

Curriculum Vitae

Rosa Codina, Ph.D.

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Areas of Specialization

- Clinical and experimental laboratory (including assay development, quality assurance, and laboratory management)
- Allergen field (including allergen identification/characterization and aerobiology)
- Technical and scientific writing
- Biostatistics

Academic Education

- **Ph.D.**, Doctoral thesis entitled “Study of the Soybean Allergens Responsible for the Barcelona Asthma Outbreaks”. Department of Physiology, College of Biology, University of Barcelona, Barcelona, Spain, June 1996 (allergen identification/characterization and allergy diagnosis).
- **M.S.** University of Barcelona, Barcelona, Spain, July 1985 (Zoology)
- **B.S.** University of Barcelona, Barcelona, Spain, June 1985 (Biology)

The M.S. and B.S programs were concurrent

Advanced Theoretical and Clinical Training

- **Specialist Biologist in Clinical Biochemistry**, Title #2005134366. University of Barcelona and Vall d’Hebron Hospital, Barcelona, Spain, June 2004

Non-Academic Education and Training

- Course Graduate, Pharmacy Technician. U.S. Career Institute. Fort Collins, Colorado, USA, 2019
- Human subjects research. National Institutes of Health and University of South Florida, Tampa, Florida, USA, 2001/2004/2006
- Advanced indoor air quality. Plate culture spore identification. McCrone Research Institute, Chicago, Illinois, USA, 2003
- Advanced indoor air quality. Advanced fungal spore identification. McCrone Research Institute, Chicago, Illinois, USA, 2003

- Indoor air quality. Fungal spore identification. McCrone Research Institute, Chicago, Illinois, USA, 2002
- Indoor allergen assays. Indoor Biotechnologies, Charlottesville, Virginia, USA, 2001
- Pollen and fungal spore identification course. American Academy of Allergy Asthma and Immunology Aeroallergen Monitoring Network, San Francisco, California, USA, 1999
- Received mentorship and private training on pollen and spore identification from Mary L. Jelks, M.D., allergist expert in aerobiology. Sarasota, Florida, USA, 1995 - 1996
- Advances in pulmonary diseases. University of Barcelona, Barcelona, Spain, 1989/1990/1993
- Allergen identification. Mayo Clinic Allergen Research Laboratory, Rochester, Minnesota, USA, 1987
- Laboratory quality assurance. University of Barcelona, Barcelona, Spain, 1985

Other Professional Qualifications

- Certified spore analyst. Pan American Aerobiology Association. Certification #03040006
- Certified pollen and spore analyst. American Academy of Asthma Allergy and Immunology National Allergy Bureau
- Pharmacy technician. Registered with the National Association of Boards of Pharmacy (NABP) and the North Carolina Board of Pharmacy (NCBP)

Employment History

- **Allergen Science & Consulting, Lenoir, North Carolina, USA:** November 2013 - present
 - ✓ *Director and principal scientist*
- **Greer Laboratories, Inc., Lenoir, North Carolina, USA:** August 2007 - October 2013
 - ✓ *Senior research scientist*
- **SDII-Global Corporation, Tampa, Florida, USA:** January 2003 - July 2007
 - ✓ *Principal scientist*
- **Division of Allergy and Clinical Immunology, Department of Internal Medicine, University of South Florida College of Medicine, Tampa, Florida, USA:** September 1994 - present
 - ✓ *Affiliate clinical associate professor of internal medicine:* January 2003 – present
 - ✓ *Faculty, assistant professor of internal medicine:* September 2000 – December 2002
 - ✓ *Faculty, instructor of internal medicine:* March 1999 – August 2000
 - ✓ *Faculty, assistant of internal medicine:* July 1996 – February 1999
 - ✓ *Research assistant of internal medicine:* September 1994 – June 1996

- **Vall d'Hebron General Hospital, University of Barcelona, Barcelona, Spain.**
Department of Clinical Biochemistry and Immunology: January 1986 - August 1994
 - ✓ **Allergy Laboratory-** *Adjunct faculty, clinical allergy laboratory supervisor:* April 1990 – August 1994
 - ✓ **Immunology Unit-** *Fellow in clinical allergy and immunology laboratory:* August 1988- March 1990
 - ✓ **General Laboratory-***Fellow in clinical biochemistry laboratory:* January 1986- July 1988

Professional Associations

- 2020-present. Member, American Association of Pharmacy Technicians (AAPT)
- 2019- present. Member, Reial Academia de Ciències i Arts de Barcelona (RACAB). Royal Academy of Sciences and Arts of Barcelona*.
- 2017- present. Member, Food Allergy Research and Education (FARE)
- 2003 - present. Member, Pan-American Aerobiology Association (PAAA)
- 1997 - present. Fellow, American Academy of Allergy Asthma and Immunology (AAAAI)
- 1989 - present. Member, European Academy of Allergology and Clinical Immunology (EAACI)
- 2011 - 2013. Member, Drug Information Association, Inc. (DIA)
- 2004 - 2007. Member, American Industrial Hygienist Association (AIHA)
- 2002 - 2007. Member, Indoor Air Quality Association (IAQA)
- 1985 - 2007. Member, Col·legi Oficial de Biòlegs (Catalan College of Biologists, COB)
- 1985 - 2002. Member, Sociedad Española de Química Clínica (Spanish Society of Clinical Chemistry, SEQC)
- 1985 - 2002. Member, Sociedad Española de Inmunología, (Spanish Society of Immunology, SEI)

* *Honorary member*

Committees

- 2012 - present. American Academy of Allergy Asthma and Immunology (AAAAI) Aerobiology Committee
- 2012 - present. American Academy of Allergy Asthma and Immunology (AAAAI) Immunotherapy, Allergen Standardization, and Allergy Diagnostics Committee
- 2003 - present. American Academy of Allergy Asthma and Immunology (AAAAI) Environmental Exposures and Respiratory Health Committee
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Journal Reviewer

- Journal of Allergy and Clinical Immunology
- Annals of Allergy, Asthma, and Clinical Immunology
- Allergy
- Clinical and Experimental Allergy

Clinical Laboratory Activities

A description of the tasks and duties performed at the Biochemistry Service, Vall d'Hebron General Hospital, University of Barcelona, Barcelona, Spain (1986-1994) include the following:

- Clinical biochemistry laboratory - rotation in a clinical laboratory, including the following units: Urine, proteins, automatic analyzers, enzymes, lipids, hormones, drugs, humoral immunology, quality assurance, and emergency laboratory. Tasks included assisting in the completion of different assays, clinical interpretation of laboratory results, and laboratory management.
- Clinical immunology laboratory - increased knowledge on humoral immunology techniques, clinical interpretation of immunology laboratory results, and assisted in supervising the laboratory budget and statistics as well as the tasks performed by laboratory technicians.
- Clinical allergy laboratory - supervised *in vitro* allergy testing results, laboratory budget and statistics, automated assays, and developed and validated new assays to expand testing services.

Research Activities

A summary of the research activities performed, institutions, locations, and specific dates include the following:

- Allergy Research Laboratory, Mayo Clinic, Rochester, Minnesota, USA. November-December 1987:
 - ✓ Allergen identification and partial characterization of the soybean allergens responsible for the Barcelona asthma outbreaks
- Division of Allergy and Clinical Immunology, Department of Internal Medicine, University of South Florida College of Medicine, Tampa, Florida, USA. November 1989-December 2002:
 - ✓ Soybean allergens responsible for respiratory allergies: Continuation of partial characterization studies of soybean allergens, development of assays to measure specific soybean allergens, purification and sequencing of various soybean allergens, development of testing to measure biomarkers in human sera samples to monitor the progression of the allergic condition, epidemiologic studies of soybean respiratory allergies in rural populations, and basic research of soybean allergen formation during plant growth

- ✓ Dust and storage mites: Epidemiologic investigations of sensitization to mites in different areas of the world and in different housing environments, development of mite allergen avoidance measures (including those associated with building construction practices and products for the consumer), and basic research about mite cultures and mite allergen production
- ✓ Immunoassay standardization: Standardization of several immunoassays to measure indoor and outdoor allergenes, with applications in the area of allergen avoidance and testing of allergenic preparations for *in vivo* and *in vitro* use
- ✓ Aerobiology surveys: Pollen and fungal spore aerobiologic surveys in different locations, and development of immunoassays to measure outdoor allergens
- SDII-Global Corporation, Tampa, Florida, USA. January 2003-July 2007:
 - ✓ Fungi: Development of protocols to measure fungal spores in air and surfaces indoors and outdoors using portable air samplers for viable and non-viable testing, and development of analytical protocols and interpretation guidelines
- Greer Laboratories, Inc., Lenoir, North Carolina, USA. August 2007- October 2013:
 - ✓ Allergenic raw materials: Application of research in the area of raw materials used to produce allergen extracts for diagnosis and treatment. Improvement of the quality, consistency, and stability of allergenic raw materials to comply with regulatory demands
- Allergen Science & Consulting, Lenoir, North Carolina, USA. September 2013-present:
 - ✓ Environmental allergens: Pollen and fungal spores, and collection of specimens to prepare training materials.

Academic Teaching Activities

- Biochemistry professor at the Vall d'Hebron General Hospital, University of Barcelona, Barcelona, Spain, 1990-1994, part-time
- Lecturer at the Division of Allergy and Clinical Immunology, Department of Internal Medicine, University of South Florida College of Medicine, Tampa, Florida, USA, 1996 – present

Aerobiology Surveys and Associated Activities

- 1995 - 2002: Performed daily aerobiology surveys in the Tampa Bay area, Florida, USA. Disseminated daily pollen and spore counts to the American Academy of Allergy Asthma and Immunology National Allergy Bureau, local medical community, local media, and pharmaceutical companies performing clinical trials.
- 1995 - 2002: Presented results of aerobiology surveys in scientific meetings and the medical community at local hospitals, including the Tampa General Hospital, the All Children's Hospital, and the James A. Haley VA Hospital in Tampa, Florida, USA.

- 1999 - 2002: Set up a pollen and spore counting station in Jacksonville, Florida, USA in 1999, and conducted aerobiology surveys in this area. Disseminated pollen and spore counts to the local medical community and local media in a regular basis.
- 1998 - 2001: Conducted aerobiology surveys in Ocala, Florida, USA. Disseminated pollen and spore counts to the local medical community and local media in a regular basis.
- 2002: Assisted the University of Montana College of Public Health in Missoula, Montana, USA setting up a pollen and spore counting station.
- 2003 - 2007: Performed indoor and outdoor spore counts and identification of air and surface samples collected during the course of building assessments for fungi in various areas of the USA.
- 2008 - 2013: Performed activities associated with pollen identification and testing for contaminants to manufacture pollen allergen extracts at Greer Laboratories, Inc., Lenoir, North Carolina, USA.
- 2014 - present: Perform aerobiology surveys in Lenoir, North Carolina, USA.

Consulting Activities

- SDII Global Corporation, Tampa, Florida, USA. January 2003 - July 2007. Provided consulting and developed protocols for indoor evaluations of environmental allergens.
- Allergen Science & Consulting, Lenoir, North Carolina, USA. November 2013-present. Provides consulting and technical services associated with the area of allergens.

Grants

- Grant from the Spanish Ministry of Public Health (FISs # 89/2108), entitled “Ampliación de estudios para la identificación y caracterización de antígenos inhalantes, en especial de los implicados en la etiología de las enfermedades pulmonares ocupacionales con base inmunológica” (Continuation of allergen identification and characterization studies, with a particular focus on those involved in occupational immunological lung diseases), at the Division of Allergy and Clinical Immunology, Department of Internal Medicine, University of South Florida College of Medicine, Tampa, Florida, USA. November-December 1989.
- Grant from the Spanish Ministry of Public Health (FISs # 90/5200), entitled “Purificación y caracterización de alérgenos” (Allergen purification and characterization), at the Division of Allergy and Clinical Immunology, Department of Internal Medicine, University of South Florida College of Medicine, Tampa, Florida, USA. November 1989-February 1990.
- Grant from the Spanish Ministry of Public Health (FISs # 89/0924-3), entitled "Estudio inmunológico sistematizado de los pacientes afectados de asma epidémico de Barcelona" (Immunologic study of patients affected by the Barcelona asthma outbreaks). This was Subproject # 3 of Project entitled "Epidemias de asma de Barcelona: descripción clínica de los asmáticos epidémicos, evolución de la enfermedad y factores de riesgo (Barcelona asthma outbreaks: Clinical description of the asthmatic epidemic patients, evolution of the

disease, and risk factors). 1989-1991.

- Grant from the Spanish Ministry of Public Health (FISss # 90/0941), entitled "Estudio inmunológico sistematizado de la población industrial del corcho con riesgo de asma, Enfermedad Pulmonar Obstructiva crónica y suberosis. Caracterización de antígenos. (Immunological study of cork industry workers with risk of developing asthma, Chronic Obstructive Pulmonary Disease, and suberosis. Antigen characterization). 1990-1993.
- Maria Rava Foundation, 1991, entitled "Evolució i caracterització antigenica en el pulmó de cuidador d'aus" (Evolution and antigen characterization in pigeon breeders' disease). 1991-1992.
- Grant from the Spanish Ministry of Public Health (FISss # 91/0506), entitled "Estudio higiénico epidemiológico de los trabajadores de la industria del nácar, afectos de Alveolitis Alérgica Extrínseca" (Hygienic and epidemiologic study of nacre industry workers with Hypersensitivity Pneumonitis). 1991-1992.
- Grant from the American Lung Association of Florida, entitled "Elimination of dust mite allergens in homes through whole house dehumidification systems". 1996-1997.
- Grant from the Ecology Works, San Rafael, California, entitled "The efficacy of Disodium Octaborate Tetrahydrate and vacuum cleaning in lowering house dust mite populations and house dust mite allergen levels in homes", 2000-2001.
- Morris E. Friedman Research Grant, from the Asthma and Allergy Foundation of America, entitled "Study of the indoor allergens present in central Florida", 2002.

Special Student Awards and Postgraduate Students in Training

- Wen Zaoming, M.D. (research scholar) from the Peking Union Medical College, Beijing China. September 1994 - November 1994. Characterization of the mulberry silk allergens
- Carina Uasuf (medical student) from the University of Rosario, Rosario, Argentina. January - March 1995. Mite identification
- Ledit Arduso, M.D. (research scholar) from the University of Rosario, Rosario, Argentina. February - March 1995. Mite identification
- Adriana Rodriguez, M.S. (research scholar) from the Hospital Lorencita Villegas de Santos, Bogotá, Colombia. May - July 1995. Characterization of the *Fraxinus chinensis* (Urapan) allergens
- Albert G. Oehling, Jr., M.D. (research scholar) from the Clínica Universitaria de Navarra, Pamplona, Spain. January - December 1996. Study of soybean hull neoallergens
- Maria-José Pascual, M.D. (research scholar) from the Clínica Universitaria de Navarra, Pamplona, Spain. January - December 1996. Study of soybean hull neoallergens
- Ledit Arduso, M.D. (research scholar) from the University of Rosario, Rosario, Argentina. February 1997. Prevalence study of soybean dust-induced asthma in Argentina

- Cristina Jaen, B.S. (research scholar) from the University of Barcelona, Barcelona, Spain. September 1998 - August 1999. Study of soybean allergens, and allergen cross-contamination of foods
- Runa Diwadkar, B.S. (graduate student) from the University of South Florida, Tampa, Florida, USA. August 2000 – August 2001. Study of acaricides to kill dust mites
- Larry Mobley (undergraduate student) from the University of South Florida, Tampa, Florida, USA. August 2000 – November 2002. Study of acaricides to kill dust mites
- Sean Godfrey (undergraduate student) from the University of South Florida, Tampa, Florida, USA. March 2001 – March 2002. Study of dust mite allergen levels in central Florida
- Savio Dsouza (undergraduate student) from the University of South Florida, Tampa, Florida, USA. November 2001 – June 2002. Study of hidden allergens in foods.
- Matthew Roby (graduate student) from Lenoir Rhyne University, Lenoir, North Carolina, USA. June – July 2008. Endotoxin research and immunoassay standardization
- Heather Clark (undergraduate student) from Lenoir Rhyne University, Lenoir, North Carolina, USA. May-August 2011. Accelerated stability protocols of raw materials used for the production of allergen extracts
- Heather Clark (undergraduate student) from Lenoir Rhyne University, Lenoir, North Carolina, USA. May-August 2012. Investigation of peanut major allergens concentrations after accelerated thermal stress
- Taylor Bentley (undergraduate student) from Lenoir Rhyne University, Lenoir, North Carolina, USA. July-August 2012. Optimization of a capture ELISA-Inhibition assay to measure short ragweed (*Ambrosia artemisiifolia*) relative potency
- Heather Clark (undergraduate student) from Lenoir Rhyne University, Lenoir, North Carolina, USA. May-August 2013. Partial characterization of the allergens involved in occupational sensitization to cricket and *Tenebrio molitor* larvae; and study of the efficiency of petroleum ether and acetone in defatting pollen

Publications (including experimental papers, reviews, editorials, and book chapters)

- 1 Ricos C., **Codina R.** La variabilidad biológica intraindividual como objetivo de calidad analítica (Intra-individual biological variation as a goal in analytical quality). Rev Diag Biol 1989;38:34-36
- 2 Orriols R., Manresa J.M., Aliaga J.L., **Codina R.**, Rodrigo M.J., Morell F. Mollusk shell hypersensitivity pneumonitis. Ann Intern Med 1990;113:80-81
- 3 Rodrigo M.J., Fonollosa V., **Codina R.**, Vilardell M., Schwartz S. Estudio y significado de los inmunocomplejos circulantes y su correlación con otros parámetros inmunológicos en enfermedades del tejido conjuntivo (Study and significance of circulating immunocomplexes and their correlation with other immunological parameters in connective tissue diseases). Med Clin 1990;95:241-246

- 4 Rodrigo M.J., **Codina R.**, de Gracia J., Morell F., Pascual C. Valores normales de las subclases de la Inmunoglobulina G en una población de adultos. Su importancia en el estudio de los déficits de las mismas (IgG subclasses reference values in an adult population. Their importance in the study of IgG subclasses deficiencies). *Med Clin* 1992;98:10-14
- 5 Sunyer J, Anto J.M, Sabria J., Rodrigo M.J., Roca J., Morell F., Rodriguez-Roisin R., **Codina R.** Risk factors of soybean epidemic asthma: The role of smoking and atopy. *Am Rev Respir Dis* 1992; 145:1098-102
- 6 Anto J.M., Sunyer J., Reed C.E., Sabria J., Martinez F., **Codina R.**, Morell F., Rodriguez-Roisin R., Edin F.R.C.P., Rodrigo M.J., Roca J., Saez M. Preventing asthma epidemics due to soybeans by dust-control measures. *N Engl J Med* 1993;329:1807-8
- 7 Sabria J., Anto J.M., Sunyer J., Roca J., Morell F., Rodriguez-Roisin R., Rodrigo M.J., **Codina R.** Clinical and functional characteristics of patients two years after being affected by the soybean asthma epidemic in Barcelona. *Thorax* 1994;49:906-9
- 8 De Gracia J., Miravittles M., Vendrell M., Rodrigo M.J., **Codina R.**, Morell F. Estudio de las subclases de la IgG en pacientes con déficit de IgA sintomáticos (Study of IgG subclasses in patients with symptomatic IgA deficiency). *Med Clin* 1995;104:728:31
- 9 Morell F., **Codina R.**, Rodrigo M.J., Sunyer J., Anto J.M., Reed C.E. Diagnosis of soybean-induced asthma. *J Allergy Clin Immunol* 1995;96:320-4
- 10 De Gracia J., Rodrigo M.J., Morell F., Vendrell M., Miravittles M., Cruz M.J., **Codina R.**, Bofill J.M. IgG subclass deficiencies associated with bronchiectasis. *Am J Respir Crit Care Med* 1996,153:650-5
- 11 **Codina R.**, Trudeau W.L., Fernandez Caldas E, Rodrigo M.J., Morell F., Lockey R.F. Mite allergens did not cause asthma epidemics in Barcelona, Spain. *J Allergy Clin Immunol* 1996;98:236-8
- 12 Zaoming W., **Codina R.**, Fernandez-Caldas E., Lockey R.F. Partial characterization of the silk allergens. *J Invest Allergol Clin Immunol* 1996;6:237-41
- 13 Chandra S, Lockey R.F., Alidina L.W., Beal D., **Codina R.**, Gehring K. Adverse health effects and elimination of dust mites in humid climate housing. *Proceedings of the 7th International Conference on Indoor Air Quality and Climate, July 1996. Nagoya, Japan, 3:433-8*
- 14 **Codina R.**, Calderon E., Fernandez-Caldas E., Lockey R.F. Specific immunoglobulins to soybean hull allergens in soybean asthma. *Chest* 1997;111:75-80
- 15 **Codina R.**, Lockey R.F., Fernandez-Caldas E, Rama R. Purification and characterization of a

- soybean hull allergen responsible for the Barcelona asthma outbreaks. II. Purification and sequencing of the *Gly m 2* allergen. *Clin Exp Allergy* 1997;27:424-30
- 16 Chandra S., Beal D., Lockey R.F., **Codina R.**, Orr G.W., Astry D.W., Alidina L.W. Performance of Health Houses in warm humid climates. Proceedings of the Health Building/IAQ 1997 Conference
 - 17 Chandra S., Beal D., Downing A., **Codina R.**, Lockey R.F. Mite, mite allergens and interior environmental conditions. Proceedings workshop on mites, asthma and domestic design. Wellington School of Medicine, New Zealand, November, 1997;1-26
 - 18 **Codina R.**, Lockey R.F. Possible role of molds as secondary etiologic agents of the asthma epidemics in Barcelona, Spain. *J Allergy Clin Immunol* 1998;102:318-20
 - 19 **Codina R.** Oehling A.G., Lockey R.F. Neoallergens in heated soybean hull. *Int Arch Allergy Immunol* 1998;117:120-5
 - 20 **Codina R.**, Lockey R.F., Fernandez-Caldas E., Rama R. Identification of the soybean hull allergens responsible for the Barcelona asthma outbreaks. *Int Arch Allergy and Immunol* 1999;119:69-71
 - 21 Morell F., **Codina R.**, Rodrigo M.J. Increased positivity of skin test and allergenic stability of glycerinated soybean allergen extracts. *Clin Exp Allergy*, 1999;29:388-393
 - 22 **Codina R.**, Lockey R.F. How to earn a Ph.D. in the US. *EAACI Newsletter* 1999; issues 2-3:17
 - 23 Lockey R.F., **Codina R.** The consumer and indoor allergen control. Editorial. *J Allergy Clin Immunol* 1999;104:914-6
 - 24 **Codina R.**, Lockey R.F. Environmental asthma: 9 questions physicians often ask. *Consultant* 2000;40:66-74
 - 25 **Codina R.**, Lockey R.F. Combating allergens at home: What you need to know about preventing asthma. Health guide. *Consultant* 2000;40:279-80
 - 26 **Codina R.**, Arduzzo L., Lockey R.F., Crisci C., Bertoya N. Sensitization to soybean hull allergens in subjects exposed to different levels of soybean dust inhalation in Argentina. *J Allergy Clin Immunol* 2000;105:570-6
 - 27 Arduzzo L., Crisci C., **Codina R.**, Lockey R.F., Galimany J., Marcipar A., Massara A., Strass M., Arduzzo D., Bertoya N., Medina I., Trojavchich M., Vinuesa M., Monje S. Asociación entre exposición a polvo de soja, sensibilidad alérgica y perfil de síntomas respiratorios (Association among soybean dust exposure, allergic sensitization, and respiratory symptoms). *Medicina* 2001;61:1-7

- 28 **Codina R.**, Reichmuth D., Lockey R.F., Jaen C. Ferret allergy. *J Allergy Clin Immunol*, 2001;107:927
- 29 Fernández-Caldas E., **Codina R.**, Ledford D.K., Trudeau W.L., Lockey R.F. House dust mite, cat, and cockroach allergen concentrations in daycare centers in Tampa, Florida, USA. *Ann Allergy and Immunol* 2001;87:196-200
- 30 **Codina R.**, Lockey R.F. Allergen Immunotherapy in Atlas of Allergic Diseases. First ed., 2002, chapter 18, pp 161-7. Lieberman P.L., Blaiss M.S. eds. Current Medicine Inc., Philadelphia
- 31 **Codina R.**, Jaén C., Lockey R.F. Cockroach debris in purchased flour. *Allergy* 2002;57:260-1
- 32 **Codina R.**, Arduzzo L., Lockey R.F., Crisci C., Jaen C., Bertoya N. Identification of the allergens involved in sensitization to soybean dust in a rural population in Argentina and N-terminal sequence of a major 50 KD allergen. *Clin Exp Allergy* 2002; 32: 1059-63
- 33 **Codina R.**, Lockey R.F., Diwadkar R., Mobly L., Godfrey S. Disodium octaborate tetrahydrate (DOT) application and vacuum cleaning, a combined strategy to control house dust mites. *Allergy* 2003;58:318-24
- 34 **Codina R.**, Arduzzo L., Lockey R.F., Crisci C., Medina I. Allergenicity of varieties of soybean. *Allergy* 2003; 58:1293-8
- 35 **Codina R.**, Lockey R.F. Environmental asthma: 9 questions physicians often ask. *Consultant* 2005;45:685-92
- 36 **Codina R.**, Ramey J.T., Lockey R.F. Allergen Immunotherapy in Atlas of Allergic Diseases. Second ed., 2005, chapter 17, pp 163-9. Lieberman P.L., Blaiss M.S. eds. Current Medicine Inc., Philadelphia
- 37 **Codina R.** Testing for - and analysis of - indoor allergens. *Indoor Environment Connections* 2006;7:32-6
- 38 **Codina R.**, Lockey R.F. Indoor allergen assessments – a call for universal standards. *J Allergy Clin Immunol* 2007;119:518
- 39 Horner W.E. Barnes C., **Codina R.**, Levetin E. Guide for interpreting reports from inspections / investigations of indoor mold. *Rostrum. J Allergy Clin Immunol* 2008;121:592-7
- 40 **Codina R.**, DeMarco P., Fox R.W., Lockey R.F. Determination of indoor levels of fungal spores by non-culturable sampling method in central Florida homes without obvious moisture problems. *J Investig Allergol Clin Immunol* 2008;18:156-62
- 41 **Codina R.** Diversity of allergens contained in dog saliva. *Allergy* 2013;68:1484-6

- 42 **Codina R.**, Crenshaw R.C., Lockey R.F. Considerations about the pollen used for the production of allergen extracts. *J Allergy Clin Immunol Pract* 2015;3:676-82.
- 43 **Codina R.**, Lockey R.F. Pollen used to produce allergen extracts. *Ann Allergy Asthma Immunol* 2017;118:148-53.
- 44 Esch RE, **Codina R.** Fungal raw materials used to produce allergen extracts. *Ann Allergy Asthma Immunol* 2017;118:399-405.
- 45 Tschudy MM, Sharfstein J, Matsui E, Barnes CS, Chacker S, **Codina R.**, Cohn JR, Sandel M, Wedner HJ. Something new in the air: Paying for community-based environmental approaches to asthma prevention and control. *J Allergy Clin Immunol* 2017;140:1244-9.
- 46 Green BJ, Levetin E, W. Horner E, **Codina R.**, Barnes CS, Filley WV. Landscape plant selection criteria for the allergic patient. *Journal Allergy Clin Immuno Pract* 2018; 6:1869-76.
- 47 **Codina R.**, Pineda F, Palacios R. Tree pollen allergens. In: *Allergens and Allergen Immunotherapy*, 6th ed. Lockey RF, Ledford DK (eds). 2019. CRC Press/Taylor & Francis Group. In press.
- 48 **Codina R.**, Pineda F, Palacios R. Tree pollen allergens. In: *Allergens and Allergen Immunotherapy*, 6th ed. Lockey RF, Ledford DK (eds). 2020. CRC Press/Taylor & Francis Group, Boca Raton, London, New York.
- 49 Esch RE, **Codina R.**, Pineda F, Palacios R. Manufacturing pollen and fungal extracts. In: *Allergens and Allergen Immunotherapy*, 6th ed. Lockey RF, Ledford DK (eds). 2020. CRC Press/Taylor & Francis Group, Boca Raton, London, New York.

Presentations in professional meetings (posters, oral, and other presentation types)

- 1 Ricos C., **Codina R.**, Oliva G., Lopez J., Muñoz A. La variación biológica como objetivo de calidad en imprecisión analítica (Intra-individual biological variation as a quality goal in analytical imprecision). 6th Meeting of the Spanish Society of Clinical Chemistry. Pamplona, Spain, September 1987
- 2 Rodrigo M.J., Morell F., **Codina R.**, Helm R.M., Swanson M.C., Reed C.E., Schwartz S. Identification and partial characterization of the allergens involved in the asthma epidemic. 9th Meeting of the European Society of Immunology. Rome, Italy, September 1988
- 3 Morell F., Rodrigo M.J., **Codina R.**, Helm R.M., Swanson M.C., Reed C.E. Soybean antigens and asthma epidemic of Barcelona. 7th Meeting of the European Society of Pulmonology. Budapest, Hungary, June 1988
- 4 Quer J., Figuera T., Garcia X., Caragol I., **Codina R.**, Curell T., Español T. Alteraciones de la respuesta humoral en la infección por el HIV por transmisión vertical (Alterations of the immunoresponse in subjects with HIV virus infection by vertical transmission). 14th Meeting of

the Spanish Society of Clinical Chemistry. Murcia, Spain, March 1989

- 5 **Codina R.**, Rodrigo M.J., Orriols R., Aliaga J.L., Manresa J.M., Morell F. Identification of mollusk shell as aetiological agent in two cases of Extrinsic Allergic Alveolitis. 8th Meeting of the European Society of Pulmonology. Freiburg, Germany, March 1989
- 6 Orriols R., Manresa J.M., Aliaga J.L., Royo L., **Codina R.**, Rodrigo M.J., Morell F. Alveolitis alérgica extrínseca causada per nacar (Extrinsic allergic alveolitis caused by nacre). 7th Meeting of the Catalan Society of Pulmonology. Bagur, Spain, June 1989
- 7 Orriols R., Aliaga J.L., **Codina R.**, Manresa J.M., Rodrigo M.J., Morell F. Extrinsic allergic alveolitis caused by oyster-shell antigens. 8th Meeting of the European Society of Pulmonology. Freiburg, Germany, March 1989
- 8 **Codina R.**, Rodrigo M.J., Orriols R., Aliaga J.L., Manresa J.M., Morell F. Extrinsic allergic alveolitis caused by inhalation of mollusk shell dust. 14th Annual Meeting of the European Academy of Allergology and Clinical Immunology. Berlin, Germany, June 1989
- 9 **Codina R.**, Fernandez.Caldas E., Trudeau W.L., Rodrigo M.J., Morell F., Lockey R.F. Study of the possible aetiological role of mites in asthma caused by soybean dust inhalation. 15th Annual Meeting of the European Academy of Allergology and Clinical Immunology. Glasgow, United Kingdom, July 1990
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- 111 **Codina R.**, Roby M. D., Esch R.E. Endotoxin testing of allergen extracts. 65th Annual Meeting of the American Academy of Allergy Asthma and Immunology. Washington, District of Columbia, USA, March 2009
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- 116 **Codina R.** Moderation of workshop #2806, entitled Home Inspections for Indoor Mold. 68th Annual Meeting of the American Academy of Allergy Asthma and Immunology. Orlando, Florida, USA, March 2012
- 117 **Codina R.**, Clark H.N., Kulinski S.S., Hooper L.C., Mahoney W.G., Keyes R.K., Esch R.E., and Coyne T.C. Thermostability of fungi, mite, and dander raw materials under temperature stress conditions. 31th Annual Meeting of the European Academy of Allergy Asthma and Immunology. Geneva, Switzerland, June 2012
- 118 **Codina R.** Parámetros determinantes en la calidad de los extractos alérgicos (Parameters responsible for the quality of allergen extracts). 35th Annual Meeting of the Argentinean Association of Allergy and Immunology. Buenos Aires, Argentina, August 2012
- 119 **Codina R.** Problemas de estandarización de alérgenos fúngicos (Challenges associated with the standarization of fungal allergens). 35th Annual Meeting of the Argentinean Association of Allergy and Immunology. Buenos Aires, Argentina, August 2012
- 120 Strass M.D., Arduoso L., **Codina R.** Prevalencia de sensibilidad cutánea al pólen de mango en Misiones y nordeste de Corrientes (Prevalence of sensitization to mango pollen in Misiones and the northeast of Corrientes). 35th Annual Meeting of the Argentinean Association of Allergy and Immunology. Buenos Aires, Argentina, August 2012
- 121 **Codina R.**, Esch R.E. Environmental assay to measure mouse urine antigens. 69th Annual Meeting of the American Academy of Allergy Asthma and Immunology. San Antonio, Texas, USA, February 2013
- 122 **Codina R.**, Horner E.W. How allergen extracts are made: From raw materials to allergen extracts. Seminar leader. 72th Annual Meeting of the American Academy of Allergy Asthma and Immunology. Los Angeles, CA, USA, March 2016
- 123 **Codina R.** How allergen extracts are made: From raw materials to final extracts. 31st Annual Harold Nelson Military Allergy/Immunology Symposium. 73th Annual Meeting of the American Academy of Allergy Asthma and Immunology, Atlanta, GA, March 2017
- 124 **Codina R.**, Crenshaw R, Esch R. Evaluation of the purity of pollen used to manufacture allergen extracts. 73th Annual Meeting of the American Academy of Allergy Asthma and Immunology, Atlanta, GA, March 2017

- 125 **Codina R.** Esporas de hongos como alérgenos cosmopólitos (Fungal spores as cosmopolitan allergens). Plenary session. International symposium on aerobiology, contamination, and climate change. Murcia, Spain, October 23-25, 2017.
- 126 **Codina R.** Considerations about fungi with practical applications for the allergist-immunologist. Dr. Mary Jelks Memorial Lectureship, 2018 Annual Meeting of the Florida Allergy Asthma and Immunology Society, Orlando, FL, USA, July 2018.
- 127 **Codina R.** Indoor fungal growth – what to tell the patient. Dr. Mary Jelks Memorial Lectureship, 2018 Annual Meeting of the Florida Allergy Asthma and Immunology Society, Orlando, FL, USA, July 2018.