LAURE BEVEN

Univ. Bordeaux, UMR INRA Fruit Biology and Pathology 1332, Villenave d'Ornon, France
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SUMMARY

Biochemist leading bacterial and artificial membrane studies in advanced research projects.

SKILLS

Scientific domains :
Bacterial membrane biochemistry
Microbiology
Functional Genomics
Bacterial Metabolism

Applied to Studies of :
Protein/Lipid interactions
Host/Pathogen interactions
Antimicrobial peptides/Membrane interactions

MAIN RESEARCH THEMES

- Identification and functional characterization of pathogenicity factors of bacteria of the class Mollicutes.
- Studies of the lateral membrane bacterial organization under biotic and abiotic stresses.
- Re-designing lipid metabolism in Mollicutes.

WORK HISTORY

Assistant Professor
UMR 1332 University of Bordeaux, INRA Fruit Biology and Pathology,
Villenave d'Ornon, France.
Lab director : Dr. T. Candresse. **2006-Current**

Assistant Professor
University of Technology of Compiègne, UMR 6022, CNRS Department Enzymatic and Cellular Bio-engineering.
Compiègne, France.
Lab director: Pr. D. Thomas. **2001-2006**

Scientific director of the Agro-Industry Platform of Univ. Tech. Compiègne,
Valorization of plant by-products
Compiègne, France. **2001-2006**

Postdoctoral position
Ohio State University, Molecular Biology Department.
Columbus, OH, US.
Lab director: Dr. H.-O. Park. **1999-2001**

Postdoctoral position
University of Technology of Compiègne, UMR 6022, CNRS Department Enzymatic and Cellular Bio-engineering.
Compiègne, France. **1998-1999**
Research director: Pr. J. Chopineau; lab director: Pr. D. Thomas.

Temporary Lecturer and Research Assistant
University of Rennes I, UMR 6026, CNRS, Department of Membranes and Osmoregulation,
Rennes, France.
Research and lab director: Pr. H. Wróblewski. **1996-1998**

EDUCATION

PhD : Biological Sciences, specialty Microbiology **1997**
Rennes, France.
Director: Pr. H. Wróblewski.

ACADEMIC ACTIVITIES AND SERVICES

Since 2001: Lecturer in Microbiology at Univ. Bordeaux, France (192h/y): Main, directed and practical courses offered to students from 2nd to 5th year at the University.

Since 2013: Educational referent for the Lab Training Teaching Unit, Master 1 of Microbiology-Immunology in Biological Sciences at Univ. Bordeaux, France.

Since 2013: Educational referent for the Genetics Teaching Unit, Licence (2nd year) Technology for Health at Univ. Bordeaux, France.

Since 2014: Educational referent for the Teaching Unit "Tools for diagnotic in Immunology and Microbiology" of Master 2 of Microbiology-Immunology in Biological Sciences at Univ. Bordeaux, France.

Since 2016: Educational referent for the professional cursus of Master of Microbiology-Immunology in Biological Sciences at Univ. Bordeaux, France.

Since 2013: Expert HCERES-Formations (evaluation of University education at a national level).

GRANTED PROJECTS

- Co-Coordination with L. Navailles (CRPP, Talence, France) of a project with financial support of Univ. Bordeaux (2016-2019).
- Co-Coordination with M.-L. Brachet (CTIFL, Pringonrieux, France) of a project CASDAR (2017-2018).
- Task coordinator of a program coordinated by X. Foissac (UMR BFP 1332, INRA) with financial support of the CIVB (2014-2017).
- Involvement in project SYNBIOMOL financed by ANR and coordinated by Carole Lartigue (2013-2017).
- Involvement in the European program H2020 MycoSynvac coordinated by Luis Serrano (CRG, Barcelone, Espagne) (2015-2020).

PUBLICATIONS

Book Chapters

1. LADANT D., ROSSI C., BEVEN L., CHOPINEAU J. (2006) “In vitro acylation of neurocalcin and exploration of its membrane binding properties”. In "Neuronal Calcium Sensor Proteins", Philippov & Koch Eds, Nova Science publishers, pp 351-370.

2. RIPPA S., ADENIER H., DERBALY M., BÉVEN* L. (2009) Alamethicin induces an rRNA-cleavage-associated death in Arabidopsis thaliana. In “Peptaibiotics”, Toniolo & Brückner Eds, Verlag Helvetica Chimica Acta, pp 591-604.*Corresponding author

3. CHOPINEAU J., BEVEN L., LADANT D., ROSSI C. (2010) Surface plasmon resonance spectroscopy for biomimetic membrane assembly and protein-membrane interactions studies. In “Plasmons: Theory and applications”, Philippov & Koch Eds, Nova Science publishers, pp 201-215.

4. BEVEN* L., HOGENHOUT S., LABROUSSAA F., ARRICAU-BOUVERY N., SAILLARD C. (2014) Spiroplasma Transmission from Insects to Plants: S. citri Proteins Involved in Transmission by Leafhopper Vectors. In “Mollicutes: Molecular Biology and Pathogenesis », Browning & Citti Eds, Caister Academic Press, pp 197-213.*Co-Corresponding author

5. BEVEN* L., ARRICAU-BOUVERY N., RENAUDIN J., SAILLARD C. (2014) Pathogenicity, virulence and transmission of plant spiroplasmas. In “Virulence mechanisms of plant pathogenic bacteria”, Wang, Jones, Sundin, White, Hogenhout, Roper, De La Fuente & Ham Eds, APS (American Phytopathological Society) Press, pp.*Corresponding author

Articles in peer-reviewed international journals

CORNUT I., BUTTNER K., BEVEN L., DUCLOHIER H. & DUFOURCQ J. (1995) Minimal requirements for the design of highly cytotoxic α-helical peptides. Peptides, 23 : 666-667.

BEVEN L., LE HENAFF M., FONTENELLE C. & WROBLEWSKI H. (1996) Inhibition of spiralin processing by the lipopeptide antibiotic globomycin. Curr. Microbiol. 33 : 317-322.

BEVEN L. & WROBLEWSKI H. (1997) Effect of natural amphipathic peptides on viability, membrane potential, cell shape and motility of mollicutes. Res. Microbiol. 148 : 163-175.

BEVEN L., CHALOIN L., VIDAL P., HEITZ F. & WROBLEWSKI H. (1997) Effects on mollicutes (wall-less bacteria) of synthetic peptides comprising a signal peptide or a membrane fusion peptide, and a nuclear localization sequence (NLS) : a comparison with mellitin. Biochim. Biophys. Acta (Biomembranes), 1329 : 357-369.

FLEURY Y., VOUILLE V., BEVEN L., AMICHE M., WROBLEWSKI H., DELFOUR A. & NICOLAS P. (1998) Synthesis, antimicrobial activity and gene structure of a novel member of the dermaseptin b family. Biochim. Biophys. Acta (Biomembranes), 1396 : 228-236.

BEVEN L., DUVAL D., REBUFFAT S., RIDDELL F., BODO B. & WROBLEWSKI H. (1998) Membrane permeabilisation and antimycoplasmic activity of the 18-residue peptaibols, trichorzins PA. Biochim. Biophys. Acta (Biomembranes) 1372 : 78-90.

BEVEN L., HELLUIN O., MOLLE G., DUCLOHIER H. & WROBLEWSKI H. (1999) Correlation between anti-bacterial activity and pore sizes of two classes of voltage-dependent channel-forming peptides. Biochim. Biophys. Acta (Biomembranes), 1421 : 53-63.

BEVEN L., ADENIER H., KICHENAMA R., HOMAND J., REDEKER V., LE CAER J.P., LADANT D. & CHOPINEAU J. (2001) Ca2+-myristoyl switch and membrane binding of chemically acylated neurocalcins. Biochemistry, 40 : 8152-60.

BEVEN. L., CASTANO S., DUFOURCQ J., WIESLANDER Å & WRÓBLEWSKI H. (2003) The antibiotic activity of cationic linear amphipathic peptides: lessons from the action of leucine/lysine copolymers on bacteria of the class Mollicutes. Eur. J. Biochem., 270 : 1-11.

KOZMINSKI* K.G., BEVEN* L., ANGERMAN E., TONG A., BOONE C. & PARK H.-O. (2003) Interaction between a Ras and a Rho GTPase couples selection of a growth site to the development of cell polarity in yeast. Mol Biol Cell., 14 : 4958-70. * Equal contribution.

DELATTRE C., MICHAUD P., KELLER C., ELBOUTACHFAITI R., BEVEN L., COURTOIS B., COURTOIS J. (2005) Purification and characterization of a novel glucuronan lyase from Trichoderma sp. GL2. Appl Microbiol Biotechnol. 16 : 1-7.

RIPPA S., ADENIER H., DERBALY M., BÉVEN* L. (2007) The peptaibol alamethicin induces an rRNA-cleavage-associated death in Arabidopsis thaliana. Chem. Biodivers. 4 : 1360-73. *Corresponding author.

BRETON M., DURET S., ARRICAU-BOUVERY N., BÉVEN L., RENAUDIN J. (2008) Characterizing the replication and stability regions of Spiroplasma citri plasmids identifies a novel replication protein and expands the genetic toolbox for plant-pathogenic spiroplasmas. Microbiology 154:3232-44.

PEREYRE S., SIRAND-PUGNET P., BÉVEN L., CHARRON A., RENAUDIN H., BARRÉ A., AVENAUD P, JACOB D., COULOUX A., BARBE V., DE DARUVAR A., BLANCHARD A., BÉBÉAR C. (2009) Life on arginine for Mycoplasma hominis: clues from its minimal genome and comparison with other human urogenital mycoplasmas. PLoS Genet. 5:e1000677.

DURET S, BATAILLER B, DANET JL, BÉVEN L., RENAUDIN J, ARRICAU-BOUVERY N. (2010) Infection of the Circulifer haematoceps cell line Ciha-1 by Spiroplasma citri: the non-insect-transmissible strain 44 is impaired in invasion. Microbiology. 156:1097-107.

KANG P.J., BÉVEN L., HARIHARAN S., PARK H.-O. (2010) The Rsr1/Bud1 GTPase interacts with itself and the Cdc42 GTPase during bud-site selection and polarity establishment in budding yeast. Mol. Biol. Cell. 21:3007-3016. RIPPA S., EID M., FORMAGGIO F, TONIOLO C.,

BÉVEN* L. (2010) Hypersensitive-like response to the pore-former peptaibol alamethicin in Arabidopsis thaliana. ChemBioChem. 11 (14) : 2042-2049. *Corresponding author.

EID M., RIPPA S., CASTANO S., DESBAT B., CHOPINEAU J., ROSSI C., BÉVEN* L. (2010) Exploring the membrane mechanism of the bioactive peptaibol ampullosporin A using lipid monolayers and supported biomimetic membranes. J. Biophys. e179641, 12 pages. *Corresponding author.

BRETON M., DURET S., DANET J.L., BÉVEN L., DUBRANA M.P., RENAUDIN, J. (2011) I-SceI-mediated plasmid deletion and intra-molecular recombination in Spiroplasma citri. J. Mic. Methods. 84 (2) : 216-222.

LABROUSSAA F., DUBRANA M.P., ARRICAU-BOUVERY N., BÉVEN L., SAILLARD C. (2011) Involvement of a minimal actin-binding region of Spiroplasma citri phosphoglycerate kinase in spiroplasma transmission by its leafhopper vector. Plos One. 6 (2) : e17357 : 1-7.

TRUCHETET M.E., BEVEN L., RENAUDIN H., DOUCHET I., FERANDON C., CHARRON A., BLANCO P., SCHAEVERBEKE T., CONTIN-BORDES C., BEBEAR C. (2011). Potential role of Mycoplasma hominis in interleukin (IL)-17-producing CD4+ T-cell generation via induction of IL-23 secretion by human dendritic cells. J. Infect. Dis., 204:1796-1805.

BEVEN L., CHARENTON C., DAUTANT A., BOUYSSOU G., LABROUSSAA F., SKOLLERMO A, PERSSON A., BLANCHARD A, SIRAND-PUGNET P. (2012) Specific evolution of F1-like ATPases in mycoplasmas. PLoS One, 7(6):e38793.

BEVEN L., DURET S., BATAILLER B., DUBRANA M.P., SAILLARD C., RENAUDIN J., ARRICAU-BOUVERY N. (2012) The repetitive domain of ScARP3d triggers entry of Spiroplasma citri into cultured cells of the vector Circulifer haematoceps. Plos One, 7(10):e48606.

KHANCHEZAR, A., BEVEN, L., IZADPANAH, K., SALEHI, M., SAILLARD, C. (2014) Spiralin diversity within Iranian strains of Spiroplasma citri. Curr. Microbiol., 68:96–104.

DURET, S., BATAILLER, B., DUBRANA, M.P., SAILLARD, C., RENAUDIN, J., BEVEN, L., ARRICAU-BOUVERY, N. (2014) Invasion of insect cells by Spiroplasma citri involves spiralin relocalization and lectin/glycoconjugate-type interactions. Cell Microbiol., 16:1119-1132.

PAREDES, J., HERREN, J., SCHUPFER, F., MARIN, R. CLAVEROL, S., KUO, C.-H., LEMAITRE*, B., BEVEN*, L. (2015) Genome sequence of the Drosophila melanogaster male-killing Spiroplasma MRSO endosymbiont. mBio, 6(2). doi: 10.1128/mBio.02437-14. *Corresponding authors.

RENAUDIN, J., BEVEN, L., BATAILLER, B., DESQUE, D., ARRICAU-BOUVERY, N., MALEMBIC-MAHER, S., FOISSAC, X. (2015) Heterologous expression and processing of flavescence doree phytoplasma variable membrane protein A in Spiroplasma citri. BMC Microbiol. 15:82. doi: 10.1186/s12866-015-0417-5.

GORET, J., LE ROY, C., MESUREUR, J., RENAUDIN, H., CLAVEROL, S., BEBEAR, C., BEVEN, L.*, PEREYRE*, S. (2016) Surface lipoproteome of Mycoplasma hominis PG21 and differential expression after contact with human dendritic cells. Future Microbiology. 11(2). doi: 10.2217/fmb.15.130. *Equal contribution and Corresponding authors.

GAMMOUDI, I, MATHELIE-GUINLET, M., MOROTE, F., BEVEN, L., MOYNET, D., GRAUBY-HEYWANG, C., COHEN-BOUHACINA, T. (2016) Morphological and nanostructural surface changes in Escherichia coli over time, monitored by atomic force microscopy. Colloids and Surfaces B: Biointerfaces. doi:10.1016/j.colsurfb.2016.02.006

DUBRANA, M.-P., BEVEN*, L., ARRICAU-BOUVERY, N., DURET, S., RENAUDIN, J., SAILLARD, C. (2016) Differential expression of Spiroplasma citri surface protein genes in the plant and insect hosts. BMC Microbiol. 16:53. doi: 10.1186/s12866-016-0666-y. *Corresponding author.

GARENNE, D., BEVEN, L., NAVAILLES, L., NALLET, F., DUFOURC, E.J., DOULIEZ, J.-P. (2016) Sequestration of fatty acids by fatty acid coacervates for their encapsulation within vesicles. Angew Chem Int Ed Engl. 55(43):13475-13479. doi: 10.1002/anie.201607117.

DESFOUGERES, Y., POITOU J.-M., WROBLEWSKI, H., BEVEN, L. (2016) An improved non-denaturing method for the purification of spiralin, the main membrane lipoprotein of the pathogenic bacteria Spiroplasma melliferum. J. Chromatogr. B Analyt. Technol. Biomed. Life Sci.1036-1037:149-156. doi: 10.1016/j.jchromb.2016.10.012.

ZAREI, Z, SALEHI, M., AZAMI, Z., SALARI, K., BEVEN*, L. (2016) Stubborn disease in Iran: Diversity of Spiroplasma citri strains in Circulifer haematoceps leafhoppers collected in sesame fields in Fars province. Curr. Microbiol. 74 : 239-246. *Corresponding author.