

BIOGRAPHICAL SKETCH

PERSONAL & EMPLOYMENT INFORMATION

Jesus Castro-Marrero, Ph.D.
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Division of Internal Medicine
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EDUCATION/TRAINING AND QUALIFICATIONS

1. B.S. - Biochemistry and Molecular Biology, Biological Sciences School. University of Havana, Cuba. 1987. Rated outstanding with honors.
2. Ph.D. - Biochemistry and Molecular Biology, Valladolid University School of Medicine, Spain, 1999. Rated outstanding "Cumlaude" unanimously.
3. PhD Research Associate – CFS/ME Unit. Vall d'Hebron Hospital Research Institute (VHIR). Universitat Autònoma de Barcelona. Barcelona, Spain, 2001- at present.

PUBLICATIONS

- 1- Menendez C, Davila L, **Castro-Marrero J**. Biochemical study of two patients with inherited lysosomal-metabolic. *Journal of Pediatrics* 64(3):195-199, September-December 1992.
- 2- Menendez C, J. **Castro-Marrero J**. Biochemistry characteristics of mucopolidosis type II. *IGE Journal* 1990, 45:56-59.
- 3- Menéndez C, Dávila L, **Castro-Marrero J**. Biochemical diagnostic of lysosomal enzyme deficiency. *IGE Journal* 1990; 45:65-69.
- 4- Menendez I, Pozo D, Mar J, **Castro-Marrero J**. Fucosidosis: Speaking of lysosomal disease. *Journal of Pediatrics* 1991; 76 (4):121-124.
- 5- **Castro-Marrero J**, Blanco-Quirós A, Telleria JJ, Andion R, Linares P. Analysis of HLA-DQA1* alleles as genetic markers of asthma and atopy. *Allergol Immuno Pediatr* 1997; 12:131-135.
- 6- Blanco-Quirós A, **Castro-Marrero J**, Telleria JJ. Biological and genetic bases of atopy and asthma. *Allergol et Immunopathol* 1998; 26:59-73.
- 7- **Castro-Marrero J**, Telleria JJ, Blanco-Quirós A, Linares P, R. Andión. Lack of association between atopy and RsaI polymorphism within intron 2 of the FcεRI-beta gene in a Spanish population sample. *Allergy* 1998, 53:1083-1086.
- 8- **Castro-Marrero J**, Telleria JJ, Linares P, Blanco-Quirós A. Increased TNFA*2 but not allele TNFA*1 frequency in Spanish atopic patients. *J Invest Allergol Clin Immunol* 2000, 10:149-154.
- 9- Blanco-Quirós A, Telleria JJ, **Castro-Marrero J**. Genes regulating the allergy response. *Clin Immunol Alergol* 2000; 15 (suppl. 2): 40-47.
- 10- **Castro-Marrero J**, Gomez S. Wide search of genes causing asthma and atopy in the human genome. *An Esp Pediatr* 2001; 53 (Supl. 3):11-17.
- 11- **Castro-Marrero J**, Telleria JJ, Blanco-Quirós A. Susceptibility genes for asthma and allergy: Hits and questions. *J Invest Allergol Clin Immunol* 2001; 11:73-78.
- 12- Garrote JA, Arranz E, Telleria JJ, **Castro-Marrero J**, Calvo C, Blanco-Quirós A. TNFA and LTA gene polymorphisms as additional markers of celiac disease susceptibility in a DQ2-positive population. *Immunogenetics* 2002, 54:551-555.
- 13- Blanco-Quirós A, Telleria JJ, **Castro-Marrero J**. Inheritance and asthma. *Med Clin (Barc)* 2003; 4:3-9.
- 14- Telleria JJ, Muntion S, Garrote JA, Arranz E, Armentia A, Diez I, Blanco-Quirós A, **Castro-Marrero J**. Beta2-agonist tachyphylaxis to Spanish therapy in asthmatic patients could be modulated by beta2-adrenoceptor gene polymorphisms. *Respiratory Medicine* 2006;100: 1072-8.

- 15- **Castro-Marrero J**, Balada E, Ordi-Ros J, Vilardell-Tarrés M. The complex immunogenetic bases of systemic lupus erythematosus. *Autoimmune Rev* 2008, 7 (5): 345-51.
- 16- **Castro-Marrero J**, Balada E, Vilardell-Tarres M, Ordi-Ros J. Genetic risk factors of thrombosis in the antiphospholipid syndrome. *Br J Haematol* 2009, 147 (3): 289-96.
- 17- Balada E, **Castro-Marrero J**, Pedrosa, Pujol A, Torres-Salido MT, Vilardell-Tarrés M, Ordi-Ros J. Enhanced Transcript Levels of CD48 in CD4+ T cells from systemic lupus erythematosus patients. *Immunobiology* 2011, 216: 1034-7.
- 18- Balada E, **Castro-Marrero J**, Lledó F, Ordi-Ros J, Vilardell-Tarrés M. Xenotropic murine leukemia virus-related virus (XMRV) in patients with Systemic Lupus Erythematosus. *J Clin Immunol* 2011, 31: 584-7.
- 19- Brown-Gea J, **Castro-Marrero J**, Cortés-Hernandez J, Balada E, Pedrosa A, Vilardell-Tarrés M, Ordi-Ros J. Beta2-glycoprotein I gene polymorphisms and Trp316Ser Val247Leu in Spanish patients with primary antiphospholipid syndrome. *Rheumatol Int* 2011; 32:927-32.
- 20- **Castro-Marrero J**, Balada E, Vilardell-Tarrés M, Ordi-Ros J. The gene PTPN22*R620W polymorphism does not confer genetic susceptibility to Antiphospholipid Syndrome in the Spanish population. *Immunogenetics* 2011; 38:529-531.
- 21- Cortés-Hernandez J, Torres-Salido MT, **Castro-Marrero J**, Vilardell-Tarrés M, and Ordi-Ros J. Thalidomide in the treatment of refractory cutaneous lupus: prognostic factors of clinical outcome. *Br J Dermatol* 2011; 166: 616-23.
- 22- **Castro-Marrero J**, Balada E, Ordi-Ros J, Vilardell-Tarrés M. Antiphospholipid Antibody Syndrome of Genetics. Chapter 5. InTech Open Access Publisher January 2012.
- 23- Balada E, **Castro-Marrero J**, Felip L, Ordi-Ros J, Vilardell-Tarrés M. Associations Between the expression of epigenetically regulated genes and the expression of DNMTs and MBDs in systemic lupus erythematosus. *PLoS One* 2012;7: e45897.
- 24- Fernández-Codina Andreu, Martínez-Valle Fernando, **Castro-Marrero Jesus**, Torres Inés, Vilardell-Tarrés Miquel, Ordi-Ros José. Idiopathic retroperitoneal fibrosis: A clínico-pathological study in 24 Spanish cases. *Clinical Rheumatology* 2013; 32:889-93.
- 25- Marta Curriu, Jorge Carrillo, Marta Massanella, Josepa Rigau, José Alegre, Jordi Puig, Ana M. García-Quintana, **Jesus Castro-Marrero**, Eugenia Negredo, Bonaventura Clotet, Cecilia Cabrera, Julià Blanco. Screening NK-, B- and T-cell phenotype and function in patients suffering from Chronic Fatigue Syndrome. *Journal of Translational Medicine* 2013; 11:68.
- 26- **Castro-Marrero J**, Cordero MD, Sáez-Francàs N, Jimenez-Gutierrez C, Aguilar-Montilla FJ, Aliste L, Alegre-Martin J. Could mitochondrial dysfunction be a differentiating marker between chronic fatigue syndrome and fibromyalgia? *Antioxid Redox Signal*. 2013 Nov 20; 19(15):1855-60.
- 27- Fernández-Codina A, Martínez-Valle F, **Castro-Marrero J**, De Torres I, Vilardell-Tarrés M, Ordi-Ros J. Idiopathic retroperitoneal fibrosis: IgG4 infiltration in a cohort of Spanish patients. *Rheumatol Int*. 2014 Sep;34(9):1263-5.
- 28- Faro M, Sáez-Francàs N, **Castro-Marrero J**, Aliste L, Collado A, Alegre J. Impact of the fibromyalgia in the chronic fatigue syndrome. *Med Clin (Barc)*. 2014 Jun 16; 142(12):519-25. 4.
- 29- Balada E, **Castro-Marrero J**, Felip L, Ordi-Ros J, Vilardell-Tarrés M. Clinical and serological findings associated with the expression of ITGAL, PRF1, and CD70 in systemic lupus erythematosus. *Clin Exp Rheumatol*. 2014 Jan-Feb; 32(1):113-6.
- 30- **Castro-Marrero J**, Cordero MD, Segundo MJ, Sáez-Francàs N, Calvo N, Román-Malo L, Aliste L, Fernández de Sevilla T, Alegre J. Does Oral Coenzyme Q10 Plus NADH Supplementation Improve Fatigue and Biochemical Parameters in Chronic Fatigue Syndrome? *Antioxid Redox Signal*. 2015 Mar 10;22(8):679-85.
- 31- Sáez-Francàs N, Calvo N, Alegre J, **Castro-Marrero J**, Ramírez N, Hernández-Vara J, Casas M. Childhood trauma in Chronic Fatigue Syndrome: focus on personality disorders and psychopathology 2015.
- 32- Calvo N, Saez-Francas N, Valero S, **Castro-Marrero J**, Alegre J, Casas M. Diagnostic concordance between categorical and dimensional instrument to assess personality in chronic fatigue syndrome : PDQ-4+ and TCI-R. *European Journal of Psychological Assessment* 2015.
- 33- **Castro-Marrero J**, Sáez-Francàs N, Segundo MJ, Calvo N, Aliste L, Fernández de Sevilla T, Alegre J. Effect of Coenzyme Q10 plus NADH cosupplementation on maximal heart rate after exercise test in CFS patients: a randomized controlled trial. *Clin Nutr* 2016;35(4):826-34.
- 34- Sáez-Francàs N, Calvo N, Alegre J, **Castro-Marrero J**, Ramírez N, Hernández-Vara J, Casas M. Childhood trauma in Chronic Fatigue Syndrome: focus on personality disorders and psychopathology. *Compr Psychiatry*. 2015 Oct;62:13-9.

- 35- Faro M, Sáez-Francàs N, **Castro-Marrero J**, Aliste L, Fernández de Sevilla T, Alegre J. Gender differences in chronic fatigue syndrome. *Reumatol Clin* 2016;12(2):72-77.
- 36- **Castro-Marrero J**, Sáez-Francàs N, Alegre J. Treatment and management of Chronic Fatigue Syndrome/Myalgic Encephalomyelitis: *all roads lead to Rome*. *Br J Pharmacol* 2017;174:345-369.
- 37- Faro M, **Castro-Marrero J**, Sáez-Francàs N, Calvo N, Aliste L, Fernández de Sevilla T, Alegre J. Comorbid illness in Chronic Fatigue Syndrome/Myalgic Encephalomyelitis: findings from a nationwide population-based cohort. *Psychosom* 2017; 58:533-543.
- 38- Pardos-Gea J, Cortés-Hernández J, **Castro-Marrero J**, Balada E, Ordi-Ros J. Autoantibodies to types I and IV collagen and heart valve disease in systemic lupus erythematosus/antiphospholipid syndrome. *Clin Rheumatol*. 2017; 36:1401-1406.
- 39- Scheibenbogen C, Freitag H, Blanco J, Capelli E, Lacerda E, Authier J, Meeus M, **Castro-Marrero J**, Nora-Krukke Z, Oltra E, Strand EB, Shikova E, Sekulic S, Murovska M. The European ME/CFS Biomarker Landscape project: an initiative of the European network EUROMENE. *J Transl Med*. 2017; 26;15(1):162.

PARTICIPATION IN CONFERENCES AND SCIENTIFIC MEETINGS

1. Castro J, Telleria JJ, Blanco-Quirós A, Linares P, R and Lapeña S. Andión. Association between atopic asthma and an allelic variant of the high affinity receptor for IgE (FcεRI-beta). VIII Annual Congress of the European Society of Pediatric Allergy and Clinical Immunology (ESPACI) and II Iberian Meeting of Paediatric Allergy and Clinical Immunology. Lisbon, May 1997.
2. Castro J, Telleria JJ, Blanco-Quirós A, Linares P, R and Urueña Andion C. Analysis of HLA DQA1* alleles as genetic markers of asthma and atopic diseases. VIII Annual Congress of the European Society of Pediatric Allergy and Clinical Immunology (ESPACI) and II Iberian Meeting of Pediatric Allergy and Clinical Immunology. Lisbon, May 1997.
3. I Genetic Diagnosis International Symposium on Medicine. Madrid, November 1997.
4. Meeting scientific research project studying the genetics of asthma and atopy in collaboration with the Faculty of Medicine, Tucson, Arizona, US. Led by Prof. Fernando D. Martinez, MD; PhD and sponsored by Glaxo-Wellcome Co. Madrid, July 1997-January 1998.
5. Advances in Gene Technology: Molecular Biology in the Conquest of Disease. Miami, FL. February 1998. Association between an RsaI polymorphism within intron 2 of the FcεRI-beta gene and atopy in a Spanish population sample. *Miami Nature Biology* 1998, 9: 69-70.
6. World Congress on Asthma and Allergic Diseases. Barcelona, December 1998.
7. Eighth International Symposium on Coeliac Disease. Castel Sant Elmo, Naples, Italy. April 21-24, 1999. TNF locus polymorphisms in Spanish Coeliac Disease: Differences Between HLA-DQ2 positive and negative patients.
8. Joint Meeting of European Paediatric Respiratory Society Assembly & European Society of Pediatric Allergy and Clinical Immunology. Berlin, Germany. May 26-29, 1999. Molecular analysis at the TNF locus polymorphisms and susceptibility to atopy in Spain.
9. I Conference on Clinical and Genetic Diagnosis of Fragile X patients. Eleven Foundation. Madrid. May 27, 2000.
10. X Occupational Respiratory Pathology Course. Pulmonary Service. Hospital Universitario Vall d'Hebron. Barcelona, 27 to 29 November 2006.
11. Advances in Clinical Immunology. Hospital de la Santa Creu i Sant Pau. Barcelona, June 14-15, 2007
12. XXVIII National Congress of the Spanish Society of Internal Medicine and the Catalan-Balearic XII Congress of Internal Medicine. Sitges, November 21-24, 2007.
13. 7th European Lupus Meeting under EULAR patronage. RAI Amsterdam, May 7-10, 2008.
14. 13th International Congress on Antiphospholipid Antibodies. APLA 2010: Antiphospholipid by the Beach. Galveston, TX, US. April 13-16, 2010.
15. 9th International Congress on Systemic Lupus Erythematosus. Vancouver, Canada. June 24-26, 2010.
16. European Conference on Genomics of Complex Diseases: New Challenges. Granada, Spain. May 12-13, 2011.

CONFERENCES AND SEMINARS

1. Seminar on current issues in the study of the genetics of asthma and allergy. Department of Pediatrics. Faculty of Medicine. Valladolid. June, 1997.
2. Course of Molecular Biology and Genetics. Continuing Medical Education Coordinator medical personnel health, pharmaceuticals and chemicals. Hospital Clínico Universitario de Valladolid. INSALUD. December, 1998.
3. Seminary students of 2nd year medical career. "Immunogenetic basis of asthma and allergy." Faculty of Medicine. University of Valladolid. May, 2000.
4. Seminar in Research and Teaching Unit. Hospital Universitario "Dureta". Genetic and molecular basis of asthma and atopy in the Spanish population. June, 2003.
5. Seminar on Diabetes and Metabolism Unit. Maternal and Child Hospital Vall d'Hebron. Paraoxonasa and cardiovascular risk. Genetic and molecular basis of diabetes and metabolic syndrome. March, 2004.
6. Research Seminar. Pulmonary Service. Molecular and immunological mechanism in occupational asthma induced by low molecular weight agents. May 2006. Pulmonary Service. Hospital Universitario Vall Hebron.

STAYS AND TRAINING IN RESEARCH CENTERS ABROAD

1. Training in Molecular Biology Laboratory and lysosomal diseases. Institute of Clinical Biochemistry. Prof. Teresa Pámpols. Barcelona, Spain June-August 1997.
2. Channing Laboratory. Harvard University School of Medicine. Brigham and Women`s Hospital. Boston, Massachusetts, USA. Prof. Scott Weiss, MD, PhD and Dr. John C. Celedón, MD, PhD, ScM. Molecular Epidemiology in Asthma and Atopy in US. January-Agost, 2000.
3. Department of Neuropharmacology. Laboratory of Molecular and Cellular Biology. Faculty of Biological Sciences. University of the Balearic Islands. Palma de Mallorca, Spain. September 2001-2003.
4. Research and Teaching Unit. University Hospital "Dureta". Palma de Mallorca. University of the Balearic Islands, June 2003-2004.
5. Research Laboratory of Oxidative Stress, Diabetes and Metabolic Syndrome. CIBBIM. Research Center for Biochemistry and Molecular Biology. Hospital Universitari Vall d'Hebron. Spain 2004-2006.
6. Research Laboratory of Respiratory Diseases. Occupational Respiratory Pathology. Pulmonary Medicine Unit. Hospital Universitari Vall d'Hebron. 2006-2007.
7. Research Group Damage, Repair and Tissue Engineering in epithelia. Department of Energy Environmental Impact. Centre for Energy, Environment and Technology (CIEMAT). 2008, Madrid, Spain Coordinator: José Luis Jorcano. Duration: 8 weeks. Research interests: Study of the molecular and cellular mechanisms involved in the generation and progression of tumors due to the action of external aggressor's products, skin tissue engineering, experimental models and gene therapy strategies for skin diseases and other dermatological genetic diseases.

RESEARCH EXPERIENCE

Researcher in the laboratory of Inborn Errors of Metabolism. Department of Biochemistry and Molecular Genetics. National Center of Medical Genetics. School of Medicine, Havana, Cuba since 1987. Following past work on the Clinical Laboratory Service of the Pediatric Hospital "William Soler" directing the Nephrology Unit for 4 years. Currently has completed doctoral studies and dissertation related to genetic and molecular basis of asthma and atopy in the Spanish population. Laboratory of Pediatrics and Clinical Immunology, University of Valladolid School of Medicine, Spain from 1995-1999.

Main topics that has been working until now

Prenatal diagnosis of cystic fibrosis of the pancreas.
 Molecular diagnosis of advanced techniques-inherited metabolic diseases in childhood.
 Enzymatic methods advanced biochemical and molecular diagnosis of lysosomal and peroxisomal diseases in children.
 Pre-and postnatal diagnosis of neuro-metabolic diseases in childhood.
 Isoelectric focusing of human proteases.
 TLC cellulose for the diagnosis of inherited metabolic diseases.
 Study of erythrocyte enzyme glucose-6-phosphate dehydrogenase (G6PD) in dried blood on filter paper for newborn screening studies of hereditary hemoglobinopathies population.

Genetics of asthma and allergic disease in the Spanish population.

Using genetic markers on chromosome regions 5q31-33, 6p21 and 11q13 by linkage studies with different phenotypes of asthma and atopy.

Study of HLA-class II as genetic markers of asthma and atopy in the Spanish population.

Association of atopy with RsaI restriction polymorphisms in FcεRI-beta gene on chromosome 11q13.

Mutations in the beta-2-adrenergic receptor gene and its association with nocturnal asthma and drug therapy with bronchodilators.

Mutations in the promoter region of the gene cluster of IL-4 and IL-13 and its receptors and its association with airway hyper-responsiveness and asthma.

Genetic and molecular basis of asthma and allergic diseases.

Is there a relationship between asthma, allergy, cystic fibrosis and other lung diseases in children?

Analysis of polymorphisms in the TNFA and LT-β genes and its association with coeliac disease in children and adult populations.

Basic mechanisms of apoptosis.

TEACHING EXPERIENCE

1. Professor in the Postgraduate Course on Clinical Genetics Issues. Havana, Cuba. November 1993
2. Professor in the Postgraduate Course on detection methods-inherited metabolic diseases by clinical laboratory techniques. University of Havana, Cuba. December 1993
3. Professor at the International Course on separation methods parasite antigens. Institute of Parasitology and Immunology. University of Havana, Cuba. January 1994
4. Professor in Tropical Medicine Course. Valladolid School of Medicine. Spain. April 2002
5. Research Seminar on the application of molecular biology to the diagnosis of asthma and allergy. Dept. Pediatrics and Clinical Immunology. Faculty of Medicine. University of Valladolid. Spain. July 2002
6. Research and Teaching Seminar. Service of Pneumology and Thoracic Surgery. Research and Teaching Unit. Hospital Universitario "Dureta". Palma de Mallorca. Balears, May, 2003
7. Research and Teaching Seminar. Internal Medicine. Systemic Autoimmune Diseases Laboratory. Genetics and systemic lupus erythematosus. June, 2008
8. Research and Teaching Seminar. Hospital Universitari Vall d'Hebron. Pathology Department. Lupus and skin fibrosis. January, 2009
9. Research Seminar. Department of Dermatology. Hospital Universitari Vall d'Hebron. Involvement of TGF-beta 1 and IFN-γ in cutaneous lupus and its aftermath. February, 2009.

FELLOWSHIP, AWARDS AND HONORS

Annual Award for best scientific research paper in Molecular and Cellular Medicine entitled "Biochemical and molecular diagnosis of inherited metabolic diseases in the Cuban population". Department of Health & Human Services. Havana, Cuba 1988

5 RELEVANT PREVIOUS PROJECTS OR ACTIVITIES

- 1- Grupo de Recerca Acreditado como Grupo Emergente por la Generalitat de Catalunya SGR 2014-2016. 2014 SGR 340.
- 2- Coordinador del Grupo de Investigación sobre fatiga crónica, constituido en la Universidad Autónoma de Barcelona, nº de registro: 145634410.
- 3- Coordinador del Grupo de Investigación sobre Fatiga Crónica, grupo emergente, 145. Edificio Collserola. Instituto de Investigación Vall d'Hebrón de Barcelona.
- 4- Miembro del FSGCDB Group (Fibromyalgia and SFC Spanish Genetic and Clinical Data Bank, Foundation FF), con el Dr. X. Estivill del Genomics and Disease Group, Centre for Genomic Regulation (CRG) y la Dra. Marta Ribases (Grupo de Genética en Psiquiatría del Instituto de Recerca del Hospital Vall d'Hebrón de Barcelona).
- 5- Miembro colaborador del Proyecto "Estudio piloto de biomarcadores de variabilidad de la frecuencia cardíaca y su correlación con índices de fatiga, disfunción vegetativa y sueño en pacientes con síndrome de fatiga crónica", en conjunción con el Parc de Recerca de la UAB/UPC y la Fundación del Fútbol Club Barcelona, con los doctores Luis Capdevila, Rosa M. Escorihuela, Juan Ramos y Gil Rodas.

- 6- Leader by Spain. Establishing a European platform for understanding and tackling Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS) – the EUROMENE Consortium. Coordinator. Rigas Stradina Universitate. H2020 – PHC – 2016-2019.
- 7- Partner de Grupo. Fibromyalgia – New Therapeutic Approaches – FINTA. Coordinator. Dr. Ognjen Culic. University of Zagreb, Faculty of Pharmacy and Biochemistry. H2020 – PHC – 2014.