



# **Career Accelerator for Research Infrastructure Scientists**

## **GUIDE FOR APPLICANTS**

June 2022



ARISE project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 945405.

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## **LIST OF ABBREVIATIONS**

AC: Advisory Committee  
Div. & Eq. Committee: Diversity and Equality Committee  
EB: Evaluation Board  
EC: European Commission  
EMBL: European Molecular Biology Laboratory  
ExC: Executive Committee  
GTLs: Group and Team Leaders  
MGMT: Management  
PCDP: Personal Career Development Plan  
PD: Programme Director  
PM: Programme Manager  
RIs: Research Infrastructures  
STEM: Science, Technology, Engineering, Mathematics  
StratComm: Strategy & Communication

# WHAT IS ARISE?

ARISE is the fellowships programme that will train and develop Europe's next generation of senior scientists and leaders for research infrastructures in the life sciences.

The overarching research theme of ARISE is **technology development in life sciences, with emphasis on provision of the technology as a service to other researchers.**

## **What are research infrastructures and which skills do leaders and senior staff of RI need?**

**Research infrastructures** are core facilities, large instrumentation, data resources and other related services that are used by the broad scientific community to conduct research. They are the places that provide access to the latest techniques and expertise to use these techniques.

Classic examples of research infrastructures are core facilities located at research institutes (e.g. [EMBL core facilities](#)), which host advanced instruments and provide access to both internal and external researchers; major scientific facilities (e.g. synchrotrons) that exist in only small numbers around the world; data infrastructures promoting data sharing and use (e.g. collections, archives of scientific data, computing systems, and communication networks), and large pan-European research infrastructures that bring together services provided by smaller research infrastructures distributed across Europe (e.g. ESFRI research infrastructures like Euro-BioImaging, ELIXIR, Instruct, or EMBRC).

Maintaining and improving these infrastructures requires interdisciplinary skills – spanning science, engineering, service provision and management – that are not usually provided by traditional training programmes in academia or industry.

*"During the last years we noticed an increasing need to train more engineers, physicists and other technology experts to become research infrastructure scientists," says Rainer Pepperkok, Director of Scientific Core Facilities and Scientific Services. "Yet worldwide, to our best knowledge, there was no training programme to address it, with few specialists being trained at the interface of academia and industry."*

To address this problem, EMBL and Marie Skłodowska-Curie Programme established a unique new training programme for future research infrastructure scientists – ARISE – Career Accelerator for Research Infrastructure Scientists.

We are offering **62 Fellowships** to STEM professionals who wish to join EMBL for three years to

- *to work on development of novel methods and technologies that can be offered as a service to external researchers.*
- *Learn how to run service-providing infrastructures (core facilities, data services, big infrastructures.)*

Following ARISE, our Fellows will be competent to take leading positions in service providing infrastructures across industry, healthcare, academia, and other sectors.

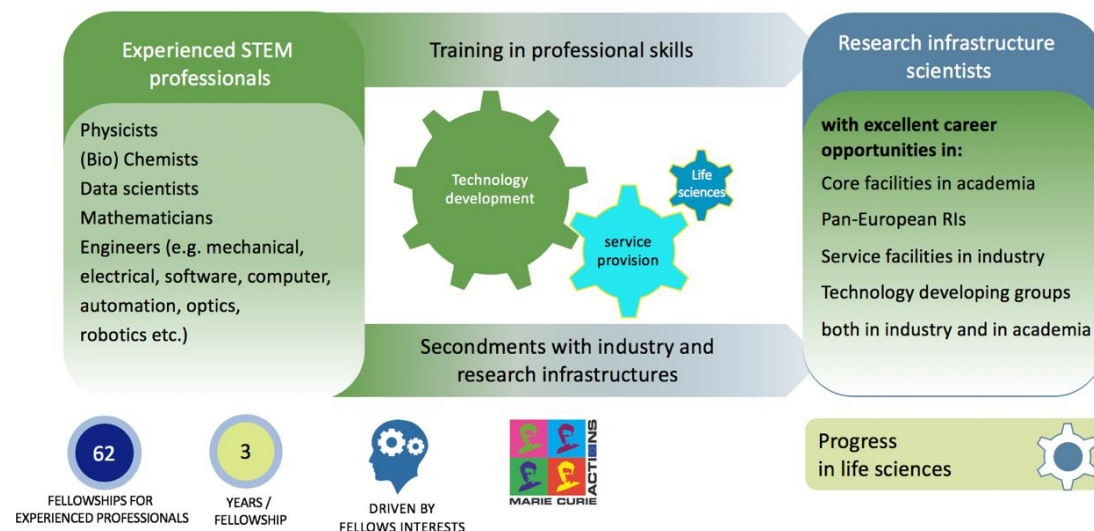


Figure 1 – ARISE in a nutshell



## ABOUT EMBL

The European Molecular Biology Laboratory (EMBL) is an intergovernmental research organisation and centre of excellence for life sciences in Europe. EMBL's 1800+ staff members originate from over 80 countries; 43% are active researchers. EMBL's 6 sites located in 5 countries focus on molecular, cellular, computational, developmental and structural biology (Heidelberg), structural biology (Grenoble, Hamburg), epigenetics and neurobiology (Rome), tissue biology and disease modelling (Barcelona), and bioinformatics (Cambridge). Research at EMBL is supported by excellent core facilities, bioinformatics and structural biology services, training for scientists at all career stages and the EMBL course and conference programme.

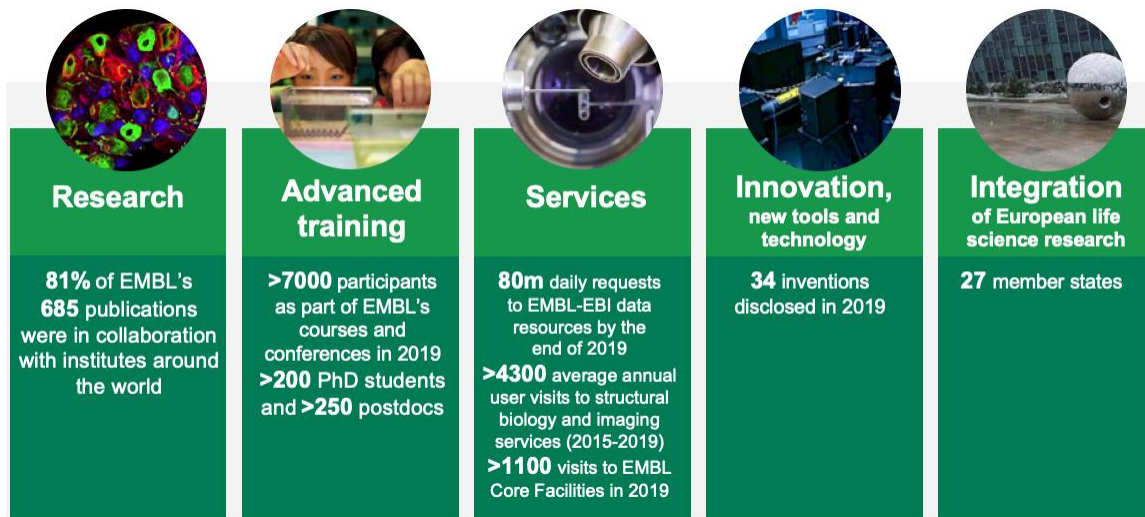


Figure 3 – EMBL's mission

**Technology development**, particularly with the purpose to enrich service provision, is currently the main strategic focus of EMBL, where research groups are developing technologies in imaging, chemical biology, computational modelling, microfluidics, robotics, X-ray optics, high precision mechanics, data acquisition, automation, omics technologies, bioinformatics and software development and integrated structural biology.

Around every third EMBL scientist is an inventor - EMBL researchers make ca. 50 invention disclosures per year. In the last 20 years, EMBL researchers made 1060 invention disclosures, created 20 start-ups and generated 100 mil EUR income.

## ARISE AND MSCA

The ARISE Fellowship Programme is a Marie Skłodowska-Curie COFUND action (MSCA) led by EMBL. Candidates awarded an ARISE fellowship will be part of the prestigious group of MSCA fellows.

The MSCA, and through it the ARISE Programme, aims to provide the successful candidates with the necessary skills and international experience for a successful career, either in the public or the private sector.

<b>ARISE will provide</b>	<p>An excellent research environment for development of cutting-edge technologies needed to speed up developments in life sciences.</p> <p>Unique professional training opportunities to learn skills specifically required by the leaders of the service providing facilities in research infrastructures</p> <p>Placements in the technology developing industry or academic organisations that provide service to other researchers through modern research infrastructures.</p> <p>Excellent training in transferable skills, networking opportunities and close supervision and mentoring.</p>
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### ARISE calls for FELLOWS - INDICATIVE timeline

Each fellowship will be funded for a period of 36 months.

The figure below shows the indicative timeline of ARISE calls for fellows (deviations to the timeline might occur).

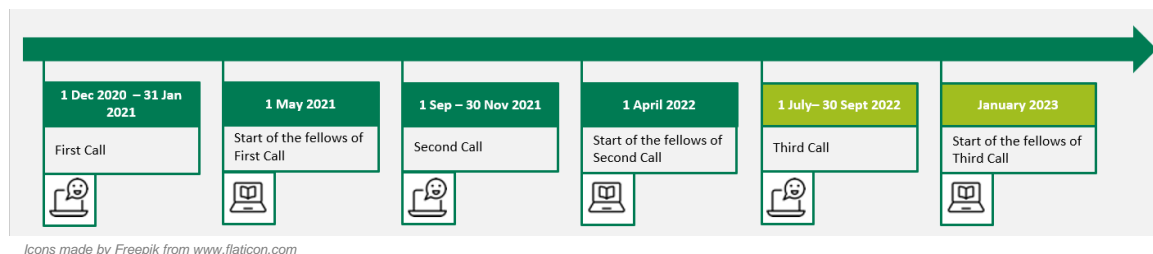


Figure 4 – ARISE Programme indicative timeline

# TECHNOLOGY DEVELOPMENT AND TRAINING

It is expected from the Fellow to dedicate 100% of their time to the Fellowship. Their work related to the Fellowship time should include following elements<sup>1</sup>:

**Technology development work on the** technology development project of their own choice (most of their time (ca. 60-70%) should be dedicate to this activity).

**Service provision** (ca. 20-30% of their time):

Fellows are expected to provide their novel technology as a service to other scientists. Providing service to their own technology will serve two functions:

- *Allowing Fellow to improve their technology based on the feedback and experience of the other scientists using the technology*
- *Getting training in service provision*

Organisation of service provision should be in any case adjusted to the specificities of the technology that the Fellow is developing.

For example, it is probable that the Fellows will start providing service to their novel technology first to EMBL colleagues, to learn how the technology can be improved. Once

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<sup>1</sup> % for distribution of activities is indicative, and based on the recommendations and experiences in other COFUNDS.

the technology gets more mature, they will probably start offering it to external scientists as well.

Fellows can occasionally take part in additional service provision in the group, in order to get further training in providing services.

**Communication and interaction with life scientists at EMBL** – considering that most of the fellows will come from other disciplines (not life sciences), close interactions and integration in the life science community will represent an important training aspect that will allow Fellows to learn about current needs, model systems and interests of life scientists and consider them while developing novel technology.

Participation in all mandatory and elective **training activities**.

Interaction with other ARISE fellows.

Participation in ARISE communication activities.

## **LEARNING TO PROVIDE SERVICE AND MANAGE SERVICE PROVIDING RESEARCH INFRASTRUCTURES**

Future RI Scientists need to learn how to operate and manage RIs, how to incorporate and stimulate technical innovation and entrepreneurship and how to operate in different sectors, disciplines or set-ups.

Fellows will learn these professional skills during **different types of courses (physical courses** (mostly provided during the ARISE school, some distributed throughout the fellowship time), **expert webinars** (online courses), **use case webinars** (interactive discussions with experts) and **secondments**: during mini secondments at partner organisations and intra-disciplinary secondments within EMBL, Fellows will shadow experienced RI managers and learn different ways to organize operations in RIs and provide access to technology to a wide variety of users.

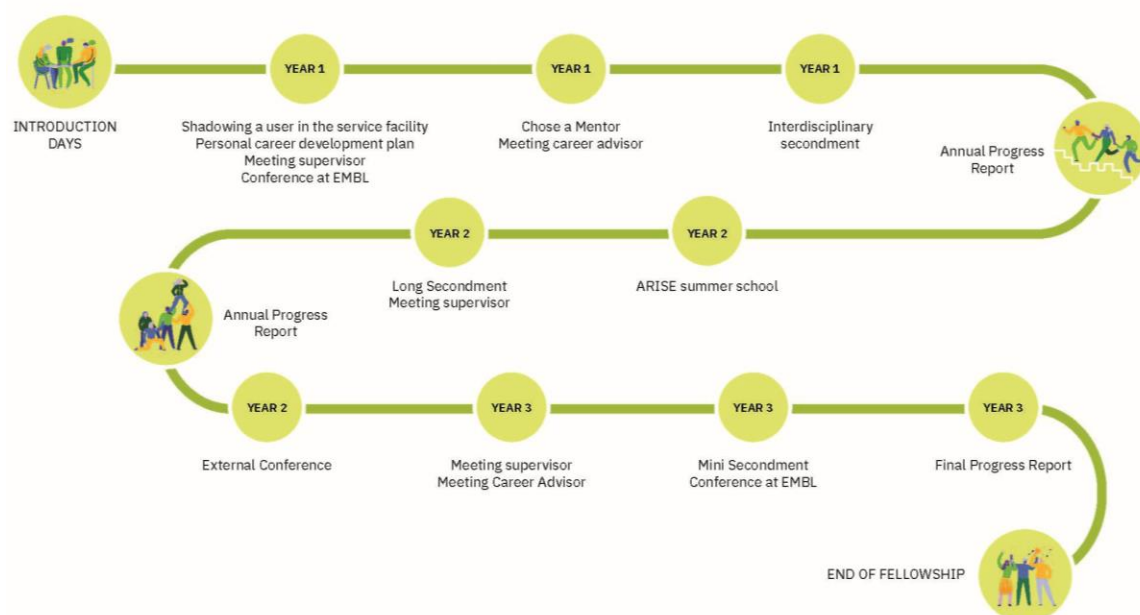


Figure 5 – Indicative timeline of an ARISE Fellowship

Table 1 - List of Professional skills training topics that will be covered during ARISE training

RI MANAGEMENT			
Topic and title	Suggested trainer or EMBL department	Mandatory/ elective	Suggested format
Operations mgmt, designing, controlling and redesigning services	ARISE GTLs	mandatory	use cases
Budgeting	Finance Department	mandatory	Course/ expert webinar
Reporting	StratCom	mandatory	expert webinar
Health and Safety	Health&Safety, Corrina Gorny	mandatory	expert webinar
Instrument procurement	Evelyn Cudraz, EMBL Head of Purchase	mandatory	expert webinar
Costing up staff and compute requirements	EMBL-EBI, Sarah Butcher	mandatory	ARISE school
Costing up (new) services	ARISE GTLs	mandatory	ARISE school
Tracking multiple projects	EMBL-EBI, David Hulcoop	mandatory	ARISE school

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<b>Quality control</b>	ARISE GTLs/RITrain	mandatory	expert webinar
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## SERVICE PROVISION

<b>Topic and title</b>	<b>Suggested trainer or EMBL department</b>	<b>Mandatory/ elective</b>	<b>Suggested format</b>
<b>The service design process - uncovering hidden complexity</b>	ARISE GTLs	mandatory	ARISE school
<b>Define technologies needed for service provision</b>	ARISE GTLs/Euro-BioImaging	mandatory	ARISE school
<b>Position facility in organization strategically</b>	ARISE GTLs	elective	use cases
<b>Long term planning and sustainability</b>	ARISE GTLs/Core for Life	mandatory	use cases
<b>Marketing and visibility, social media</b>	StratCom	mandatory	ARISE school
<b>Impact assessment</b>	Cath Brooksbank	mandatory	ARISE school
<b>Establishing and managing a team of volunteers</b>	Bio-IT	elective	expert webinar
<b>Keeping the facility cutting edge</b>	ARISE GTLs	mandatory	use cases

## TECH TRANSFER AND ENTREPRENEURSHIP

<b>Topic and title</b>	<b>Suggested trainer or EMBL department</b>	<b>Mandatory/ elective</b>	<b>Suggested format</b>
<b>IP and innovation cycle</b>	EMBLEM	mandatory	ARISE school
<b>Collaboration with industry</b>	EMBLEM	mandatory	ARISE school
<b>Technology transfer</b>	EMBLEM	mandatory	Course/ expert webinar
<b>Entrepreneurship</b>	EMBLEM	mandatory	Course/ expert webinar
<b>From academic facility to commercial service provision</b>	IC or external	elective	Course/ expert webinar

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<b>Establishing a business plan</b>	EMBLEM	elective	Course/ expert webinar
<b>USER SUPPORT</b>			
<b>Topic and title</b>	<b>Suggested trainer or EMBL department</b>	<b>Mandatory/ elective</b>	<b>Suggested format</b>
<b>Who are your users</b>	ARISE GTLs	mandatory	ARISE school
<b>How to broaden user base</b>	ARISE GTLs	elective	use cases
<b>How to run a user programme</b>	EMBL-Hamburg ARISE GTLs	mandatory	expert webinar
<b>Communication and dealing with external users</b>	V. Matser, A. Hercules	mandatory	ARISE school
<b>Training users</b>	Bio-IT	mandatory	Course/ expert webinar
<b>Course design</b>	Bio-IT	elective	expert webinar
<b>How to assess user satisfaction and integrate feedback.</b>	Cath Brooksbank	mandatory	expert webinar
<b>Understanding user needs and ways of working</b>	ARISE GTLs	elective	expert webinar
<b>Instrument ergonomics</b>	Industry partner organisation	mandatory	expert webinar
<b>SCIENCE POLICY</b>			
<b>Topic and title</b>	<b>Suggested trainer or EMBL department</b>	<b>Mandatory/ elective</b>	<b>Suggested format</b>
<b>Data management</b>	Josan Marquez	mandatory	Course/ expert webinar
<b>FAIR data</b>	EMBL-EBI	mandatory	Course/ expert webinar
<b>Open access and Open Science</b>	ELIXIR	mandatory	Course/ expert webinar
<b>European Open Science Cloud Initiatives</b>	JK Heriche; EOSCLife	mandatory	expert webinar

<b>Ethical, legal and social implications</b>	EMBL legal team, Ethics Committee and Sarah Morgan EBI	mandatory	ARISE school
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## PROJECT MANAGEMENT

<b>Topic and title</b>	<b>Suggested trainer or EMBL department</b>	<b>Mandatory/ elective</b>	<b>Suggested format</b>
<b>General principles of project management</b>	EMBL HR training	mandatory	Course/ expert webinar
<b>Management of user projects (basic principles)</b>	ARISE GTLs	mandatory	expert webinar
<b>Management of user projects</b>	ARISE GTLs	elective	use cases
<b>Negotiation</b>	EMBL HR training	elective	Course/ expert webinar
<b>Conflict mgmt.</b>	EMBL HR training	mandatory	Course/ expert webinar
<b>Recruiting, managing, collaborating and more</b>	Cath Brooksbank	mandatory	ARISE school
<b>Supervision and mentoring</b>	EMBL HR training	mandatory	Course/ expert webinar

The **ARISE school** will be compulsory 5 days school for all Fellows and will take place in year 2 of the Fellowship.

### Preliminary agenda of the ARISE school

<i>Day 1</i>	<b>Introduction, opportunities and challenges</b> (starts at lunchtime to allow Fellows from all sites to arrive)  Arrival, interactive introduction, identifying challenges
<i>Day 2</i>	<b>Designing and creating your service</b>  The service design process - uncovering hidden complexity Marketing and visibility, social media Who are your users Communication and dealing with external users/
<i>Day 3</i>	<b>Operating your service</b>  Define technologies needed for service provision



	impact assessment, recruiting, managing, collaborating and more
<i>Day 4</i>	<b>Financial and business management aspects of operating a service</b>
	Costing up staff, compute requirements and (new) services Tracking multiple projects
<i>Day 5</i>	<b>Introduction to innovation, IPR and entrepreneurship</b>
	IP and innovation cycle Collaboration with industry departure

## TRANSFERABLE SKILLS

All fellows will attend courses on transferable skills. Some of them are mandatory for all Fellows, while others are elective and should be taken when the fellow needs to master certain skills.

Table 2 - List of transferable skills training and suggested training providers

<b>Diversity and inclusion issues</b>	Div. & Equality Committee	mandatory	expert webinar
<b>How to communicate with media</b>	StratComm	mandatory	expert webinar
<b>Build a productive team culture</b>	HR training	mandatory	course
<b>Communication, writing and presentation skills</b>	HR training	mandatory	course
<b>Personal effectiveness - time management</b>	HR training	elective	course
<b>Balance your different roles</b>	HR training	elective	course
<b>Manage your time better</b>	HR training	elective	course
<b>Delegate tasks more effectively</b>	HR training	elective	course
<b>Deal with different personalities in the team</b>	HR training	elective	course
<b>Stress management</b>	HR training	elective	course
<b>Local language courses</b>	HR training	elective	course
<b>Ally training</b>	Div. & Eq. Committee	mandatory	expert webinar
<b>Diversity and inclusion issues</b>	Div. & Eq. Committee	mandatory	expert webinar

## COMMUNICATION ACTIVITIES

All Fellows will gain practical outreach experience through following activities:

- Each Fellow will **support EMBL Strategy and Communications office** and the European Learning Laboratory for the Life Sciences (ELLS<sup>2</sup>) in their outreach activities for at least **two full days**
- Fellows will rotate in running the **Research Infrastructure Podcast** (two Fellows each month), explaining developments in RI, technologies and sciences, recent technology development highlights, interesting applications of the technology, challenges in the career development of RI Scientists and from the users' perspective.
- The PM will motivate Fellows to nominate themselves for the MSCA Fellow of the week.

## SECONDMENTS

Each Fellow will do at least 4 secondments: 2 at **partner organisations**, and 2 at EMBL (one interdisciplinary and one shadowing of a user of similar technology). During the secondments, Fellows will stay employed by EMBL. Secondments will support development of research, professional and transferable skills.

The programme will provide financial support from the training budget for the secondments.

Table 3 – Secondments for ARISE Fellows

<b>AT PARTNER ORGANISATIONS</b> <b>(one must be intersectoral)</b>			
<b>Type of secondment</b>	<b>Benefit</b>	<b>Duration</b>	<b>Financial support</b>
Long secondment at partner organisation	Collaboration on Fellow's project, working experience in different sector, discipline or set-up;	2-6 months, preferentially in year 2	Up to 4300 euro

<sup>2</sup> <http://emblog.embl.de/ells/>

Mini secondment at partner organisation	shadowing other tech developers & service providers	up to 2 weeks, any time during fellowship	Up to 800 euro
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### AT EMBL

Type of secondment	Benefit	Duration	Financial support
Interdisciplinary secondments within EMBL at other ARISE Group or Team (1 or more)	Understanding how different service providers operate and learning about different life science fields (e.g. bioinformatics Fellow shadowing genetics core facility)	Min 2 weeks in total, or more, based on the Fellows needs, any time during fellowship	Up to 500 euro
Shadowing a user of some of EMBL service providing teams	Understanding user needs, levels of knowledge, problems they are encountering, how a typical user thinks (e.g. join the basic course for the users of computational technology or follow the user who is using a service at e.g. core facility)	7 days during first 6 months of the Fellowship	n.a.

# CAREER SUPPORT

All Fellows will be assigned **one supervisor at EMBL**, in which group they will perform research. Fellows will choose their supervisors during the selection process among ARISE GTLs. Supervisors will provide scientific, professional and career guidance to the Fellows and will be approachable on a daily basis. The supervisor will also introduce the Fellow to the scientific network in the area of research in which the Fellow is working, and ensure that the Fellow integrates well into the existing group and benefits from the expertise, knowledge and tools present in the lab and at EMBL.

**During the long secondment**, Fellows will be assigned a second supervisor at the Partner organisation.

In addition to their supervisor, each Fellow will choose a **mentor** among other ARISE GTLs (if possible, of different gender), who can provide an additional set of skills and knowledge. The ARISE Programme Manager and the Career advisor will support the Fellow in this selection: Programme Manager will assemble a list of competencies and skills of all ARISE GTLs and the Career advisor will help Fellow identifying the ideal profile of their mentor. The mentor will participate in annual progress reports of the Fellow and provide professional and career guidance.

Fellows who, after their inter-sectoral secondment, express an interest in pursuing a career outside of academia, will be asked to identify additional **non-academic mentor** who will also join the annual progress report meeting.

Supervision & Mentoring  
Personal career development  
plan  
Competencies framework  
Annual progress report  
Half yearly progress meeting  
with the supervisor

CAREER SUPPORT

Together with their Supervisor and Mentor, and career advisor, Fellow will develop their **Personal Career Development Plan (PCDP) listing Fellow's learning needs and suitable learning opportunities**. Individual PCDPs will be based on the **competency frameworks for future Research infrastructure scientists** (to be developed by ARISE): a list of competencies needed for different positions that the Fellows can take after their training is completed. Using the competencies framework, each fellow will identify their professional development needs, and based on this, identify matching learning opportunities.

On every progress meeting with the supervisor and mentor, Fellows will analyse the progress of their PCDP.

**Career advising:** ARISE programme will engage the career advisor who will individually meet with Fellows at the beginning of the fellowship and towards the end of the Fellowship, for individual consultation session.

**Monitoring progress of the Fellows:** Every 12 months, the Fellow will **have an official annual progress meeting** with the supervisor and the mentor, to discuss the achievements of the current year and the plans for the next, enter it in the Personal Career and Development Plan and submit the written report to the Programme Manager (PM). At least once in between the official progress meeting, the Fellow will have **additional progress meetings** with the supervisor.

Before the annual progress report, each Fellow will meet with PM to track progress of tasks related to training, career planning, research and outreach. In case of delay in the implementation of the PCDP, the PM will ask the supervisor and mentor(s) to identify reasons and work out a plan how to adapt the PCDP to catch up the delay. Should the Fellow require additional support, the PM will ask the supervisor, mentor and ExC to identify solutions. Every 6 months, the PM will report to the ExC on the progress of Fellows.

# SELECTION OF FELLOWS

Each fellowship will be funded for a period of 36 months. In this time, the fellow will conduct a research project and a mandatory secondment to an ARISE partner organisation of their choice (academic or industry organisations).

## ELIGIBILITY OF THE APPLICANTS

ARISE is an incoming programme, based on individual driven mobility of Fellows. Applicants can freely choose the research topics on which they wish to work, the hosting group (supervisor) and mentor, fitting their interests.

FORMAL ELIGIBILITY CRITERIA	
<b>Mobility rule</b>	The applicant must comply with the MSCA Mobility rule: Researchers from all countries are eligible for the MSCA ARISE Programme; however, applicants may not have carried out their main activity (work, studies, etc.) at any of the EMBL sites for more than 12 months in the 3 years immediately preceding the call deadline. Applicants cannot already be permanently employed by EMBL.
<b>Education and experience</b>	At the call deadline, the applicant should have at least <b>4 years of full-time equivalent research experience (in technology development)</b> , a high level of skill (postdoctoral standard) or expertise in a specialisation in which doctoral degrees are not usually awarded. Applicants <b>do not have to hold a PhD</b> but must have required experience. Their degree and scientific experience should be in the

	STEM fields, in academia or non-academic sectors, relevant to the research fields of EMBL RIs and services.
<b>Complete application</b>	The applicant must submit a complete application with required documents and indicate GTLs and partner organisations (for secondments) in which they are interested.
<b>Language</b>	Applicants must be fluent in English.
<b>No age limit</b>	There is <b>no age limit</b> for applying to the MSCA COFUND Fellowship Programme although the candidates' achievements should be in line with their "academic age".

<b>ACADEMIC ELIGIBILITY CRITERIA</b>	
<b>Applicant-driven research proposal</b>	<p>Applicants should independently prepare and submit their original <b>proposal to develop new or improve existing methods or technologies, which can be applied to different scientific questions of other researchers as a service and integrated into RIs</b>. The proposed project <b>should not be of local interest only</b>, but should have sufficient potential for international transfer. The proposal should be up to 4 pages long and relevant for the field of work of group(s) in which applicants are interested in joining. The proposal must follow EC Ethical guidance.</p> <p>Applicants are required to contact the groups of their choice before preparing the proposal to get an overview of their field of work and current activities of the groups, and discuss ideas for new technology development.</p> <p>A <b>template for the project proposal</b> writing is available <a href="#">here</a>.</p>
<b>Experience</b>	Applicants should describe their <b>experience in technology development related to service provision</b>
<b>Scientific potential</b>	<p>Applicants should prove their scientific potential using at least one of the following evidences:</p> <ul style="list-style-type: none"> <li>- Scientific publications</li> <li>- Scientific Software, unique or problematic data sets, technical documentation, etc.</li> <li>- Contribution to patents</li> <li>- Management of technology development projects</li> <li>- Detailed description of any other innovative research they have performed and their achievements</li> <li>- Other ways to demonstrate experience relevant to technology development and scientific services</li> </ul>

ARISE Fellows will be selected through selection process based on openness, transparency, merit, impartiality and equality for the researchers who are applying. Approximately 20 Fellows will be recruited per call.

## EVALUATION PROCEDURE FOR THE SELECTION OF FELLOWS

### Description of the selection process

1	<b>Publication of the call</b>	Advertisement and opening of the call by the <b>Programme manager (PM) and Programme Director (PD)</b> . Follow-up of the application submission process.
	<b>Application phase and open consultation period</b>	Applicants approach GTLs of their choice to get an overview of their field of work and of current activities. When needed, project manager can be contacted for further support and instructions on how to prepare and submit the application.
2	<b>Eligibility check</b>	To be performed by the <b>PM</b> , based on the eligibility criteria. Eligible applications move to feasibility and ethics checks. Non-eligible applicants will be informed by the PM, with a justification for rejection.
	<b>Feasibility check</b>	<b>ARISE GTLs</b> chosen by the applicants report on the feasibility of the project and the capacity, expertise and infrastructure of their teams to support the proposal, independent of their own research activities and interests. They will also check the ethics self-assessment to verify if the proposed project arises any ethical issues.
3	<b>Evaluation and ranking of written applications</b>	Each application will be evaluated independently and remotely by three external international experts, members of the <b>Evaluation Board (EB)</b> . Applications are evaluated and ranked for their excellence using the evaluation criteria described in the table below. Unsuccessful candidates will be duly notified. Top candidates from the list will be invited to the interviews.
	<b>Personal interviews of the top ranked applicants</b>	<b>Panel interviews</b> will take place face-to-face (or online if physical meeting is not possible) in Heidelberg, Germany. Each panel will consist of 1 external international expert and 2 ARISE GTLs. Interviews will be done for ~45 mins, in English, and will consist of presentation of the research proposal and the career achievements of the applicant (10 min each), and panel discussion and questioning (25 mins). Candidates will be evaluated based on the Evaluation criteria. Unsuccessful candidates will be duly notified. In addition to panel interviews, applicants will be <b>interviewed Face-to-Face (F2F)/alone by ARISE GTLs</b> of their choice; it will be up to the candidate to seek out the interview with the group. GTLs and their groups will be available throughout the interview days(s). <b>If possible due to corona measures, the programme will support candidates to visit the groups and teams of their interests at other EMBL sites before the interview days.</b>  At the same time candidates will have also a meeting with an EMBL HR experts and ARISE management.



4	<b>Final funding decision</b>	Final funding decision will be made by the <b>ARISE Executive Committee (ExC)</b> and <b>the EB Chair and vice Chair based on the comprehensive evaluation of the candidate</b> . Candidates must accept the offer within <b>14 days</b> and choose which group they wish to join (if they received confirmation of supervision by more than one GTL).
	<b>Feedback procedure</b>	At the end of each selection round, PM will inform all applicants about numbers of eligible and evaluated applications and number of selected fellows. Upon request by the candidate, the PM will communicate the report of the EB and Interview Panel about candidate's strengths and weaknesses, based on the evaluation criteria mentioned below, and ranking for each criterion.

#### **Appeal procedure**

Applicants can appeal after the three cut-off points: eligibility check, ranking by the EB and personal interviews. The **ARISE Advisory Committee (AC)** will investigate the concreteness and significance of the allegations; if significant irregularities in the procedures are noticed, the AC will devise a corrective measure for the current application (e.g., re-evaluation) and future selection rounds. However, in general, decisions of the EB, the Interview Panel and interviews by the ARISE groups will not be overruled. The Advisory committee is bound to strict confidentiality. A dedicated email address [arise-appeal@embl.org](mailto:arise-appeal@embl.org) for official complaints or formal appeals is accessible by the AC, which is bound to strict confidentiality.

### Evaluation criteria

Candidate's written application and their performance on personal interviews will be evaluated based on following criteria:

Evaluation Criteria		Points	Weighting
<b>The professional excellence of the applicant</b>	The excellence of the candidate's previous achievements	1 - 5	<b>40%</b>
	Impact of their contribution to the research field	1 - 5	
<b>The excellence of the proposed project</b>	Quality and novelty of the proposed project and the proposal	1 - 5	<b>40%</b>
	Fit with the team/institution of the host, secondment host and partners	1 - 5	
<b>Potential and impact of the proposed project on the RIs</b>	What is the potential of the proposed project to be included in the service catalogue of RIs	1 - 5	<b>20%</b>
	What would be the expected impact of that service (should the proposed technology be once included in the catalogue of the service providing RIs).	1 - 5	

### Scoring system

For each criterion, the applicants can get up to 5 points (10 per category). Each category of criteria has an assigned weighting. Successful candidate must score at least 50% of the weighted points for each individual category of criteria and at least 70% of the total weighted points.

Possible points and their meaning	
<b>1 (failure)</b>	Relevant criteria are not sufficiently met
<b>2 (poor)</b>	Relevant criteria are met, but weaknesses are clearly visible
<b>3 (satisfactory)</b>	Relevant criteria are met, but with shortcomings
<b>4 (good)</b>	Relevant criteria are fully met
<b>5 (excellent)</b>	Relevant criteria are fully met and exceeded

## INDICATIVE TIMELINE FOR THE THIRD CALL FOR FELLOWS

(Please note these dates are indicative and subject to change)

<b>Open call</b>	1 July – 30 Sept
<b>Eligibility check</b>	3 Oct – 7 Oct
<b>Feasibility assessment by GTLs:</b>	10 Oct – 14 Oct
<b>Evaluation by the Evaluation Board:</b>	20 Oct – 9 Nov
<b>Panel interviews, interviews with the groups and with EMBL HR (depending on corona measures, probably still online)</b>	F2F: 16 Nov – 25 Nov PI: 28 Nov – 2 Dec
<b>Decision to offer fellowships:</b>	One week after the interviews
<b>Deadline for accepting Fellowships</b>	14 days after the offer
<b>Eventual offer from reserve list</b>	t.b.d.
<b>Start of the Fellows</b>	4 weeks after the offer if no visa is required, latest by 1 May 2023

# EMPLOYEMENT AS AN ARISE FELLOW

ARISE Fellows will be employed as EMBL Research Fellows and all employment conditions that are applicable to the EMBL PostDoctoral Fellows apply to them as well. EMBL Research Fellows are entitled to the same fellowship rates as Postdoctoral fellows, plus allowances (family and child), incl. social insurances.

**Fellowships are increasing every 12 months with the progression of the fellowship (see table below). In addition, fellowships are normally adjusted annually due to inflation.** Fellows in union and with dependent children are eligible to receive family and child allowance.

Table 4 –Salary of the ARISE Fellows <sup>3</sup>

<b>EMBL Fellowship rates with effect from January 1 2021</b>	<b>Germany</b>	<b>France</b>	<b>Italy</b>	<b>UK</b>	<b>Spain</b>
<b>Monthly stipend (first year)</b>	3.471,18 €	3.159,28 €	2.883,07 €	£2.869,24	2.774,04 €
<b>Monthly stipend (second year)</b>	3.818,29 €	3.475,21 €	3.171,38 €	£3.156,16	3.051,44 €
<b>Monthly stipend (third year)</b>	3.875,56 €	3.527,33 €	3.218,94 €	£3.203,50	3.097,21 €

*E.g.*, A Fellow starting in May 2021 will receive ca. 3471 Euro/month until 30 April 2022, when the fellowship will increase to ca. 3818 Euro/month. In June each year we normally experience adjustment of our salaries according to the changes of the costs of living, so the whole table above gets updated once a year. In May 2022 the fellowship will increase again, based on the new table that was adopted in June 2021.

These fellowship rates in the table above are after paying employer's contribution to social benefits, but before employee's contribution to social insurances (11.97%).

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<sup>3</sup> Gross Fellowships (stipend plus social security contributions including employer's and employee's part) averaged for the period 1 May 2021 – 30 April 2024 and with estimated 1,5% inflation adjustment - Heidelberg/Hamburg: 4,669 €; Grenoble: 4,273 €; Italy: 4,129 €; Hinxton: 4,390 € (£ 3,920); Barcelona: 3,870 €.

# PARTNER ORGANISATIONS

Fifty partner organisations (19 non-academic and 31 academic), submitted letters of intent to participate in the programme, describing their organisation, type and number of secondments they can provide and training opportunities at their premises. They offer Fellows a wide choice of 113 long secondment places a year (37 places in non-academic PO and 76 places at academic organisations). Thirty-six organisations offer to host mini secondments.

ARISE partner organisations will

- Host long and mini secondments of the Fellows
- Be invited to be mentors of ARISE Fellows as needed
- Assign additional supervisor for the Fellow during long secondments
- Delegate representatives to join ARISE Advisory committee
- Be involved in promotion of ARISE

Partner organisations **will not employ the Fellows**, but will provide supervision and training capacity during the secondments. **We are open to additional partner organisations**, should the Fellows benefit from them – please contact ARISE Programme Manager to discuss how can a new organisation join ARISE as Partner Organisation.

To become ARISE partner organisations, organisations need to

- Commit to providing training opportunities to ARISE fellows through secondments

- Have regulations on equality and diversity, supervision and evaluation of employees and health and safety in place, that are in line with the recommendation of the EC Charter and Code for Researchers<sup>4</sup>
- Sign the MoU with EMBL before the Fellow visits them for secondment, regulating IPR and responsibilities of all parties.
- Comply with open science and data management policy (as far as in line with the IPR regulations in the MoU with EMBL)

The full list of current ARISE partner organisation is available at ARISE website<sup>5</sup>.



<sup>4</sup> [https://euraxess.ec.europa.eu/sites/default/files/am509774cee\\_en\\_e4.pdf](https://euraxess.ec.europa.eu/sites/default/files/am509774cee_en_e4.pdf)

<sup>5</sup> <https://www.embl.org/about/info/arise/partner-organisations/>

# EQUALITY AND DIVERSITY

EMBL has been conferred with an HR Excellence in Research logo by the EC, in recognition of its progress in implementing the European Charter for Researchers and the Code of Conduct for Recruitment of Researchers. Everyone at EMBL has a responsibility to ensure that the standards of the policy are adhered to. Particular responsibility lies in the hands of **supervisors**, who must ensure that policy is implemented during all their decision-making processes (recruitment, promotion, pay reviews etc.), and ensure working environment within their control is free from unjustifiable discrimination, harassment and bullying. Moreover, all Fellows will attend Ally training to develop hard skills to practice *allyship* with minority groups.

**Equal opportunities during selection process:** The programme will be open to researchers from all over the world, respecting the MSCA mobility rule. The programme will specifically support application by **researchers at risk**, who have been displaced by conflict, or whose situation makes it difficult for them to pursue their careers. The support will be provided on a case-by-case basis by the Programme Manager.

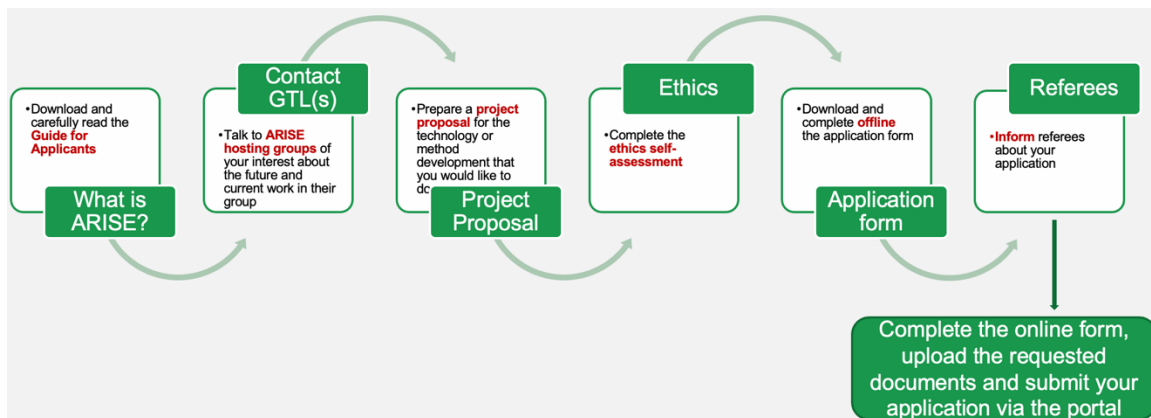
For each selection round, the Programme Manager will assemble the Evaluation Board and assign the evaluators to applications, aiming for gender and seniority diversity, diversity of experience and expertise, making sure that there is no pre-existing link to the applicant and that max 20% of all EB members come from the same country. Evaluators will not evaluate applications from their own country or with other possible conflicts of interest. Programme Manager will also form one or more **Interview panels** balancing gender, seniority and expertise of their members.

To **ensure the gender balance**, we will promote technology development as a career for women, who are often minority in technology development fields; e.g. in advertisements



we will explicitly encourage women to apply and we will ask our alumni, ARISE partner organizations and collaborators of ARISE GTLs to directly encourage female researchers to apply. We will aim for gender, seniority and geographical balance when assembling ARISE committees, which might further encourage female researchers to apply.

# ANNEX 1 – HOW TO APPLY



Resources available online (downloadable from [ARISE website](#)):

- Guide for applicants
- Project proposal template (mandatory)
- Ethics self-assessment template (mandatory)
- Application form (mandatory)

Tips & Tricks:

- Project proposal: must be novel and in line with the expertise and work of the group(s) you wish to join; useful for the broad scientific community and have the potential to be provided as a service when fully developed

- Use only the templates provided by ARISE team and do not modify them
- Automatic invitation to upload the reference letter is sent to the referees once the candidate submits the application
- Upload your documents all in PDF
- Remember to upload all the requested documents (e.g., project proposal including the ethics self-assessment, application form, relevant certificates)
- Remember to complete the information requested in the online portal
- Do not wait until last minute to submit your application
- In case of questions/problem, please contact us [arise@embl.org](mailto:arise@embl.org)

# ANNEX 2 – ARISE CALL 2: LIST OF GTLS

The following EMBL group and team leaders are open for ARISE fellows in 2022 (alphabetically sorted).



## **BATEMAN ALEX**

**Team Leader, Protein sequence resources**  
*EMBL-EBI Hinxton*

My group provides a wide range of world leading resources for protein and non-coding RNA sequence and families (InterPro, Pfam, RNACentral & Rfam). We are particularly interested in applying modern ML/AI approaches to enhance our resources.

**Technology Fields: AI and machine learning, bioinformatics, data management**  
**Life science fields: bioinformatics research, computational biology, structural biology**



## **BORK PEER**

**Director of EMBL Heidelberg (Scientific Activities)**  
**Group Leader, Structural and computation biology Unit**  
*EMBL Heidelberg*

The main focus of the Bork group is to gain insights into the functioning of biological systems and their evolution by comparative analysis and integration of complex molecular data. We are developing and maintaining widely used web services and resources on (meta)genomics and function prediction. The current focus is planetary biology, including global microbial sampling and analysis, with challenges in (meta)data organisation, integration, and visualization.

**Technology Fields: bioinformatics, data science and big data, data integration**  
**Life science fields: computational biology, planetary biology, microbiology**



## **CROCKER JUSTIN**

**Group Leader, Development biology unit**  
*EMBL Heidelberg*

Our group builds automation and robotics pipelines for high-throughput developmental biology. We build experimental frameworks that will serve as platforms for future research by allowing a broader community of users to build, execute, and share similar technologies.

**Technology Fields: automation, microfluidics, robotics**  
**Life science fields: biotechnology, developmental biology, planetary biology**



## **DYER SARAH**

**Team Leader, Non-Vertebrate Genomics**  
*EMBL-EBI Hinxton*

The Non-vertebrate Genomics team is part of the Ensembl project providing access to integrated genomic data sets for Plants and invertebrate Metazoa. We also have joint projects with VeuPathDB, WormBase and the Alliance of Genomic Resources. Our focus is on delivering data and tools to support our user communities, with a focus on agriculture and supporting host, vector and parasite research.

**Technology Fields: bioinformatics, software development**

**Life science fields: computational biology, genome biology, agriculture**



## **ELLENBERG JAN**

**Head of Cell Biology and Biophysics**  
**Head of EMBL Imaging Centre**  
*EMBL Heidelberg*

The Ellenberg group develops and applies advanced quantitative imaging methods across scales from single molecules to developing embryos to gain new insights into nuclear architecture and its changes during the cell cycle. We have previously developed and applied methods such as fluorescence correlation spectroscopy (FCS)-calibrated imaging, super-resolution microscopy, correlative light and electron microscopy and light sheet microscopy, and provide training and support in these methods through internal and external scientific, service and industry collaborations. Current interests include the development of the next generation of gentle, yet very high-resolution light sheet microscopes suitable for investigating the structure and dynamics of nuclear architecture at the single molecule level in developing mammalian embryos.

**Technology Fields: image analysis, imaging, microscopy, software development**

**Life science fields: cell biology, developmental biology, genome biology**



## **EUSTERMANN SEBASTIAN**

**Group Leader,**  
*EMBL Heidelberg*

The Eustermann lab studies the molecular landscape of chromatin to understand the principles underlying expression and maintenance of genomic information in eukaryotes. The core technologies used in the group are recombinant production of large human chromatin complexes followed by cryo-electron microscopy analysis in order to visualize the atomic structures. As mammalian cell expression and purification of protein complexes still forms a bottleneck not only in structural biology but also in many other scientific fields, we are trying to develop novel and more efficient approaches. To do so, we collaborate with the EMBL Protein Expression and Purification Core Facility joining both the method development and the process optimisation. Once the workflows are sufficiently robust and reproducible, they can be implemented into the service provision platform of the facility, which is accessible for both internal and external researchers.

**Technology Fields: (bio)chemical engineering, chemistry and chemical biology, recombinant protein production**

**Life science fields: biophysics, structural biology, biochemistry/protein engineering**



## **FINN ROB**

**Team Leader, Sequence Families**  
*EMBL-EBI Hinxton*

My group focuses on the analysis of the microbes found within the environment or associated with a host organism, such as humans or plants. DNA sequencing technologies have revolutionised modern molecular biology, facilitating large-scale sequencing of microbial genomes. However, concomitant with the data deluge, there is an urgent need to develop robust computational frameworks that enable these genomes to be rapidly and continually collated, compared, and functionally annotated. Capturing this biodiversity and presenting quality reference datasets enables biologists to gain a greater understanding of evolutionary biology and the adaptations microbes have made to enable them to survive in diverse environments.

**Technology Fields: data science and big data, software development, bioinformatics**

**Life science fields: computational biology, genome biology, planetary biology**



## **GARCIA ALAI MARIA**

**Head of Sample Preparation and Characterization Facility**  
*EMBL Hamburg*

The SPC facility supports external and internal researchers carrying out structure determination experiments and has a strong track record in the development and implementation of new technologies and methods to precisely determine the stability, shape and size of different biomolecules and biomolecular assemblies. We develop our own software for the data analysis of biophysical interactions such as Kinetic analysis, Time resolved conformational changes, Analysis of thermal stability data beyond a simple melting temperature analysis, Ligand screening and Processing of spectral data.

**Technology Fields: bioinformatics, chemistry and chemical biology, computational modelling**

**Life science fields: bioinformatics research, biophysics, structural biology**





## GROZA TUDOR

**Team Leader, Phenomics**

*EMBL- EBI Hinxton*

The Phenomics team develops state of the art data acquisition and integration services to support advances in computational phenotyping for rare and complex disorders. Currently, it focuses on two unique large-scale knowledge bases: the International Mouse Phenotyping Consortium and the Patient-Derived Cancer Models (PDCM) repository. The former is the only initiative that provides a systematic framework to produce standardised phenotype data for model organisms and underpins critical insights into understanding the phenotypic consequences of variants, the essentiality of genes and the contribution of genes to diseases, hence enabling downstream functional follow up. The latter provides a standardised and unified entry point for research and clinical communities to search and compare PDCM models and their associated data including frequently mutated genes, diagnoses, drug treatments and sequence data. Future endeavours of the team include building automated pipelines for disease models and phenotype trajectories. From a technical perspective, the team sits at the intersection of ontologies (mouse and human phenotypes), statistical analysis, large-scale parallelisation (Hadoop) and production-level environments (Java, React, MongoDB, Kubernetes).

**Technology Fields: data management, data science and big data, software development**

**Life science fields: disease modelling, computational phenotyping**



## **HARRISON PETER**

**Team Leader, Genome Analysis**  
*EMBL-EBI Hinxton*

The genome analysis team develops state-of-the-art cloud-based data analysis and portal infrastructure to coordinate, analyse, enrich, and present the wealth of genomic data arising from global agricultural and biodiversity projects. This includes projects such as the Earth Biogenome Project (<https://www.earthbiogenome.org/>), a moonshot for biology, that aims to sequence all of Earth's eukaryotic life within ten years. We are seeking projects that utilise cutting edge cloud data engineering to design and develop analysis, visualisation and data management infrastructure at significant data scale. This could include development in the areas of pangenomics, single cell atlases, cloud-based interactive analysis platforms and 'omic data visualisation. Data analysis platforms and portals are crucial services to enable and accelerate global agricultural and biodiversity research, tackling key societal issues of food security, climate change and biodiversity loss. The fellow would join a vibrant and highly professional group of software engineers and bioinformaticians, contributing both new and to existing services fostering a detailed understanding of cloud DevOps, user-led design, open science, and FAIR data management.

**Technology Fields: data management, data science and big data, software development**

**Life science fields: bioinformatics research, computational biology, genome biology**



## **HARTLEY MATTHEW**

**Team Leader, BioImage Archive behaviour**  
*EMBL-EBI Hinxton*

I have worked at the interface between computational BioImaging technology development and service provision for the last decade. Over that time, I have developed novel image analysis algorithms tools and pipelines as well as image data management software. I now lead the BioImage Archive (BIA), which provides services to the global BioImaging community. We work on image archival, visualisation, file formats, data models and data compression as well as AI and machine learning application to large image datasets. We provide services to life sciences researchers wishing to archive their image data across the world. Scientists using the BIA ecosystem number in the hundreds.

**Technology Fields: data standards, software development, imaging, microscopy**  
**Life science fields: bioinformatics research, computational biology, cell biology**



## **HUBER WOLFGANG**

**Group Leader, Quantitative Biology and Statistics**  
*EMBL Heidelberg*

The Huber group develops open-source scientific software esp. in the areas of single cell omics, spatial omics, large-scale CRISPR and drug screens, and other high-throughput assays of modern biology. They are a core contributor to the Bioconductor project, the largest biological data science software project in the world (<https://www.bioconductor.org>, Huber et al. Nat. Meth. 2015 DOI: 10.1038/nmeth.3252), which supports developers with essential software infrastructures such as data containers and I/O, tools for continuous integration and testing, and with a platform for publicly distributing, supporting and maintaining their software. Specific interests are also in robustification and life-cycle management of research software, interoperability and APIs, virtualization and containerization, software usability, scientific developer support, platform integration (e.g. between R, Julia, Python), interactive dashboards, living papers, reproducible research and open science.

**Technology Fields: AI and machine learning, bioinformatics, software development**  
**Life science fields: computational biology, cancer biology, genetics**



## **KORBEL JAN**

**Group Leader, Genome Biology Unit**  
*EMBL Heidelberg*

Dr. Korbelt's group is developing key experimental and computational methods for structural variation (SV) detection and functional dissection. In the past this has included the development of by now de facto standard methodologies used widely in human genetics and biomedicine, such as methods based on paired-end mapping, co-developed by Jan Korbelt, which Science considered as one of the scientific breakthroughs of the year 2007. Recently, the group devised a method based on haplotype-resolved single cell DNA template sequencing, termed single cell tri-channel processing (scTRIP) which for the first time enables the scalable and direct detection of SVs including of structural mutational processes in single cells, and as is paves the way to obtain insights into disease pathomechanisms including cancer development.

We currently see exponential growth of the use of single cell DNA template sequencing (a.k.a. Strand-seq), with 10 laboratories having used the technique this year in collaboration with us and a strong upwards trend. Application areas include single cell sequencing of genetic variation, to single cell multi-omics and haplotype-resolved genomic assemblies. An ARISE fellow joining the Korbelt group could be involved in transferring this novel technique into a high-throughput service for the community by expanding its use beyond a pure research setting, and through advanced state-of-the-art instrumentation and miniaturization including via robotics and/or microfluidics, as well as big data analytical approaches. There will additionally be exciting opportunities to take part in international collaborations that will apply this technique to decipher sources of human genetic variation and their phenotypic consequences.

**Technology Fields: Data sciences, automation, robotics**

**Life science fields: computational biology, genome biology, translational research**



## **KRESHUK ANNA**

**Group Leader, Cell Biology and Biophysics Unit**  
*EMBL Heidelberg*

Kreshuk Lab develops novel machine learning-based methods for microscopy image analysis, in collaboration with both internal and external scientists. To make such methods accessible to scientists without computational expertise, we also develop and maintain the ilastik software, used by thousands of biologists all over the world.

**Technology Fields: AI and machine learning, image analysis, software development**  
**Life science fields: cell biology, developmental biology, structural biology**



## **MARQUEZ JOSÉ**

**Head of Crystallisation Facility**  
*EMBL Grenoble*

Our Team has pioneered the development of Online Crystallography; fully automated protein-to structure pipelines integrating crystallization, synchrotron data collection and crystallographic data analysis into continuous workflows operated via the web. These pipelines are currently used by hundreds of scientists worldwide and are based on the CrystalDirect technologies and CRIMS software, which we have contributed to develop. Recently, we have implemented a fully automated pipeline for ligand and fragment screening to support structure guided drug design. EMBL Grenoble is co-located with the European Synchrotron Radiation Facility (ESRF) in Grenoble, which produces some of the world's most brilliant X-ray beams worldwide. EMBL and ESRF jointly operate six crystallography beamlines one of which is the fully automated MASSIF-1 whose operation is highly integrated with the operations at EMBL's HTX Lab. Our interdisciplinary team offers opportunities for scientists, engineers and software developers to work in one of the leading infrastructures for structural biology within the areas of protein crystallography, drug desing, automation, and large-scale scientific data management and analysis. Currently, we are particularly interested in profiles in structural biology or computer science orientated towards one or several of the following areas: fragment screening, structure guided drug design, cloud computing, machine learning and artificial intelligence.

**Technology Fields: AI and machine learning, chemistry and chemical biology, data management, data science and big data**  
**Life science fields: drug design, structural biology, translational research**



## **MARTIN MARIA-JESUS**

**Team Leader, Protein Function Development**

*EMBL-EBI Hinxton*

Our work focuses on developing technologies for the delivery of scalable and robust data infrastructures for protein data (SQL and NoSQL databases, programming languages, Graph Knowledgebases, Apache Lucene and Solr search engines, clustering algorithms) as well as developing novel data mining methods for protein function prediction and large-scale data analysis. The team use Deep Learning algorithms for extracting knowledge from biological data and recommendation systems.

**Technology Fields: AI and machine learning, bioinformatics, data management**

**Life science fields: bioinformatics research, computational biology**



## **MATTEI SIMONE**

**Team Leader, Structural and Computational Biology Unit**

*EMBL Heidelberg*

Our team is part of the EMBL Imaging Centre, a new service unit with the mission to make the cutting-edge electron and light microscopy technologies available to the scientific international user community, including academically developed methods not yet commercially available. We develop methods and software supporting cryogenic correlative light and electron microscopy (cryo-CLEM) and high-throughput fully automated pipelines to tackle the current challenges in cryo-EM sample preparation and screening.

**Technology Fields: automation, image analysis, imaging, microscopy**

**Life science fields: biophysics, cell biology, structural biology**



## **MCCARTHY ANDREW**

**Team Leader, Synchrotron Crystallography Team**  
*EMBL Grenoble*

The McCarthy team is composed of engineers and scientists who provide operational and user support on seven high brilliance X-ray based structural biology beamlines with proven expertise in developing automated data collection instruments and methods in collaboration with our colleagues at the European Synchrotron Radiation Facility (ESRF). We will continue to optimise data collection protocols and analyses methods as well as develop and expand the experimental instruments and techniques currently available in order to realise the scientific potential of the recently completed ESRF-Extremely Brilliant Source upgrade for the European structural biology community.

**Technology Fields: automation, chemistry and chemical biology, data management, software development**

**Life science fields: biophysics, drug design, structural biology**



## **MCDONAGH ELLEN**

**Informatics Science director of open targets**  
*EMBL-EBI Hinxton*

In the past, I worked closely with bioinformaticians, developers, scientific curators and clinicians to create an open source crowdsourcing knowledgebase for rare disease gene evaluation, which is utilised within a genome analysis service at Genomics England for patient diagnosis with the NHS, as well as by researchers and clinicians worldwide. In my current role, the open source Open Targets Platform and Genetics Portal and provide aggregated data, visualisations and tools to inform evidence-based prioritisation of targets and therapeutic hypothesis generation for drug discovery for external and internal scientists worldwide.

**Technology Fields: bioinformatics, data management, data science and big data**

**Life science fields: disease modelling, drug design, genome biology**



## **PAPP GERGELY**

**Team Leader, Instrumentation Team**  
*EMBL Grenoble*

The EMBL Grenoble Instrumentation team develop methods and instruments for Macromolecular X-ray crystallography and Small Angle X-ray Scattering experiments for more than two decades. Furthermore, motivated by the increasing scientific interest in Cryo-Electron Microscopy in the last decade, a project for automated Cryo-EM sample grid preparation and control (EasyGrid) has been conducted. The team is composed of highly motivated mechanical, electronics and software engineers, and is able to design and manufacture in-house high precision, complex scientific instruments. Scientific projects exploiting these machines and pushing them to their limits are essential to keep the activity of the team at the state of the art.

**Technology Fields: automation, image analysis, software development**  
**Life science fields: drug design, structural biology**



## **PEPPERKOK RAINER**

**Director of Scientific Core Facilities and Scientific Services**  
**Head of Advanced Light Microscopy Facility**  
*EMBL Heidelberg*

The Advanced Light Microscopy Facility (ALMF) and Pepperkok Team at EMBL Heidelberg develop and provide a service in advanced light microscopy and image analysis methods to EMBL scientists and external users from and beyond EMBL member states. Currently we are working on projects developing technology to provide a service in spatial multi-omics/phenomics to integrate automated phenotype recognition in complex biological samples by advanced light microscopy and online image analysis to sort the phenotypes for subsequent (single cell) multi-omics analyses.

**Technology Fields: automation, image analysis, imaging, microscopy, microfluidics**  
**Life science fields: bioinformatics research, biophysics, cell biology**





## **PREVEDEL ROBERT**

**Group Leader, Cell Biology and Biophysics Unit**  
*EMBL Heidelberg*

We are developing advanced optical imaging methods that are based on multi-photon microscopy, active wave-front shaping, photo-acoustics as well as high-resolution spectroscopy. Our aim is to establish our new approaches as disruptive technologies in the life sciences and to further engineer and automate our prototypes for routine service provision.

**Technology Fields: automation, imaging, microscopy, software development**  
**Life science fields: biophysics, developmental biology, neurobiology**



## **QUAIL THOMAS**

**Group Leader, Principles of genome self-organisation**  
*EMBL Heidelberg*

The Quail group studies how collections of proteins organize the genome across different length scales, combining quantitative microscopy, biochemistry, cell biology, soft matter physics, and dynamical systems. Mechanistically dissecting these processes in the cell nucleus depends on our ability to image these proteins with high spatial and temporal resolution, which remains challenging. We are currently developing high-throughput, single-molecule imaging approaches to disentangle how individual proteins, enzymes, and genomic loci fluctuate and move in the cell nucleus. In parallel we are developing image analysis pipelines to robustly and accurately extract the physical rules driving these complex spatiotemporal dynamics. Disentangling these physical principles will provide insights into the collective behaviour of diverse processes in the cell nucleus, including transcription, DNA replication, and DNA damage repair.

**Technology Fields: image analysis, imaging, microscopy, microfluidics**  
**Life science fields: biophysics, cell biology, genome biology**



## **REMANS KIM**

**Head of Protein Expression and Purification Core Facility**  
*EMBL Heidelberg*

The EMBL Protein Expression and Purification Core Facility offers services regarding recombinant protein production and biophysical characterisation to both internal and external researchers. The main technologies that are being used in our group are protein expression in bacteria, insect and mammalian cells, protein purification using an array of chromatographic techniques and various biophysical characterisation methods suitable for protein quality control and interaction studies. We work closely with life science researchers of a large variety of backgrounds, such as structural biologists, cell biologists, developmental and genome biologists, immunologists and medical researchers. As such, we have established a broad expertise in handling many different types of biological projects, each with their own specific requirements and challenges. To facilitate our work, we are also active in the development of more efficient reagents, workflows and technologies, which we then aim to make available to the scientific community through our service platform.

**Technology Fields: automation, (bio) chemical engineering, recombinant protein production**

**Life science fields: biophysics/ biochemistry, biotechnology, structural biology**



## **SARKANS UGIS**

**Team Leader, Functional Genomics Development**  
*EMBL-EBI Hinxton*

Our team builds and maintains the BioStudies database - a resource that facilitates transparent, reproducible science by aggregating and publishing all outputs of a scientific study. This can include pointers to components of data in specialised community resources, as well as data that do not belong anywhere else. BioStudies acquires data via a variety of routes, both pre- and post-publication. The main challenge for us is to find the right balance between the generic nature of this infrastructure necessary to support a wide variety of users on one hand, and the ability to adjust the system to the specific needs of a particular user community, project, or data type on the other hand.

**Technology Fields: data management, software development**

**Life science fields: computational biology, bioinformatics**



## **SAVITSKI MIKHAIL**

**Team Leader, Stability proteomics for assessing the state of the proteome**

*EMBL Heidelberg*

Savitski group is closely linked to the Proteomics core facility, with Mikhael Savitski leading both the facility and the group. Infrastructure in the Proteomics Core Facility is centred around state-of-the-art mass spectrometry for MS and LC-MS/MS experiments. This is complemented by chromatographic and electrophoretic systems for protein and peptide separation. The research team uses and develops stability proteomics for understanding the phenomenon of aggregation and disaggregation, cell phenotyping, and detection of protein interactions with drugs, metabolites, DNA and RNA.

In future we plan to work on characterization of protein complexes from cell lysates without extensive purification.

Currently protein crosslinking is established for highly purified complexes at the EMBL proteomics core facility and is widely used. However, pioneering work has shown that cross linking of proteins in complex mixtures is possible. Here it would be very beneficial to combine sample fractionation approaches that can separate complexes and reduce sample complexity with protein cross linking in order to deduce structural information. Such technology development would enable systematic characterization of protein complexes without the need of in-depth purification. A robust implementation of this workflow would greatly accelerate unbiased protein complex characterization and the resulting service would appeal to a large number of EMBL groups interested in protein complexes and protein interactions as well as the broader scientific community in Europe. In particular, as science moves beyond model organisms such an unbiased technology will accelerate greatly functional characterization of ecologically important, but so far understudied species.

To be able to do this, we will need to establish complementary fractionation techniques for fractionation of whole cell samples of different sources (prokaryotic and eukaryotic cells) and implement crosslinking mass spectrometry in the medium complexity samples collected from the different fractions.

With this line of future research, we aim to strengthen our expertise in development of instrument methods, mass spectrometry and optimization and development of biochemical (fractionation, crosslinking) approaches.

**Technology Fields: chemistry and chemical biology**

**Life science fields: molecular biology, biotechnology, biophysics**



## **SCHNEIDER THOMAS**

**Joint Head of Research Infrastructure, Group Leader**  
*EMBL Hamburg*

EMBL Hamburg is operating synchrotron beamlines for macromolecular crystallography for several decades. Currently, we are using radiation from PETRA III for which an upgrade to the next generation synchrotron technology is in the planning. For making synchrotron radiation usable for scientific user community we are constantly developing software for controlling high-rate and high-volume data acquisition, automated sample handling, data flows and data evaluation. A large part of this work takes place in international consortia.

**Technology Fields: software development**  
**Life science fields: biophysics, structural biology**



## **SCHWAB YANNICK**

**Team Leader, Cell Biology and Biophysics Unit**  
*EMBL Heidelberg*

The Electron Microscopy Core Facility at EMBL, managed by Yannick Schwab, is committed to provide access to state of the art methods in cellular electron microscopy to a large user base from EMBL, its member states and beyond. In the scope of EMCF, we are interested in further developing the advanced methods for ultrastructural analysis, CLEM, in volume SEM and workflows for high throughput TEM tomography data collection. Additionally, the Schwab team is further developing techniques in the field of multimodal correlative imaging, with the main motivation to enable targeted ultrastructural analyses of rare events or cell types in complex biological systems. We are now interested to do further developments in two areas: 1) we would like to develop a new software to automate volume correlative light / X-ray and EM and 2) we would like to streamline workflows adapted to high throughput EM imaging of plankton cells collected in the field alongside the EMBL TREC expedition scheduled to start in Spring 2023.

We are very motivated to get an ARISE fellow who would work with us on developments in these fields and who would use the unique opportunity to bridge method development and service provision.

**Technology Fields: automation, imaging, microscopy, software development**  
**Life science fields: cell biology**



## **TRIVEDI VIKAS**

**Group Leader, Tissue Biology and Disease Modelling Unit**  
*EMBL Barcelona*

Trained as an engineer (focus: mechanical engineering and bioengineering), I switched to optics and instrumentation during my PhD where I developed 2-photon light sheet imaging-based methods for deep and fast imaging. Current technological focus of my group is development of novel embryonic organoids and high-throughput, long term monitoring of such in vitro systems and therefore demands automated systems for protocol optimization and molecular characterization through staining, all of which can be provided as services to labs both within and outside EMBL as well as in industry.

**Technology Fields: automation, high-precision mechanics, robotics**  
**Life science fields: biotechnology, translational research, tissue engineering**



## **VELANKAR SAMEER**

**Team Leader, Protein Data Bank in Europe**  
*EMBL-EBI Hinxton*

We develop and deliver world leading data resources including Protein Data Bank, PDBe Knowledge Base and AlphaFold Database. Our work is focused on developing a scalable, state-of-the-art, integrated data management and delivery infrastructure for structural biology data (SQL databases, programming languages, Graph Knowledgebases, Apache Lucene and Solr search engines, clustering algorithms). We are keen on deploying machine learning and AI approaches for deriving knowledge from our integrated structural biology knowledge base. Our technology development work also involves better information retrieval and ranking systems and multiscale structural data visualisation tools (<https://github.com/molstar>) to enable scientific research in both academic and industry settings.

**Technology Fields: AI and machine learning, data science and big data, information retrieval & relevance ranking**  
**Life science fields: bioinformatics research, structural biology, translational research**



## VIZCAÍNO JUAN ANTONIO

**Team Leader, Proteomics resources and tools**  
*EMBL-EBI Hinxton*

Improving PRIDE's functionality as the world-leading proteomics data repository, and the integration of proteomics data with other omics data types are two key aspects for the team in the near future. This offers the possibility for the fellow to work in different topics (e.g. data analysis, data visualisation, infrastructure, data management practises, etc), depending their background. In the context of data integration, this would involve different data types such as gene and protein expression information (together with Expression Atlas), post-translational modifications (UniProt), and (meta)proteomics data and (meta)genomics sequences (Ensembl, MGnify). Additionally, support in PRIDE for additional proteomics data types (e.g. top down proteomics, non-mass spectrometry methods) is also a key aspect in our future work.

**Technology Fields: bioinformatics, data science and big data, software development**  
**Life science fields: bioinformatics research, computational biology, proteomics**



## WILMANNS MATTHIAS

**Head of EMBL Hamburg, Structure and function of molecular machinery for protein translocation across membranes**  
*EMBL Hamburg*

Our group employs an integrated structural biology approach using X-ray based methods, single particle cryo-electron microscopy, biophysical methods and integrative modelling approaches for large protein complexes. Our structures provide rich opportunities to discover function from structure, where many of them aim to resolve mechanisms relevant for infection processes. In the coming years we aim to generate a multidisciplinary metabolomics/structure service platform for determination of turnover mechanisms of specific drugs or prodrugs by different microorganisms. The platform will include establishment of a pipeline for high resolution structures of selected protein-drug complexes in microorganisms, and in-vitro analysis of the enzymatic processing of specific drugs by microorganisms. The platform will thus integrate technologies in structural biology and metabolomics, complemented by microbial genetics and biochemistry, defining the required skill set of the developer we are looking for. All data generated will be stored a common data base, as a basis for further improving the integration of procedures. The platform will be useful to both future internal EMBL projects specifically from selected transversal themes (especially

microbiome, infection, planetary biology) and for our external user community working on drug discovery in industry and academia.

This work will build on our previous and ongoing work with Michael Zimmermann research group (EMBL Heidelberg). Previously we jointly discovered a mycobacterial drug target by a combined structure-based and metabolomics approach to be associated with an unexpected catalytic function, when Michael was working as graduate student at the ETH Zurich (Ehebauer, Zimmermann et al, 2015). In an ongoing pilot project with Michael's research group at EMBL, we have initiated a structure-based functional drug transformation project of selected microbiome targets with evidence for specific drug turnover, but lacking any mechanistic insight into the underlying process. At the present stage, the project connects high-resolution structural biology with biochemical and metabolomic approaches, including in vitro enzymology, as well as ex vivo and in vivo functional assays. In a first step, we determine the high-resolution structures of these targets, coupled by the identification of specific substrates suitable for turnover, including established drugs that are processed by these targets. Part of this analysis is the quantitative measurement of binding affinities, as a prerequisite for structure-based binding studies. As binding in enzymatic reactions is generally weak this may require, depending on the specific target, intervention with the active site topography to strengthen binding and to avoid rapid turnover, which would prevent structure-based ligand binding studies as well. Subsequent protein target ligand structures provide then the basis for mechanistic investigation of the turnover mechanism for specific drugs or prodrugs.

In a future perspective this knowledge could be further exploited either by protein engineering e.g. using directed evolution approaches or by medicinal chemistry approaches for rational modification and improvement of established drugs. In addition, as this concept is not limited to the characterisation of drug transformation it could be similarly applicable to other metabolites susceptible to microbial enzyme catalysis such as nutrients or environmental toxins.

**Technology Fields: automation, chemistry and chemical biology, data management**

**Life science fields: biophysics, drug design, structural biology**



## **ZIMMERMANN MICHAEL**

**Group Leader, Structural and Computational Biology Unit**  
*EMBL Heidelberg*

In combination with EMBL's Chemical Biology Core Facility (CBCF) our laboratory combines high-throughput screening and computational approaches to develop tools and pipelines to investigate the mutual interactions between environmental contaminants and biological systems. In this context we are currently establishing a platform available to EMBL and Non-EMBL researchers that involves chemical libraries, screening pipelines together with computational tools, software, and data resources that will enable integrative analyses of the impact of environmental toxins on organisms at the molecular level.

**Technology Fields: chemistry and chemical biology, data science and big data, software development**

**Life science fields: computational biology**



## **ZIMMERMANN TIMO**

**Team Leader, Cell Biology and Biophysics Unit**  
*EMBL Heidelberg*

In the new EMBL Imaging Centre the Zimmermann Team will provide a wide range of light microscopy instrumentation that is not yet commonly available to external researchers. We also aim to efficiently connect highest resolution LM approaches (including cryo-fluorescence) to the corresponding EM technology offer of the Imaging Centre.

**Technology Fields: image analysis, imaging, microscopy**

**Life science fields: biophysics, cell biology**