

Issue 2 | December 2022



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EDITORIAL

Dear Readers,

Welcome to the second Newsletter of the OLISSIPO project!

OLISSIPO is a Twinning project, funded by the European Commission within Horizon 2020, to boost the research profile and innovation competence in Computational Biology at INESC-ID.

Launched in January 2021, this 3-year funded project is providing training to Early Stage Researchers (ESR), PhD students,

strengthening collaborations between international institutions and INESC-ID and Instituto Superior Técnico (IST) and increasing the management and administration skills of INESC-ID.

The link to society is also included in the project.

Outreach activities is engaging young students from secondary schools in Portugal.

Overall, the success of this project is resulting in the extension of the recruitment pool and existing network of INESC-ID, becoming it attractive for young scientists that want to pursue a research career or improve their knowledge transfer skills in these areas.

The OLISSIPO Coordination Team:

[Susana Vinga](#) (INESC-ID),

[Niko Beerenwinkel](#) (ETH Zürich),

[Marie-France Sagot](#) (Inria),

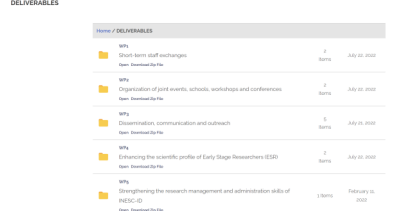
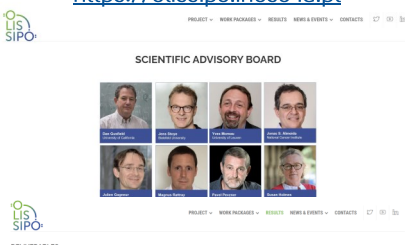
[Wolfgang Huber](#) (EMBL)

Sara Tanqueiro, Project manager (INESC-ID)

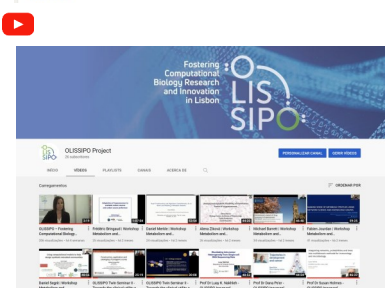
WEBSITE



<https://olissipo.inesc-id.pt>



SOCIAL MEDIA




PROMOTIONAL MATERIALS

OLISSIPO [Poster](#), [Leaflet](#) and [Video](#)




PAST EVENTS

During 2021, the coronavirus pandemic restrained work travel. In Issue 1, we described several online activities carried out during this first year of the OLISSIPO project. In 2022, travel restrictions were alleviated for European countries and the OLISSIPO team had the opportunity to start traveling by the end of March.

◇ Staff Visit (INESC-ID > Inria) | 17-24 Mar 2022 | 19 
(10 ESRs)


3 ESRs (Carolina Peixoto, Mónica Silva and José Basílio), Prof. Susana Vinga and Dr Sara Tanqueiro visited Inria in Lyon, hosted by Prof. Marie-France Sagot and 14 students and postdocs (7 ESRs). During these days, scientific presentations and free discussions about science took place with Inria team. Sara Tanqueiro had also the opportunity to work together with Marie-France Sagot and Susana Vinga on the next deliverables and the upcoming events of the OLISSIPO project.



◇ Staff Visit (EMBL > INESC-ID) | 4-7 Apr 2022 | 28 
(12 ESRs)


4 ESRs (Hosna Baniadam, Donnacha Fitzgerald, Tümay Capraz and Constantin Ahlmann-Eltze), 1 postdoc (Harald Vöhringer), 1 staff member (Julia Philipp) and Simone Bell, the senior project manager, visited INESC-ID. After scientific presentations, team work sessions were promoted between the students to find synergies between INESC-ID and EMBL work. Based on the information collected, it was possible to identify the following key topics: 1) Single-cell analysis, 2) Biomarkers identification in metastasis and validation strategies, 3) Data normalization, management and augmentation, 4) Survival analysis, 5) Multi-omics data integration, 6) Differential geometry in biological data.



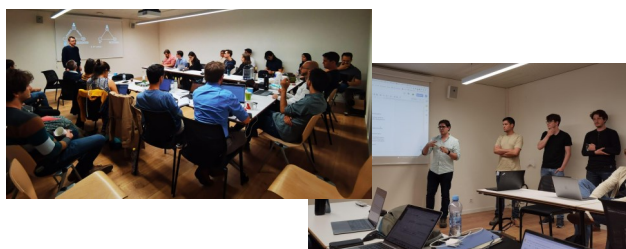
◇ Staff Visit (ETH > INESC-ID) | 26-29 Apr 2022 | 26 
(14 ESRs)

6 ESRs (David Dreifuss, Lara Fuhrmann, Pedro Ferreira, Johannes Gawron, Xiang Ge Luo and Kevin Rupp) and Prof. Niko Beerenwinkel visited INESC-ID. After scientific presentations, team work sessions were promoted between the students to find synergies between INESC-ID and ETH work. It was possible to identify the following key topics: 1) Single-cell analysis, 2) Biomarkers identification in metastasis and validation strategies, 3) Data normalization, management and augmentation, 4) Survival analysis, 5) Multi-omics data integration, 6) Differential geometry in biological data.



◇ Staff Visit (INESC-ID > ETH) | 31 May - 3 Jun 2022 | 19 
(12 ESRs)

5 ESRs, 1 researcher (Prof. Rui Henriques), Prof. Susana Vinga and Dr Sara Tanqueiro visited ETH. After scientific presentations, team work sessions were promoted between the students to continue developing the work plan started in the first visit. All participants were divided into four main groups according to the scientific topics identified: 1) Patterns in HIV time-series data, 2) Clustering of mutation trees, 3) Cox-Regularized Regression and Clustering of Mutation and RNAseq data in Glioma, 4) Cross-tissue regulatory mapping system for personalized medicine. The results of this teamwork, presented at the end of the staff exchange visit, seemed very promising with the ESRs designing collaboration plans for the next months.



◇ [OLISSIPO Retreat](#) (Lisbon, Olissippo Oriente Hotel) | 14-15 Jul 2022 | 31 🧑 (9 ESRs)

This two-day event brought together, for the first time, 31 participants (9 ESRs) from the 4 partners of the OLISSIPO Consortium. It was an excellent opportunity to debate the importance of Computational Biology with Prof. Niko Beerenwinkel, Dr Simão Soares and Prof. Doctor Luis Costa (invited speakers), discuss ongoing and future collaborations, and have plenty of networking opportunities. Parallel sessions allowed a scientific and management meeting with the Advisory Board to discuss important aspects of the project, while ESRs had time for networking and teamwork. There was also time for a seminar on Career Development with Prof. Susan Holmes (Stanford University, SAB) and a workshop on Science Communication & Outreach given by Prof. Ana Sanchez (ITQB-UNL).



◇ [Workshop Two for a tango](#) | 2nd Edition | 25-26 Oct 2022 | 141 🧑



Speakers: Jörg Stelling, Carlos Robello, Pedro Mendes, Miguel Rocha, Emma Saavedra and Joshua Chan.

Besides the keynote talks, there were two slots, one per day, for a discussion on two specific open questions: 1) How is it formally established what represents the biomass for a given organism?, 2) How to accurately establish what is transported in and out of a cell or organism?

◇ [Staff Visit \(INESC-ID > EMBL\)](#)
21-25 Nov 2022 | 24 🧑 (13 ESRs)

INESC-ID team (7 members, including 5 ESRs) visited EMBL (17 members, 8 ESRs) from November 21-25, 2022. Besides scientific presentations and discussions, INESC-ID staff participated in several training actions (Ethics and research integrity; Equality, Diversity and Inclusion; Make decisions and solve problems creatively; Annual performance review and feedback and Email management).



STAFF TRAINING

One of the main aims of OLISSIPO is to sharpen the research and management profile of INESC-ID. Thus, the project supports staff participation in external courses, workshops and national and international conferences.

Courses

◇ The Gulbenkian Training Programme in Bioinformatics - Precision Oncology | 9-13 May 2022 | Lisbon, Portugal



The INESC-ID ESR Mónica Silva participated in this course, whose main was to present a complete computational pipeline for the analysis and interpretation of NGS data such as exome sequencing or targeted panels that are commonly used in the clinic.

◇ CSAMA | 19-24 Jun 2022 | Bressanone-Brixen, Italy

The EMBL PI, Dr Wolfgang Huber, and senior project manager, Simone Bell, organize this intensive course with 80 participants. Two INESC-ID ESRs participated in the event (Mónica Silva and João Aparício).



International Conferences

◇ Joint Meeting on Vascular Biology, Inflammation and Thrombosis 2022 | 1 June 2022 | Vienna, Online

The ESR José Basílio participated in this meeting with a scientific poster entitled: "Bioinformatic support by the Coordination Project". This meeting was important to exchange ideas and create successful collaborations between young and established scientists working in the field.



◇ 21st EPIA Conference on Artificial Intelligence | 31 Aug 2022 | Lisbon, Portugal

The ESR Beatriz Leitão presented her work entitled "Comparative evaluation of classification indexes and outlier detection of microcytic anaemias in a Portuguese sample." This work is a collaboration between Prof. Susana Vinga with Prof. Paula Faustino from INSA - Instituto Nacional de Saúde Doutor Ricardo Jorge.

◇ European Bioconductor Conference 2022 | 14-16 Sep 2022 | Heidelberg, Germany

The EMBL PI, Dr Wolfgang Huber, and senior project manager, Simone Bell, together with Dr Charlotte Sonesson, organized this international conference with 90 participants (and several OLISSIPO ESRs followed the conference live stream on the BioC YouTube Channel).

◇ PhD Open Days | 14-16 Nov 2022 | Lisbon, Portugal

José Basílio presented a poster of his work, a collaboration between INESC-ID and Medical University of Vienna.

◇ IGC Symposium - [3C] Cells, Computers & Clinics | 26-28 Oct 2022 | Lisbon, Portugal

José Basílio presented a poster of his work, a collaboration between INESC-ID and Medical University of Vienna.



Workshops

◇ Ascona 2022 | 27 Mar-1 Apr 2022 | Ascona, Switzerland



Prof. Niko Beerenwinkel from ETH and Dr Wolfgang Huber from EMBL, two PIs participating in the OLISSIPO project, were part of the organizing committee of this workshop, in which Prof. Susana Vinga also participated.

◇ Machine Learning in Science | 23-24 Jun 2022 | CEAUL/FCT, Online



The INESC-ID ESRs Carolina Peixoto and José Peixoto participated in this event.

Carolina presented her work. The aim of this workshop is to bring together researchers from different areas of science, where they present their recent achievements in machine learning.

◇ Management and European Proposal Submissions | 7 Sep 2022 | Lisbon, Portugal

OLISSIPO received, at INESC-ID, Dr Matthieu Py from Inria to talk about European Calls and discuss several aspects of Pre-Award. It was a full-day filled out with discussions, exchange of ideas and good practices.



DISSEMINATION, COMMUNICATION & OUTREACH

The OLISSIPO work plan, achievements and results have gained visibility through its participation in several activities. Outreach activities have been also organized to promote public awareness of Computational Biology and, more in general, of Science, Technology, Engineering, and Mathematics (STEM) academic disciplines.

◇ Summer in ULisboa | 11-15 Jul 2022 | INESC-ID, Lisbon, Portugal | 200  ◇ FICA Festival | 12-13 Oct 2022 | INESC-ID | 100 

OLISSIPO team (Prof. Susana Vinga, Prof. Rui Henriques, Dr Pedro Ferreira, Carolina Peixoto and Daniel Gonçalves) received 200 high school students at INESC-ID for the “Digital Biology” program in the context of “Summer in ULisboa”. It included 10 sessions during 5 days with lots of fun and discussion on Computational Biology and Bioinformatics and all possible careers between computation and biology.



The OLISSIPO team (the ESR José Basílio, the OLISSIPO project manager Sara Tanqueiro and the INESC-ID Pedro Ferreira) was present at the FICA Festival in Porto Salvo to receive more than 100 students from basic schools to hear talking about Computational Biology and participate in a hands-on session to build their own paper model of a DNA double helix.



 **AWARDS**

On 28 Nov, Prof. Susana Vinga received the [University of Lisbon/Caixa Geral de Depósitos 2022 Scientific Award](#) on Computer Science and Informatics Engineering area.



PUBLICATIONS

◇ Peixoto C., Martins M., Costa L. & Vinga, S. (2022). Kidney Cancer Biomarker Selection Using Regularized Survival Models. *Cells* 11(15): 2311. doi: [10.3390/cells11152311](https://doi.org/10.3390/cells11152311);

◇ Patricio et al. (2022). Time-Lagged Correlation Analysis of Shellfish Toxicity Reveals Predictive Links to Adjacent Areas, Species, and Environmental Conditions. *Toxins*, 14(10). doi: [10.3390/toxins14100679](https://doi.org/10.3390/toxins14100679);

◇ Leitao et al. (2022). Comparative Evaluation of Classification Indexes and Outlier Detection of Microcytic Anaemias in a Portuguese Sample. In 21st EPIA Conference on Artificial Intelligence, 219-231. doi: [10.1007/978-3-031-16474-3_19](https://doi.org/10.1007/978-3-031-16474-3_19).

UPCOMING EVENTS

◇ League of Portuguese Bioinformatics Jan 2022

◇ OLISSIPO Winter School
Modelling and analysis of single cell multiple biological omics
5-10 Feb 2022, Lisbon (Portugal)

◇ OLISSIPO Twin Seminars
TBA, Online

◇ Workshop on Computational phylogenetics to analyse the evolution of cells and communities | First Edition
TBA, 2023, Online

◇ Workshop on Modelling and Analysis of single cell Multiple Biological Omics | First Edition
TBA, 2023

◇ CSAMA 2023
18-23 Jun 2022, Brixen (Italy)

◇ OLISSIPO Summer School
Computational phylogenetics to analyse the evolution of cells and communities
TBA, Lisbon (Portugal)

◇ European Bioconductor Conference 2023
20-22 September 2023, Ghent (Belgium)

◇ Workshop Two for a Tango | Third Edition
TBA, Online

●●● MORE INFORMATION

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