

## CURRICULUM VITAE

# Annia ALBA MENÉNDEZ

**Nationality:** Cuban

**Date of birth:** April 27th, 1987 (born in Havana, Cuba)

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### EDUCATION

**2011-2013: Master in Science, Parasitology,  
Institute of Tropical Medicine “Pedro Kouri”, Havana, Cuba**

**Thesis:** Development of a novel monoclonal antibody based-immunoenzymatic assay for the detection of *Fasciola hepatica* (Trematoda: Digenea) in infected snails: a tool aimed for fasciolosis control.

**2005-2010: Bachelor in Science with honors in Biochemistry  
Biology Faculty, University of Havana, Havana, Cuba**

**Thesis:** Isolation and partial characterization of antimicrobial peptides from naturally occurring and microbial challenged-populations of *Cenchrithis muricatus* (Mollusca: Gastropoda).

### RESEARCH EXPERIENCE

**PhD student, 2015 – to date**

Laboratory of Host-Pathogens-Environments Interactions (IHPE), UMR 5244, UPVD, CNRS IFREMER UM, University of Perpignan, France

**Researcher, 2010 – to date**

Laboratory of Malacology,  
Laboratory of Biological Models and Monoclonal Antibodies,  
Parasitology Department, Institute of Tropical Medicine “Pedro Kouri”, Cuba

**Inserted student, 2008 - 2010**

Laboratory of Antimicrobial Peptides, Center for Protein Study,  
Biology Faculty, University of Havana, Cuba

### RESEARCH SKILLS AND PROFILE

- **Knowledge of biochemistry, parasitology, immunology, malacology, genetic, evolution and ecology**

- **Skills in techniques of protein purification:** affinity, ion exchange, reverse phase and molecular exclusion chromatography
- **Skills in techniques for protein analysis:** 2D-electrophoresis, SDS-PAGE, ELISA, Western-Blot
- **Skills in bacteria and mammalian cell cultures**
- **Experience in monoclonal antibodies generation through cellular fusion**
- **Experience in immunoassays development and antibody-based techniques:** ELISA, immunoagglutination, immunohistochemistry, immunolocalization
- **Experience in molecular biology techniques:** PCR, multiplex-PCR
- **Experience on field sampling techniques and laboratory rearing of snails:** sampling and manipulation of parasite's life cycle and rearing of mollusks
- **Skills on scientific writing**

#### **PUBLICATIONS** (14 published articles and 1 book chapter)

- **Alba A**, Sánchez J, Hernández H, Mosqueda M, Rodríguez SY, Capó V, Alfonso C, Marcet R, Figueredo M, Sarracent J. Comparative study of epitopes recognized by four monoclonal antibodies in rediae and adult stages of the liver fluke *Fasciola hepatica*. **Under revision by *Experimental Parasitology*.**
- **Alba A**, Vázquez A, Sánchez J, Fraga J, Martínez E, Hernández H, Marcet R, Figueredo M, Sarracent J. Assessment of the FasciMol-ELISA in the detection of the trematode *Fasciola hepatica* in field-collected *Galba cubensis*: a novel tool for the malacological survey of fasciolosis transmission. **Accepted in *Parasites & Vectors*.**
- **Alba A**, Marcet R, Otero O, Hernández H, Figueredo M, Sarracent J. Isolation of 1E4 IgM anti-*Fasciola hepatica* rediae monoclonal antibody from ascites: comparison of two purification protocols. *Monoclonal Antibodies in Immunodiagnosis and Immunotherapy*, **2015; in press.**
- **Alba A**, Hernández H, Marcet R, Vázquez AA, Figueredo M, Sánchez J, Otero O, Sarracent J. A novel double monoclonal antibody based-immunoenzymatic assay for epidemiological surveillance of the vector snails of *Fasciola hepatica* (Trematoda: Digenea). *International Journal for Parasitology*. **2015**; 45: 113-119; doi: 10.1016/j.ijpara.2014.09.007.
- **Alba A**, Vázquez AA, Hernández H, Sánchez J, Marcet R, Figueredo M, Sarracent J, Fraga J. A multiplex PCR for the detection of *Fasciola hepatica* in the intermediate snail host *Galba cubensis*. *Veterinary Parasitology*. **2015**; 211: 195-200; doi: 10.1016/j.vetpar.2015.05.012.
- López-Abarrategui C, Otero-González AJ, **Alba-Menéndez A**, Reguera-Ruiz E, Franco OL. **2015**. Nanoparticles as a promise for host defense peptides therapeutics. In Biological and

pharmaceutical applications of nanomaterial, (Ed) Prokopovich P. CRC Press, Taylor and Francis Group, London, 129-148 pp.

- Vázquez AA, Sánchez J, **Alba A**, Pointier JP, Hurtrez-Boussès S. Natural prevalence in Cuban populations of the lymnaeid snail *Galba cubensis* infected with the liver fluke *Fasciola hepatica*: small values do matter. *Parasitology Research*. **2015**; 114 (11): 4205-10. doi: 10.1007/s00436-015-4653-2.
- Martínez E, Sánchez J, **Alba A**, Vázquez A. Changes in structure and composition of two communities of rocky shores molluscs exposed to different human impact in Playa Jibacoa, Cuba. *Journal of Ecosystems & Ecography*; **2015**; 5: 162. doi: 10.4172/2157-7625.1000162.
- Vázquez AA, Lounnas M, Sánchez J, **Alba A**, Milesi A, Hurtrez-Boussès, S. Genetic and infective diversity of the liver fluke *Fasciola hepatica* (Trematoda: Digenea) from Cuba. *Journal of Helminthology*, **2015**; doi: 10.1017/S0022149X15001029.
- López-Abarrategui C, McBeth C, Mandal SM, Zhen-Yu JS, Heffron G, **Alba-Menéndez A**, Migliolo L, Reyes-Acosta O, Dias SC, Brandt W, Wessjohann LA, Stanbarch M, Otero-González AJ, Franco O. Cm-p5, an antifungal hydrophilic peptide derived from the coastal mollusk *Cenchritis muricatus* (Gastropoda: Littorinidae). *FASEB J*. **2015**; doi: 10.1096/fj.14.269860.
- **Alba A**, Hernández H, Marcet R, Gil AE, Vázquez AA, Figueredo M, Sánchez J, Garay HE, Sarracent J. Exploring the antigenic features of *Fasciola hepatica* (Trematoda: Digenea) rediae through the evaluation of three different antigenic candidates for further monoclonal antibody development. *Parasitology Research*. **2014**; 113(9):3185-93.
- Vázquez AA, Sanchez J, **Alba A**, Rodríguez E, Pino A. [First report of natural infection of *Galba cubensis* (Mollusca: Gastropoda: Lymnaeidae) with Paramphistomidae (Trematoda: Digenea) larvae in Cuba] (article in Spanish). *Revista Cubana de Medicina Tropical*. **2013**; 65(3): 394-397.
- **Alba A**, López-Abarrategui C, Otero-González AJ. Host defense peptides: an alternative as antiinfective and immunomodulatory therapeutics. *Biopolymers (Peptide Science)*. **2012**; 98: 251–267.
- López-Abarrategui C, **Alba-Menéndez A**, Silva ON, Reyes-Acosta O, Vasconcelos IM, Oliveira JT, Migliolo L, Costa MP, Costa CR, Silva RM, Garay HE, Dias SC, Franco OL, Otero-González AJ. Functional characterization of a synthetic hydrophilic antifungal peptide derived from the marine snail *Cenchritis muricatus*. *Biochimie*. **2012**; 94: 968-974.
- López-Abarrategui C, **Alba-Menéndez A**, Nascimento O, Reyes Acosta O, Vasconcelos I, Oliveira J, Migliolo L, Garay HE, Campos Dias S, Franco OL, Otero-González AJ. Screening of antimicrobials from Caribbean Sea animals and isolation of bactericidal proteins from the littoral mollusk *Cenchritis muricatus*. *Current Microbiology*. **2012**; 64(5): 501-5.

- **Alba Menéndez A**, López C, Vázquez AA, Otero AJ. Optimización de la solución de extracción de moléculas antibacterianas de *Cenchrithis muricatus* (Gastropoda: Littorinidae). *Revista Cubana de Medicina Tropical*. **2011**; 63(2): 171-6.
- Vázquez AA, García C, Sánchez J, **Alba A**. Distribución y características ecológicas de los moluscos fluviales de importancia médica en la provincia Santiago de Cuba. *Revista Cubana de Medicina Tropical*. **2011**; 63(1): 58-63.

## PRESENTATIONS

- **Alba A**, Vázquez AA, Sánchez J, Vara EM, García E, Castro R, Martínez E. Where Parasitology meets Conservation Biology: a strong trematode networks as bioindicators of healthy ecosystems in the protected área Humedal Sur de Pinar del Rio, Cuba. X Convención Internacional sobre Medio Ambiente y Desarrollo. IX Congreso sobre Áreas Protegidas. Havana, Cuba, 2015.
- Vázquez AA, **Alba A**, Sánchez J, Martínez E. Hostile takeover from an overseas invader: the giant African snail *Achatina fulica* lands in Cuba and threaten local biodiversity. X Convención Internacional sobre Medio Ambiente y Desarrollo. IX Congreso sobre Áreas Protegidas. Havana, Cuba, 2015.
- **Alba A**, Hernández H, Marcet R, Vázquez AA, Figueredo M, Sánchez J, Sarracent J. Desarrollo de un ensayo inmunoenzimático para la detección de *Fasciola hepatica* en moluscos infectados: una herramienta para el control de la fasciolosis. VIII Congreso Cubano de Microbiología y Parasitología. V Congreso Nacional de Medicina Tropical. V Seminario Internacional sobre la infección por el VIH y el SIDA en Cuba. Havana, Cuba. 2014.
- **Alba A**, Hernández H, Marcet R, Vázquez AA, Figueredo M, Sánchez J, Sarracent J. Novedoso ensayo inmunoenzimático para la detección de *Fasciola hepatica* en moluscos infectados: una herramienta para el control de la fasciolosis. IV Congreso Internacional LABIOFAM. Havana, Cuba. 2014.
- Vázquez AA, Sánchez J, **Alba A**, Vara E, Martínez E. Papel de los moluscos cubanos en la transmisión de *Angiostrongylus cantonensis*: ¿Diferentes especies significa mismo resultado? VIII Congreso Cubano de Microbiología y Parasitología. V Congreso Nacional de Medicina Tropical. V Seminario Internacional sobre la infección por VIH y el SIDA en Cuba. Havana, Cuba. 2014.
- **Alba A**, Figueredo M, Hernández H, Marcet R, Gil A, Vázquez AA, Sánchez J, Sarracent J. Obtención de anticuerpos monoclonales anti-redias de *Fasciola hepatica* (Trematoda: Fasciolidae): estudio de diferentes candidatos antigénicos. VIII Congreso Internacional de Química, Ingeniería Química y Bioquímica. Havana, Cuba. 2012.

- **Alba A**, López-Abarrategui C, Vazquez AA, Otero-González AJ. Aislamiento y caracterización de Cm-P1, potente péptido antimicrobiano del molusco marino *Cenchritis muricatus* inducido por reto con microorganismos. XIV Congreso Latinoamericano de Ciencias del Mar. IX Congreso de Ciencias del Mar, MarCuba. Havana, Cuba. 2012
- Hernández H, Fraga J, Rojas L, Marcet R, Alfonso Y, **Alba A**, Figueredo M, Sarracent J. Polimorfismo de un fragmento del gen de la Proteinasa P-60 de *Trichomonas vaginalis* en aislamientos procedentes de pacientes asintomáticos y sintomáticos. VIII Congreso Internacional de Química, Ingeniería Química y Bioquímica, Havana, Cuba. 2012.
- **Alba A**, López C, Vázquez AA, Otero AJ. Three different purification approaches for isolate antimicrobial peptides from *Cenchritis muricatus* (Mollusca: Gastropoda). I Workshop on research, development and regulatory aspects for biological products and bioprocess. II International Congress Immunopharmacology. Varadero, Cuba. 2011.
- **Alba A**, López C, Otero AJ. Antimicrobial peptides: a novel therapeutic alternative as antibiotics and immunomodulatory therapeutics. II Workshop on new advances in immunopharmacology. II International Congress Immunopharmacology. 2011. Varadero, Cuba.
- Otero-González AJ, **Alba A**, Vázquez AA, Abarrategui C. Antimicrobial peptides from marine invertebrates as adjuvants. Adjuvant 2010. Trinidad, Cuba.
- **Alba A**, Neto S, García M, López C, Franco O, Vázquez AA, Otero A. Obtención de péptidos antimicrobianos a partir de invertebrados marinos y fluviales. XIII Congreso Latinoamericano de Ciencias del Mar. VIII Congreso de Ciencias del Mar, MarCuba 2009. Havana, Cuba.

## AWARDS AND HONORS

- Award University of Havana, 2013 for the achievements in the functional characterization of a synthetic anti-fungi peptide derived from the snail *Cenchritis muricatus* (co-author).
- Mention at the V International Symposium of Biochemistry and Molecular Biology, 2012, for the presentation: [Development of monoclonal antibodies anti-*Fasciola hepatica* rediae: study of different antigenic candidates]. Havana, Cuba (author).

## FUNDING, GRANTS AND PROJECTS

- **Subvention 2015 Ambassade de France à Cuba** (2015-2017; 15 000€). Project: La Fasciolose à Cuba : Bases moléculaires de la compatibilité dans le modèle *Fasciola hepatica* / *Pseudosuccinea columella*. University of Perpignan, France/Institute of Tropical Medicine « Pedro Kourí », Cuba. **(PhD student)**.

- **2015 call of the TRD/OPS for small subventions (2015-2016; \$ 15 000).** Project: Distribution of the African Giant Snail (*Achatina fulica*) and its relation with *Angiostrongylus cantonensis* transmission in Havana, Cuba (**coauthor**).
- **2014 call of the FA3 Strategic Network on Neglected Diseases and Zoonoses for supporting junior researcher, Institute of Tropical Medicine of Antwerp, Belgium (2014-2015; 10 000€).** Project: Validation of a novel monoclonal antibody-based ELISA for the epidemiological surveillance of the vector snails of *Fasciola hepatica* (**Chief of project**).

#### **SCIENTIFIC ARBITRAGE**

- Referee of International Journal of Biotechnology and Molecular Biology Research
- Referee of Veterinary World

#### **LANGUAGES**

- Spanish (mother tongue)
- Fluency in English

#### **PROFESSIONAL MEMBERSHIPS**

- Member of the Cuban Society of Immunology (2012)
- Member of the Cuban Society of Microbiology and Parasitology (2013)