

# ALESSANDRA VITALE, PH.D.

## MICROBIOLOGIST

- 8 June 1993
- Swiss
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-  /vitale-alessandra/

Passionate about microbial infections, diagnosis, and therapeutic approaches, I am currently working at laboratoire d'analyses médicales Kessler SA (first 6 months of FAMH). I am looking for a laboratory to complete my training in Microbiology.

### Strengths:

- **FAMH admission exam completed**
- Experience with **multidrug resistant isolates** (*P. aeruginosa*, *B. cenocepacia*, *K. pneumoniae*)
- **Diagnosis** of bacterial infection
- Screening of new **antimicrobial agents** (past collaboration with Polyphor AG)

## EDUCATION

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- 2016 – 2020      **Doctorate (Dr. sc. nat.) in Microbiology.** University of Zurich – Department of Plant and Microbial Biology (Prof. Leo Eberl and Prof. John A. Robinson)  
· [Project](#): Genome-wide mutant profiling to identify fitness determinants (anaerobic metabolism and drug resistance) in human pathogens.
- 2014 – 2016      **Master of Science in Microbiology. Grade: 5.9/6.** University of Zurich – Department of Plant and Microbial Biology (Prof. Leo Eberl and Dr. Gabriella Pessi)  
· [Project](#): Investigation of the mechanisms required for the survival of *Burkholderia* in low-oxygen environments.
- 2011 – 2014      **Bachelor of Science in Biology. With grade: cum laude.** University of Neuchâtel – Faculty of Sciences  
· [Project](#): Water quality tested by flow cytometry and plate counts and water biostability tested by microcosms. (Prof. Pilar Junier)
- 2008 – 2011      **Matura Certificate in Biochemistry. Grade: 5.5/6.** High School Blaise-Cendrars, La Chaux-de-Fonds  
· [Project](#): La nicotine. Un élément essentiel à la dépendance. (Thierry Calestani)

## PROFESSIONAL EXPERIENCE

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- 2021 – 2022      **FAMH candidate in medical microbiology.** Laboratoire d'analyses médicales Kessler SA, Martigny.
- 2020 – 2021      **Scientist.** Ecole Polytechnique Fédérale de Lausanne in the laboratory of microbial mechanics (Prof. Persat). Identification of new antivirulent compounds.
- 2018 – 2020      **Teaching and supervision.** University of Zurich. Organization of a master project and supervision of the master student.

2016 – 2018	<b>Teaching Assistant.</b> University of Zurich. Supervision of bachelor students in practical microbiology course (BIO132)
2015 – 2018	<b>Teaching Assistant.</b> University of Zurich. Supervision and organization of 3.5-week laboratory projects for bachelor to PhD students in Systemic Microbiology course (BIO284)
11.2014-02.2015	<b>Internship in Microbiology.</b> University of Zurich (Dr. Gabriella Pessi)
07-09.2013	<b>Associate Laboratory Technician.</b> Philip Morris Products SA (Neuchatel)
07.2011/2012	<b>Industrial Development Center Assistant.</b> Philip Morris Products SA (NE)

## PROFESSIONAL SKILLS

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### *Microbiology*

- Microbiology techniques (Isolation, culture, biofilm/pellicle, motility, competition)
- Antibiotics (screening and MIC)
- Microscopy
- Virulence models (*C. elegans* and *G. mellonella*)

### *Molecular biology*

- Cloning techniques (mutant construction)
- Transposon-sequencing, PCR
- DNA library preparation for sequencing
- MiSeq (Illumina platform)

### *Software*

- R, GraphPad Prism
- Tn-seq Explorer, CLC
- ImageJ
- Matlab

### *Other:*

- Scientific integrity course
- Laboratory security
- Hematology

### *Languages*

- French (native language)
- English (C1)
- German (A2)

## SCIENTIFIC ACTIVITIES

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### *Publications*

- Georgieva, M., Heinonen, T., **Vitale, A.**, Hargraves, S., Causevic, S., Pillonel, T., Eberl, L., Widmann, C., Jacquier, N. (2021) Bacterial surface properties influence the activity of the TAT-RasGAP<sup>317-326</sup> antimicrobial peptide. *iScience*. doi: 10.1016/j.isci.2021.102923.
- Gualdi, S., Agnoli, K., **Vitale, A.**, Higgins, S., Eberl, L. (2021) Identification of genes required for gold and silver tolerance in *Burkholderia cenocepacia* H111 by transposon sequencing. *Environ Microbiol*. doi: 10.1111/1462-2920.15471.
- Secchi, E., Savorana, G., **Vitale, A.**, Eberl, L., Stocker, R., Rusconi, R. (2021) The Structural Role of Bacterial eDNA in the Formation of Biofilm Streamers. *bioRxiv*. doi: 10.1101/2021.07.26.453754.
- Vitale, A.**, Paszti, [...], Pessi, G., and Eberl, L. (2020) Mapping of the Denitrification Pathway in *Burkholderia thailandensis* by Genome-Wide Mutant Profiling. *Journal of Bacteriology*. **202**:e00304-20. doi: 10.1128/JB.00304-20.
- Vitale, A.**, Pessi, G., [...], Robinson, A. J., and Eberl, L. (2020) Identification of Genes Required for Resistance to Peptidomimetic Antibiotics by Transposon Sequencing. *Frontiers*. **11**:1681. doi: 10.3389/fmicb.2020.01681.
- Secchi, E., **Vitale, A.**, [...], Rusconi, R., and Stocker R. (2020) The Effect of Flow on Swimming Bacteria Controls the Initial Colonization of Curved Surfaces. *Nature Communications*. doi: 10.1038/s41467-020-16620-y

- Luther, A., Urfer, M., Zahn, M., Müller, M., Wang, S.-Y., Mondal, M., **Vitale, A.**, [...], Robinson, A. J., and Obrecht D. (2019) An Outer Membrane Protein-Targeting Antibiotic Against Gram-Negative Bacteria. *Nature*. doi: 10.1038/s41586-019-1665-6.
- Vetterli, S. U., Zerbe, K., [...], **Vitale, A.**, Pessi, G., Eberl, L., Wollscheid, B., and Robinson, A. J. (2018) Thanatin Targets the Inter-Membrane Protein Complex Required for Lipopolysaccharide Transport in *Escherichia coli*. *Sci. Adv.* doi: 10.1126/sciadv.aau2634.

#### Conferences attended

- 2<sup>nd</sup> Bacterial Morphogenesis Survival and Virulence Conference, Cape Town (SA), 2019.** Vitale, A., Pessi, G., [...], Robinson, A. J., and Eberl, L. Identification of genes required for resistance against antimicrobial peptides in *Pseudomonas aeruginosa*. (Oral presentation)
- 77<sup>th</sup> Annual Congress of Swiss Society for Microbiology, Zurich, 2019.** Vitale, A., Toyofuku, M., Paszti, S., Pessi, G., and Eberl L. Genome-wide mutant profiling of *Burkholderia thailandensis* reveals insights into the denitrification pathway. (Poster presentation)
- Challenges and new concepts in antibiotics research, Paris (FR), 2018.** Vitale, A., Pessi, G., Zerbe, K., Robinson, A. J., and Eberl, L. Peptide antibiotics: Investigation of the mechanisms of resistance in *Pseudomonas aeruginosa*. (Poster presentation)
- 15<sup>th</sup> International Conference on Pseudomonas, Liverpool (UK), 2017.** Vitale, A., Pessi, G., [...], Robinson, A. J., and Eberl, L. Identification of the mode of action of peptide antibiotics in *Pseudomonas aeruginosa*. (Poster presentation)
- 48<sup>th</sup> LS<sup>2</sup> Annual Meeting, Zurich, 2017.** Vitale, A., Pessi, G., [...], Robinson, A. J., and Eberl, L. Multidrug-resistant bacteria and antibiotic treatments. (Poster presentation)

#### Funding awarded

- Enable Grant 2021 (EPFL) – 30000 CHF
- SSM Travel Grant 2019 (Swiss Society of Microbiology) – 1500 CHF
- Polyphor Travel Grant 2019 (Polyphor) – 500 CHF
- IPMB Travel Fund 2018 (University of Zurich) – 750 CHF

#### Membership

- Swiss Society for Microbiology (SSM)
- Association des responsables de laboratoire de la Suisse romande (AR-L)
- Association pour la formation en analyses de biologie spécialisée (AFABS)

#### REFEREE

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**Julie Kessler (FAMH, multidisciplinary)**

*Laboratoire d'analyses médicales Kessler SA*

**Monique Dessauges (FAMH, microbiology)**

*Laboratoire d'analyses médicales La Source*

**Prof. Leo Eberl**

*Department of Plant and Microbial Biology, University of Zurich*