

Curriculum Vitae
Carlos L. Ballaré

CURRENT POSITIONS

- Senior Researcher (Investigador Superior), IFEVA (Agricultural Plant Physiology and Ecology Research Institute) and CONICET (National Research Council of Argentina)
- Full Professor (Profesor Titular Regular DE), School of Agronomy, University of Buenos Aires
- Full Professor (Profesor Titular DS), IIB-National University of San Martín

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EDUCATION

Doctor of Philosophy, 1992. Oregon State University, USA
Magister Scientiae, 1989. University of Buenos Aires, Argentina
Ingeniero Agrónomo, 1984. College of Agronomy, University of Buenos Aires, Argentina

SUMMARY OF ACADEMIC CAREER

CONICET (National Research Council of Argentina)
Principal Research Scientist (Investigador Principal), 2002-2011
Research Scientist (Investigador Independiente), 1998-2002
Adjunct Research Scientist, 1992-98
Assistant Research Scientist, 1989-92 (with an external fellowship)
Fellow, 1984-1989

University of Buenos Aires (School of Agronomy)
Associate Professor (courtesy), 1997-2002
Adjunct Professor (courtesy), 1993-97
Instructor, 1984-93

Other positions

Visiting Scientist (Georg Forster Research Award -Alexander Von Humboldt Foundation), **Max Planck Institute for Chemical Ecology**, Department of Biochemistry, Jena, Germany, 2018
Visiting Scientist (with Guggenheim Fellowship), **Max Planck Institute for Chemical Ecology**, Department of Molecular Ecology, Jena, Germany, 2002
Visiting Scientist, **Utah State University**, USA, 1993
Research Associate / Grant Coordinator, **SW Texas State University**, USA, 1993
Faculty Research Associate, **Oregon State University**, USA, 1992-1993

AWARDS AND HONORS

- * **Member of the National Academy of Exact, Physical and Natural Sciences of Argentina**, Argentina 2021.
- * **Alexander Von Humboldt Foundation Prize -Georg Forster Research Award**, Germany, 2017.

- * **Konex Merit Prize**, awarded by the Konex Foundation as one of the top five personalities in the discipline “Biology and Ecology” of the last decade (2003-13), Buenos Aires, Argentina, 2013.
- * **Guggenheim Fellow** John Simon Guggenheim Memorial Foundation, New York, USA, 2001.
- * **Latin American Leaders for the New Millennium** Distinguished by CNN and TIME (Special Issue, Vol 153, No. 20, May 24 1999).
- * **Cristóbal Hicken Prize** in Botany, National Academy of Exact, Physical, and Natural Sciences, Argentina, 1994.
- * **Eduardo P. D. De Robertis Prize**, National Secretariat of Science and Technology, Argentina, 1994.
- * **Re-entry Grant for Young Investigators**, Fundación Antorchas, Argentina, 1993
- * **Bernardo Houssay Young Investigator’s Prize** (CONICET), Argentina, 1987
- * **Vilfrid Baron Prize**, National Academy of Agronomy and Veterinary, Argentina, 1984-5
- * **Bolsa de Cereales de Buenos Aires Prize**, Faculty of Agronomy Foundation, University of Buenos Aires, 1984.

SCIENTIFIC AND ACADEMIC COMMITTEES

Editorial Boards

Editor, *New Phytologist* 2017-

Editor, *Oecologia* 2013-

Handling Editor, *Oecologia* 2006-2013

Associate Editor, *Plant Signaling and Behavior* 2005-2012

Monitoring Editor, *Plant Physiology* (ASPP, Rockville, MD, USA), 2000-2005

Board of Journal Club Authors, *Trends in Plant Science*, 2000-2002

Panels and Societies

Vice-President *International Union of Photobiology (IUPB)* 2014-

Chairman *Biology Panel* (CONICET) 2012-2013

Co-Coordinator *Subject Area: Organismic and Systems Biology* (ANPCyT, the Argentinean National Science Foundation) 2012-2014

Vice-Chairman *Biology Panel* (CONICET) 2011-2012

Member of the Environmental Effects Assessment Panel, *United Nations Environment Programme* 2002-2020 (Lead Author, Terrestrial Ecosystems, 2008-2013).

Member of the *Biology Panel* (CONICET) 2000-2002

PUBLICATIONS

Full list of publications also available in:

Google Scholar: <http://scholar.google.com/citations?user=b1CYWoAAAAJ&hl=en>

ORCID: <http://orcid.org/0000-0001-9129-4531>

Researcher ID (Publons) [F-5141-2011](https://publons.com/author/51412011/)

Articles

Fernández-Milmanda GL, Ballaré CL (2021) Shade Avoidance: Expanding the color and hormone palette. *Trends in Plant Science* in press <https://doi.org/10.1016/j.tplants.2020.12.006>

Pierik R, Ballaré CL (2021) Control of plant growth and defense by photoreceptors: From mechanisms to opportunities in agriculture. *Molecular Plant* 14: 61-76

Berenstecher P, Vivanco L, Pérez LI, Ballaré CL, Austin AT (2020) Sunlight doubles aboveground carbon loss in a seasonally dry woodland in Patagonia. *Current Biology* 30:3243-3251.e3
<https://doi.org/10.1016/j.cub.2020.06.005>

- Fernández-Milmanda GL, Crocco CD, Reichelt M, Mazza CA, Köllner TG, Zhang T, Cargnel MD, Lichy MZ, Fiorucci A-S, Fankhauser C, Koo AJ, Austin AT, Gershenson J, Ballaré CL (2020) A light-dependent molecular link between competition cues and defense responses in plants. **Nature Plants** 6:223-230
- Ballaré CL, Austin AT (2019) Recalculating growth and defense strategies under competition: key roles of photoreceptors and jasmonates. **Journal of Experimental Botany** 70: 3425-3434
- Vanhaelewyn L, Viczián A, Prinsen E, Bernula P, Serrano AM, Arana MV, Ballaré CL, Nagy F, Van Der Straeten D, Vandenbussche F (2019) Differential UVR8 signal across the stem controls UV-B-induced inflorescence phototropism. **Plant Cell** 31: 2070-2088
- Barnes PW, Williamson CE, Lucas RM, Robinson SA, Madronich S, Paul ND, Bornman JF, Bais AF, Sulzberger B, Wilson SR, Andrady AL, McKenzie RL, Neale PJ, Austin AT, Bernhard GH, Solomon KR, Neale RE, Young PJ, Norval M, Rhodes LE, Hylander S, Rose KC, Longstreth J, Aucamp PJ, Ballaré CL, Cory RM, Flint SD, de Groot FR, Häder DP, Heikkilä AM, Jansen MAK, Pandey KK, Robson TM, Sinclair CA, Wängberg SÅ, Worrest RC, Yazar S, Young AR, Zepp RG (2019) Ozone depletion, ultraviolet radiation, climate change and prospects for a sustainable future. **Nature Sustainability** 2: 569-579
- Bornman JF, Barnes PW, Robson TM, Robinson SA, Jansen MAK, Ballaré CL, Flint SD (2019) Linkages between stratospheric ozone, UV radiation and climate change and their implications for terrestrial ecosystems. **Photochemical and Photobiological Sciences** 18: 681-716
- Serrano A.M., Arana M.V., Vanhaelewyn L., Ballaré C.L., Van Der Straeten D., Vandenbussche F., (2018) Following the star: Inflorescence heliotropism. **Experimental and Environmental Botany**, 147, 75-85
- Ballaré C.L. (2017) Phytochrome responses: Think globally, act locally. **Trends in Plant Science**, 22, 909-911 (Spotlight)
- Bastias D.A., Martínez-Ghersa M.A., Ballaré C.L., Gundel P.E. (2017). Epichloë fungal endophytes and plant defenses: Not just alkaloids. **Trends in Plant Science**, 22, 939-948
- Ballaré C.L., Pierik R. (2017) The shade avoidance syndrome: Multiple signals and ecological consequences. **Plant Cell and Environment**, 40, 2530-2543
- Cerrudo I.*, Caliri-Ortiz M.E.*, Keller M.M., Degano M.E., Demkura P.V., Ballaré CL (2017) Exploring growth-defense tradeoffs in Arabidopsis. Phytochrome B inactivation requires JAZ10 to suppress plant immunity but not to trigger shade avoidance responses. **Plant Cell and Environment**, 40; 635-644
- Cortés L.E., Weldegergis B.T., Boccalandro H.E., Dicke M., Ballaré C.L. (2016) Trading direct for indirect defense? Phytochrome B inactivation in tomato attenuates direct anti-herbivore defenses whilst enhancing volatile-mediated attraction of predators. **New Phytologist**, 212: 1057-1071
- Austin A.T., Menéndez M.S., Ballaré C.L. (2016) Photodegradation alleviates the lignin bottleneck for carbon turnover in terrestrial ecosystems. **Proceedings of the National Academy of Sciences of the United States of America**, 113: 4392-4397.
- Mazza C.A., Ballaré C.L. (2015) Photoreceptors UVR8 and phytochrome B cooperate to optimize plant growth and defense in patchy canopies. **New Phytologist**, 207: 4-9.
- Bornman J.F., Barnes P.W., Robinson S.A., Ballaré C.L., Flint S.D., Caldwell M.M. (2015) Solar ultraviolet radiation and ozone depletion-driven climate change: effects on terrestrial ecosystems. **Photochemical & Photobiological Sciences**, 14: 88-107 (UNEP Quadrennial Report, OA)
- Zavala J.A., Mazza C.A., Dillon F.M., Chludil H.D., Ballaré C.L. (2015) Soybean resistance to stink bugs (*Nezara viridula* and *Piezodorus guildinii*) increases with exposure to solar UV-B radiation and correlates with isoflavonoid content in pods under field conditions. **Plant, Cell and Environment**, 38: 920-928

- González C.V., Fanzone M.L., Cortés L.E., Bottini R., Lijavetzky D.C., Ballaré C.L., Boccalandro H.E. (2015) Fruit-localized photoreceptors increase phenolic compounds in berry skins of field-grown *Vitis vinifera* L. cv. Malbec. **Phytochemistry**, 110: 46-57
- Cargnel M.D., Demkura P.V., Ballaré C.L. (2014) Linking phytochrome to plant immunity: low red:far-red ratios increase Arabidopsis susceptibility to *Botrytis cinerea* by reducing the biosynthesis of indolic glucosinolates and camalexin. **New Phytologist**, 204: 342-354
- Leone M., Keller M.M., Cerrudo I., Ballaré C.L. (2014) To grow or defend? Low red:far-red ratios reduce jasmonate sensitivity in Arabidopsis seedlings by promoting DELLA degradation and increasing JAZ10 stability. **New Phytologist**, 2014: 355-367
- Moreno J.A., Ballaré C.L. (2014) Phytochrome regulation of plant immunity in vegetation canopies. **Journal of Chemical Ecology**, 40: 848-857
- Ballaré C.L. (2014) Light and plant defense. **Annual Review of Plant Biology**, 65, 335–363
- Williamson C., Zepp R., Lucas R., Madronich S., Austin A.T., Ballaré C.L., Norval M., Sulzberger B., Bais A., McKenzie R., Robinson R., Häder D.-P., Paul N.D., Bornman J.F. (2014) Solar Ultraviolet Radiation in a Changing Climate. **Nature Climate Change**, 4: 434–441
- Gundel P.E., Mommer A., Pierik R., Ballaré C.L. (2014) Competing neighbors: light perception and root function. **Oecologia**, 176: 1-10
- Pierik R., Ballaré C.L., Dicke M. (2014) Ecology of plant volatiles: taking a plant community perspective. **Plant Cell and Environment**, 37:1845-1853
- Izaguirre M. M., Mazza C. A., Astigueta M. S., Ciarla A. M, Ballaré C. L. (2013) No time for candy: passionfruit (*Passiflora edulis*) plants down-regulate damage-induced extra floral nectar production in response to light signals of competition. **Oecologia** 173, 213-221
- Mazza C. A., Giménez P. I., Kantolic A. G., Ballaré C. L. (2013) Beneficial effects of solar UV-B radiation on soybean yield mediated by reduced insect herbivory under field conditions. **Physiologia Plantarum** 147, 307-315
- Ballaré C. L., Mazza C. A., Austin A. T., Pierik R. (2012) Canopy light and plant health. **Plant Physiology** 160, 145–155 (commissioned Update)
- Demkura P. V., Ballaré C. L. (2012) UVR8 mediates UV-B-induced *Arabidopsis* defense responses against *Botrytis cinerea* by controlling sinapate accumulation. **Molecular Plant**, 3, 642–652
- Cerrudo I., Keller M.M., Cargnel M.D., Demkura P.V., de Wit M., Patitucci M.S., Pierik R., Pieterse C.M.J., Ballaré C.L. (2012) Low Red: Far-Red ratios reduce Arabidopsis resistance to *Botrytis cinerea* and jasmonate responses via a COI1-JAZ10-dependent, salicylic acid-independent mechanism. **Plant Physiology** 158, 2042–2052
- Keller M.M., Jaillais Y., Pedmale U.V., Moreno J.E., Chory J., Ballaré C.L. (2011) Cryptochrome 1 and phytochrome B control shade-avoidance responses in Arabidopsis via partially-independent hormonal cascades. **The Plant Journal** 67, 195-207 (featured article)
- Ballaré C.L. (2011). Jasmonate-induced defenses: A tale of intelligence, collaborators and rascals. **Trends in Plant Science**, 16, 249-257 (cover article)
- Ballaré C.L., Caldwell M.M., Robinson S.A., Flint S.D. & Bornman J.F. (2011) Effects of solar ultraviolet radiation on terrestrial ecosystems. Patterns, mechanisms, and interactions with climate change. **Photochemical & Photobiological Sciences**, 10, 226-241 (UNEP quadrennial report)
- Austin A.T., Ballaré C.L. (2010) Dual role of lignin in plant litter decomposition in terrestrial ecosystems. **Proceedings of the National Academy of Sciences of the United States of America**, 107, 4618-4622.
- Conte M., de Simone S., Simmons S. J., Ballaré C. L., Stapleton A. E. (2010) Chromosomal loci important for cotyledon opening under UV-B in *Arabidopsis thaliana*. **BMC Plant Biology** 10, 112

- Demkura P.V., Abdala G., Baldwin I.T., & Ballaré C.L. (2010) Jasmonate dependent and independent pathways mediate specific effects of solar ultraviolet-B radiation on leaf phenolics and anti-herbivore defense. **Plant Physiology** 152, 1084-1095.
- Balint-Kurti P., Simmons S.J., Blum J.E., Ballaré C.L. & Stapleton A.E. (2010) Maize leaf epiphytic bacteria diversity patterns are genetically correlated with resistance to fungal pathogen infection. **Molecular Plant-Microbe Interactions** 23, 473-484.
- Mazza C.A., Izaguirre M.M., Curiale J. & Ballaré C.L. (2010) A look into the invisible. Ultraviolet-B sensitivity in an insect (*Caliothrips phaseoli*) revealed through a behavioural action spectrum. **Proceedings of the Royal Society B**, 277, 367-373.
- Zaller J.G., Caldwell M.M., Flint S.D., Ballaré C.L., Scopel A.L. & Sala O.E. (2009) Solar UVB and warming affect decomposition and earthworms in a fen ecosystem in Tierra del Fuego, Argentina. **Global Change Biology**, 15, 2493-2502.
- Moreno J.E., Tao Y., Chory J., Ballaré C.L. (2009) Ecological modulation of plant defense via phytochrome control of jasmonate sensitivity. **Proceedings of the National Academy of Sciences of the United States of America**, 106, 4935-4940.
- Ballaré C.L. (2009) Illuminated behaviour. Phytochrome as a key regulator of light foraging and plant anti-herbivore defence. **Plant, Cell and Environment**, 32, 713-725.
- Flint S.D., Ballaré C.L., Caldwell M.M. & McKenzie R.L. (2008) Comment on "Extreme environments in the forests of Ushuaia, Argentina" by Hector D'Antoni et al. **Geophysical Research Letters**, 35, L13710, doi:10.1029/2008GL033570.
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- Caldwell M.M., Bornman J.F., Ballaré C.L., Flint S.D. & Kulandaivelu G. (2007) Terrestrial ecosystems, increased solar ultraviolet radiation, and interactions with both climate change factors. **Photochemical & Photobiological Sciences**, 6, 252-266.
- Izaguirre M.M., Mazza C.A., Svatos A., Baldwin I.T. & Ballaré C.L. (2007) Solar ultraviolet-B radiation and insect herbivory trigger partially overlapping phenolic responses in *Nicotiana attenuata* and *Nicotiana longiflora*. **Annals of Botany**, 99, 103-109.
- Caputo C., Rutitzky M. & Ballaré C.L. (2006) Solar ultraviolet-B radiation alters the attractiveness of Arabidopsis plants to diamondback moths (*Plutella xylostella* L.): impacts on oviposition and involvement of the jasmonic acid pathway. **Oecologia**, 149, 81-90.
- Izaguirre M.M., Mazza C.A., Biondini M., Baldwin I.T. & Ballaré C.L. (2006) Remote sensing of future competitors: Impacts on plant defenses. **Proceedings of the National Academy of Sciences of the United States of America**, 103, 7170-7174.
- Giordano C.V., Galatro A., Puntarulo S. & Ballaré C.L. (2004) The inhibitory effects of UV-B radiation (280-315 nm) on *Gunnera magellanica* growth correlate with increased DNA damage but not with oxidative damage to lipids. **Plant Cell and Environment**, 27, 1415-1423.
- Robson T.M., Pancotto V.A., Ballaré C.L., Sala O.E., Scopel A.L. & Caldwell M.M. (2004) Reduction of solar UV-B mediates changes in the *Sphagnum capitulum* microenvironment and the peatland microfungus community. **Oecologia**, 140, 480-490.
- Rousseaux M.C., Julkunen-Tiitto R., Searles P.S., Scopel A.L., Aphalo P.J. & Ballaré C.L. (2004) Solar UV-B radiation affects leaf quality and insect herbivory in the southern beech tree *Nothofagus antarctica*. **Oecologia**, 138, 505-512.
- Ballaré C.L. (2003) Stress under the sun: Spotlight on ultraviolet-B responses. **Plant Physiology**, 132, 1725-1727.

- Caldwell M.M., Ballaré C.L., Bornman J.F., Flint S.D., Bjorn L.O., Teramura A.H., Kulandaivelu G. & Tevini M. (2003) Terrestrial ecosystems increased solar ultraviolet radiation and interactions with other climatic change factors. **Photochemical & Photobiological Sciences**, 2, 29-38.
- Giordano C.V., Mori T., Sala O.E., Scopel A.L., Caldwell M.M. & Ballaré C.L. (2003) Functional acclimation to solar UV-B radiation in *Gunnera magellanica*, a native plant species of southernmost Patagonia. **Plant Cell and Environment**, 26, 2027-2036.
- Izaguirre M.M., Scopel A.L., Baldwin I.T. & Ballaré C.L. (2003) Convergent responses to stress. Solar ultraviolet-B radiation and *Manduca sexta* herbivory elicit overlapping transcriptional responses in field-grown plants of *Nicotiana longiflora*. **Plant Physiology**, 132, 1755-1767.
- Pancotto V.A., Sala O.E., Cabello M., Lopez N.I., Robson T.M., Ballaré C.L., Caldwell M.M. & Scopel A.L. (2003) Solar UV-B decreases decomposition in herbaceous plant litter in Tierra del Fuego, Argentina: potential role of an altered decomposer community. **Global Change Biology**, 9, 1465-1474.
- Robson T.M., Pancotto V.A., Flint S.D., Ballaré C.L., Sala O.E., Scopel A.L. & Caldwell M.M. (2003) Six years of solar UV-B manipulations affect growth of *Sphagnum* and vascular plants in a Tierra del Fuego peatland. **New Phytologist**, 160, 379-389.
- Zaller J.G., Searles P.S., Rousseaux M.C., Flint S.D., Caldwell M.M., Sala O., Ballaré C.L. & Scopel A.L. (2003) Solar ultraviolet-B radiation can affect slug feeding preference for some plant species native to a fen ecosystem in Tierra del Fuego, Argentina. **Plant Ecology**, 169, 43-51.
- Mazza C.A., Izaguirre M.M., Zavala J., Scopel A.L. & Ballaré C.L. (2002) Insect perception of ambient ultraviolet-B radiation. **Ecology Letters**, 5, 722-726.
- Searles P.S., Flint S.D., Diaz S.B., Rousseaux M.C., Ballaré C.L. & Caldwell M.M. (2002) Plant response to solar ultraviolet-B radiation in a southern South American *Sphagnum* peatland. **Journal of Ecology**, 90, 704-713.
- Zaller J.G., Caldwell M.M., Flint S.D., Scopel A.L., Sala O.E. & Ballaré C.L. (2002) Solar UV-B radiation affects below-ground parameters in a fen ecosystem in Tierra del Fuego, Argentina: implications of stratospheric ozone depletion. **Global Change Biology**, 8, 867-871.
- Ballaré C.L., Rousseaux M.C., Searles P.S., Zaller J.G., Giordano C.V., Robson T.M., Caldwell M.M., Sala O.E. & Scopel A.L. (2001) Impacts of solar ultraviolet-B radiation on terrestrial ecosystems of Tierra del Fuego (southern Argentina) - An overview of recent progress. **Journal of Photochemistry and Photobiology B-Biology**, 62, 67-77.
- Ballaré C.L. (2001) Arabidopsis mutants and other model systems in plant physiological ecology. **Trends in Plant Science**, 6, 99-99.
- Boccalandro H.E., Mazza C.A., Mazzella M.A., Casal J.J. & Ballaré C.L. (2001) Ultraviolet B radiation enhances a phytochrome-B-mediated photomorphogenic response in Arabidopsis. **Plant Physiology**, 126, 780-788.
- Rousseaux M.C., Scopel A.L., Searles P.S., Caldwell M.M., Sala O.E. & Ballaré C.L. (2001) Responses to solar ultraviolet-B radiation in a shrub-dominated natural ecosystem of Tierra del Fuego (southern Argentina). **Global Change Biology**, 7, 467-478.
- Zavala J.A., Scopel A.L. & Ballaré C.L. (2001) Effects of ambient UV-B radiation on soybean crops: Impact on leaf herbivory by *Anticarsia gemmatilis*. **Plant Ecology**, 156, 121-130.
- Ballaré C.L. & Casal J.J. (2000) Light signals perceived by crop and weed plants. **Field Crops Research**, 67, 149-160.
- Barnes P.W., Searles P.S., Ballaré C.L., Ryel R.J. & Caldwell M.M. (2000) Non-invasive measurements of leaf epidermal transmittance of UV radiation using chlorophyll fluorescence: field and laboratory studies. **Physiologia Plantarum**, 109, 274-283.

- Mazza C.A., Boccalandro H.E., Giordano C.V., Battista D., Scopel A.L. & Ballaré C.L. (2000) Functional significance and induction by solar radiation of ultraviolet-absorbing sunscreens in field-grown soybean crops. **Plant Physiology**, 122, 117-125.
- Aphalo P.J., Ballaré C.L. & Scopel A.L. (1999) Plant-plant signalling, the shade-avoidance response and competition. **Journal of Experimental Botany**, 50, 1629-1634.
- Ballaré C.L. (1999) Keeping up with the neighbours: phytochrome sensing and other signalling mechanisms. **Trends in Plant Science**, 4, 97-102.
- Mazza C.A., Battista D., Zima A.M., Szwarcberg-Bracchitta M., Giordano C.V., Acevedo A., Scopel A.L. & Ballaré C.L. (1999) The effects of solar ultraviolet-B radiation on the growth and yield of barley are accompanied by increased DNA damage and antioxidant responses. **Plant Cell and Environment**, 22, 61-70.
- Mazza C.A., Zavala J., Scopel A.L. & Ballaré C.L. (1999) Perception of solar UVB radiation by phytophagous insects: Behavioral responses and ecosystem implications. **Proceedings of the National Academy of Sciences of the United States of America**, 96, 980-985.
- Rousseaux M.C., Ballaré C.L., Giordano C.V., Scopel A.L., Zima A.M., Szwarcberg-Bracchitta M., Searles P.S., Caldwell M.M. & Diaz S.B. (1999) Ozone depletion and UVB radiation: Impact on plant DNA damage in southern South America. **Proceedings of the National Academy of Sciences of the United States of America**, 96, 15310-15315.
- Rousseaux M.C., Searles P.S., Ballaré C.L., Scopel A.L., Flint S.D. & Caldwell M.M. (1999) Ecosystem responses to ambient solar UV radiation manipulations in Tierra del Fuego, Argentina. **Photochemistry and Photobiology**, 69, 61S-61S.
- Searles P.S., Flint S.D., Diaz S.B., Rousseaux M.C., Ballaré C.L. & Caldwell M.M. (1999) Solar ultraviolet-B radiation influence on *Sphagnum* bog and *Carex* fen ecosystems: first field season findings in Tierra del Fuego, Argentina. **Global Change Biology**, 5, 225-234.
- Botto J.F., Scopel A.L., Ballaré C.L. & Sanchez R.A. (1998) The effect of light during and after soil cultivation with different tillage implements on weed seedling emergence. **Weed Science**, 46, 351-357.
- Caccia F.D. & Ballaré C.L. (1998) Effects of tree cover, understory vegetation, and litter on regeneration of Douglas-fir (*Pseudotsuga menziesii*) in southwestern Argentina. **Canadian Journal of Forest Research-Revue Canadienne De Recherche Forestiere**, 28, 683-692.
- Rousseaux M.C., Ballaré C.L., Scopel A.L., Searles P.S. & Caldwell M.M. (1998) Solar ultraviolet-B radiation affects plant-insect interactions in a natural ecosystem of Tierra del Fuego (southern Argentina). **Oecologia**, 116, 528-535.
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- Ballaré C.L., Scopel A.L. & Sanchez R.A. (1997) Foraging for light: Photosensory ecology and agricultural implications. **Plant Cell and Environment**, 20, 820-825.
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- Aphalo P.J. & Ballaré C.L. (1995) On the Importance of Information-Acquiring Systems in Plant-Plant Interactions. **Functional Ecology**, 9, 5-14.

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- Casal J.J., Mella R.A., Ballaré C.L. & Maldonado S. (1994) Phytochrome-Mediated Effects on Extracellular Peroxidase-Activity, Lignin Content and Bending Resistance in Etiolated *Vicia faba* Epicotyls. **Physiologia Plantarum**, 92, 555-562.
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UNEP updates

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Other publications (Editorials, Invited commentaries, commissioned book reviews and updates)

- Austin, A. T., Ballaré, C. L. (2014) Plant interactions with other organisms: molecules, ecology and evolution. **New Phytologist** 204: 257-260. (Editorial).
- Ballaré C.L., Gross K. L., Monson R. K. (2013) Zooming in on plant interactions. **Oecologia**, 171: 601-603. (Editorial).
- Keuskamp, D. H.; Keller, M.; Ballaré, C. L. and Pierik, R. (2012) Blue Light Regulated Shade Avoidance. **Plant Signaling & Behavior** 7, 514 - 517.
- Ballaré C.L. & Trewavas A. J. (2009) In Memoriam: Tsvi Sachs. **Plant Cell and Environment**, 32, 605-605.
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- Ballaré C.L. (2002) Bifunctional promoter mediates suppressing effect of pathogen infection on UV-induced responses. **Trends in Plant Science** 7:241-242.
- Ballaré C.L. (2001) Phototropism: a family business. **Trends in Plant Science**, 6, 403-403.
- Ballaré C.L. (2001) Smart plants or stealthy bugs? **Trends in Plant Science**, 6, 142-142.
- Ballaré C.L. (2001) Circadian maestro leads plant gene expression symphony. **Trends in Plant Science**, 6, 96-97.
- Helbling E.W., Ballaré C.L. & Villafane V.E. (2001) In this special issue: Impacts of ultraviolet radiation on aquatic and terrestrial ecosystems. **Journal of Photochemistry and Photobiology B-Biology**, 62, VII-IX.
- Aphalo PJ, Díaz SB, Ballaré CL (1996) Possible effects of increased UV-B on the vegetation of Tierra del Fuego. **Ecodecision** (Montreal), 17:71-73.
- Ballaré CL (1994) Invited Book Review: Photomorphogenesis in Plants by RE Kendrick & GHM Kronenberg Eds, Kluwer Academic Publ., Dordrecht, The Netherlands **Vegetatio** 00:1-3.

Publications related to teaching

- Ballaré C.L., Scopel A.L., Casal J.J. & Sánchez R.A. (2002). Know thy neighbors through phytochrome. Essay for Web Supplement to **Plant Physiology** (L Taiz & E Zeiger, Eds., www.plantphys.net).
- Scopel A.L., Ballaré C.L. & Sánchez R.A. (2002). Awakened by a flash of sunlight. Essay for Web Supplement to **Plant Physiology** (L Taiz & E Zeiger, Eds., www.plantphys.net).
- Ballaré C.L. (1996) Efectos de la radiación ultravioleta sobre las plantas. **Ciencia Hoy**, 8:53

DIRECTION OF RESEARCHERS, POST-DOCTORAL ASSOCIATES AND STUDENTS

Lab webpage: <http://epl.agro.uba.ar>

MAJOR GRANTS AND FUNDING (last 10 yr)

- 2021-2024 Estrés abiótico y biótico en plantas. Rol del metabolismo de los jasmonatos en las respuestas de aclimatación y defensa. Agencia Nac. Promoción Científica y Tecnológica, PICT-2019-2019-02651 (**Principal Investigator**)
- 2020-2022 Photobiology and crop health. Molecular basis and ecophysiological approaches. Agencia Nac. Promoción Científica y Tecnológica, PICT-2018-02483 (**Principal Investigator**)
- 2018-2021 Mecanismos de regulación de las respuestas de defensa en plantas por señales del ambiente lumínico. UBACyT2018-2021, (**Principal Investigator**)
- 2018-2020 Light as a regulator of plant defense. From mechanisms to ecosystem processes. Agencia Nac. Promoción Científica y Tecnológica, PICT-2016-1711 (**Principal Investigator**)
- 2016-2018 Regulation by light and hormonal signals of plant responses to biotic stress. Agencia Nac. Promoción Científica y Tecnológica, PICT-2015-1230 (**Principal Investigator**)
- 2014-2017 Light as a modulator of plant defense. Mechanisms and ecophysiological context. UBACyT2014-2017, 20020130100743BA (**Principal Investigator**)
- 2012-2016 Light and shade in the interactions between plants and microorganisms. Agencia Nac. Promoción Científica y Tecnológica, PICT cat. V (**Principal Investigator**)
- 2011-2014 Influence of environmental signals on plant defences. Molecular mechanisms, interactions and legacies. UBACyT2011-2014, 20020100100449 (**Principal Investigator**)
- 2010-2013 Funding for *New Phytologist* symposium entitled ‘Plant interactions with other organisms: molecules, ecology and evolution’ in November 2013. New Phytologist Trust (**Co-chair**)
- 2010-2013 Modulation of plant defenses. Molecular aspects and ecological implications. Agencia Nac. Promoción Científica y Tecnológica (**Principal Investigator**)

INVITED SEMINARS and LECTURES (100+ in the Americas, Europe and Asia; examples: 2009-present)

- **Plantae Presents. American Society of Plant Biologists. Phytochrome, jasmonate and the balance between growth and defense.** <https://plantae.org/plantae-presents-carlos-ballare-and-haim-treves/>. Invited Lecture (Nov 2020).
- **V Simposio Internacional en Fisiología y Nutrición Vegetal, Universidad San Francisco de Quito “Light regulation of growth and defense in plants // Regulación por fotorreceptores del crecimiento y los mecanismos de defensa en plantas.”.** Invited Online Lecture, Quito, Ecuador (Set 2020).
- **Light and Life World Congress -17th International Congress on Photobiology and 18th Congress of the European Society for Photobiology.** A light-dependent molecular link between growth and defense responses in Arabidopsis, Session chair and Invited symposium presentation. Barcelona, Spain (Aug 2019).
- **IV Simposio en Fitopatología, Universidad San Francisco de Quito “Light-dependent molecular links between growth and defense responses”.** Invited Lecture, Quito, Ecuador (Aug 2019).
- **VIB Conference Series, University of Ghent -Regulatory Oxylipins “Light regulation of jasmonate metabolism and signaling in Arabidopsis”.** Invited Conference. Ghent, Belgium (Apr 2019).
- **Department of Biology, Institute of Plant Sciences, University of Bern “The perceptive plant: fighting for light in a hostile world”.** Seminar. Bern, Switzerland (Aug 2018).
- **Département de biologie moléculaire végétale, University of Lausanne “Phytochrome and plant defenses”.** Seminar. Lausanne, Switzerland (Aug 2018).
- **Department of Botany and Plant Biology, University of Geneva “Phytochrome and plant defenses”.** Seminar. Geneva, Switzerland (Aug 2018).

- **12th International Congress of Plant Molecular Biology (IPMB)**. Light and Shade, Session chair and Invited symposium presentation. Montpellier, France (Aug 2018).
- **International Congress of Plant Pathology (ICPP)**. Integration of light and jasmonate perception in the control of growth and defense. Invited symposium presentation. Boston, MA USA (July 2018).
- **X European Plant Science Retreat 2018**. Light, hormones and perfumes. Keynote speaker. Utrecht, NL (July 2018).
- **XVI Brazilian Congress of Plant Physiology (SBFV)**. Light signaling, competition and defense responses in plants. Invited Lecture. San Pedro, SP, Brazil (Sep 2017).
- **Simposio de Genómica Funcional de Plantas**. Regulación por el fitocromo B del metabolismo y señalización del ácido jasmónico en Arabidopsis. Invited Symposium presentation. Rosario, Argentina (May 2017).
- **Plant Herbivore Interactions, Gordon Research Conference**. Regulation of Induced Defenses by Photoreceptors. Ecological Context and Molecular Mechanisms. Invited lecture. Ventura, CA, USA (Feb 2017).
- **Department of Evolution and Ecology, UC Davis “Phytochrome signaling and the trade-offs between plant growth and defense”**. Special Seminar. Davis, CA, USA (Dec 2016).
- **Frontiers in Bioscience 2 “Phytochrome and the regulation of plant defense: New functions for a well-known photoreceptor”**. Instituto de Investigación en Biomedicina de Buenos Aires – CONICET – Partner Institute of the Max Planck Society (IBioBA-MPSP). Invited Symposium presentation. Buenos Aires, Argentina (Nov 2016).
- **XXXI Argentine Plant Physiology Congress (RAFV, SAFV)**. Phytochrome B and defense regulation in plants. New functions for a well-known photoreceptor. Plenary Lecture. Corrientes, Argentina (Nov 2016).
- **GRAFOB Bicentenario “Phytochrome and defense regulation in plants. New tricks for a well-known photoreceptor”**. Plenary Lecture. Tucumán, Argentina (Aug 2016).
- **International Congress of Chemical Ecology**. Phytochrome regulates plant defense and info-chemistry in vegetation canopies. Invited lecture. Foz do Iguazú, Brazil (Jul 2016).
- **1st BiotecSul**. Light regulation of plant defense - implications for agriculture. Plenary Lecture. Lajedo, RS, Brazil (Jul 2016).
- **COST Action FA1405 “Using three-way interactions between plants, microbes and arthropods to enhance crop protection and production”, First Network Meeting**. Defense decisions in plants -- regulation by competition signals, Keynote Lecture. Málaga, Spain (Feb 2016).
- **Plant volatiles, Gordon Research Conference**. Phytochrome B inactivation reduces anti-herbivore defenses in tomato, but enhances attraction to insect predators mediated by volatile compounds in jasmonate-induced plants. Invited short lecture. Ventura, CA, USA (Jan 2016).
- **11th International Congress of Plant Molecular Biology (IPMB)**. Photoreceptors and the regulation of plant immunity against pathogens and pests, Invited symposium presentation. Foz do Iguazú, Brazil (Oct 2015).
- **University of Western Australia School of Plant Biology**. Phytochrome and the dilemma of plants: To grow or defend. Invited Seminar Perth, Australia (Oct 2015).
- **Workshop Interacción Planta-patógeno y estrategias biotecnológicas para el control de enfermedades (INGEBI)**. Regulación por fotorreceptores de la inmunidad frente a patógenos en Arabidopsis". Invited Lecture, Buenos Aires (2015).
- **International Symposium on Plant Photobiology (ISPP)**. Phytochrome regulation of jasmonate responses and plant immunity. Invited symposium presentation, Austin TX, USA (Apr 2015).
- **Seminario “Carlos Cardini”**. Regulación lumínica del sistema inmune en plantas. Invited Seminar. Fundación Instituto Leloir, Argentina (Nov 2014).

- **16th International Congress of Photobiology.** Light regulation of plant immunity. Keynote Lecture. Universidad Nacional de Córdoba, Argentina (Sep 2014).
- **Gordon Research Conference Photosensory Receptors & Signal Transduction.** Signal Integration. Discussion Leader, Renaissance Tuscany Il Ciocco Resort Lucca (Barga), Italy (Abr 2014).
- **I COST-Action FA0906 Final Network Meeting.** UV radiation as a modulator of plant defense and biogeochemical cycles. Keynote Lecture, Bled, Slovenia (Mar 2014).
- **XV Jornadas de la Sociedad Argentina de Biología (SAB).** La luz y el sistema inmune en plantas. Invited symposium presentation, Chascomús, Argentina (Dec 2013).
- **32nd New Phytologist Symposium.** Light and plant defense. Invited Lecture, Buenos Aires, Argentina (Nov 2013).
- **University of Helsinki.** Monday Lectures - Viikki Research Groups in Biosciences. Light and defence decisions in plants. Invited Lecture, Helsinki, Finland (Sept 2013).
- **Salk Institute, Plant Biology Laboratory.** Phytochrome and plant immunity. Shedding light on the dilemma of plants. Invited Seminar, San Diego, USA (Sept 2013).
- **International Symposium on Plant Photobiology (ISPP).** Light and plant defense. Invited Lecture, Edinburgh, UK (June 2013).
- **Fascination of plants day (Argentina).** La planta sensible. Buscando la luz entre dioses y demonios. Invited Lecture, Academia Nacional de Ciencias, Córdoba, Argentina (May 2013)
- **IIB-UNSAM (San Martín National University). Information and defense in plants.** Invited Seminar. San Martín, Argentina (Apr 2013)
- **Latin American Association of Chemical Ecology (ALAEQ).** Light regulation of plant immunity. Plenary Lecture. H. Grande, Córdoba, Argentina (Dec 2012).
- **University of Buenos Aires, School of Biology.** Light as a regulator of plant immunity. Photons, photoreceptors and ecology. Invited Seminar (Department of Biodiversity and Experimental Biology). Buenos Aires, Argentina (Nov 2012).
- **Argentinean Society of Plant Physiology (SAFV).** Phytochrome regulation of plant defense and JA signaling. Invited Symposium Presentation. Mar del Plata, Argentina (Sep 2012).
- **Ecological Society of America (ESA).** No time for candy: Plants down-regulate herbivory-induced extrafloral nectar production when challenged by competitors. Invited Talk (Organized Oral Session on The Chemical Ecology of Plant-Animal Mutualisms). Portland, OR, USA (Aug 2012).
- **INTECH-San Martín National University. How do plants make decisions in complex environments?** Invited Seminar. Chascomús, Argentina (Apr 2012).
- **National Institute of Agricultural Sciences (INTA, CIAB).** Light, shade, perfume and JAZ: Phytochrome and the dilemma of plants. Invited Seminar. Córdoba, Argentina (Nov 2011).
- **XIII Brazilian Congress of Plant Physiology, Brazilian Society of Plant Physiology (SBFV).** Phytochrome regulation of jasmonate responses and plant defense. Invited Lecture. Búzios, RJ, Brazil (Sep 2011).
- **University of Neuchâtel, Interuniversity Doctoral Program in Organismal Biology.** Phytochrome regulation of plant immunity. Invited Lecture. Neuchâtel, Switzerland (Aug 2011).
- **Utrecht University, PhD Summerschool on Environmental Signaling 2011.** Signals from neighbors. Invited Lecture. Utrecht, The Netherlands (Aug 2011).
- **Instituto de Biotecnología de INTA-Castelar.** Fitocromos, jasmonatos, y el dilema de las plantas: ¿Crecer o defenderse? Invited Seminar. Castelar, Argentina (July 2011).
- **INIFTA, Primera Reunión de Fotobiólogos Moleculares Argentinos.** Regulación del sistema de defensas en plantas por el fitocromo y otros fotorreceptores. Invited Lecture. La Plata, Argentina (June 2011).

- **CNB-CSIC, Universidad Autónoma de Madrid.** Phytochrome regulation of plant defense. Invited Seminar. Madrid, Spain (Mar 2011).
- **Centre for Research in Agricultural Genomics (CRAG) Consortium CSIC-IRTA-UAB.** Phytochrome regulation of plant defenses. Invited Seminar. Barcelona, Spain (Mar 2011).
- **First Brazilian Symposium on the Effects of UV Radiation on Agriculture.** Effects of solar UV radiation on terrestrial ecosystems in the context of global climate change. Invited lecture. Sao José dos Campos, Brazil (Oct 2010)
- **XVII Congress of the Federation of European Societies of Plant Biology.** Global change and the effects of solar UV radiation on terrestrial ecosystems. Invited lecture. Valencia, Spain (July 2010)
- **INGEBI.** El sistema de defensa anti-herbívoro en plantas. Contexto ecológico y controles moleculares. Invited seminar. Buenos Aires, AR (Apr 2010)
- **Oregon State University.** How plants use informational light signals to make defense decisions. Invited seminar. Corvallis, OR, USA (Sep 2009)
- **University of Utrecht.** Light regulation of plant defenses against herbivorous insects. Invited seminar. Utrecht, The Netherlands (Aug 2009)
- **Annual Meeting of the Society of Experimental Biology.** Specific effects of solar UV-B radiation on plant defense mediated by the jasmonate signaling pathway. Plenary Lecture Glasgow, UK (Jun 2009)
- **Max Planck Institute for Plant Breeding Research.** Phytochrome modulation of plant defenses against herbivorous insects. Invited seminar. Köln, Germany (Apr 2009)