Elena GIMENEZ-ARNAU

Curriculum Vitae

Born 28th June 1967 in Barcelona, Spain
Spanish and French Citizenships
Director of Research at CNRS
National Centre for Scientific Research
France

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University of Strasbourg
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Professional background

2020: Director of Research at National Centre for Scientific Research (DR2, Centre National de la Recherche Scientifique CNRS)

2004: Habilitation à Diriger des Recherches (Authorization to Steer Researches)

1998-2020: Chargée de Recherche CRCN at CNRS, Project Manager at CNRS

1996-1997: Post-doctoral position.
Cancer Research Laboratories, Pharmacy Department, University of Nottingham, United Kingdom.
European Commission Program for Human Capital and Mobility of Researchers.

1992-1995: Doctorate PhD, University of Strasbourg.
Research Grant French Ministry of National Education.
Mention: Very Honourable with jury congratulations, Label European Doctorate.
PhD Price 1996, attributed by the "Association pour le Développement des Relations entre l'Économie et la Recherche auprès des Universités de Strasbourg et de l'Université de Haute Alsace (ADRERUS)".

1991-1992: Master Molecular and Supramolecular Organic Chemistry, University of Strasbourg.
Grant from "La Caixa de Barcelona (Spain)" and the "Service pour la Science et la Technologie (France)."

1985-1990: University Degree in Chemistry, Specialty Organic Chemistry, University of Barcelona, Spain.

Research activities key strengths

Own Research Topic-Actual Research:

Involvement of radical-type mechanisms in inflammatory and allergic skin reactions: from the molecule to the tissue

- Synthesis of target and model compounds (allergens, photoallergens, antioxidant and prooxidant xenobiotics …) for reactivity studies
- Synthesis of D-/^{13}C-substituted target compounds on the position's precursor of radical species
- Detection and characterization of radical intermediates in solution (EPR-spin trapping, spin scavenging)
- Detection and characterization of radical intermediates issued from xenobiotics in contact with the skin *in situ* in 3D models of reconstructed human epidermis and cell cultures (EPR-spin trapping, spin scavenging)
- Study of their reactivity towards amino acids, peptides and model proteins (NMR, LC-MS/MS)
- Immune responses associated to reactivity via radical intermediates
- Antioxidant versus prooxidant systems in dermatological events: EPR approaches
- Photoallergic contact dermatitis and photoirritation: mechanisms through radical intermediates

Associated Research Topics: Study of skin allergy molecular basis: comprehension of chemical mechanisms responsible for hapten-protein interactions

- Synthesis of ^{13}C-substituted allergens and study of their hapten-protein reactivity by ^{13}C-NMR
- Study of the reactivity of allergens in reconstructed human epidermis by NMR HRMAS
- Studies of reactivity related to the development of alternative methods to animal tests for the evaluation of the sensitizing potential of chemicals
- Relationships studies between the reactivity of allergens and the activation of dendritic cells
- Fragrance allergy-Identification of allergens in complex mixtures by bio-guided chemical fractionation

Methodologies: organic synthesis, electron paramagnetic resonance (EPR), spin trapping, spin scavenging, liquid chromatography-mass spectrometry (LC-MS/MS), ^{13}C-NMR 1D and 2D, NMR HRMAS (high resolution magic angle spectrometry)

Scientific prices

- 1996 PhD price attributed by the "Association pour le Développement des Relations entre l'Économie et la Recherche auprès des Universités de Strasbourg et de l'Université de Haute Alsace (ADRERUS)". Synthèse et activité photobiologique de composés bifonctionnels dérivés du psoralène. University of Strasbourg, France.
- Best poster 6th Congress of the European Society of Contact Dermatitis, Rome, Italy (14-16 June 2002). Development of a method for the identification of oak moss sensitizers. Contact Dermatitis, 2002, 46, Suppl. 4, 61.
- Best poster 10th Congress of the European Society of Contact Dermatitis, Strasbourg, France (15-18 September 2010). Second generation studies on the Direct Peptide Reactivity Assay: interest of microemulsion systems to predict the skin sensitization potential of pro- and pre-haptens. The case of 2-methoxy-4-methylphenol. Contact Dermatitis, 2010, 63, Suppl. 1, 78-79.
- Best poster "Basic Research" 14th Congress of the European Society of Contact Dermatitis, Milano, Italy (18-20 October 2018). A study of allergic contact dermatitis caused by a bikini using thin-layer chromatography patch testing.
- 2020 PhD price from the French Association of Electronic Paramagnetic Resonance (ARPE) attributed to Fatma Sahli. PhD supervisor: Elena Giménez-Arnau. The human body facing and defending from chemical skin allergens reacting by alternative mechanisms: understanding from the molecule to the tissue.
- Best poster EPR Summer School of the French Association of Electronic Paramagnetic Resonance (ARPE), Online Event (14-18 June 2021). Eugenol and isoeugenol: understanding radical-mediated reactivity in the skin by EPR in reconstructed human epidermis.

Student's supervision-Management

- PhD supervisor: 5. PhD co-directions: 9 (5 co-directions, 4 co-monitoring)
- Post-doctoral: 3. Trainees: Master 2: 22; Master 1: 14; Others (L3, Erasmus …): 14

Contracts with companies or public or private organisms

As Director, Project Leader or Principal Coordinator:

- Doctoral Research Contract awarded by the Doctoral School of Chemical Sciences (ED 222) to PhD student Guillaume Voegeli: 2023-2026 (36 months), 78432 € only for PhD salary (Guillaume Voegeli).
- IdEx Program Research Attractivity, University of Strasbourg: 2021-2022 (12 months), 6000 €
- European Society of Contact Dermatitis research grant: 2021-2022 (18 months), 10000 €
- Frontier Research in Chemistry Foundation (icFRC, Strasbourg, France), Call 2019-Emerging Investigators, Labex Chemistry of Complex Systems, 2019-2022 (36 months), 120000 €. Acronym: DERMATOX
- Agence Nationale de la Recherche ANR (French National Agency for Research), Generic Project Call 2015, Franco-German Collaborative International Research Project (ANR-DFG): 2016-2019 (48 months), 194747 € funded by ANR, 195200 € funded by DFG. PhD Supervision. Acronym: DEFCHEMSKALL
- Frontier Research in Chemistry Foundation (icFRC, Strasbourg, France), Contract JLE-FRC-0001: 2014-2017 (36 months), 99932 €. PhD supervision and project leaded.
- Firmenich SA, Corporate R&D Division (Geneva, Switzerland): 2006-2009 (36 months), 162478 €. PhD supervision.

Scientific animation

- Member of the Organization Local Committee of the « International Conference on Metal-Binding Peptides: Methodologies and Applications ». Nancy, France, 5-8 July 2022.
- Scientific and administrative coordination of project « Fragrance allergy: a major environmental and consumer health problem in Europe » funded by the European Union (contract QLK4-CT-1999-01558).
- Member of the Organization Scientific Committee of the 12th Congress of the European Society of Contact Dermatitis. Barcelona, Spain, 25-28 June 2014.
- Organization of Pre-Congress Symposium « Contact dermatitis: from the molecule and basic science to the safety of consumers », 12th Congress of the European Society of Contact Dermatitis. Barcelona, Spain, 25-28 June 2014.
- Participation to GDR O3 project « Odorants, Odeur, Olfaction » of CNRS, From 2015.
- General Secretary of the Organizing Committee of the 10th Congress of the European Society of Contact Dermatitis and 31ème Cours d'Actualisation du Groupe d'Étude et de Recherche en Dermato-Allergologie. Strasbourg, France, 15-18 September 2010. 900 people registered.

Editorial Activity

- Editorial Advisory Board of *Contact Dermatitis* (Official Journal of the European Society of Contact Dermatitis)
- Editorial Board of *Cosmetics* (Open Access Journal from MDPI)
- Editorial Board of *Allergies* (Open Access Journal from MDPI)

European Commission Expert

- Horizon 2020, Small Medium Entreprises SME-Instrument 2018
- Horizon 2020, Marie Sklodowska-Curie Action Individual Fellowships MSCA-IF-2018, MSCA-IF-2020

- Horizon, EIC Pathfinder Open 2021-2022

Member of scientific or administrative bodies

- Member of the Association Française de Résonance Paramagnétique Électronique (ARPE)
- Member of the European Society of Contact Dermatitis (ESCD)
- Member of the « IDEA Hydroperoxide Task Force » (International Dialogue for the Evaluation of Allergens), funded by International Fragrance Association (IFRA)
- Elected member of the Spanish Research Group on Allergic Contact Dermatitis (Grupo Español de Investigación en Dermatitis Alérgica de Contacto, GEIDAC)
- Elected member of the Council of the Chemistry Institute of Strasbourg (UMR 7177) (2006-2011)
- Elected member of the Chemistry Department Council, University of Strasbourg (2004-2015)
- Member of the Finances Commission of the Chemistry Department, University of Strasbourg (2006-2015)
- Member of the Status Commission of the Chemistry Department, University of Strasbourg (2011-2015)
- Member of the Scientific Research Commission of the Chemistry Department, University of Strasbourg (2006-2011)
- President of the Central Purchasing Body Commission, University of Strasbourg (2008-2014)
- Member of the Central Purchasing Body Commission, University of Strasbourg (from 2006)
- Member of the Council of PhD Defences of the Doctoral School of Chemical Science -ED 222, University of Strasbourg (UMR 7177 representative) (2018-2023)
- Elected member of the Chemistry Department Council, University of Strasbourg (from 2024)
- Member of the IATSS Staff Commission, Strasbourg Faculty of Chemistry, University of Strasbourg (from 2024)

RECENT PUBLICATIONS

Antioxidant activity and skin sensitization of eugenol and isoeugenol: two sides of the same coin? Y. Port-Lougarre, C. Gourlaouen, B. Vileno*, E. Giménez-Arnau*. *Chem Res Toxicol*, **2023**, 36 (11), 1804-1813. DOI: 10.1021/acs.chemrestox.3c00263.

Synthesis and *in situ* behavior of 1,4- and 2,5-(^{13}C) isotopomers of *p*-phenylenediamine in reconstructed human epidermis using HRMAS NMR. H. Srour, A. Gosset, F-M. Moussallieh, K. Elbayed, E. Giménez-Arnau, J-P. Lepoittevin. *Chem Res Toxicol*, **2022**, 35 (10), 1881-1892. DOI: 10.1021/acs.chemrestox.2c00151.

Autoxidized citronellol: free radicals as potential sparkles to ignite the fragrance induced skin sensitizing pathway. F. Sahli, B. Vileno, C. Gourlaouen, E. Giménez-Arnau*. *Food Chem Toxicol*, **2022**, 166, 113201. DOI: 10.1016/j.fct.2022.113201.

Limonene and linalool hydroperoxides review: pros and cons for routine patch testing. I. Ogueta, J. Brared Christensson, E. Giménez-Arnau, R. Brans, M. Wilkinson, L. Stingeni, C. Foti, O. Aerts, C. Svedman, M. Gonçalo, A. Giménez-Arnau. *Contact Dermatitis*, **2022**, 87 (1), 1-12. DOI: 10.1111/cod.14064.

Electron paramagnetic resonance and spin trapping to detect free radicals from sensitizing xenobiotics in contact with the skin: from the molecule to the tissue. B. Vileno*, Y. Port-Lougarre, E. Giménez-Arnau*. *Contact Dermatitis*, **2022**, 86 (4), 241-253. DOI: 10.1111/cod.14037.

Bikini textile contact dermatitis: a Sherlockian approach revealing 2.4-dichlorophenol as a potential textile contact allergen. D. Pesqué, A. March-Rodriguez, J. Dahlin, M. Isaksson, R. M. Pujol, E. Giménez-Arnau, A. Giménez-Arnau. *Contact Dermatitis*, **2021**, 85 (6), 679-685. DOI: 10.1111/cod.13946.

Skin sensitisation to fragrance hydroperoxides: interplay between dendritic cells, keratinocytes and free radicals. J. Lichter, M. Silva e Sousa, N. Peter, F. Sahli, B. Vileno, S. Kuresepi, C. Gourlaouen, E. Giménez-Arnau*, B. Blömeke*. *Br J Dermatol*, **2021**, 184, 1143-1152. DOI: 10.1111/bjd.19685.

Mechanistic insights on skin sensitization to linalool hydroperoxides: EPR evidence on radical intermediates formation in reconstructed human epidermis and ^{13}C-NMR reactivity studies with thiol residues. S. Kuresepi, B. Vileno, J. -P. Lepoittevin, E. Giménez-Arnau*. *Chem Res Toxicol*, **2020**, 33, 1922-1932. DOI: 10.1021/acs.chemrestox.0c00125.

Formation of methyl radicals derived from cumene hydroperoxide in reconstructed human epidermis : an EPR spin-trapping confirmation by using ^{13}C-substitution. F. Sahli, A. Godard, B. Vileno, J. -P. Lepoittevin, E. Giménez-Arnau*. *Free Radic Res*, **2019**, 53, 737-747. DOI: 10.1080/10715762.2019.1624741.

Understanding the skin sensitization capacity of ascaridole: a combined study of chemical reactivity and activation of the innate immune system (dendritic cells) on the epidermal environment. F. Sahli, M.Silva e Sousa, B. Vileno, J. Lichter, J. -P. Lepoittevin, B. Blömeke, E. Giménez-Arnau*. *Arch Toxicol*, **2019**, 93, 1337-1347. DOI: 10.1007/s00204-019-02444-3.

Potential of EPR spin-trapping to investigate in situ free radicals generation from skin allergens in reconstructed human epidermis: cumene hydroperoxide as proof of concept. S. Kuresepi, B. Vileno, P. Turek, J. -P. Lepoittevin, E Giménez-Arnau*. *Free Radic Res*, **2018**, 52, 171-179. DOI : 10.1080/10715762.2017.1420906.

Chapters in edited books: 9
Participation to scientific events: **Guest lecturer: 31**
Oral communications in congresses: 87
Poster communications in congresses: 41
Seminars and workshops: 20