Anas CHERQUI

Doctor in Organismal and Population Biology. CNU 67, MCU, HDR.
Speciality: Physiology of insects and the tritrophic plant-aphid-parasitoid interaction. Biochemistry of proteins
Axis 1 (70%) - Axis 2 (30%)
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Research topics

Physiology and biochemistry of insect (host) - entomophagous insect interactions: development, defence response, immunity, virulence factors.
Plant host and insect pest interaction: plant responses, stimulation of natural defences, development of phytophagous insects.
Identification, purification and characterization of proteins of agronomic and phytopharmaceutical interest.

Keywords

Insects, host-parasitoid, Drosophila, Asobara, resistance, virulence, humoral immunity, plant-aphid interaction, trophic behaviour, electro-penetrography, EPG, elicitors, plant responses, proteins, toxins, purification, chromatography

Recent or ongoing projects

2006-09: ELIPOM, Project funded by the Picardie Regional Council. Research on salivary elicitors of aphids inducing responses in potato plants.
2008-12: CLIMEVOL, ANR project in partnership with the University of Rennes, the University of Sophia Antipolis and the University of Lyon. Effect of global climate change on the evolution of host-parasitoid interactions.
2009-12: PARATOXOSE, ANR project in partnership with the University of Sophia Antipolis, University of Tours and University of Montpellier. Parasitoid toxins: Origin, Specificity and Evolution.
2009-12: BIOPOM-IP, Project labelled as an IAR cluster, funded by the Ministry of Agriculture and Fisheries, the Picardie Regional Council, and the GIE Station de Recherches du Comité Nord. Valorization of potato co-products: extraction protocols for protease inhibitors.
2016-17: HYVETOX, project funded by SATT-NORD associated with EA-4667 LPCM UPJV, Laboratory of Cellular and Molecular Physiology. Valorization of toxins from the venom of parasitoid Hymenoptera with a view to identifying new molecules with a potential anti-cancer effect and therefore of therapeutic interest on cancer cells. Project leader (30k€).
2016-17: HYVEBIO, project funded by SATT-NORD. Valorization of the toxins of Hymenoptera parasitoid venoms with a view to identifying new molecules with a biopesticide effect. Project leader (30k€).
2019-20: PARAVETOX, Project funded by the Regional Council of Hauts de France. Cloning and production of venom toxins from parasitic Hymenoptera. Project leader (75k€).
2018-22: CHARAP, Project funded by the Carnot Institute-Plant2Pro led by INRAE Le Rheu. Characterization of pea resistance to the green pea aphid. Partner (110k€)
2021-22: BETASTRESS, Exploratory project funded by the SFR Condorcet carried by BIOPI (UPJV-Amiens). Research into molecular markers of responses to biotic and abiotic stresses in sugar beet. Partner (10k€).

Teaching provided

Entomology applied to plant production (Master AETPF)
Insect immunity (Master AETPF)
Innovative Agrosystems (Master AETPF)
Fundamental Immunology (Bachelor SVT)

Biology and functioning of the eukaryotic cell (Bachelor SVT)

Proliferation, cell differentiation and apoptosis (Bachelor SVT)

Biology of the insect (Bachelor SVT)

Thesis directions or co-directions

2013 Christopher Wattier; "Role of pectin methylesterases in plant-aphid interaction" Co-supervision (33%) with C. Rustérucci (MCU, BioPI EA3900).

2011 Hala Samaha; "Aphid-plant interaction: saliva of *Macrosiphum euphorbiae* induces specific defense responses in potato (*Solanum tuberosum*) plants". Co-supervision (33%) with C. Rustérucci (MCU, BioPI EA3900) and F. Ballieul (Pr, URCA Reims).

2010 Sophie Vinchon ; "Molecular identification of the virulence agents of braconid hymenopterans, parasitoids of Drosophila". Co-supervision (40%) with S. Moreau (MCU, IRBI-Tours) and G. Prévost (Pr, BIPE).

2010 Alix Nno Mabiala. "Mechanisms and agents of virulence in Braconid parasitoids of the genus *Asobara*". Co-supervision (33%) with P. Eslin (MCU, BIPE) and G. Prévost (Pr, BIPE).

Current administrative functions

Co-Director of the Bachelor of Life and Earth Sciences Bachelor (SVT- UFR Sciences) from 2010 -2018

Project leader of the Bachelor SVT CQ 2012-2017, classified A by the AERES

Elected member of the Unit Council of UMR 7058 EDYSAN CNRS-UPJV from January 2012 to January 2020

Elected member of the Scientific Council of SFR Condorcet from March 2012 to March 2020

Elected member of the UPJV Academic Council (Research Commission) from March 2016 to November 2020

Co-responsible for the Agroecology course of the Master AETPF since September 2018

Recent publications

Dugravot S., L. Brunissen, E. Létocart, W. F. Tjallingii, C. Vincent, P. Giordanengo and **A. Cherqui**. 2007. Local and systemic responses induced by aphids in *Solanum tuberosum* plants. Entomologia Experimentalis et Applicata 123 : 271-277.

Harmel N., E. Létocart, **A. Cherqui**, P. Giordanengo, G. Mazzucchelli, F. Guillonneau, E. De Pauw, E. Haubruge and F. Francis. 2008. Identification of aphid salivary proteins: a proteomic investigation of *Myzus persicae*. Insect Molecular Biology 17: 165-174.

Vinchon S., S.J.M. Moreau, JM. Drezen, G. Prévost and **A. Cherqui**. 2010. Molecular and biochemical analysis of an aspartylglucosaminidase from the venom of the parasitoid wasp *Asobara tabida* (Hymenoptera: Braconidae). Insect Biochemistry and Molecular Biology, 40: 38-48.

Huerta-Reyes M., C. Anselme, **A. Cherqui,** and G. Decocq. **2017**. Exploration through the venoms from hymenoptera as potential therapeutic agents in cancer therapy. International Journal of Pharmacology, 13: 507-515.

Wattier, C., A. Turbant, L. Sargos-Vallade, J. Pelloux, C. Rustérucci, and **A. Cherqui**. **2019**. New insights into diet breadth of polyphagous and oligophagous aphids on two Arabidopsis ecotypes. Insect Science 26 (4): 753–69.

Portillo Lemus L., J. Tricard, J. Duclercq, Q. Coulette, D. Giron, C. Hano, E. Huguet, F. Lamblin, **A. Cherqui**, and A. Sallé. **2020**. Salivary proteins of *Phloeomyzus passerinii,* a plant-manipulating aphid, and their impact on early gene responses of susceptible and resistant poplar genotypes. Plant Science 294: 110468.

González-Gonzalez, M., J.C. Simon, A. Sugio, A. Ameline, and **A. Cherqui. 2022**.Aphid resistance in *Pisum* affects the feeding behavior of pea-adapted and non-pea-adapted biotypes of *Acyrthosiphon pisum* differently. Insects, 13, 268

https://www.researchgate.net/profile/Anas-Cherqui