



## Report

### D1.3 Final report on staff exchanges

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## Executive Summary

WP1 – The short-term staff exchange goal was to promote the interchange of scientific knowledge and expertise among the consortium, in line with the identified strategic areas and the OLISSIPO objectives. In particular, the objective of WP1 was to implement effective staff exchanges between the Twinning partners towards a more balanced scientific capacity of the teams. The planned visits also included the exchange of administrative staff, with the goal of improving project management skills at INESC-ID.

Due to the COVID-19 pandemic and travel restrictions, alternative activities were carried out during the first year to promote the efficient exchange of ideas and information between partners. Staff exchange was reinforced during 2022, 2023, and 2024.

This deliverable outlines the final report on staff exchanges, corresponding to 42 months of the project.

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## 1. Introduction

Short-term staff exchanges were planned to promote the interchange of scientific knowledge and expertise between the partners of the OLISSIPO consortium. In particular, the objective of these actions was to enhance INESC-ID research and innovation competence in computational biology, provide training to staff and Early Stage Researchers and promote and strengthen collaborations between the Twinning partners. These visits also included the exchange of administrative staff to improve project management and administration skills at INESC-ID.

During the first year of the OLISSIPO project, the coronavirus pandemic restrained work travel and the efficient exchange of ideas and information. In line with this, a mitigation plan was drawn at the beginning of 2021 (*D1.1 - OLISSIPO Short-term staff exchange plan*). Travel restrictions have been alleviated for European countries in 2022, and the OLISSIPO team had the opportunity to start traveling which, along with the project 6-month extension, allowed it to fully comply with the proposed staff exchange plan.

## 2. Alternative actions in 2021

Due to COVID-19, scientific internships and exchanges were postponed to 2022. However, the interaction among OLISSIPO institutions during 2021 was promoted with several alternative online actions.

### 2.1. OLISSIPO Week

This activity was carried out virtually for three consecutive days (June 14-16<sup>th</sup>, 2021). Its main goal was to facilitate the interaction among members of the four partner institutions, share the main scientific topics addressed by each team member, and identify novel promising routes for joint work. The agenda of the meeting is in Figure 1.



### OLISSIPO Week (Virtual): 14<sup>th</sup> - 16<sup>th</sup> June 2021

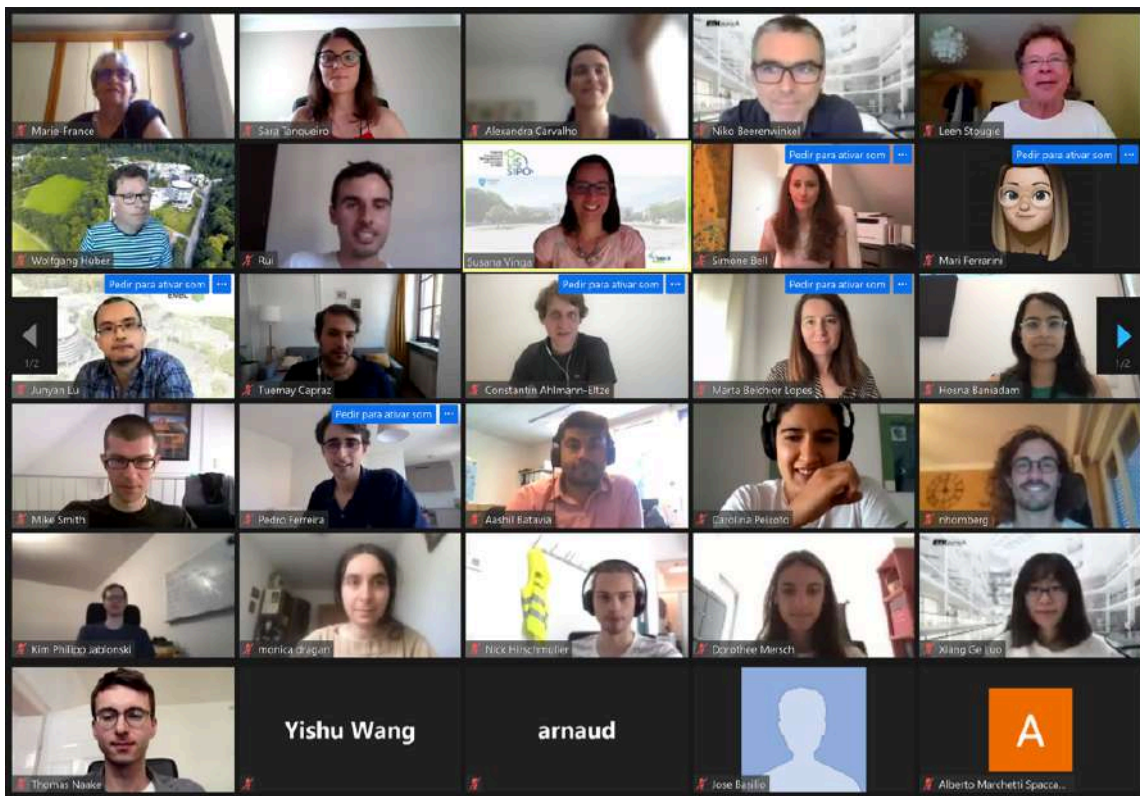
Zoom Link: <https://videoconf-colibri.zoom.us/j/86771615711> (no password needed)

Agenda (CEST time, 1 hour ahead of Lisbon)

	Monday, 14 <sup>th</sup> June	Tuesday, 15 <sup>th</sup> June	Wednesday, 16 <sup>th</sup> June
<b>CEST Time</b>	Single-cell analysis, modeling and simulation	Single-Cell and Mathematical modeling of intercell and communities' interactions	Computational phylogenetics of cells and communities Translational bioinformatics, data management and software development
10:00	Welcome / Introduction		
10:15	PI talk <i>Susana Vinga</i>	Senior Staff / Postdoc Inria <i>Mariana Ferrarini</i>	Senior Staff / Postdoc ETH <i>Kuipers Jack</i>
20		Q&A	Q&A
25	Q&A	Senior Staff / Postdoc ETH <i>Jahn Katharina</i>	Senior Staff / Postdoc INESC-ID <i>Alexandre Francisco</i>
10:30		Q&A	Q&A
35	PI talk <i>Marie-France Sagot</i>	Early Stage Researcher Inria - <i>Nicolas Homberg</i>	Early Stage Researcher Inria - <i>Yishu Wang</i>
40		Q&A	Q&A
45	Q&A	Early Stage Researcher INESC-ID - <i>José Basílio</i>	Early Stage Researcher INESC-ID - <i>Daniel Gonçalves</i>
50		Q&A	Q&A
55	PI talk <i>Wolfgang Huber</i>	Early Stage Researcher ETH - <i>Xiang Ge Luo</i>	Early Stage Researcher EMBL - <i>Donnacha Fitzgerald</i>
11:00		Q&A	Q&A
5	Q&A	Early Stage Researcher Inria - <i>Antoine Villie</i>	Early Stage Researcher EMBL - <i>Tümay Capraz</i>
10		Q&A	Q&A
15	Short break (10')	Short break (15')	Short break (15')
20			
25	PI talk <i>Niko Beerenwinkel</i>	Early Stage Researcher ETH - <i>Monica Dragan</i>	Senior Staff / Postdoc EMBL <i>Katharina Imkeller</i>
30		Q&A	Q&A
35	Q&A	Early Stage Researcher EMBL - <i>Constantin Ahlmann-Eltze</i>	Senior Staff / Postdoc EMBL <i>Mike Smith</i>
12:00		Q&A	Q&A
5	Senior Staff / Postdoc EMBL <i>Junyan Lu</i>	Early Stage Researcher ETH - <i>Pedro Ferreira</i>	Senior Staff / Postdoc INESC-ID <i>Rui Henriques</i>
10	Q&A	Q&A	
15	Senior Staff / Postdoc Invited by INESC-ID <i>Alexandra Carvalho</i>	Senior Staff / Postdoc Invited by INESC-ID <i>Marta Lopes (A2)</i>	Q&A
20		Q&A	END
25	Q&A	Q&A	
30	END	END	
35			

**Figure 1.** OLISSIPO week agenda.

The OLISSIPO week had 27 speakers and more than 30 participants (Figure 2). All presentations were made available to all participants.



**Figure 2.** Group photo in the OLISSIPO week (Day 1).

## 2.2. OLISSIPO Slack

OLISSIPO created a workspace in [Slack](https://olissipoworkspace.slack.com) to promote interactions between students and all the team ([olissipoworkspace.slack.com](https://olissipoworkspace.slack.com)). All partners were invited to share it with their researchers. The workspace had 15 members with several live conversations between members.

## 2.3. OLISSIPO Twin Seminars

OLISSIPO Twin Seminars (initially in-classroom teaching, under WP2, Task 2.3) were moved online during the first and a half project year. It was expected that the OLISSIPO Twin Seminars could contribute to disseminating the scientific work and expertise of INESC-ID and all the consortiums, fostering collaboration between teams and contributing to attracting new talented researchers. These seminars were organized to include two short presentations (20-30 min/each), one from a Lisbon team Lecturer and a second presentation from a twin international researcher working on similar topics. A discussion was then opened to the public to further promote the participants' interaction. These lectures included experts from a specific subject related to the Strategic Areas in Computational Biology previously identified. The

seminars were opened to everyone interested and further disseminated on the [OLISSIPO YouTube channel](#) (upon the participants' agreement).

### 3. Scientific internships and exchanges

Work travel was reinforced from 2022 to 2024 to compensate for the mandatory reduction of these activities in 2021 (see D4.1 - OLISSIPO Early Stage Researchers training programme). The full list of staff exchanges/internships is summarized in Annex I.

#### 3.1. INESC-ID - Inria exchange

##### 3.1.1. Visit 1 (INESC-ID > Inria)

Three ESRs (Carolina Peixoto, Mónica Silva and José Basílio), the project coordinator (Prof. Susana Vinga) and the project manager (Sara Tanqueiro) visited Inria in Lyon during 6 (March, 17-24, 2022) or 8 days (March, 19-24, 2022), accordingly to their availability to travel. The INESC-ID team was hosted at Université Claude Bernard Lyon 1 by Marie-France Sagot, one of the PIs of the OLISSIPO project, and a Senior Researcher at Inria. The agenda of this first visit is provided in Figure 3.

Lisbon > Lyon Visit								
CET time	17	18	19	20	21	22	23	24
09:30-12:00	Arrival	Visit to Inria	Weekend: Visit Lyon		INESC-ID scientific presentations	INESC-ID and Career Paths	Inria Overview Joint discussion	Wrap up and future directions
12:00-14:00		Lunch			Lunch			
14:00-17:00		Discussion of past and future projects			Talk by INESC-ID Prof. Susana Vinga	Inria Overview Joint discussion	Joint discussion	Departure
17:00-19:00		Free time			Free time			
19:00		Dinner			Dinner			

**Figure 3.** Agenda of the first visit from the INESC-ID team to Inria in Lyon (March 2022).

The INESC-ID team's scientific presentations were open to the students and postdocs of the Erable team from Inria, with 14 participants (7 ESRs).

#### INESC-ID (4 participants, 3 ESRs):

Carolina Peixoto, ESR | *Computational Biology for Modeling Oncological Transcriptomic Data.*

José Basílio, ESR | *Spatial transcriptomics of aortas from high fat diet mice.*

Mónica Silva, ESR | *Approaching Omics: From Medical Imaging to Computational Biology.*

Susana Vinga, Professor | *From sequences to clinical data analysis: bridging computer science and bioengineering for modeling biological systems.*



Inria (14 participants, 7 ESRs):

Marie-France Sagot, Researcher  
 Vincent Lacroix, Professor  
 Arnaud Mary, Professor  
 François Gindraud, Research engineer  
 Laurent Jacob, Researcher  
 Audric Cologne, Postdoc  
 Louis-Mael Gueguen, ESR  
 Darmon Sasha, ESR  
 Nicolas Homberg, ESR  
 Maxime Mahout, ESR  
 Luca Nesterenko, ESR  
 Antoine Villie, ESR  
 Johanna Trost, ESR  
 Sylvie Nguyen, Undergraduate

Prof. Susana Vinga gave a lecture entitled *“From sequences to clinical data analysis: bridging computer science and bioengineering for modeling biological systems”*. This talk overviewed recent projects in computational biology, highlighting some of the associated challenges. In particular, examples of modeling patients’ data using statistical learning methods and the corresponding applications to oncology research were presented.



**Figure 4.** INESC-ID and Inria teams.

After each presentation, time had been allocated for questions and discussion. During the following days, free discussions took place between the INESC-ID team members and the members who are at the Laboratoire de Biométrie et Biologie Évolutive (LBBE) with which the Inria is a partner. The members of the INESC-ID team had the opportunity to reflect with Marie-France Sagot about their career paths and future. Sara Tanqueiro also had the opportunity to work together with Marie-France Sagot and Susana Vinga on the next deliverables and the upcoming events of the OLISSIPO project.



**Figure 5.** Photos from INESC-ID > Inria visit (March 2022).

### 3.1.2. Visit 2 (Inria > INESC-ID)

During two weeks, Marie-France Sagot visited INESC-ID (April, 25 – May, 10, 2022), together with an external visitor – Ariel Silber (April, 25 – May, 2, 2022) from the Department of Parasitology, Institute of Biomedical Sciences, University of São Paulo, Brazil. Both researchers joined the meeting between the ETH and INESC-ID teams (April 26-29, 2022) (see agenda in Section 3.3. INESC-ID - ETH exchange). The INESC-ID team had a meeting with Marie-France Sagot to discuss the challenges facing science in Portugal and how they can be addressed.

#### INESC-ID (8 participants, 3 ESRs):

Susana Vinga, Professor  
 Emanuel Gonçalves, Professor  
 Mário Figueiredo, Professor  
 Marta Lopes, INESC-ID Alumni  
 Sara Tanqueiro, Project Manager  
 Carolina Peixoto, ESR  
 Mónica Silva, ESR  
 José Basílio, ESR

In addition, Marie-France Sagot, Sara Tanqueiro and Susana Vinga had the chance to prepare the second edition of the Workshop: Two for a Tango, the First Review Meeting and plan the OLISSIPO Retreat.

### 3.1.3. Visit 3 (Inria > INESC-ID)

Prof. Marie-France Sagot and two researchers, Dr. Mariana Ferrarini and Dr. Blerina Sinimeri, visited Lisbon in July 2022 for the OLISSIPO Retreat. The detailed agenda of this meeting can be found in Section 3.5 (Lab Retreats).

### 3.1.4. Visit 4 (Inria > INESC-ID)

From 29 August to 8 September 2022, Prof Marie-France Sagot visited INESC-ID to work closely with Prof. Susana Vinga and Dr Sara Tanqueiro to discuss future OLISSIPO events (schools and workshops).

### 3.1.5. Visit 5 (Inria > INESC-ID)

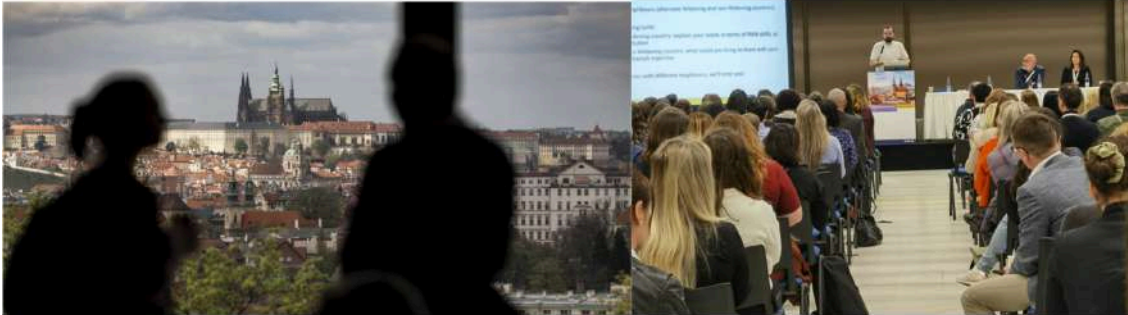
Additionally, Dr Matthieu Py, the European Strategy Officer of Inria, was invited to INESC-ID to talk about European Calls and discuss several aspects of the Pre-Award process. It was a full day filled with discussions, exchange of ideas and of good practices. From the INESC-ID team, Sara Tanqueiro, Susana Vinga, Cláudia Vieira, Manuela Sado, Ana Rita Nunes, Pedro Ferreira, Pedro Monteiro, Emanuel Gonçalves, (INESC-ID), Marta Candeias, Alexandra Carvalho (IST) participated in this workshop of Proposal Writing.



**Figure 6.** Pre-Award Workshop with Dr. Matthieu Py (1st Edition).

From this first workshop came the idea to submit a joint abstract (EU project departments at INESC-ID, Instituto Superior Técnico and Inria) to the European Research Managers and Administrators Conference in April 2023, Prague. The Conference 2023 covered relevant topics in Widening and Deepening of the RMA Profession. Importantly, the abstract was selected for the presentation of an oral communication. Dr Matthieu Py (Inria), Dr Sara Tanqueiro (INESC-ID) and Dr Marta Candeias (IST) shared

the experience of cooperation in the frame of the OLISSIPO Twinning project, its impact and best practices.



**Figure 7.** OLISSIPO participation in the EARMA Conference.

### 3.1.6. Visit 6 (Inria > INESC-ID)

From February 1 to 11, 2023, the Inria PI Marie-France Sagot visited INESC-ID to attend the first OLISSIPO Winter School: Modelling and Analysis of Single Cell Multiple Biological Omics. The detailed agenda appears in *Deliverable 2.4 - Final report on organized joint events, schools, workshops and conferences*.

### 3.1.7. Visit 7 (Inria > INESC-ID)

Dr Matthieu Py from Inria, who came to Lisbon for a second visit, and the Pre-Award Officer from IST-ID, Dr Marta Candeias, conducted a two-day workshop on Pre-Award (Second Edition) with 23 participants from the different institutes of IST.



**Figure 8.** Pre-Award Workshop with Dr. Matthieu Py (1st Edition).

### 3.1.8. Visit 8 (INESC-ID > Inria)

From March 28 to April 1, 2023, 2 ESRs (Ana Rita Baião and Dr. Carolina Peixoto), Prof. Susana Vinga and Dr. Sara Tanqueiro visited Inria in Lyon, hosted by Prof. Marie-France Sagot. During these days, the INESC-ID and Inria teams discussed the ongoing work in each institution. Sara Tanqueiro had the opportunity to work together with Marie-France Sagot and Susana

Vinga on the upcoming events of the OLISSIPO project. On 31 March, Prof. Susana Vinga integrated the PhD Thesis Committee of an Inria ESR:

- Antoine Villié. Quantifier l'Incertitude de l'Explicabilité en Apprentissage Automatique: Inférence Post-Sélection sur des Caractéristiques Biologiques. Ecole Doctorale 341: Écosystèmes Évolution Modélisation Microbiologie; Spécialité de doctorat: Biomath-Bioinfo, Université Claude Bernard Lyon 1. (Supervisors: Laurent Jacob and Yohann de Castro).

### **3.1.9. Visit 9 (Inria > INESC-ID)**

From 27 June to 10 July 2023, the Inria PI Marie-France Sagot visited INESC-ID to join the second OLISSIPO School: Computational phylogenetics to analyse the evolution of cells and communities – Tree for a Tango School. The detailed agenda appears in Deliverable D2.4 - Final report on organized joint events, schools, workshops and conferences.

### **3.1.10. Visit 10 (Inria > INESC-ID)**

From January 31 to February 17, 2024, Dr. Marie-France Sagot visited INESC-ID to join the last OLISSIPO School: Mathematical modeling of inter-cell and communities' interactions with a focus on metabolism. She also participated in the Workshop on Pre-Award and supported the visit of our SAB members Jonas S. Almeida and Dan Gusfield. The detailed agenda appears in *Deliverable 2.4 - Final report on organized joint events, schools, workshops and conferences*.

### **3.1.11. Visit 11 (INESC-ID > Inria)**

From 14 to 16 February 2024, Dr. Matthieu Py, EU strategy officer at Inria Grenoble-Lyon, visited Lisbon in the scope of our effort to develop a pre-award department at INESC-ID and IST. INESC-ID hosted this training workshop focused on the Pre-award phase of European projects - Horizon Europe for ICT: an overview. The workshop was opened to staff and researchers from INESC ID, INESC INOV, and INESC MN, and had 26 participants. It was divided into two parts. The first one covered fundamental principles for preparing Horizon Europe applications, while the second part was focused on more specific topics of interest towards the development of project proposals. The detailed agenda is described in *D2.4 - Final report on organized joint events, schools, workshops and conferences*.

### 3.1.12. Visit 12 (INESC-ID > Inria)

From 11 to 14 March 2024 the INESC-ID team visited Inria in Lyon, with the following

Agenda:

#### – Monday, 11 March

11:30 Arrival and Lunch  
 13:30 Arnaud Mary “Algorithms for co-phylogeny analysis”  
 15:30 Discussion: OLISSIPO future events  
 17:30 Closing

#### – Tuesday, 12 March

10:00 Vincent Lacroix “Towards producing edible microbial proteins with very low carbon footprint”  
 12:00 Lunch  
 13:30 Sabine Peres “Methods for metabolic network optimization”  
 15:30 Discussion: OLISSIPO follow-up projects - next European calls  
 17:30 Closing

#### – Wednesday, 13 March

10:00 Beatriz Leitão “Survival analysis from multi-dimensional data”  
 11:00 Rita Baião “Method for the Integration of multi-omics data”  
 12:30 Lunch  
 14:00 Discussion: Promoting Computational Biology in Portugal beyond OLISSIPO: international conference organization; building a Portuguese Society of Bioinformatics.  
 17:30 Closing

#### – Thursday, 14 March

10:00 “Multiomics integration of cancer data” Alex di Genova  
 10:00 Participation of Alexandre Francisco and Arnaud Mary in the seminars “Small But Unwieldy: A Lower Bound on Adjacency Labels for Small Classes”, by Édouard Bonnet, and “Short and local transformations between  $(\Delta+1)$ -colorings”, by Laurent Feuilloley.  
 12:00 Lunch and Group Photo  
 13:30 Closing and Departure

Participants List:

#### INESC-ID (4 participants, 2 ESRs):

Susana Vinga, Project Coordinator  
 Alexandre Francisco, Professor  
 Ana Rita Baião, ESR  
 Beatriz Leitão, ESR

#### Inria team (10 participants, 3 ESRs):

Marie-France Sagot, PI  
 Arnaud Mary, Professor

Vincent Lacroix, Professor  
Sabine Peres, Professor  
François Gindraud, Research Engineer  
Alex di Genova (Univ. de O'Higgins, Chile), Professor  
Carol Moraga Quinteros (Univ. de O'Higgins, Chile), Professor  
Sasha Darmon, ESR  
Emma Crisci, ESR  
Camille Siharath, ESR



**Figure 10.** Group photo with the Inria and INESC-ID teams.

### **3.2. INESC-ID – ETH exchange**

#### **3.2.1. Visit 1 (ETH > INESC-ID)**

Six ESRs and the PI Niko Beerenwinkel visited INESC-ID between April 26 and 29, 2022.

The agenda for this visit is presented in Figure 11.

ETH > Lisbon Visit				
WEST time	26	27	28	29
08:45-09:00	Arrival	Welcome & Coffee		
09:00-10:30		ETH presentations I	INESC-ID presentations I	Teamwork
10:30-11:00		Coffee Break		
11:00-12:00		ETH presentations II	Teamwork	Wrap up and future directions
12:30-14:30	Welcome Lunch (close to INESC-ID)	Lunch box (Picnic - Baixa)	Lunch (INESC-ID)	Lunch (Baixa)
14:30-15:30	Visit to INESC-ID/IST	Social Event (Belém)	INESC-ID presentations II	Departure
15:30-19:00	Free time		Free time (walk)	
19:00			Dinner (Baixa)	

**Figure 11.** Agenda of the first visit from the ETH team to INESC-ID in Lisbon (April 2022).

Scientific meetings with the ETH team were opened to students and researchers of INESC-ID and Instituto Superior Técnico (Figure 12). The list of all participants who attended was (title of the presentation when applicable):

ETH team (7 participants, 6 ESRs):

Niko Beerenwinkel, Professor

David Dreifuss, ESR | *Detection and Monitoring of SARS-CoV-2 Variants by Genomic Analysis of Wastewater Samples.*

Lara Fuhrmann, ESR | *Characterization of intra-host viral diversity.*

Pedro Ferreira, ESR | *Mapping single-cell transcriptomes to copy number evolutionary trees.*

Johannes Gawron, ESR | *Understanding Tumor Evolution from Longitudinal Sequencing Data.*

Xiang Ge Luo, ESR | *Joint inference of repeated evolutionary trajectories and patterns of clonal exclusivity or co-occurrence from tumor mutation trees.*

Kevin Rupp, ESR | *Inferring fitness landscapes from single cell sequencing data.*

INESC-ID team (19 participants, 8 ESRs):

Susana Vinga, Project Coordinator

Sara Tanqueiro, Project Manager

Alexandre Francisco, Professor | *On phylogenetic inference and algorithm engineering.*

Emanuel Gonçalves, Professor | *Protein driven machine learning and network approaches for precision medicine.*

Carolina Peixoto, ESR | *Computational Biology for Modeling Oncological Transcriptomic Data.*

Mónica Silva, ESR | *Approaching Omics: From Medical Imaging to Computational Biology.*

José Basílio, ESR | *Spatial transcriptomics of aortas from high fat diet mice.*

Roberta Coletti, Postdoc | *Multi-omic NETWORKS in gliomas.*

Rui Henriques, Professor | *Learning epitranscriptomic brain patterning from peripheral tissue for neuropsychiatry.*

Francisco Santos, Professor | *Network Science and Evolutionary Game Theory.*

David Calhas, ESR

Leonardo Alexandre, ESR

Daniel Gonçalves, ESR

Ana Rita Baião, ESR



Isabella Kim, ESR  
Alexandra Carvalho, Alumni  
Marta Lopes, Alumni  
Eunice Carrasquinha, Alumni  
Pedro Ferreira, Science Communication and Outreach Postdoctoral Coordinator



Figure 12. INESC-ID and ETH teams.

Scientific discussions between the INESC-ID and ETH teams took place after all the presentations (Figure 13). All participants were divided into three main groups and the results of the teamwork allowed ESRs to find synergies between the work developed between the INESC-ID and ETH teams, and design possible collaboration plans between the institutions. Based on the discussions, several topics were identified as the most promising ones to pursue the collaborations: 1) Tumor evolution and metastasis, 2) Network learning for multi-omics data integration, 3) Spatial transcriptomics, and 4) Pattern identification and clustering.



**Figure 13.** Teamwork.

An event for team building was also organised to increase motivation and promote cooperation (Figure 14).



**Figure 14.** INESC-ID and ETH teams in the team building event.

A short feedback form was also created for this staff exchange to collect feedback from the participants about this first visit to INESC-ID. Testimonials were important to plan the next events.

*“Allowed me to get to know new tools and methods that I could apply in my work.”*

*“The presentations delivered by our colleagues at INESC-ID are all highly related to my research interests. The discussions during the breaks are very constructive as well.”*

*“My visit helped me to put my research into a larger context. I saw how similar problems as the ones I work with are approached differently. I made contact with other researchers in the field for possible future collaborations.”*

*“The visit contributed to my work as I got insights into different types of methods compared to what we work with at ETH. I learned about biclustering for pattern detection which will be useful for my projects.”*

*“Establishment of the most-immediate collaborative plans with ETH Zurich, identifying synergies between the two institutions. Opportunity to meet experts in the field of Computational Biology. Learn in detail the work being developed in ETH, being a reference for further ideas, with the unique possibility to further discuss it on a one-on-one basis.”*

*“With this visit, I got to know different projects in the area of bioinformatics and I had the opportunity to clarify doubts about the different methodologies mentioned in the presentations. Furthermore, the visit allowed me to be in contact with the world of research and to understand the main goals and obstacles.”*

### 3.2.2. Visit 2 (INESC-ID > ETH)

Five ESRs, one professor, the project manager and the coordinator visited ETH between May 31 and June 3, 2022. The agenda of this first visit of INESC-ID to ETH is presented in Figure 15.

Lisbon -> ETH visit			
CEST	1	2	3
08:45-09:00	Welcome & Coffee		
09:15-10:30	Opening session: Intro by Niko; Projects recap	Teamwork	Jack Kuipers
10:30-11:00	Coffee Break		
11:00-12:30	Monica, Fritz	Teamwork	Teamwork
12:30-13:30	Lunch		
13:30-14:00			
14:00-15:00	Nico, Pawel	Teamwork	Teamwork
15:00-15:30			
15:30-17:00	Planning of teamwork	Team building & Dinner	Project presentations
17:00-19:00	Rheinschwimmen & Dinner		Closing session & Departure

**Figure 15.** Agenda of the first visit from the INESC-ID to ETH (May 31 - June 3, 2022).

#### Participants List:

##### INESC-ID team (8 participants, 5 ESRs):

Susana Vinga, Professor  
 Sara Tanqueiro, Project Manager  
 Rui Henriques, Professor  
 José Basílio, ESR  
 Carolina Peixoto, ESR  
 Mónica Silva, ESR

Leonardo Alexandre, ESR  
João Aparício, ESR

ETH team (11 participants, 8 ESRs):

Niko Beerenwinkel, Professor  
Jack Kuipers, Senior Scientist  
Fritz Bayer, ESR  
Nico Borgsmüller, ESR  
Pawel Czyz, ESR  
Arthur Dondi, ESR  
Monica Dragan, ESR  
Johannes Gawron, ESR  
Xiang Ge Luo, ESR  
Kevin Rupp, ESR  
Marco Roncador, researcher/clinician scientist

Teamwork between the INESC-ID and ETH teams took place after all presentations (Figure 16).



**Figure 16.** ETH and INESC-ID teams.

All the participants were divided into four main groups according to the scientific topics identified:

- Team 1 (Leonardo, João, Rui, Niko, Kevin and Johannes) - *Patterns in HIV time-series data.*
- Team 2 (João, Leonardo, Xiang, Monica, Rui, Niko) - *On the clustering of mutation trees.*

- Team 3 (Susana, Mónica, Fritz, Xiang, Carolina, Niko, Pedro) - *Cox-Regularized Regression and Clustering of Mutation and RNAseq data in Glioma.*
- Team 4 (Pawel, Rui, José, Pedro) - *Cross-tissue regulatory mapping system for personalized medicine.*

The discussion greatly benefited from not only this visit but also from the previous staff exchange from ETH to INESC-ID. The results of this teamwork, presented at the end of the staff exchange visit (Figure 17), seemed very promising with the ESRs designing collaboration plans for the next months.



**Figure 17.** Groups presented their collaboration plans.

### 3.2.3. Visit 3 (ETH > INESC-ID)

Prof. Niko Beerenwinkel and 3 ESRs visited Lisbon for the OLISSIPO Retreat held in July 2022. The detailed agenda of this meeting can be found in Section 3.5.

### 3.2.4. Visit 4 (INESC-ID > ETH)

The ESR Laura Quintas joined Prof. Niko Beerenwinkel's team for the first part of her internship from Técnico in ETH between February 11 and May 12, partially supported by OLISSIPO. This work, entitled "Combined distance metric for labelled trees", was developed in the context of the Biomedical Engineering Master Program of IST and was co-supervised with Prof. Susana Vinga and Prof. Niko Beerenwinkel.

### **3.2.5. Visit 5 (ETH > INESC-ID)**

The ETH ESR Pedro Ferreira visited Lisbon to give a workshop at INESC-ID on the “Analysis of single-cell data from tumors” which had more than 30 participants from Instituto Superior Técnico, Instituto de Medicina Molecular, BioISI – Biosystems & Integrative Sciences Institute, Faculdade de Ciências da Universidade de Lisboa, Instituto Gulbenkian de Ciencia and NOVA School of Science and Technology.

### **3.2.6. Visit 6 (INESC-ID > ETH)**

The ESR Laura Quintas joined Prof. Niko Beerenwinkel’s team for the second part of her in ETH between May 18 and August 2, 2023.

### **3.2.7. Visit 7 (INESC-ID > ETH)**

From July 1 to 7, 2023, 4 ESRs came to Lisbon to join the team in the OLISSIPO Summer School on Computational phylogenetics to analyse the evolution of cells and communities –Tree for a Tango, which is also detailed in Deliverable D2.4 - Final report on organized joint events, schools, workshops and conferences.

### **3.2.8. Visit 8 (INESC-ID > ETH)**

The PI of the Project Prof. Susana Vinga visited the ETH between May 6 and June 27 2024, with the goal of strengthening the collaboration between the institutions and preparing future activities beyond the end of project OLISSIPO. Among the planned activities, we will promote co-supervisions of Master and PhD students (call open at Técnico for the first semester 2024/2024 in the programs of Computer Science and Engineering, Biomedical Engineering, and Data Science). Furthermore, planned joint projects under Horizon Europe are being discussed for the calls in the Fall of 2024 and Spring of 2025.

## **3.3. INESC-ID – EMBL exchange**

### **3.3.1. Visit 1 (EMBL > INESC-ID)**

Four ESRs, one postdoc, one staff member, and a senior project manager visited INESC-ID between April 4 and 7, 2022. The agenda of this first visit is presented in Figure 9.

EMBL > Lisbon Visit				
CEST time	4	5	6	7
08:45-09:00	Arrival	Welcome & Coffee		
09:00-10:30		EMBL presentations I	INESC-ID presentations	Joint Discussion
10:30-11:00		Coffee Break		
11:00-12:30		EMBL presentations II	Teamwork	Wrap up and future directions
12:30-14:00		Lunch (INESC-ID)	Lunch (Chiado)	Lunch (INESC-ID)
14:00-17:00		Joint Discussion	Social event	Departure
17:00-19:00			Dinner (Alfama)	
19:00-19:30		Welcome dinner (Chiado)		

**Figure 18.** Agenda of the first visit from the EMBL team to INESC-ID in Lisbon (April 2022).

Scientific meetings with the EMBL team were opened to 20 students and researchers of INESC-ID and Instituto Superior Técnico. The participants from each Institution were (title of their presentations when applicable):

EMBL (7 participants, 4 ESRs) and titles of presentations:

Simone Bell, Senior Project Manager | *Project management.*  
 Julia Philipp, Researcher | *Managing omics data on different scales.*  
 Harald Vöhringer, Postdoc | *Delineating the tumor microenvironment in BHLN.*  
 Hosna Baniadam, ESR | *Clustering single-cell RNA-seq counts.*  
 Donnacha Fitzgerald, ESR | *Probing B cell lymphomas with single-cell multi-omics.*  
 Tümay Capraz, ESR | *Statistical tools for high-throughput screening data.*  
 Constantin Ahlmann-Eltze, ESR | *Analysis of Multi-Condition Single Cell Data.*

INESC-ID team (21 participants, 7 ESRs):

Susana Vinga, Project Coordinator  
 Sara Tanqueiro, Project Manager  
 Rui Henriques, Professor | *Learning epitranscriptomic brain patterning from peripheral tissue for neuropsychiatry.*  
 Alexandre Francisco, Professor | *On phylogenetic inference and algorithm engineering*  
 Carolina Peixoto, ESR | *Computational Biology for Modeling Oncological Transcriptomic Data.*  
 Mónica Silva, ESR | *Approaching Omics: From Medical Imaging to Computational Biology.*  
 Emanuel Gonçalves, Professor | *Protein driven machine learning and network approaches for precision medicine.*  
 Pedro Monteiro, Professor | *Genome-scale integrated regulatory-metabolic models: Predicting targets in yeasts.*  
 David Calhas, ESR  
 Leonardo Alexandre, ESR  
 Ana Rita Baião, ESR  
 Daniel Gonçalves, ESR  
 João Aparício, ESR  
 Roberta Colleti, Postdoc  
 Alexandra Carvalho, Alumni  
 Marta Lopes, Alumni  
 Eunice Carrasquinha, Alumni  
 Filipa Borrego, Innovation Management Coordinator  
 Pedro Ferreira, Science Communication and Outreach Postdoctoral Coordinator  
 Ilda Ribeiro, European Projects Manager  
 Jorge Oliveira, PhD, BioData / ELIXIR



Teamwork between the INESC-ID and EMBL teams took place after all presentations. All participants were divided into three main groups and the results of the teamwork allowed ESRs to find synergies between the work developed between the INESC-ID and EMBL teams. 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.



**Figure 19.** INESC-ID and EMBL teams during presentations.

An event of team building was also organized to increase motivation and promote cooperation (Figure 20).



**Figure 20.** INESC-ID and EMBL teams in the team building event.

A short form was created to have feedback from the participants about this first visit to INESC-ID. Testimonials were important to plan the following events.

*"I had some interesting interactions with the OLISSIPO members. I found very useful the group discussions, which allowed me to receive feedback and suggestions about my last research progresses."*

*“It was an experience that allowed me to better understand the research being done in the field and some of the main questions and techniques being used.”*

*“I had the chance to discuss recurring challenges I was facing in my projects, and connected with people who were also interested in addressing these challenges for future follow-up.”*

*“It is interesting and useful to get insights from a project of the H2020 Twinning Programme.”*

*“I got to discuss my work with people in a similar field.”*

*“I got to know in detail the topics that EMBL is interested in and working on, that otherwise would be harder to understand in such a comprehensive and dynamic way. This allowed for: a) new ideas for omics data analyses to implement in the future/data integration techniques, b) establishment of a network of contacts from highly specialised people to whom I can easily reach out if needing some guidance, and/or c) better envision collaborations for the future.”*

### **3.3.2. Visit 2 (EMBL > INESC-ID)**

Prof. Wolfgang Huber, Simone Bell and 3 ESRs visited Lisbon for the OLISSIPO Retreat held in July 2022. The detailed agenda of this meeting can be found in Section 3.5 – Lab Retreats).

### **3.3.3. Visit 3 (INESC-ID > EMBL)**

The INESC-ID team visited EMBL in Heidelberg between November 22 and 25, 2022. The agenda of this event can be found [here](#). Besides scientific presentations and discussions, the INESC-ID staff participated in several training actions in Ethics and Research Integrity, E-mail and document management, Equality, Diversity and Inclusion, Make decisions and solve problems creatively, Annual performance review and feedback and Open Science. These activities are described in detail in *Deliverable 4.3 - Final report on activities targeted for Early Stage Researchers*. EMBL researchers presented some of their work, and INESC-ID ESRs had the opportunity to discuss their ongoing work progress (Figure 21).



**Figure 21.** INESC-ID staff exchange to EMBL.

#### Participants List:

##### INESC-ID (7 participants, 5 ESRs):

Susana Vinga, PI  
 Sara Ramalho Tanqueiro, Project Manager  
 José Basílio, ESR  
 Carolina Peixoto, ESR  
 Rita Baião, ESR  
 Raquel Romão, ESR  
 Laura Quintas, ESR

##### EMBL (17 participants, 9 ESRs):

Wolfgang Huber, PI  
 Simone Bell, Senior Project Manager  
 Thomas Naake, Postdoc  
 Julia Philipp, Staff Member  
 Sarah Kaspar, Staff Member  
 Mike Smith, Senior Software Engineer  
 Donnacha Fitzgerald, ESR  
 Harald Vöhringer, ESR  
 Matthias Fabian Meyer-Bender, ESR  
 Hosna Baniadam, ESR  
 Erin Kim Chung, ESR  
 Tümay Capraz, ESR  
 Anastasiia Horlova, ESR

Nick Hirschmüller, ESR  
 Constantin Ahlmann-Eltze, ESR  
 Harald Vöhringer, Postdoc, Visitor  
 Alexander Helmboldt, Postdoc

### 3.3.4. Visit 4 (EMBL > INESC-ID)

From 8 to 12 May, 2023, the EMBL team (2 researchers, the senior project managers and 5 ESRs) visited INESC-ID to give a series of workshops in the area of Computational Biology:

- Workshop 1 - Introduction to R by Mike Smith;
- Workshop 2 - Biostatistical Basics in R by Sarah Kaspar;
- Workshop 3 - Drug Synergy by Petr Smirnov;
- Workshop 4 - Single-Cell by Donnacha Fitzgerald, Hosna Baniadam, Harald Vöhringer,

Petr Smirnov and Tümay Capraz.

The EMBL Training was opened to other Portuguese institutions besides INESC-ID and IST. This activity is detailed in Deliverable *D2.4—Final report on organized joint events, schools, workshops, and conferences.*



**Figure 22.** EMBL training to INESC-ID and other portuguese institutions.

### 3.3.5. Visit 5 (EMBL > INESC-ID)

From July 1 to 7 2023, Thomas Naake (ESR) came to Lisbon to join the team in the OLISSIPO Summer School on Computational phylogenetics to analyse the evolution of cells and

communities – Tree for a Tango School, which is also detailed in *Deliverable 2.4 - Final report on organized joint events, schools, workshops and conferences*.

### 3.3.6. Visit 6 (INESC-ID > EMBL)

From October 15 to 18 2023, INESC-ID visited EMBL for the Third Annual Meeting. The agenda is presented in Figure 23.

Lisbon > EMBL   OLISSIPO Annual Meeting				
CEST	15	16	17	18
09:00-10:00	<i>Arrival</i>	<i>Free</i>	Un-Conference: AI Methods for Health, Life, and Natural Science	Presentations by INESC-ID's students with discussion
10:00-11:00		Welcome INESC-ID and EMBL Discussion Meetings		EMBL Blue Seminar with Prof. Dan Gusfield
11:00-12:00				
12:00-13:00		<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>
12:30-14:00			Un-Conference: AI Methods for Health, Life, and Natural Science	<i>Departure</i>
14:00-15:00		Un-Conference: AI Methods for Health, Life, and Natural Science	Annual Meeting with SAB (PIs and project managers) Working group (ESRs and researchers)	
15:00-16:00			<i>Free</i>	
16:00-17:00		<i>Dinner</i>	<i>Dinner</i>	
17:00-19:00				
19:00-21:00				

**Figure 23.** Agenda of INESC-ID visit to EMBL and Annual Meeting.

#### Participants List:

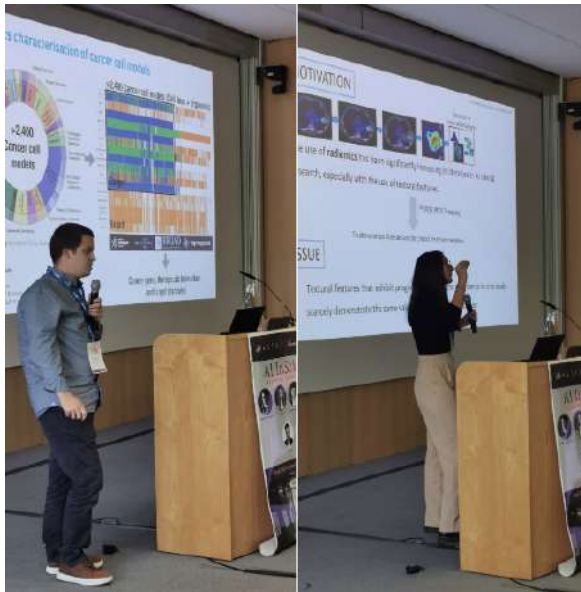
##### INESC-ID (7 participants, 4 ESRs):

Susana Vinga, PI  
 Sara Tanqueiro, Project Manager  
 Emanuel Gonçalves, Professor  
 Ana Rita Baião, ESR  
 Cláudia Constantino, ESR  
 Laura Quintas, ESR  
 Raquel Romão, ESR

##### EMBL (12 participants, 7 ESRs):

Wolfgang Huber, PI  
 Simone Bell, Senior Project Manager  
 Petr Smirnov, ESR  
 Harald Vöhringer, Postdoc  
 Julia Lazoriak, ESR  
 Donnacha Fitzgerald, ESR  
 Matthias Meyer-Bender, ESR  
 Tümay Capraz, Researcher  
 Constantin Ahlmann-Eltze, ESR  
 Hosna Baniadam, ESR  
 Julia Philipp, Staff member  
 Erin Kim Chung, ESR

On the first day of the visit, the INESC-ID team members had the chance to participate in the {Un-}Conference: AI Methods for Health, Life, and Natural Science hosted by AI Health Innovation Cluster and ELLIS - European Laboratory for Learning and Intelligent Systems (Heidelberg Unit) at EMBL. Prof. Emanuel Goncalves and the ESR Cláudia Constantino shared their work with enlightning talks (Figure 24).



**Figure 24.** INESC-ID researcher, Prof. Emanuel Gonçalves and ESR Cláudia Constantino at {Un-}Conference: AI Methods for Health, Life, and Natural Science.

We took this opportunity to hold the Third Annual Meeting. Prof. Jens Stoye and Dan Gusfield from the SAB joined the team in person in Heidelberg, and Prof. Marie-France Sagot joined it virtually. The team focused on overviewing the activities developed within the project and the next steps for the future.

Prof. Gusfield shared his knowledge with the ESRs and researchers and gave a talk in an institutional seminar, which was open to all the scientific community at EMBL and focused on the past of Bioinformatics, Computational Biology, and Genomics (see Section 3.5.5).

In addition, the INESC-ID ESR Cláudia Constantino stayed a few more days at Heidelberg to visit the AI-guided diagnosis group at the University of Medicine Mannheim and meet Dr Freba Grawe, a specialist in nuclear medicine and Head of the Translational Molecular Imaging in Oncologic Therapy Monitoring (October 18), Dr Antonia Dimitrakopoulou-Strauss, Deputy Head of the Clinical Cooperation Unit Nuclear Medicine, and Dr. Christos Sachpekidis (October 19). On October 20, Cláudia visited the Translational Molecular Imaging in Oncologic Therapy Monitoring Lab.

### 3.3.7. Visit 7 (INESC-ID > EMBL)

The ESR Ana Rita Baião joined Dr. Wolfgang Huber’s group, one of the PIs of OLISSIPO, for an internship at EMBL Heidelberg between April 2 and May 10, 2024. Ana Rita is a first-year PhD student in Computer Science and Engineering at IST, and during this staff exchange she presented her work and exchanged insights with the other members of the Huber Group. During the visit, Ana Rita also visited the Group of Julio Saez-Rodriguez at Heidelberg University to present her work and to discuss future collaborations and activities.

### 3.4. INESC-ID Staff Exchange with other Institutions

The ESR Raquel Romão joined the group of Prof. Julien Gagneur, one of the SAB members, for an internship at the Technical University of Munich (TUM) between February 20 and May 15 and May 21 and August 8, 2023. The work performed, entitled “Detection of expression outliers in terminal exons”, was developed in the context of her MSc Biological Engineering from Técnico and was co-supervised with Prof. Susana Vinga and Prof. Julien Gagneur. Prof. Vinga had the opportunity to visit TUM in May 24-26, 2023 to discuss the ongoing collaboration between institutions and plan future activities. Taking advantage of being in Munich, Prof. Vinga visited the University of Vienna from May 26 and June 1, 2023, to meet the co-supervisor of the INESC-ID ESR José Basílio. José is working in Vienna and doing a PhD with the OLISSIPO PI.

Importantly, Gabriel Abrantes, a student from Prof. Jens Stoye at Bielefeld University, another SAB member of this project, came to Lisbon to do an internship with Prof. Vinga’s group from September 4 to February 9, 2023. Gabriel Abrantes demonstrated interest in developing his MSc at INESC-ID and IST (starting in 2024). In this context, to discuss new ideas and build a joint project, Prof. Jens Stoye visited INESC-ID on 22-23 April 2024, when he gave a talk entitled “Bioinformatics Infrastructure in Bielefeld and in Germany” (recorded and available in our [YouTube channel](#)) and interacted with ESR.

Additionally, the ESR Cláudia Constantino visited LaTIM (Laboratoire de Traitement de L’Information Médicale), from INSERM UMR1101, in Brest, France from 6 to 17 May, 2024. This exchange was supervised by Prof. Dimitris Visvikis, the Director of Research, and Doctor Ronrick Da-ano. Cláudia shared her PhD developing project and ideas, and a possible collaboration for data sharing between institutions was established within the LuCaRad project (“Predicting primary and secondary lung cancer response to radiotherapy with [18F]FDG PET/CT imaging and machine learning”).



**Figure 25.** Cláudia Constantino at the LaTIM (Laboratoire de Traitement de L'Information Médicale)

The PI Prof. Susana Vinga visited TU Wien from 29 to 31 January 2024 for the kick-off meeting of the project BioMembrOS - Biomimetic Membranes for Organ Support (funded by European Union's Horizon Europe research and innovation programme under grant agreement Nr. 101130006) with the participation of the Técnico team (<https://biomembros.eu/>).



**Figure 26.** Kick-off meeting of project BioMembrOS at TU Wien.

### 3.5. Annual Meetings and joint lab retreats

#### 3.5.1. OLISSIPO Kick-off Meeting

On February 9, 2021, the Kick-off Meeting was held online with 26 participants, including the PIs and administrative staff from the Consortium and officers from the European Commission (Figure 27). The agenda can be found [here](#). During the KoM, the first year's



activities were defined and mitigation measures to be taken due to the COVID-19 pandemic outlined in the OLISSIPO Contingency Plan.

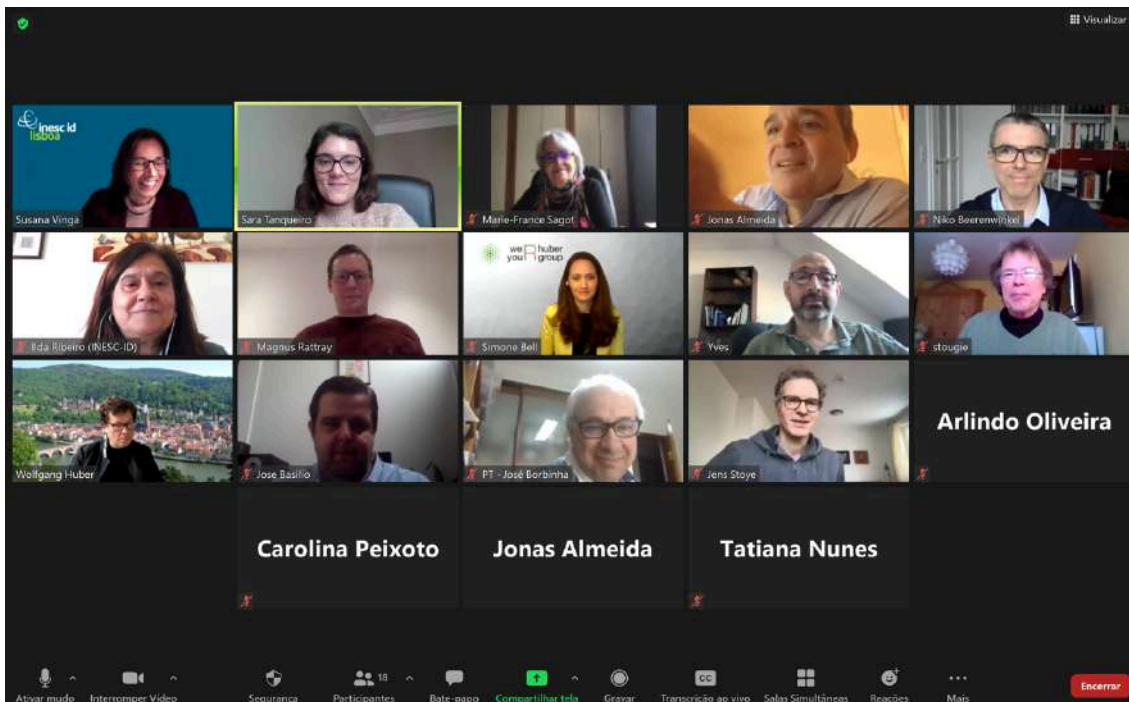


Figure 27. OLISSIPO KoM was held online.

### 3.5.2. First Annual Meeting

The [first annual meeting](#) was held virtually with 17 participants, including PIs and administrative staff to discuss relevant topics and plan new events and activities for 2022 (Figure 28).



Figure 28. The first OLISSIPO Annual Meeting was held online.

### 3.5.3. OLISSIPO Retreat

On July 14-15, 2021, the OLISSIPO Retreat was held at Hotel Olissippo Oriente at Parque das Nações in Lisbon with 26 participants, including the ESRs and PIs of the Twinning partners and INESC-ID administrative staff (Figure 29).



**Figure 29.** OLISSIPO Retreat in Lisbon.

Several activities were carried out during this meeting, according to the following Agenda:

OLISSIPO Retreat			
WEST time	14 July 2022	15 July 2022	
08:45-09:00	<i>Welcome</i>		
09:00-09:30	<b>Opening Session</b> Susana Vinga   INESC-ID	<b>Feedback on OLISSIPO Schools and Workshops</b> ESRs and Marie-France Sagot   INRIA	
09:30-10:30	<b>Early Stage Researchers (ESR) Flash Talks</b> <i>Chair: Wolfgang Huber   EMBL</i>	<b>Parallel sessions</b>	
		Networking/Teamwork	Future Projects PIs and SAB

		ESRs and Postdocs	
10:30-11:00	<i>Coffee Break</i>		<i>Coffee Break</i>
11:00-12:30	<p><b>Special Session and Roundtable</b> Computational Biology: bridging academic education and data science applications for clinical and biotechnology research</p> <p><i>Speakers:</i> Niko Beerenwinkel   ETH Zürich Luís Costa   CHLN &amp; IMM Simão Soares   SilicoLife</p> <p><i>Moderator:</i> Susana Vinga   INESC-ID</p>	<p><b>Workshop</b> Science Communication and Outreach ESRs and Postdocs</p> <p><i>Speaker:</i> Ana Sanchez   ITQB-UNL</p>	
12:30	<b>OLISSIPO Retreat 2022 Photo</b>		<b>Closing Session</b>
12:30-14:00	<i>Lunch</i>		<i>Lunch</i>
14:00-15:30	<b>Parallel sessions</b>		<i>Departure</i>
	Networking/Teamwork ESRs and Postdocs	OLISSIPO Future Plans PIs and SAB	
16:00-17:00	<p><b>Career development (All)</b> <i>Speaker:</i> Susan Holmes   Stanford University</p>		
17:00	<b>Closing Session</b>		
19:30	<i>Dinner</i>		

#### Participants List:

##### INESC-ID (13 participants, 5 ESRs):

Susana Vinga, Project Coordinator  
Sara Tanqueiro, Project Manager  
Ana Teresa Freitas, Professor  
Rui Henriques, Professor  
Emanuel Gonçalves, Professor  
Mónica Silva, ESR  
Leonardo Alexandre, ESR  
João Aparício, ESR  
Ana Rita Baião, ESR  
Isabella Kim, ESR  
Alexandra Carvalho, Alumni  
Eunice Carrasquinha, Alumni  
Pedro Ferreira, Science Communication and Outreach Postdoctoral Coordinator

##### Inria team (4 participants, 2 ESRs):

Marie-France Sagot, PI  
Blerina Sinimeri, Professor  
Mariana Ferrarini, ESR  
Mariella Bonomo, ESR

##### EMBL team (5 participants, 3 ESRs):

Wolfgang Huber, PI  
Simone Bell, Senior Project Manager  
Harald Vöhringer, ESR  
Thomas Naake, ESR

Hosna Baniadam, ESR

ETH team (4 participants, 3 ESRs):

Niko Beerenwinkel, PI  
David Dreifuss, ESR  
Fritz Bayer, ESR  
Luo Xiang Ge, ESR

Scientific Advisory Board:

Susan Holmes, Stanford University  
Jonas de Almeida, National Cancer Institute (online)

Special Session & Round-table:

Luís Costa, Hospital de Santa Maria/iMM  
Simão Soares, P-BIO/SilicoLife

Science Communication and Outreach:

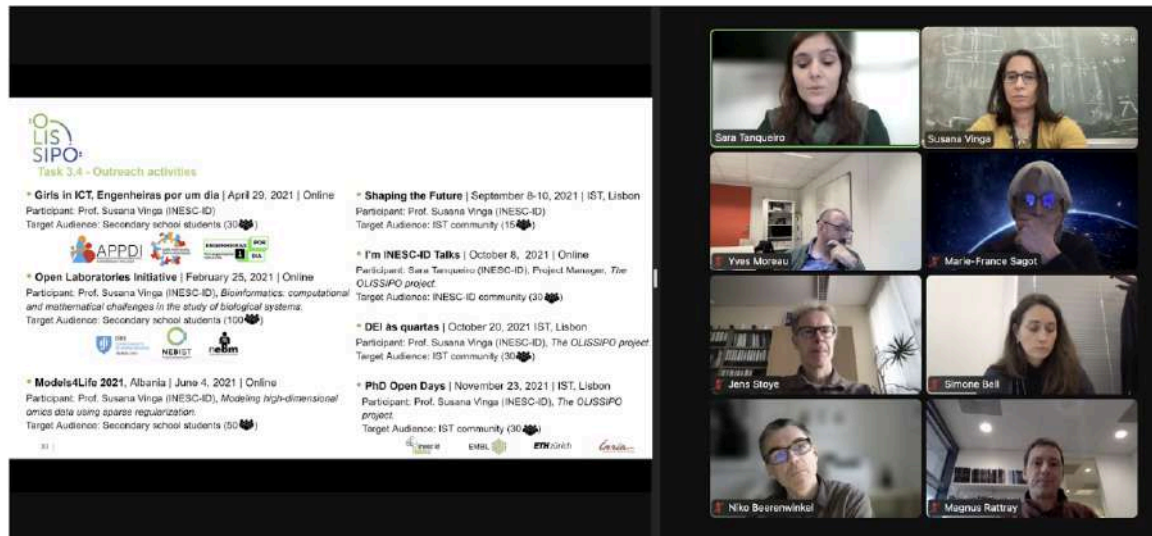
Ana Sanchez, ITQB-UNL

On the first day, we had flash talks from the ESRs of INESC-ID, ETH, Inria and EMBL to discuss their work and research interests. We also had a roundtable about “Computational Biology: bridging academic education and data science applications for clinical and biotechnology research” with Prof. Niko Beerenwinkel (ETH Zürich), Doctor Luís Costa (Hospital de Santa Maria & iMM, Lisbon), and Dr. Simão Soares (P-BIO & SilicoLife). We explored several critical aspects associated with Computational Biology, covering academic education, applications to clinical research, and translational bioinformatics for the biotechnology industry. We also approached solutions that may frame computational biology graduate education in entirely different ways, maybe as part of a broader trans-disciplinary approach with Data Science and Engineering foundations - with wider career development opportunities. The session included a round-table focused on national strategies and the future of this discipline, opportunities and challenges in Portugal. During the afternoon, in parallel Sessions, while PIs and project managers discussed some aspects of the future of the OLISSIPO project (General Assembly), ESRs and Postdocs had unstructured time dedicated to networking and teamwork. To end the first day of the OLISSIPO Retreat, Prof. Susan Holmes, one of the SAB members of OLISSIPO, gave a talk about Career development. This slot was dedicated to the ESR and postdocs but PIs and senior researchers were also invited to participate in this session.

To start the following day, we listened to the students and asked for feedback on the future OLISSIPO schools. Also, a Workshop in Science Communication and Outreach with Prof. Ana Sanchez (ITQB NOVA) was held.

### 3.5.4. OLISSIPO Second Annual Meeting

After the OLISSIPO Retreat was held in person in Lisbon in July 2022 with members of the SAB joining their meeting in person and virtually, this second annual meeting was held online on 22 November 2022 via video conference (Figure 30). The meeting was extremely useful to review the activities carried out during years 1 and 2 of the project, and introduce the planned activities for the upcoming months, including the staff exchanges in 2023, co-supervisions of students, and the organisation of schools and workshops.



**Figure 30.** The second annual OLISSIPO Meeting was held online.

### 3.5.5. OLISSIPO Retreat and Third Annual Meeting

The OLISSIPO team travelled to EMBL, Heidelberg in October 15-18, 2023, for the OLISSIPO Retreat and Annual Meeting. On the first two days of our visit to EMBL, the INESC-ID team had the chance to participate in the {Un-}Conference: AI Methods for Health, Life, and Natural Science hosted by AI Health Innovation Cluster and ELLIS – European Laboratory for Learning and Intelligent Systems (Heidelberg Unit). Prof. Emanuel Goncalves and the ESR Cláudia Constantino shared their work with lightning talks (already detailed in 3.3.6 Section).

On October 17, Prof. Jens Stoye and Prof. Dan Gusfield from the SAB joined the OLISSIPO team in Heidelberg for the Annual Meeting with the Scientific Board (Prof. Jonas Almeida and Prof. Marie-France Sagot joined via ZOOM). The team focused on overviewing the activities developed within the project and the next steps for the future: successful topics addressed with OLISSIPO activities, project impact, submission of proposals to new programmes such as Pathfinder and Marie Skłodowska-Curie Innovative Training Networks,

In parallel, students continued free discussions on-site to find synergies and possible collaborations.

Taking advantage of the presence of some SAB members in EMBL, on October 18, INESC-ID ESRs presented their work to receive feedback, discuss science, and exchange knowledge (Figure 31).



**Figure 31.** OLISSIPO Retreat was held in Heidelberg.

We also had the opportunity to hear from Prof. Dan Gusfield a talk focusing more on the past of Bioinformatics, Computational Biology, and Genomics (Figure X). This lecture was open to EMBL and hosted by Dr. Wolfgang Huber.



**Figure 32.** Prof. Dan Gusfield had a keynote presentation at the OLISSIPO Retreat.

### 3.5.6. OLISSIPO Final Meeting

The Fifth and Final Meeting was held at ETH Zurich, at the Department of Biosystems Science and Engineering in Basel on 16-17 June 2024. Two members of the OLISSIPO SAB, Prof.

Pavel Pevzner and Prof. Magnus Rattray, gave seminars as a closing event, open to the scientific community. The Agenda was as follows:

### June 16, 2024

18:30 Welcome dinner at Restaurant Fischerstube

### June 17, 2024

9:00 Welcome, Intro - Prof. Susana Vinga

9:30 ESR talks:

- [Rita Baião](#), [INESC-ID](#) - *Statistical Learning for Multi-Omics Integration in Precision Cancer Medicine*
- [Kevin Rupp](#), [ETHZ](#) - *Modeling metastatic progression from cross sectional data*

— 10:30 Coffee break —

11:00 ESR talks

- [Anastasiia Horlova](#), [EMBL](#) - *Towards Understanding Stem Cell Proliferation in Intestinal Processes using Single-Cell in vivo CRISPR Perturbation Data*
- [Lara Fuhrmann](#), [ETHZ](#) - *VILOCA: Sequencing quality aware haplotype reconstruction and mutation calling for short and long read data*
- [Matthias Meyer-Bender](#), [EMBL](#) - *Analysis of highly multiplexed fluorescence images in the context of B-cell Non-Hodgkin lymphomas*

— 12:30 - 14:00 Lunch —

14:00 - 14:30 OLISSIPO main achievements

14:30 - 15:30 Future steps and discussion

— 15:30 - 16:00 Coffee break —

16:00 - 18:00 Dual seminars by the SAB membrs

#### ***A new parameter-free framework for sequence comparison***

**[Pavel A. Pevzner](#), [University of California San Diego](#)**

**Uncovering how mRNA transcription and degradation shape embryonic development**

**[Magnus Rattray](#), [University of Manchester](#)**

18:00 - 18:50 Aperó

19:30 - Dinner at Restaurant Rhywyera

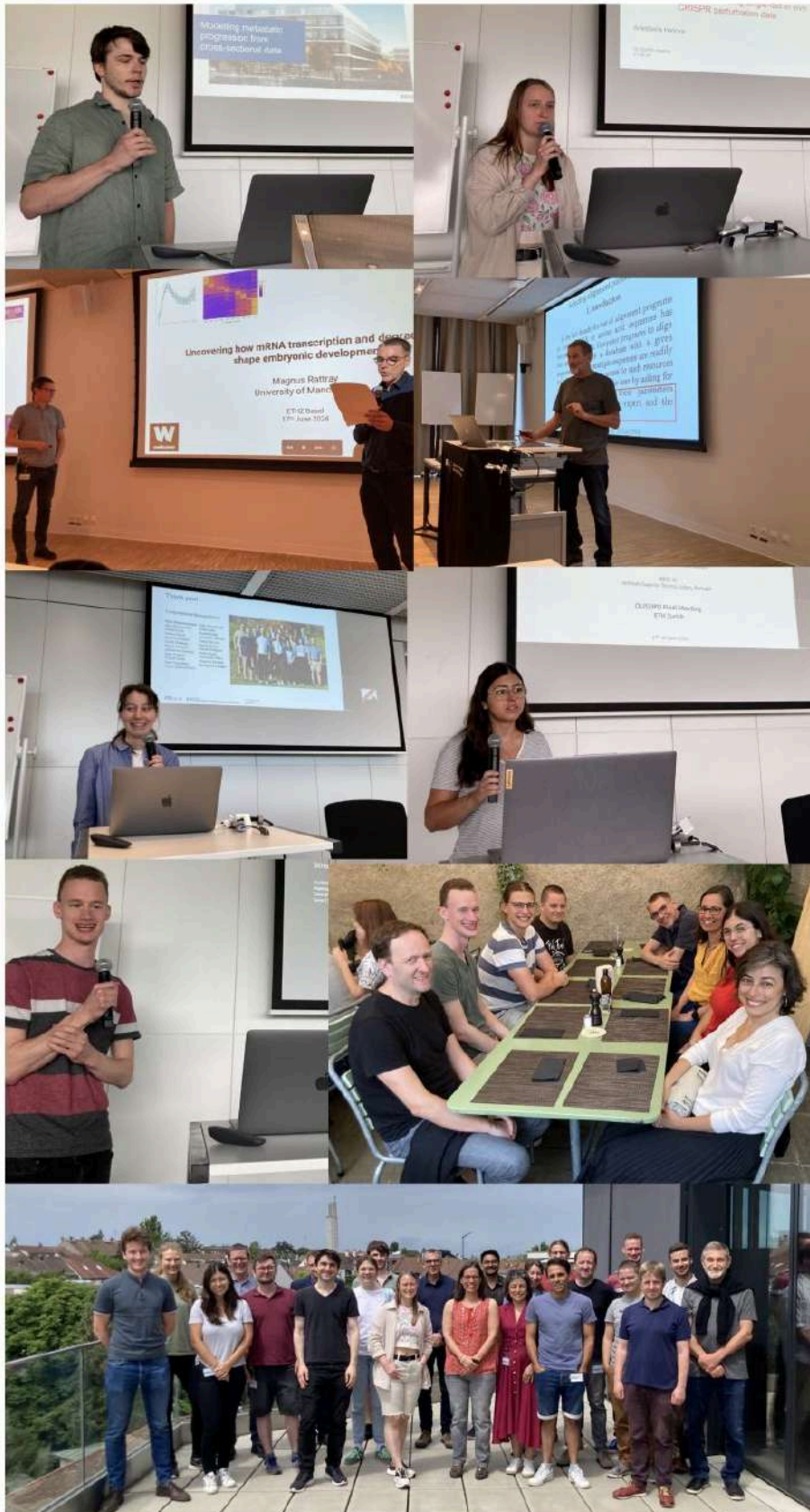


Figure 33. Photos of the Final Meeting at ETH.



**Participants List:**INESC-ID (5 participants, 1 ESRs):

Susana Vinga, Project Coordinator  
 Alexandre Francisco, Professor  
 Emanuel Gonçalves, Professor  
 Cátia Vaz, Professor  
 Ana Rita Baião, ESR

Inria team (1 participants, 0 ESRs):

Marie-France Sagot, PI (online)

EMBL team (4 participants, 2 ESRs):

Harald Vöhringer, Researcher  
 Petr Smirnov, Researcher  
 Anastasiia Horlova, ESR  
 Matthias Meyer-Bender, ESR

ETH Zurich team (12 participants, 8 ESRs):

Niko Beerenwinkel, PI  
 Jack Kuipers, Senior Scientist  
 Nico Borgsmueller, Postdoc  
 Rudolf Schill, Postdoc  
 Anika John, ESR  
 Norio Zimmermann, ESR  
 Auguste Rimaite, ESR  
 Johannes Gawron, ESR  
 Pawel Czyz, ESR  
 Daniel Fridljand, ESR  
 Lara Fuhrmann, ESR  
 Kevin Rupp, ESR

Scientific Advisory Board:

Pavel Pevzner, UCSD  
 Magnus Rattray, University of Manchester

**4. Conclusions**

The OLISSIPO project was dedicated to strengthening synergies between the partners. Staff exchanges allowed ESRs to learn about the work developed by the Twinning partners and discuss their activities with other researchers. This project strengthened collaborations between institutions and was a starting point for designing new joint projects for the future.

## Annex I - Summary of the Staff Exchanges

Staff exchange	# Different Visits	Description	Summary of the visits per audience			
			PI	Staff	ESR	TOTAL (#Weeks)
Staff exchange with Inria	12	INESC-ID > Inria (17/19 - 24 Mar 2022)	1	1	3	5
		Inria > INESC-ID (25 Apr - 2/10 May 2022)	1	1	0	3
		Inria > INESC-ID (11 Jul - 18/19/26 Jul 2022)	1	0	2	4
		Inria > INESC-ID (29 Aug - 8 Sep 2022)	1	0	0	2
		Inria > INESC-ID (6 - 8 Sep 2022)	0	1	0	1
		Inria > INESC-ID (1 - 11 Feb 2023)	1	0	0	2
		Inria > INESC-ID (8 - 11 Feb 2023)	0	1	0	1
		INESC-ID > Inria (28 - 31 Mar 2023)	1	1	2	4
		Inria > INESC-ID (27 Jun - 10 Jul 2023)	1	1	0	4
		Inria > INESC-ID (31 Jan - 17 Feb 2024)	1	0	0	3
		Inria > INESC-ID (14 - 16 Feb 2024)	0	1	0	1
INESC-ID > Inria (11 - 14 Mar 2024)	1	1	2	4		
<b>Total</b>			<b>26</b>			<b>34</b>
Staff exchange with ETH	8	ETH > INESC-ID (26 - 29 Apr 2022)	1	0	6	7
		INESC-ID > ETH (31 May - 3 Jun 2022)	1	2	5	8
		ETH > INESC-ID (13 - 15 Jul 2022)	1	0	3	4
		INESC-ID > ETH (11 Feb - 12 May 2023)	0	0	1	13
		ETH > INESC-ID (1 - 16 Apr 2023)	0	0	1	2
		INESC-ID > ETH (18 May - 2 Aug 2023)	0	0	1	11
		ETH > INESC-ID (1 - 7 Jul 2023)	0	0	4	4
		INESC-ID > ETH (6 May - 27 Jun 2024)	1	0	0	8
<b>Total</b>			<b>27</b>			<b>57</b>
Staff exchange with EMBL	7	EMBL > INESC-ID (4 - 7 April 2022)	0	2	5	7
		EMBL > INESC-ID (13 - 15 July 2022)	1	1	3	5
		INESC-ID > EMBL (21 - 25 November 2022)	1	1	5	7
		EMBL > INESC-ID (8 - 12 May 2023)	0	3	5	8
		EMBL > INESC-ID (1 - 7 July 2023)	0	0	1	1
		INESC-ID > EMBL (15 - 18 Oct 2023)	1	2	4	7
		INESC-ID > EMBL (2 Apr - 10 May 2024)	0	0	1	6
<b>Total</b>			<b>36</b>			<b>41</b>
Staff exchange with other Institutions	7	INESC-ID > TUM (20 Feb - 15 May 2023)	0	0	1	11
		INESC-ID > TUM (21 May - 8 Aug 2023)	0	0	1	12
		INESC-ID > MU Viena (24 - 26 May 2023)	1	0	0	1
		INESC-ID > TUM (26 May - 1 Jun 2023)	1	0	0	1
		INESC-ID > TUW (28 Jan - 31 Jan 2024)	1	0	0	1
		Bielefeld Univ > INESC-ID (20 - 23 Feb 2024)	1	0	0	1
		INESC-ID > INSERM (6 - 17 May 2024)	0	0	1	2
<b>Total</b>			<b>7</b>			<b>29</b>