StefanoGrasso

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ResearchGate
Personal Website

Professional skills

Molecular Biology ★★★★★

Microbiology ★★★★☆

Functional analyses and predictions ★★★★☆

Python ★★★☆☆

Bash ★★★☆☆

HPC ★★★☆☆

Automation ★★★☆☆

NGS-workflow (design, execution, data analysis) ★★★☆☆

git ★★☆☆☆

Biochemistry ★★☆☆☆

IPR ★★☆☆☆

Experience

07/22 - now **Multiplex Synthetic Biology Scientist** Lesaffre, Lille, FR
High-throughput scientist in the newly established Biofundry.

03/21 - 05/22 **Post-Doctoral fellow** CBGP, UPM, Madrid, ES
Lab manager and tech specialist at the Biocomputation Lab. I set-up a new synthetic biology laboratory, complemented with an automated liquid handler and a 3D printer for smart and innovative solutions. Using SynBio to study and exploit spatial transcriptomics in *P. putida*. Group leader: Dr. Angel Goñi Moreno

09/15 - 12/20 **PhD candidate** University medical center Groningen (UMCG), Groningen, NL
MSCA-ITN fellowship within ProteinFactory (proteinfactory-msca-itn.eu). I spent approximately half of my PhD in an academic context: here I have mainly learned and worked on cloning and transformation for *B. subtilis* and *E. coli*, at the same time I have been working on a prediction tool, I started a number of collaborations providing mainly bioinformatic support and knowledge, and supervised one Master's student.

04/17 - 12/19 **PhD candidate** DSM B.V., Delft, NL
MSCA-ITN fellowship within ProteinFactory (proteinfactory-msca-itn.eu). I spent the second half of my PhD in an industrial context: here I designed, cloned and transformed a 13k elements DNA library in *B. subtilis*, generated a ML predictive model which was then studied with SHAP to provide an interpretation, and experimentally validated the model. Additionally, I kept working on other projects (both *in vitro* and *in silico*) and on a number of collaborations, and also supervised one Master's student.

07/17 - 08/17 **Visiting PhD candidate** FGen GmbH, Basel, CH
Short period where combining the usage of a specific proprietary technology (NLR) with particle sorting (COPAS), I was able to screen a 13k elements DNA library for different protein secretion levels.

02/16 - 04/16 **Visiting PhD candidate** SciLifeLab, Stockholm, SE
Short period where I worked and collaborated with a group bioinformaticians in order to improve my programming skills and gain knowledge about predictions in a biological context.

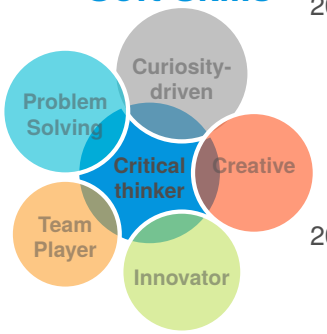
02/15 - 05/15 **Erasmus+ traineeship**
Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), Gatersleben, DE
Optimization of Hi-C library preparation in different tissues of barley; Hi-C and TCC library preparation procedures for green and etiolated barley seedling leaf tissue; Hi-Seq 2000 sequencing.

02/14 - 12/14 **Academic tutor** Udine University, Udine (UD), IT
Assistance and support to students, both on didactic and administrative duties and issues. Organization of "Nursing cafè" and a job fair for nursery students.

09/12 - 03/13 **Erasmus Project** Gothenburg University, Gothenburg, SE
During Erasmus I have been following various courses and working on production and purification of hAQP10 in yeast.

01/12 - 07/12 **IT support** Udine University, Udine (UD), IT
Assistant of the IT helpdesk, dealing with public in order to solve customer and system problems.

Soft Skills



Languages

Italian ★★★★★
English ★★★★☆
French ★☆☆☆☆

Education

2015 - 2020 **PhD candidate in Medical Microbiology**

Rijksuniversiteit Groningen, Groningen, NL

MSCA-ITN fellowship within ProteinFactory (proteinfactory-msca-itn.eu). Supervisors: Prof. Jan Maarten van Dijl (UMCG), Dr. Tjeerd van Rij (DSM B.V). Main research topic: protein secretion in *Bacillus subtilis*. Thesis: "Bacterial protein sorting: experimental and computational approaches" doi: 10.33612/diss.150510580.

2010 - 2015 **Diploma di Licenza della Scuola Superiore**

Scuola Superiore dell'Università degli Studi di Udine, Udine (UD), IT

Grade: 110 *cum laude*/110. Institute of excellence providing a scholarship covering living expenses and tuition fees. Additionally, it integrates the normal university courses with both interdisciplinary and more advanced ones. For more info: scuolasuperiore.uniud.it

2013 - 2015 **Master of Science in Plant and Animal Biotechnology**

Udine University, Udine (UD), IT

Grade: 110 *cum laude*/110. All the courses were taught in English. Thesis: "Production and optimization of next generation sequencing libraries for contact genomics analysis in *Hordeum vulgare* and *Vitis vinifera*"; supervisor: Prof. Michele Morgante. EQF level 7.

2010 - 2013 **Bachelor of Science in Biotechnology** Udine University, Udine (UD), IT

Grade: 110 *cum laude*/110. Thesis: "Effects of nutraceuticals on human visceral preadipocytes and adipocytes: preliminary results"; supervisor: Prof. Monica Colitti. EQF level 6.

2005 - 2010 **Scientific High School Diploma** ITIS G.C. Faccio, Vercelli (VC), IT

Grade: 100 *cum laude*/100. EQF level 4.

Other positions held

2/22 - Now **Steering Committee Member**

EUSynBioS, Paris, France

The European Synthetic Biology Society is an association dedicated to bringing together synthetic biologists from across Europe and beyond. EUSynBioS strives to support synthetic biology researchers in Europe, promote European synthetic biology in our conferences, collect and distribute up-to-date news on the field, and build a network of investigators, academics, and industry representatives.

12/20 - Now **Board Member**

Alumni of the Scuola Superiore Association, Udine (UD), IT

Association groupoing the Alumni of the Scuola Superiore of the University of Udine. Association goals are to promote culture and knowledge within the general public, to orient talentuous high school students toward institutes of excellence, to orient and support students of the Scuola Superiore toward academic and industrial careers, to create a network of Alumni from the various Excellence Institues.

01/14 - 02/15 **Member of the Academic Quality Board**

Udine University, Udine (UD), IT

Board in charge for evaluating and promoting quality at both didactic and research levels.

05/12 - 11/14 **Elected member in the Academic Senate as student representative**

Udine University, Udine (UD), IT

Highest steering body within universities. I worked toward rationalizing didactic laboratories expenses proposing a project based approach; defined rules for meritocratic student awards assignment; promoted realistic internationalization of the university; counseled university staff during redefinition of tuition fees; promoted quality and rationalization both throughout courses and research activities; advocated for student rights and fair treatment.

01/12 - 08/12 **Vice-president**

Student association "Neoateneo", Udine (UD), IT

Coordination and execution of association activities such as: fundraising, projects proposal, task assignment, verification of financial statements.

05/12 - 11/14 **Elected member of Scuola Superiore in the Governing Council**

Rete Italiana degli Allievi delle Scuole e degli Istituti di Studi Superiori Universitari

Represented Scuola Superiore at the Network of the Excellence Istitutes and Schools in Italy. Promoted the transformation of the Network into an official association, achieved in 2016. Reformed the "Rete di Idee" contest introducing peer-review and double-blind, standardizing procedures and evaluation. Organized the 2014 edition of the "Rete di Idee" held in Udine. Advocated for openness of the Network toward newly established Institution and Schools, based on high standard of excellence, and for respect toward the different approaches wherewith it can be achieved.

05/11 - 11/14 **Member of the University Student Council**

Udine University, Udine (UD), IT

Highest student representative body within universities.

05/11 - 05/12 **Elected member in the Veterinary Faculty Council**

Udine University, Udine (UD), IT

Proposed the creation of a M.Sc. in Molecular Biotechnology in order to rationalize courses and exploit University excellence in the field; it has been created in 2016. Counseled to optimize and improve courses for future students in B.Sc. Biotechnology.

Professional skills

Main molecular biology techniques: PCR, RT-PCR, qPCR, electrophoresis, design and perform molecular cloning (Gibson, GoldenGate, OE-PCR...), biobricks-oriented approaches, transformation (mainly *E. coli*, *B. subtilis*, *P. putida*), DNA/RNA extraction and purification, **DNA quantification** (UV, Nanodrop, Qbit, Bioanalyzer/capillary elecrophoresis), variant library design and construction, NGS-library preparation, **Hi-C**, PAGE, western blotting. Usage of **automated liquid handlers** (TECAN EVO) and their programming (OT-2).
Main microbiology techniques: cultures of bacteria and yeast, replica plating, bacterial growth assays, auxotrophy assay.
Main bioinformatics skills: **Python** (including scikit-learn and shap) and **BioPython**, **bash**, git, LaTeX, high-performance computing **(HPC)**/cluster computing (e.g. SLURM). Advanced usage of gene and protein data-bases, understanding of algorithms for biological purposes (e.g. local and global alignment, HMMs), command-line and API bioinformatic tools for molecular biology, functional annotation of proteins, **development of prediction tools and pipelines**, NGS classical workflow. Basic knowledge of C/C++, Ruby and Java. Ability to understand code from other languages for bug-fixing or small customization. Ability to prepare cartoons and data-figures for articles.
Main cell biology techniques: cultures of primary cells and cell lineages, viability assays,

large particle flow cytometry (COPAS), **flow cytometry**.
Main biochemistry techniques: chromatography (affinity, ion exchange, reverse phase, size exclusion), HPLC, enzymatic assays, protein extraction, mass-spectrometry proteomics-data analysis.
Transferable skills: Eager learner, flexible, innovator. Great research and analytical skills also in other fields (understanding norms, laws and rules about both scientific and academic topics), **problem solving and rationalization**. **3D printing** (printer assebly, design, printing) with Prusa and **basic 3D design** (Fusion360/Autocad Inventor). **Project-management skills** developed during the PhD through multiple courses and learning by doing as well as during the establishment of the Biocomputation lab. Skilled in both scientific communication, in particular **cross-communication** between different areas, and diplomatic communication, due to institutional positions held. Good organizational, decision-making, team-player and -leading skills, and capacity to form long-lasting professional networks, initially developed while holding institutional positions at Udine University.

Publications

Signal Peptide Efficiency: from High-throughput Data to Prediction and Explanation
S. Grasso, V. Dabene, M. M. Hendriks, P. Zwartjens, R. Pellaux, M. Held, S. Panke, J. M. van Dijl, A. Meyer, and T. van Rij
bioRxiv *(2022). Cold Spring Harbor Laboratory, 2022,* DOI: 10.1101/2022.05.13.489517

Proteomic Charting of Imipenem Adaptive Responses in a Highly Carbapenem Resistant Clinical *Enterobacter roggenkampii Isolate*
S. Nepal, S. Maaß, **S. Grasso**, F. M. Cavallo, J. Bartel, D. Becher, E. Bathoorn, and J. M. van Dijl
Antibiotics *10.5 (5 Apr. 2021) p. 501. MDPI AG, 2021,* DOI: 10.3390/antibiotics10050501

GP4: an integrated Gram-Positive Protein Prediction Pipeline for subcellular localization mimicking bacterial sorting.
S. Grasso, T. van Rij, and J. M. van Dijl
Briefings in bioinformatics *(Nov. 2020). 2020,* DOI: 10.1093/bib/bbaa302

Gingimaps: Protein Localization in the Oral Pathogen *Porphyromonas gingivalis*
G. Gabarrini, **S. Grasso**, A. J. van Winkelhoff, and J. M. van Dijl
Microbiology and molecular biology reviews : MMBR *84 (1 Feb. 2020). 2020,* DOI: 10.1128/MMBR.00032-19

An ancient family of mobile genomic islands introducing cephalosporinase and carbapenemase genes in *Enterobacteriaceae*.
S. Nepal, F. Bonn, **S. Grasso**, T. Stobernack, A. de Jong, K. Zhou, R. Wedema, S. Rosema, D. Becher, A. Otto, J. W. Rossen, J. M. van Dijl, and E. Bathoorn
Virulence *9 (1 2018) pp. 1377–1389. 2018,* DOI: 10.1080/21505594.2018.1509666

Signatures of cytoplasmic proteins in the exoproteome distinguish community- and hospital-associated methicillin-resistant *Staphylococcus aureus* USA300 lineages.
S. A. Mekonnen, L. M. Palma Medina, C. Glasner, E. Tsompanidou, A. de Jong, **S. Grasso**, M. Schaffer, U. Mäder, A. R. Larsen, H. Gumpert, H. Westh, U. Völker, A. Otto, D. Becher, and J. M. van Dijl
Virulence *8 (6 Aug. 2017) pp. 891–907. 2017,* DOI: 10.1080/21505594.2017.1325064

Construction of a map-based reference genome sequence for barley, *Hordeum vulgare* L.
S. Beier, A. Himmelbach, C. Colmsee, X.-Q. Zhang, R. A. Barrero, Q. Zhang, L. Li, M. Bayer, D. Bolser, S. Taudien, M. Groth, M. Felder, A. Hastie, H. Šimková, H. Staňková, J. Vrána, S. Chan, M. Muñoz-Amatriaín, R. Ounit, S. Wanamaker, T. Schmutzer, L. Aliyeva-Schnorr, **S. Grasso**, J. Tanskanen, D. Sampath, D. Heavens, S. Cao, B. Chapman, F. Dai, Y. Han, H. Li, X. Li, C. Lin, J. K. McCooke, et al.
Scientific data *4 (Apr. 2017) p. 170044. 2017,* DOI: 10.1038/sdata.2017.44

A chromosome conformation capture ordered sequence of the barley genome.
M. Mascher, H. Gundlach, A. Himmelbach, S. Beier, S. O. Twardziok, T. Wicker, V. Radchuk, C. Dockter, P. E. Hedley, J. Russell, M. Bayer, L. Ramsay, H. Liu, G. Haberer, X.-Q. Zhang, Q. Zhang, R. A. Barrero, L. Li, S. Taudien, M. Groth, M. Felder, A. Hastie, H. Šimková, H. Staňková, J. Vrána, S. Chan, M. Muñoz-Amatriaín, R. Ounit, S. Wanamaker, D. Bolser, C. Colmsee, T. Schmutzer, L. Aliyeva-Schnorr, **S. Grasso**, et al.
Nature *544 (7651 Apr. 2017) pp. 427–433. 2017,* DOI: 10.1038/nature22043

Base excision repair in Archaea: back to the future in DNA repair.
S. Grasso and G. Tell
DNA repair *21 (Sept. 2014) pp. 148–157. 2014,* DOI: 10.1016/j.dnarep.2014.05.006

Nutraceuticals and regulation of adipocyte life: premises or promises.
M. Colitti and **S. Grasso**
BioFactors (Oxford, England) *40 (4 Apr. 2014) pp. 398–418. 2014,* DOI: 10.1002/biof.1164

Conferences

2022 **SEED (Synthetic Biology: Engineering, Evolution & Design)** Arlington, VA, USA
Poster presentation: "Modulating intracellular space-filling to fine-tune gene regulatory interactions"

2021 **KNVM (Royal Dutch Society of Microbiology)** Virtually held
Poster presentation: "Signal-based, tailored, and (re-)interpretable protein sub-cellular localization predictions in Gram-positive bacteria through a novel meta-predictor"

2019 **GIM (Genetics of Industrial Microorganisms)** Pisa, IT
Oral presentation: "Homology-independent prediction of subcellular protein localization in beneficial and engineered microbes"

2018 **SDD (Supranational Democracy Dialogue)** Lecce, IT
Oral presentation: "Educated Democracy: Creating the Tools for an Aware Democratic System"

References

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Additional information, courses, certificates and copies of publications and thesis are available upon request.

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