

# *CURRICULUM VITAE*

## PERSONAL DATA

**Miguel A. Morales, PhD**

**Assistant Professor**

Dpt. Biological Sciences

278 Galvin Life Science

University of Notre Dame, IN, USA

Telephone (C): +1 574 631 7296

Email: miguel.morales@nd.edu

Date of birth: December 1, 1972

Place of birth: Madrid (Spain)

Nationality: Spanish

## EDUCATION

**2002 Ph.D. Thesis** in the Laboratory of Leishmaniasis, ISCIII, Madrid, Spain (Dr. Jorge Alvar) on “**Molecular Epidemiology of *Leishmania*/HIV co-infection**”.  
Score “*Magna Cum Laude*”

**2002** Ph.D. Program in Biochemistry and Molecular Biology completed. UCM, Spain.

**1997** MSc. in Biology, Universidad Complutense de Madrid (UCM), Spain

**1993** Minor in Theoretical Physics, Universidad Complutense de Madrid (UCM), Spain

## RESEARCH INTERESTS

Molecular biology of infectious diseases. Molecular parasitology. Signal transduction in parasitic systems. Phosphoproteomics. Drug development. Drug resistance in trypanosomatids.

## PROFESSIONAL EXPERIENCE AND APPOINTMENTS

**July-2011-Present**      **Assistant Professor**, University of Notre Dame

**Sept. 2008 – May 2011:**    **Instructor** at Pasteur Institute, Paris, France on "Phosphoproteomic approaches in *Leishmania*".

**Nov. 2005 – Aug. 2008:**    **Research Associate** at Pasteur Institute, Paris, France on “Signal transduction molecules as drug targets in pathogenic protozoa”

**Dec. 2002 – Sept. 2005:** **PostDoc Fellow** at the New York University Medical Center, New York, USA on “Functional characterization of *Leishmania major* MAP kinases in environmental sensing and parasite differentiation”

**March 98 – Dec. 2002:** **Predoctoral Fellow**, at the National Center for Microbiology, ISCIII, Madrid, Spain on “Molecular epidemiology of *Leishmania*/HIV co-infection”

## SCIENTIFIC ACTIVITIES

### AWARDS:

Fellow of the Bourse Roux, Pasteur Institute, Paris, France (Sept. 2008- Feb. 2010).

Fellow of INSERM Avenir program (Sept 2005-March 2008)

Fellow of the Foundation for AIDS Research and Prevention in Spain (October 1998 to Dec. 2001). PhD

### TEACHING EXPERIENCE:

Undergraduate courses: Medical and Molecular Parasitology and Mycology

Graduate Courses: Topics in Infectious Diseases

### UNIVERSITY SERVICE:

Member Affirmative Action Committee, Notre Dame

Member Undergraduate Research Committee, Notre Dame

Eck Institute Pilot Project Grants Review Committee

### MENTORING OF PhD STUDENTS:

Mariko Dacher, « Functional characterization of the *Leishmania* MAP kinase LmaMPK4 in parasite virulence using genetic and proteomic approaches ». Pasteur Institut, Paris, France.

Wai-Lok Yau, « Proteomic identification of *Leishmania* amastigote-specific phosphoproteins and functional characterization of their role in parasite differentiation and virulence ». Pasteur Institut, Paris, France.

**COMMUNICATIONS AT MEETINGS:** more than 30 presentations at International Meetings.

**AWARDED TRAINING COURSES:** awarded courses in Bioinformatics at Wellcome Trust Sanger Institute, Hinxton, UK; at EMBL, Heidelberg, Germany; WHO/TDR-NCBI-NIH Bioinformatics Training program at Fiocruz, Rio de Janeiro, Brasil.

**PEER-REVIEWS:** Experimental Parasitology, Molecular and Biochemical Parasitology, International Journal for Parasitology, Cellular Microbiology, PLOS Neglected Diseases

**EDITORIAL BOARDS:** Journal of Organ Biology

**MEMBERSHIPS:** American Society of Tropical Medicine and Hygiene (ASTMH), BSP (British Society of Parasitology), AAAS (American Association for the Advancement of Science), Kastler Foundation (France),

## **PUBLICATIONS (in chronological order, not including *in preparation*)**

**Miguel A. Morales, Juan R. Luque-Ortega, Mariko Dacher, Eric Prina, Francisco Gamarro, Luis Rivas, and Gerald F. Späth (2011).** Stress-induced activation of the *L. major* MAP kinase LmaMPK7 increases parasite resistance against programmed cell death. *Submitted*

**Hem S, Gherardini PF, Fortéa JO, Hourdel V, Morales MA, Watanabe R, Pescher P, Kuzyk MA, Smith D, Borchers CH, Zilberstein D, Helmer-Citterich M, Namane A, Späth GF (2010).** Identification of *Leishmania*-specific protein phosphorylation sites by LC-ESI-MS/MS and comparative genomics analyses. *Proteomics. Sep 9. (Epub ahead of print)*

**Miguel A. Morales, Reiko Watanabe, Mariko Dacher, Philippe Chafey, José Osorio y Fortéa, David A. Scott, Stephen M. Beverley, Gabi Ommen, Joachim Clos, Sonia Hem, Pascal Lenormand, Jean-Claude Rousselle, Abdelkader Namane and Gerald F. Späth (2010).** Phosphoproteome dynamics reveals heat shock protein complexes specific to the *Leishmania* infectious stage. *Proc. Natl. Acad. Sci. U S A Apr 19. (Epub ahead of print)*

**Wai-Lok Yau, Thierry Blisnick, Jean-François Taly, Manuela Helmer-Citterich, Cordelia Schiene-Fischer, Olivier Leclercq, Jing Li, Dirk Schmidt-Arras, Miguel A. Morales, Cedric Notredame, Daniel Romo, Philippe Bastin, and Gerald F. Späth (2010).** Cyclosporin A treatment of *Leishmania donovani* reveals stage-specific functions of cyclophilins in parasite proliferation and viability. *PLOS Negl Trop Dis. Jun 29; 4(6):e729*

**Morales MA, Pescher P, Späth GF. (2009).** *Leishmania major* LmaMPK7 protein kinase activity inhibits intracellular growth of the pathogenic amastigote stage. *Eukaryot Cell. Oct 2*

Peduto L, Dulauroy S, Lochner M, Späth GF, Morales MA, Cumano A, Eberl G. (2009). Inflammation recapitulates the ontogeny of lymphoid stromal cells. *J Immunol.* May 1;182(9):5789-9

Morales MA & Rotureau B, Bastin P, Späth GF (2009). The flagellum-MAP kinase connection in Trypanosomatids: a key sensory role in parasite signaling and development? *Cell Microbiol.* Feb 4.

Morales MA., Watanabe R., Laurent C., Lenormand P., Rousselle JC., Namane A. and Späth G. (2008). Phosphoproteomic analysis of *Leishmania* promastigote and amastigote life stages *Proteomics.* 8(2):350-63

MA. Morales, O. Renaud, W. Faigle, SL. Shorte and GF. Späth (2007) Over-expression of *Leishmania major* MAP kinases reveals stage-specific induction of phosphotransferase activity. *Int J Parasitol.* 37, 1187-1199

Montero E, Gonzalez LM, Bonay P, Rosas G, Hernandez B, Sciutto E, Parkhouse RM, Harrison LJ, Morales MA, Garate T (2007) *Taenia solium*: Identification and preliminary characterization of a lipid binding protein with homology to the SEC14 catalytic domain. *Exp Parasitol.* 116, 191-200

Lopez-Velez R, Videla S, Marquez M, Boix V, Jimenez-Mejias ME, Gorgolas M, Arribas JR, Salas A, Laguna F, Sust M, Canavate C, Alvar J; Spanish HIV-Leishmania Study Group (2004) Amphotericin B lipid complex versus no treatment in the secondary prophylaxis of visceral leishmaniasis in HIV-infected patients. *J Antimicrob Chemother* Mar;53(3):540-3. Epub 2004 Jan 22.

Laguna F, Videla S, Jimenez-Mejias ME, Sirera G, Torre-Cisneros J, Ribera E, Prados D, Clotet B, Sust M, Lopez-Velez R, Alvar J; Spanish HIV-Leishmania Study Group. (2003) Amphotericin B lipid complex versus meglumine antimoniate in the treatment of visceral leishmaniasis in patients infected with HIV: a randomized pilot study. *J Antimicrob Chemother* Sep;52(3):464-8. Epub 2003 Jul 29.

M.A. Morales & I. Cruz, I. Noguera, A. Rodríguez , J. Alvar (2002) *Leishmania* in Discarded Syringes from Intravenous Drug Users. *Lancet* 359: 1124-25

M.A. Morales, I. Cruz, J.M. Rubio, C. Chicharro, C. Cañavate, F. Laguna & J Alvar (2002). Relapses vs Reinfections in *Leishmania infantum* / Human Immunodeficiency Virus Type 1 Coinfected Patients. *Journal of Infectious Diseases* 185: 1533-1537

I.Cruz, C. Cañavate, J.M. Rubio, M.A. Morales, C. Chicharro, F. Laguna, M. Jiménez Mejías, G. Sirera, S. Videla & J. Alvar, for the Spanish HIV-Leishmania Study Group. (2002). *Leishmania infantum* Nested Polymerase Chain Reaction (Ln-PCR) a Comparative Study with Other Techniques for Diagnosis and Monitoring of *Leishmania*/HIV

Coinfected Patients. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, suppl 1, 96: 185-189

**Chicharro, C. & Morales, MA., Serra, T., Ares, M., Salas, A. y Alvar, J. (2002)** Molecular epidemiology of *Leishmania infantum* in the island of Majorca (Spain): a comparison of phenotypic and genotypic tools. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, suppl 1, 96: 93-99

**Morales, MA., Chicharro, C., Ares, M., Cañavate, C., Barker, DC. y Alvar, J. (2001)** Molecular tracking of infections by *Leishmania infantum*. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 95:104-107

## REFEREED PAPERS IN PUBLISHED CONFERENCE PROCEEDINGS & BOOK CHAPTERS

J. Alvar, I. Cruz, **MA Morales** and C. Cañavate (2002). Molecular biology tools in leishmaniasis diagnosis and epidemiology. *Proceedings of the 2<sup>nd</sup> International Canine Leishmaniasis Forum. Seville, Spain*

Gárate, T., Benito, A., Chicharro, C., De Fuentes, I., **Morales, M. A., Rodríguez, E., Rubio, J. M. y Alvar, J. (2001)**. *Diagnóstico molecular de brotes por parásitos*. En "Etiopatogenia y diagnóstico en enfermedades tropicales" pp: 81-93. Ed: SEMTSI.

## ADDITIONAL INFORMATION

Trilingual in English / Spanish/French.

References kindly provided upon request.

## PARTICIPATION IN RESEARCH PROJECTS

**PROJECT TITLE:** Phenotype versus genotype to understand *Leishmania infantum* population structure.

**FINANCIAL ENTITY:** DGICYT, ref. PB95-003

**LENGHT** FROM: 01/01/1996 TO: 31/12/1999

**PRINCIPAL INVESTIGATOR:** Dr Jorge Alvar

**PROJECT TITLE:** Molecular epidemiology of the HIV-*Leishmania* co-infection

**FINANCIAL ENTITY:** FIPSE, Ref. 3056/99

**LENGHT** FROM: 01/10/99 TO 30/09/02

**PRINCIPAL INVESTIGATOR:** Dr. Jorge Alvar

**PROJECT TITLE:** *The role of Leishmania MAP kinases in virulence*

**FINANCIAL ENTITY:** WHO/TDR

**LENGHT** FROM: 03/2002 TO 03/2004

**PRINCIPAL INVESTIGATOR:** Dr G. Spaeth

**PROJECT TITLE:** *CD1-mediated immunity in visceral leishmaniasis*

**FINANCIAL ENTITY:** Starr Foundation

**LENGHT** FROM: 09/2003 TO 08/2005

**PRINCIPAL INVESTIGATOR:** Dr G. Spaeth

**PROJECT TITLE:** *Identification of signaling pathways implicated in Leishmania differentiation and stage-specific gene expression.*

**FINANCIAL ENTITY:** INSERM Avenir and DGS

**LENGHT** FROM: 04/2005 TO 05/2010

**PRINCIPAL INVESTIGATOR:** Dr G. Spaeth

**PROJECT TITLE:** *Targeting the Leishmania kinome for the development of novel anti-parasitic strategies.*

**FINANCIAL ENTITY:** EU FP7 Program

**LENGHT** FROM: 2008 TO 2011

**PRINCIPAL INVESTIGATOR:** Dr G. Spaeth (Coordinator)

## PRESENTATIONS IN CONGRESSES

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*AUTHORS:* Morales MA  
*TITLE:* “*Leishmania* signal transduction: new pathways for resistance”  
*TYPE OF PRESENTATION:* Invited speaker  
*CONGRESS:* Seminar  
*PUBLICATION:*  
*MEETING PLACE:* Dpt of Biological Sciences, University of Notre Dame, IN, USA  
*YEAR:* 2011

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*AUTHORS:* Morales MA  
*TITLE:* “Dissecting *Leishmania* stress response”  
*TYPE OF PRESENTATION:* Invited speaker  
*CONGRESS:* Seminar  
*PUBLICATION:*  
*MEETING PLACE:* Biochemistry Dpt., Virginia Tech, VI, USA  
*YEAR:* 2010

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*AUTHORS:* Morales MA, Spaeth G  
*TITLE:* Phosphoproteomic analysis of *Leishmania donovani* amastigotes”  
*TYPE OF PRESENTATION:* Oral  
*CONGRESS:* WorldLeish  
*PUBLICATION:*  
*MEETING PLACE:* Lucknow, India  
*YEAR:* 2009

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*AUTHORS:* Morales MA et al.  
*TITLE:* "Identification of stage-regulated foldosome complexes in *Leishmania donovani* by quantitative phosphoproteomics"  
*TYPE OF PRESENTATION:* Invited speaker  
*CONGRESS:* . XXXI Congreso Spanish Society of Biochemistry and Molecular Biology  
*PUBLICATION:*  
*MEETING PLACE:* , Bilbao, Spain  
*YEAR:* 2008

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*AUTHORS:* Morales MA, Spaeth G  
*TITLE:* "Monitoring amastigote-specific signaling in *Leishmania donovani* by quantitative phosphoproteomics"  
*TYPE OF PRESENTATION:* Oral  
*CONGRESS:* British Society of Parasitology Annual Meeting  
*PUBLICATION:*  
*MEETING PLACE:* Newcastle, UK

YEAR: 2008

AUTHORS: Morales MA, Spaeth G

TITLE: "Over-expression of *Leishmania major* MAP kinase LmaMPK7 leads to increased phosphorylation of endogenous phosphoprotein substrates and interferes with parasite growth and virulence"

TYPE OF PRESENTATION: Oral

CONGRESS: British Society of Parasitology Annual Meeting

PUBLICATION:

MEETING PLACE: Newcastle, UK

YEAR: 2008

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AUTHORS: Morales MA, Watanabe R, Spaeth G

TITLE "Phosphoproteomic analysis of *Leishmania donovani* life cycle stages using 2D gel electrophoresis and multiplex fluorescent protein staining"

TYPE OF PRESENTATION: Oral

CONGRESS: Spectrométrie de masse et analyse protéomique

PUBLICATION:

MEETING PLACE: Pau, France

YEAR: 2007

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AUTHORS: Morales MA

TITLE "Proteomics approaches in epidemiological contexts"

TYPE OF PRESENTATION: Invited speaker

CONGRESS: Seminar

PUBLICATION:

MEETING PLACE: Department of Medical Parasitology, NYU School of Medicine, NY, USA

YEAR: 2007

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AUTHORS: Morales MA et al

TITLE "Phosphoproteomic analysis of *Leishmania* promastigote and amastigote life stages: from substrates to MAP kinases"

TYPE OF PRESENTATION: Oral

CONGRESS: Kinetoplastid Molecular Cell Biology. MBL

PUBLICATION:

MEETING PLACE: Woods Hole, MA, USA

YEAR: 2007

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AUTHORS: Morales MA, Spaeth GF

TITLE "Targeting *Leishmania* signaling"

TYPE OF PRESENTATION: Oral

CONGRESS: Department of Parasitology and Mycology Symposium

PUBLICATION:

MEETING PLACE: Institut Pasteur, Paris, France

YEAR: 2006



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*AUTHORS: Morales MA, Spaeth GF*  
*TITLE "Targeting *Leishmania* signaling for drug and vaccine development"*  
*TYPE OF PRESENTATION: Oral*  
*CONGRESS: Department of Parasitology and Mycology Symposium*  
*PUBLICATION:*  
*MEETING PLACE: Institut Pasteur, Paris, France*  
*YEAR: 2005*

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*AUTHORS: Morales MA, Spaeth GF*  
*TITLE *Leishmania* signal transduction*  
*TYPE OF PRESENTATION: Oral*  
*CONGRESS: ASTMH, 52<sup>nd</sup> Annual Meeting*  
*PUBLICATION:*  
*MEETING PLACE: Philadelphia, Pennsylvania, USA.*  
*YEAR: 2003*

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*AUTHORS: Morales MA, Spaeth GF*  
*TITLE "Functional characterization of *Leishmania major* MAP kinases in environmental sensing and parasite differentiation*  
*TYPE OF PRESENTATION: Oral (best presentation award)*  
*CONGRESS: Molecular Parasitology Meeting XIV*  
*PUBLICATION:*  
*MEETING PLACE: Woods Hole, MA USA Philadelphia, Pennsylvania, USA.*  
*YEAR: 2003*

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*AUTHORS: Morales MA et al*  
*TITLE "UPGMA dendrogram based on PCR-RFLP to reveal zoonotic and anthroponotic cycles of *Leishmania infantum* in the island of Majorca"*  
*TYPE OF PRESENTATION: Poster*  
*CONGRESS: Worldleish 2*  
*PUBLICATION:*  
*MEETING PLACE: Creta, Greece*  
*YEAR: 2001*

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*AUTHORS: Morales MA et al*  
*TITLE "Relapses versus reinfections in *Leishmania*/HIV coinfectd patiens".*  
*TYPE OF PRESENTATION: Oral*  
*CONGRESS: Worldleish 2*  
*PUBLICATION:*  
*MEETING PLACE: Creta, Greece*  
*YEAR: 2001*

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**AUTHORS:** Chicharro, C., Morales, M. A. y Alvar, J.  
**TITLE** "Phenotypic characterization of *Leishmania infantum* from Spain".  
**TYPE OF PRESENTATION:** *Poster*  
**CONGRESS:** Worldleish 2  
**PUBLICATION:**  
**MEETING PLACE:** Creta, Greece  
**YEAR:** 2001

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**AUTHORS:** Alvar J, Morales MA, Cruz I, El Bali M, Jiménez M, Chicharro C & Cañavate C.  
**TITLE** "Leishmania-HIV Coinfection: Transmission by Syringes  
**TYPE OF PRESENTATION:** *Oral*  
**CONGRESS:** Worldleish 2  
**PUBLICATION:**  
**MEETING PLACE:** Creta, Greece  
**YEAR:** 2001

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**AUTHORS:** Cruz I, Morales MA, Cañavate C, Noguer I, Rodríguez A & Alvar J.  
**TITLE** "Leishmania in Discarded Syringes from Intravenous Drug Users (IVDUs)".  
**TYPE OF PRESENTATION:** *Poster*  
**CONGRESS:** Worldleish 2  
**PUBLICATION:**  
**MEETING PLACE:** Creta, Greece  
**YEAR:** 2001

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**AUTHORS:** Cruz I, Cañavate C, Rubio JM, Morales MA, Chicharro C & Alvar J.  
**TITLE** "Leishmania infantum Nested Polymerase Chain Reaction (LN-PCR) a Comparative Study with Other Techniques for Diagnosis and Monitoring of Leishmania/HIV Coinfected Patients  
**TYPE OF PRESENTATION:** *Poster*  
**CONGRESS:** Worldleish 2  
**PUBLICATION:**  
**MEETING PLACE:** Creta, Greece  
**YEAR:** 2001

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**AUTHORS:** Alvar, J., Morales, M. A., Cruz, I., Chicharro, C., El Bali, M., Serra, T. y Cañavate, C  
**TITLE** "Molecular tracking of *Leishmania infantum*  
**TYPE OF PRESENTATION:** *Oral*  
**CONGRESS:** XII Mediterranean Congress of Chemotherapy  
**PUBLICATION:**  
**MEETING PLACE:** . Marrakesh Morocco  
**YEAR:** 2000

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**AUTHORS:** Alvar, J., Morales, M.A., Chicharro, C., Cañavate C., y Barker, D. C.

**TITLE** "Molecular tracking of *Leishmania infantum*

**TYPE OF PRESENTATION:** Oral

**CONGRESS:** New Challenges in Tropical Medicine and Parasitology

**PUBLICATION:**

**MEETING PLACE** Oxford (UK),

**YEAR:** 2000

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**AUTHORS:** Morales, M.A., Chicharro, C., Cañavate, C., y Alvar

**TITLE** Molecular epidemiology of *Leishmania infantum* in the island of Majorca. Phenotypic and genotypic characterization tools" ,

**TYPE OF PRESENTATION:** Poster

**CONGRESS:** New Challenges in Tropical Medicine and Parasitology

**PUBLICATION:**

**MEETING PLACE** Oxford (UK),:

**YEAR:** 2000

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**AUTHORS:** Morales, M.A., Chicharro, C., Cañavate, C., Alvar, J. and the Spanish HIV-*Leishmania* Study Group.

**TITLE** "Molecular tracking of infections by *Leishmania infantum* in patients coinfecting with HIV

**TYPE OF PRESENTATION:** Poster

**CONGRESS:** New Challenges in Tropical Medicine and Parasitology

**PUBLICATION:**

**MEETING PLACE** Oxford (UK),:

**YEAR:** 2000

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**AUTHORS:** M.A. Morales, C. Chicharro, M. Ares, C. Cañavate y J. Alvar

**TITLE** Seguimiento molecular de coinfecciones *Leishmania infantum*/HIV

**TYPE OF PRESENTATION:** Poster

**CONGRESS:** II Congreso de la Sociedad Española de Medicina Tropical y Salud Internacional

**PUBLICATION:**

**MEETING PLACE** Sitges, Spain

**YEAR:** 2000

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**AUTHORS:** C. Chicharro, M.A. Morales, M. Ares y J. Alvar.

**TITLE** El zimodema MON-253 de *L. infantum* responsable de un brote entre pacientes ADVP

**TYPE OF PRESENTATION:** Poster

**CONGRESS:** VI Congreso Ibérico de Parasitología

**PUBLICATION:**

**MEETING PLACE** Cordoba, Spain

**YEAR:** 1999

Liu J-Z, Lam H-M. Signal Transduction Pathways in Plants for Resistance against Pathogens. *International Journal of Molecular Sciences*. 2019; 20(9):2335. Chicago/Turabian Style. Liu, Jian-Zhong; Lam, Hon-Ming. 2019. "Signal Transduction Pathways in Plants for Resistance against Pathogens." *Int. J. Mol.*