# StefanoGrasso

4 Rue Copernic,
Marcq-en-Baroeul, FR

+33 7 513 776 36

stefano@2000e.it

in/stefano-grasso-biotech

ResearchGate
Personal Website

Innovative Synthetic Biology Scientist with 10+ years of research experience and a strong background in molecular biology, LIMS integration, and biofoundry development. Skilled in automating workflows, integrating systems, and enhancing laboratory efficiency through advanced software solutions. Proficient in bioinformatics, software development, and data management. Experienced in managing interdisciplinary projects and collaborating with cross-functional teams to achieve research goals. Passionate about leveraging synthetic biology to drive scientific discovery and innovation, with a commitment to fostering collaboration and knowledge-sharing within the global scientific community.

## Professional skills

- **Molecular Biology** ★★★★★
- **Python** ★★★★☆
- **Bash** ★★★★☆
- **Benchling** ★★★★☆
- **Functional analyses and predictions** ★★★★☆
- **Project and people management** ★★★★☆
- **git** ★★★☆☆
- **Microbiology** ★★☆☆☆
- **HPC** ★★★☆☆
- **NGS-workflow (design, execution, data analysis)** ★★★☆☆
- **SQL** ★★☆☆☆
- **IPR** ★★☆☆☆

## Experience

07/22 - now **Multiplex Synthetic Biology Scientist** Lesaffre International, Lille, FR
Building and developing the newly established Biofundry. Software developer, data architecht, and system administrator for the LIMS (Benchling), with more than 20,000 data input/week. Development and deploymnet of automated data flow to integrate manual and robotic instruments, connectors to other applications and LIMS, various tools to support lab operations.

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*. I also supervised one Master's student. 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.

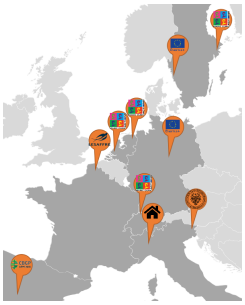
02/16 - 04/16 **Visiting PhD candidate** SciLifeLab, Stockholm, SE
Short period where I worked and collaborated with a group bioinformaticians in order to improve my programming skills and gain knowledge about predictions in a biological context.

## Languages

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

## Soft Skills


## Places Lived



# Education

2015 - 2020 **PhD 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 and Secretary** 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. Some activities I was involved in: organizing the first talk about Biofoundry in Italian, publication and poster about synthetic biology in Europe, organizing events, interviewing and recruiting.

12/20 - 12/23 **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. Some activities I was involved in: organizing 'Meet the Alumni' sessions, 'Scintiallae', a daily in-presence event for Alunni, and fostering 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 and paved the way for openness of the Network toward newly established Institution and Schools, based on high standard of excellence, and for respect toward the different approaches (fully achieved with the following Council).

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 competencies and skills

**Competencies**: Laboratory design, implementation, digitalization, and managment. Laboratory informatics deployment and adoption (including training to users). Digital transformation and change management. LabOps optimization and data automation. Experimental design and data analysis. (Bio)informatics software design and development. People training and management. Project managment.

**Management skills**: I have been involved in coordinating and contributing to association activities since I started university, and I have been (co-)organizing events (both professional and leisure) since high schoool (up to 500 participants). I further developed **project management** skills during the PhD *via* multiple courses and learning by doing, as well as during the establishment of the Biocomputation lab. Timing of projects through Gantt charts, setting goals, KPI, and checkpoints through working packages, milestones, and deliverables. Skilled in both scientific communication, in particular **cross-communication** between different areas, and diplomatic communication, due to institutional positions held. Advanced **people management** skills developed by supervsing students during my academic career (3 graduated master students) and by coordinating consultatnts and technicians at Lesaffre. Thanks to my broad international and diverse experience, and an innate empathy, I can easily realte to people, make them comfortable, and motivate them to reach personal and professional milestones. 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.

**Main bioinformatics skills**: (AGILE) software development in **Python** (including scikit-learn and shap) and **BioPython**; **bash** and Linux administration/configuration; **advanced Benchling** administration and developer platform usage; R&D data architecture modelling; version control (**git**), LaTeX, **SQL** queries, high-performance computing (**HPC**)/cluster computing (e.g. SLURM); basic Uncountable API interactions. 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 **AWS**, 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 laboratory 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, sequencer usage (iSeq, NextSeq2000, MinION), **Hi-C**. Enzymatic assays, protein extraction, PAGE, western blotting, mass-spectrometry proteomics-data analysis. Cultures of bacteria and yeast, replica plating, bacterial growth assays, **large particle flow cytometry (COPAS)**, **flow cytometry**. Usage of **automated liquid handlers** (TECAN EVO) and their programming (OT-2).

**Main 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).

# Publications


Genus Comparisons in the Topological Analysis of RNA Structures
N. Cangiotti and **S. Grasso**
q-bio.BM *(2023). arXiv, 2023,* DOI: *10.48550/ARXIV.2304.07273*

Signal Peptide Efficiency: From High-Throughput Data to Prediction and Explanation.
**S. Grasso**, V. Dabene, M. M. W. B. Hendriks, P. Zwartjens, R. Pellaux, M. Held, S. Panke, J. M. van Dijl, A. Meyer, and T. van Rij
ACS synthetic biology *(Jan. 2023). American Chemical Society (ACS), 2023,* DOI: *10.1021/acssynbio.2c00328*

Synthetic biology in Europe: current community landscape and future perspectives
S. Donati, I. Barbier, D. A. García-Soriano, **S. Grasso**, P. Handal-Marquez, K. Malcı, L. Marlow, C. Westmann, and A. Amara
Biotechnology Notes *3 (2022) pp. 54–61. Elsevier BV, 2022,* DOI: *https://doi.org/10.1016/j.biotno.2022.07.003*

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 *22.4 (Nov. 2020). Oxford University Press (OUP), 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 (1 Feb. 2020). American Society for Microbiology, 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 (1 Aug. 2018) pp. 1377–1389. Informa UK Limited, 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 (6 Aug. 2017) pp. 891–907. Informa UK Limited, 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 *4.1 (Apr. 2017) p. 170044. Springer Science and Business Media LLC, 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 (7651 Apr. 2017) pp. 427–433. Springer Science and Business Media LLC, 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. Elsevier BV, 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 (4 Apr. 2014) pp. 398–418. Wiley, 2014,* DOI: 10.1002/biof.1164

# Conferences

2022 **ASBE VI (6th Applied Synthetic Biology in Europe)** Edinburgh, UK
Oral presentation: "Signal peptide efficiency: from high-throughput data to prediction and explanation"

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


**Jan Maarten van Dijl** University medical center Groningen (UMCG), Groningen, NL
Full Professor and PhD supervisor.
E-mail address: j.m.van.dijl01@umcg.nl

**Tjeerd van Rij** DSM B.V., Delft, NL
Senior Scientist and PhD supervisor.
E-mail address: tjeerd.rij-van@dsm.com

**Andreas Meyer** FGen GmbH (now Ginkgo Bioworks), Basel, CH
Co-founder and CEO, supervisor during my PhD secondment.
E-mail address: ajmeyer@ginkgobioworks.com

**Angel Goñi-Moreno** CBGP, UPM, Madrid, ES
PI and Head of the Biocomputation Lab, supervisor during my post-doc.
E-mail address: angel.goni@upm.es


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

*Stefano Grasso*