CURRICULUM VITAE

Barbara SKERLAVAJ

Address: University of Udine, Department of Medicine, piazzale Kolbe 4, I-33100, Udine, Italy

Personal data: born in Trieste, Italy, on April 5th, 1960. Married, two daughters.

Education:
1979 High school certificate, High School “Znanstveni licej F. Preseren” in Trieste;

1985 Degree in Biological Sciences, University of Trieste;

1990 Ph. D. in Biochemistry, University of Trieste, with a thesis on the purification and characterization of bactenecins (tutor prof. Renato Gennaro).

Employment:
1990- assistant professor at the University of Udine, Faculty of Medicine, with affiliation at the Department of Medicine (Dipartimento di Area medica, former Department of Medical and Biological Sciences).

Lecturing:
She has held courses of Biochemistry for the 1st level degree course in Nursing (1997–2010, and 2016-, Faculty of Medicine), the 2nd level degree course in Aquaculture (2004–2007) and for the 1st level degree course in Animal Health and Breeding (2008–2010, Faculty of Veterinary Medicine); the course of Organ Biochemistry for the 2nd level degree course in Health Biotechnologies (2010, Faculty of Medicine); the course of Chemistry and Biochemistry Propaedeutics (2011-2013), and the course of Biochemistry for the 1st level degree course in Human Movement Sciences (2011-, Faculty of Medicine). She has been involved in the organization of practical activities for students and thesis tutoring at various levels, including PhD students.

Research:
Her main research interest are antimicrobial peptides (AMPs), small molecules involved in the innate immunity mechanisms of host-defense against infection. She has worked in the research group headed by prof. Margherita Zanetti who discovered the mammalian family of AMPs designated as cathelicidins. Dr. Skerlavaj is interested in the structural and functional characterization of these peptides at a preclinical level. Peptide molecules based on native amino acid sequences and their modified derivatives, obtained by using synthetic Fmoc-chemistry, are assayed in vitro for direct antimicrobial activity towards microorganisms and for other activities related to host-defense (e.g. neutralization of the bacterial endotoxin). Structure-activity relationship studies are aimed to the identification of lead compounds to be developed as novel antiinfective drugs for applications in human and veterinary medicine. In addition, the most promising compounds, immobilized on various solid supports, including titanium, by using different chemical approaches, are assayed in vitro for their antibacterial potential, with the aim to obtain infection-resistant peptide-functionalized biomaterials for orthopedic implants.

In the past, her research activities have been funded by grants received from the Italian Department of Research and Education (MIUR - PRIN), from the Friuli Venezia Giulia region (LR 26/2005) and from the Italy-Slovenia Cross-border cooperation programme 2007-2013 (projects Trans2Care and Innov-H2O).

She has performed peer reviewing of manuscripts submitted to several international scientific journals in the field of antimicrobial peptides.

Membership:
Member of the Italian Biochemical Society (Società Italiana di Biochimica – SIB), of the Italian Peptide Society (Società Italiana dei Peptidi – ItPS), and of the European Peptide Society (EPS).

List of publications (2012-)

Tomasinsig L, Skerlavaj B, Scarsini M, Guida F, Piccinini R, Tossi A, Zanetti M. Comparative activity and mechanism of action of three types of bovine antimicrobial peptides against pathogenic Prototheca spp. J Pept Sci. 2012 Feb;18(2):105-13. doi: 10.1002/psc.1422. Epub 2011 Nov 14.

D'Este F, Tomasinsig L, Skerlavaj B, Zanetti M. Modulation of cytokine gene expression by cathelicidin BMAP-28 in LPS-stimulated and –unstimulated macrophages. Immunobiology. 2012 Oct;217(10):962-71. doi: 10.1016/j.imbio.2012.01.010. Epub 2012 Jan 13.

D’Este F, Skerlavaj B, Tomasinsig L, Scarsini M, Zanetti M. Exploring the biological properties and therapeutic potential of antimicrobial peptides. The Partners and the Objectives of Trans2Care, an Italy-Slovenia cross-border network of science and healthcare Institutions. Passamonti S. (Editor); EUT - Edizioni Università di Trieste; 2014 Apr. pp. 75-78 / ISBN 978-88-8303-512-8.

D’Este F, Oro D, Tossi A, Zanetti M, Skerlavaj B. Towards novel strategies to prevent prosthetic joint infection: the potential of α-helical antimicrobial peptides. Cross-border Italy-Slovenia Biomedical research: Are we ready for horizon 2020? - CONFERENCE PROCEEDINGS with an analysis of innovation management and knowledge transfer potential for a smart specialization strategy. S. Passamonti, S. Gustincich, T. Lah Turnšek, B. Peterlin, R. Pišot, P. Storici (Eds.) EUT - Edizioni Università di Trieste; 2014 July. pp. 127-132 / ISBN 978-88-8303-572-2.

Scarsini M, Tomasinsig L, Arzese A, D'Este F, Oro D, Skerlavaj B. Antifungal activity of cathelicidin peptides against planktonic and biofilm cultures of Candida species isolated from vaginal infections. Peptides. 2015 Sep;71:211-21. doi: 10.1016/j.peptides.2015.07.023. Epub 2015 Jul 31.

D'Este F, Benincasa M, Cannone G, Furlan M, Scarsini M, Volpatti D, Gennaro R, Tossi A, Skerlavaj B, Scocchi M. Antimicrobial and host cell-directed activities of Gly/Ser-rich peptides from salmonid cathelicidins. Fish Shellfish Immunol. 2016 Dec;59:456-468. doi: 10.1016/j.fsi.2016.11.004. Epub 2016 Nov 3.

D'Este F, Oro D, Boix-Lemonche G, Tossi A, Skerlavaj B. Evaluation of free or anchored antimicrobial peptides as candidates for the prevention of orthopaedic device-related infections. J Pept Sci. 2017 Oct;23(10):777-789. doi: 10.1002/psc.3026. Epub 2017 Jul 14.

Tossi A, Skerlavaj B, D’Este F and Gennaro R, Structural and Functional Diversity of Cathelicidins, in Antimicrobial Peptides: Discovery, Design and Novel Therapeutic Strategies, 2nd version, ed. Guangshun Wang, CABI (Centre for Agriculture and Biosciences International), member of The Association of International Research and Development Centers for Agriculture. www.cabi.org. ISBN: 9781786390394. 2017.

Boix-Lemonche G, Guillem-Marti J, D'Este F, Manero JM, Skerlavaj B. Covalent grafting of titanium with a cathelicidin peptide produces an osteoblast compatible surface with antistaphylococcal activity. Colloids Surf B Biointerfaces 2020 Jan 1;185:110586. doi: 10.1016/j.colsurfb.2019.110586. Epub 2019 Oct 16.

Boix-Lemonche G, Lekka M, Skerlavaj B. A Rapid Fluorescence-Based Microplate Assay to Investigate the Interaction of Membrane Active Antimicrobial Peptides with Whole Gram-Positive Bacteria. Antibiotics (Basel). 2020 Feb 19;9(2):92. doi: 10.3390/antibiotics9020092.

Boix-Lemonche G, Guillem-Marti J, Lekka M, D'Este F, Guida F, Manero JM, Skerlavaj B. Membrane perturbation, altered morphology and killing of Staphylococcus epidermidis upon contact with a cytocompatible peptide-based antibacterial surface. Colloids Surf B Biointerfaces 2021 Jul;203:111745. doi: 10.1016/j.colsurfb.2021.111745. Epub 2021 Apr 6.

Skerlavaj B, Boix-Lemonche G. The Potential of Surface-Immobilized Antimicrobial Peptides for the Enhancement of Orthopaedic Medical Devices: A Review. Antibiotics 2023, 12(2), 211; https://doi.org/10.3390/antibiotics12020211 - 19 Jan 2023.