

1. Dr. Luz Mary Salazar Pulido. Docente Asociada. Universidad Nacional de Colombia. Facultad de Ciencias. Departamento de Química. Email: lmsalazarpu@unal.edu.co.
2. Dr. Manfred Raida, Life Sciences Institute, National University of Singapore, 21 Lower Kent Ridge Road, Singapore 119077, Tel: +659-638-7692. Email: Manfred_raid@proteomics.asia
3. Dr. Gonzalo Mendieta. Rector. Universidad de las Américas, Quito, Ecuador. Tel: 593983356490.
4. Dr. Michael Schrader. Dean. University of applied sciences, Freising, Germany. Tel. 49 8161 71-4390. Email: michael.schrader@hswt.de.

LINKS TO RESEARCHER DATABASES PROFILES

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=6602635796> (h-index: 12)

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