



Career Accelerator for Research Infrastructure Scientists

GUIDE FOR APPLICANTS

3rd December 2020



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

RI: 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 leadership 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.**

DEVELOPING EUROPE'S RESEARCH INFRASTRUCTURE LEADERS

Research infrastructures play an increasingly important role in research and development activity by providing access to the latest detection, imaging, computational, and research techniques at scale. 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.

During the programme duration (2021-2026), **62 Fellowships** will be offered to experienced STEM professionals who will join EMBL for **three years** to work on technology development and service provision, and get trained to become highly skilled Research Infrastructure Scientists and take leading positions in infrastructures across industry, healthcare, academia, and other sectors.

All Fellows will be based at EMBL and must select a supervisor affiliated with one of the six EMBL sites.

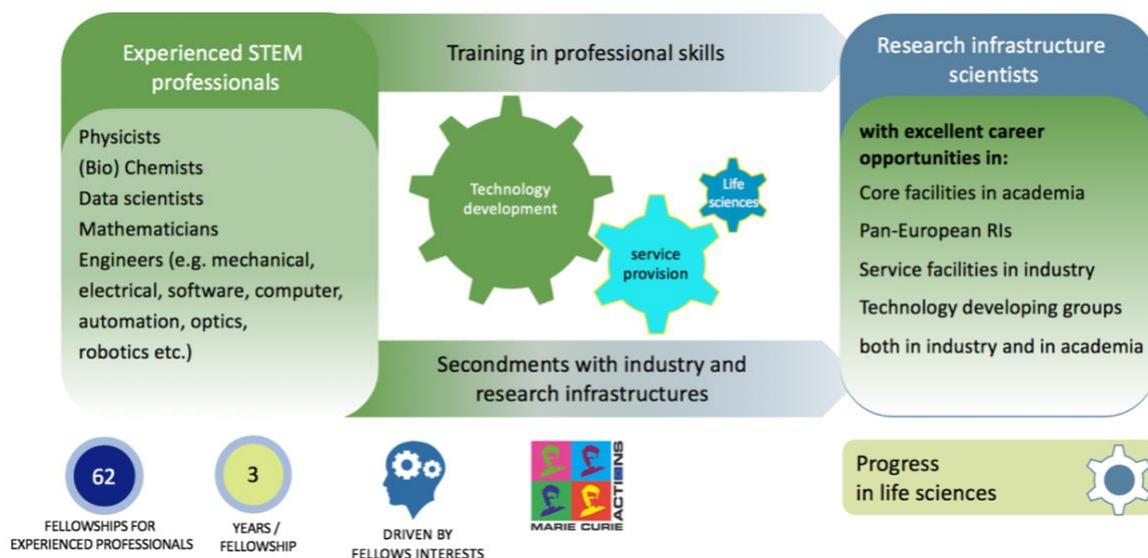


Figure 1 – ARISE in a nutshell

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 2 – EMBL sites

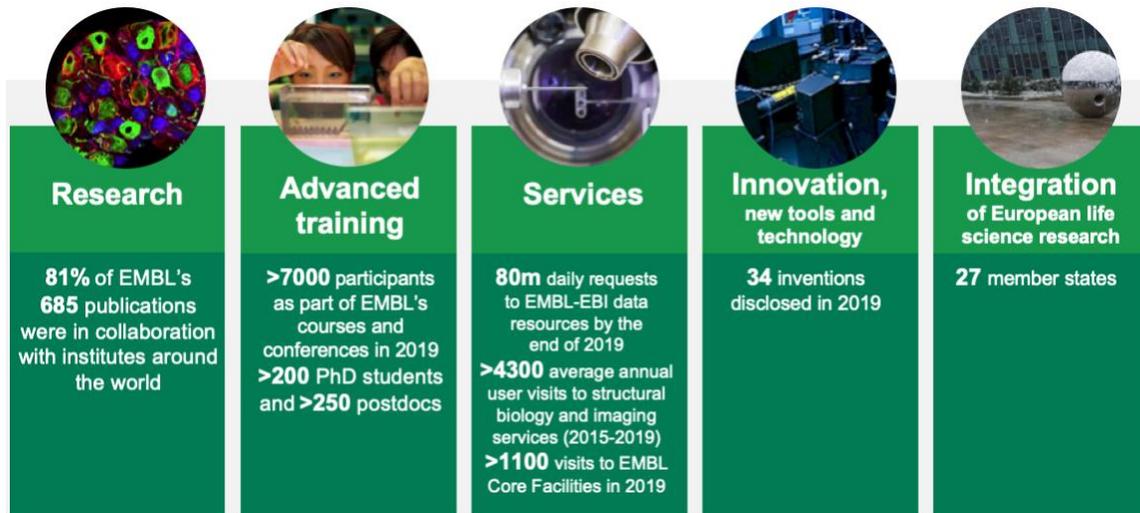


Figure 3 – EMBL's mission

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-up 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 have the opportunity to receive training to operate life science research infrastructures whilst gaining the long-term benefits of being 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. The MSCA programme responds to the challenges sometimes faced by scientific professionals, offering them attractive working conditions and the opportunity to move between academic and other settings.

ARISE will provide

An excellent research environment for development of cutting-edge technologies needed to speed up developments in life sciences.

Unique professional training opportunities to learn skills specifically required by the leaders of the service providing facilities in research infrastructures

Placements in the technology developing industry or academic organisations that provide service to other researchers through modern research infrastructures.

Excellent training in transferable skills, networking opportunities and close supervision and mentoring.

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).

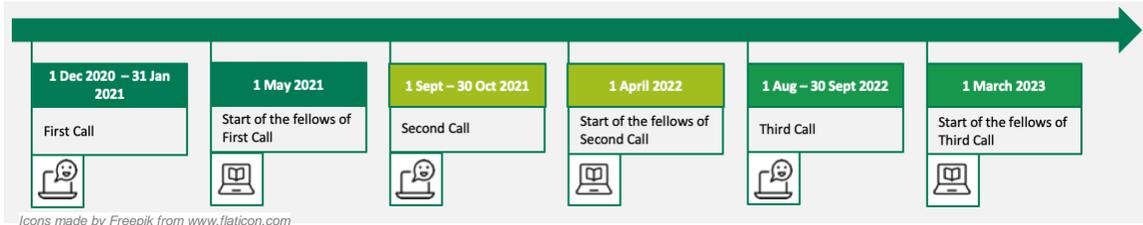


Figure 4 – ARISE Programme indicative timeline

TRAINING FOR ARISE FELLOWS

The ARISE training programme will provide **Research Training, Professional Training, and Transferable and Communication Skills Training**. These areas of training will be provided through different mechanisms, including research project, various forms of courses, conferences and secondments.



Figure 5 – Skills training in the frame of ARISE programme

The ARISE Programme will train STEM professionals to become new generation of RI Scientists **with skills in**

- ***technology development***
- ***management and operation of research infrastructure and scientific services***

- **broad understanding of life sciences**
- **data management technologies and FAIR** (*Findable, Accessible, Interoperable, Re-usable*) **data policies**

and support them to create a **broad professional network** keeping them up to date with technology and science developments.

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 elements¹:

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 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.

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

The Programme will finance specific training activities through ARISE training budget:

- *Courses organized by ARISE will be fully paid by the programme*
- *Each fellow will get one-off conference grant of 1,000 €*
- *Travel and accommodation costs related to secondments will be supported by the program as indicated in table 3 (section Secondments).*

PROFESSIONAL SKILLS TRAINING

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)
- **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.

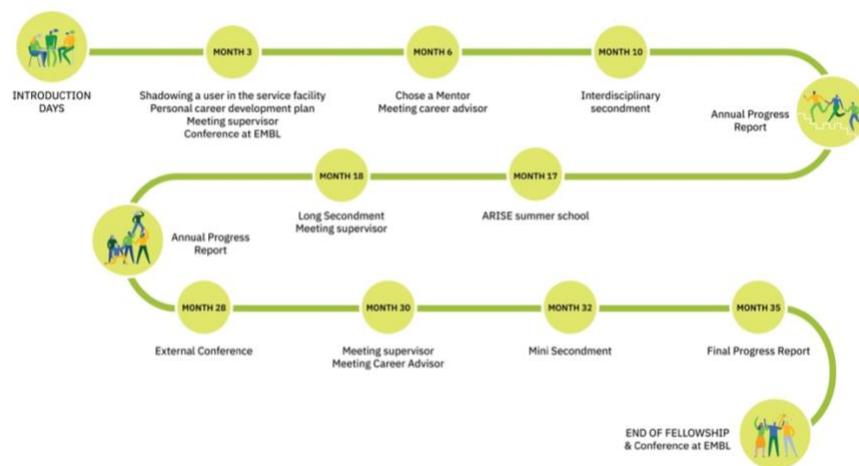


Figure 6 – Indicative timeline of an ARISE Fellowship

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

Keeping the facility cutting edge	ARISE GTLs	mandatory	use cases
TECH TRANSFER AND ENTREPRENEURSHIP			
Topic and title	Suggested trainer or EMBL department	Mandatory/elective	Suggested format
IP and innovation cycle	EMBLEM	mandatory	ARISE school
Collaboration with industry	EMBLEM	mandatory	ARISE school
Technology transfer	EMBLEM	mandatory	Course/expert webinar
Entrepreneurship	EMBLEM	mandatory	Course/expert webinar
From academic facility to commercial service provision	IC or external	elective	Course/expert webinar
Establishing a business plan	EMBLEM	elective	Course/expert webinar
USER SUPPORT			
Topic and title	Suggested trainer or EMBL department	Mandatory/elective	Suggested format
Who are your users	ARISE GTLs	mandatory	ARISE school
How to broaden user base	ARISE GTLs	elective	use cases
How to run a user programme	EMBL-Hamburg ARISE GTLs	mandatory	expert webinar
Communication and dealing with external users	V. Matser, A. Hercules	mandatory	ARISE school
Training users	Bio-IT	mandatory	Course/expert webinar
Course design	Bio-IT	elective	expert webinar
How to assess user satisfaction and integrate feedback.	Cath Brooksbank	mandatory	expert webinar
Understanding user needs and ways of working	ARISE GTLs	elective	expert webinar
Instrument ergonomics	Industry partner organisation	mandatory	expert webinar
SCIENCE POLICY			

Topic and title	Suggested trainer or EMBL department	Mandatory/elective	Suggested format
Data management	Josan Marquez	mandatory	Course/expert webinar
FAIR data	EMBL-EBI	mandatory	Course/expert webinar
Open access and Open Science	ELIXIR	mandatory	Course/expert webinar
European Open Science Cloud Initiatives	JK Heriche; EOSCLife	mandatory	expert webinar
Ethical, legal and social implications	EMBL legal team, Ethics Committee and Sarah Morgan EBI	mandatory	ARISE school

PROJECT MANAGEMENT

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

Day 1

Introduction, opportunities and challenges (starts at lunchtime to allow Fellows from all sites to arrive)

Arrival, interactive introduction, identifying challenges

<i>Day 2</i>	Designing and creating your service 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>	Operating your service Define technologies needed for service provision impact assessment, recruiting, managing, collaborating and more
<i>Day 4</i>	Financial and business management aspects of operating a service Costing up staff, compute requirements and (new) services Tracking multiple projects
<i>Day 5</i>	Introduction to innovation, IPR and entrepreneurship IP and innovation cycle Collaboration with industry departure

TRANSFERABLE AND COMMUNICATION SKILLS

In addition to the Project and people management skills, entrepreneurship and IPR (addressed in Professional training), all Fellows will attend additional courses in transferable skills, based on their needs and the PCDP.

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

Diversity and inclusion issues	Div. & Equality Committee	mandatory	expert webinar
How to communicate with media	StratComm	mandatory	expert webinar
Build a productive team culture	HR training	mandatory	course
Communication, writing and presentation skills	HR training	mandatory	course
Personal effectiveness - time management	HR training	elective	course
Balance your different roles	HR training	elective	course
Manage your time better	HR training	elective	course

Delegate tasks more effectively	HR training	elective	course
Deal with different personalities in the team	HR training	elective	course
Stress management	HR training	elective	course
Local language courses	HR training	elective	course
Ally training	Div. & Eq. Committee	mandatory	expert webinar
Diversity and inclusion issues	Div. & Eq. Committee	mandatory	expert webinar

Communication skills

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 (ELLS²)** 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

² <http://emblog.embl.de/ells/>

AT PARTNER ORGANISATIONS
(one must be intersectoral)

Type of secondment	Benefit	Duration	Financial support
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
Mini secondment at partner organisation	shadowing other tech developers & service providers	up to 2 weeks, any time during fellowship	Up to 800 euro

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.

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

CAREER SUPPORT

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.

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	
Mobility rule	<p>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.</p> <p>Applicants cannot already be permanently employed by EMBL.</p> <p>Due to covid-19 outbreak, ARISE Management Team had to postpone the opening of call 1 by 2 months (from Oct 1st to Dec 1st, 2020) with a direct impact on the eligibility criteria related to the mobility rule. Therefore, exceptions might be considered, if related to covid-19 (e.g., mobility cut-off can be calculated as if the call deadline was as planned 30 Nov 2020).</p>

	If you require further explanations about mobility rule requirements, please contact ARISE management team at arise@embl.org .
Education and experience	The applicant should have at least 4 years of full-time equivalent research experience (in technology development) , a high level of skill (postdoctoral standard) or expertise in a specialisation in which doctoral degrees are not usually awarded. Applicants do not have to hold a PhD 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.
Complete application	The applicant must submit a complete application with required documents and indicate GTLs and partner organisations (for secondments) in which they are interested.
Language	Applicants must be fluent in English.
No age limit	There is no age limit for applying to the MSCA COFUND Fellowship Programme although the candidates' achievements should be in line with their "academic age".

ACADEMIC ELIGIBILITY CRITERIA	
Applicant-driven research proposal	<p>Applicants should independently prepare and submit their original 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. The proposed project should not be of local interest only, 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 template for the project proposal writing is available in annex 2³</p>
Experience	Applicants should describe their experience in technology development related to service provision
Scientific potential	<p>Applicants should prove their scientific potential using at least one of the following evidences:</p> <ul style="list-style-type: none"> - <i>Scientific publications</i> - <i>Scientific Software, unique or problematic data sets, technical documentation, etc.</i> - <i>Contribution to patents</i> - <i>Management of technology development projects</i>

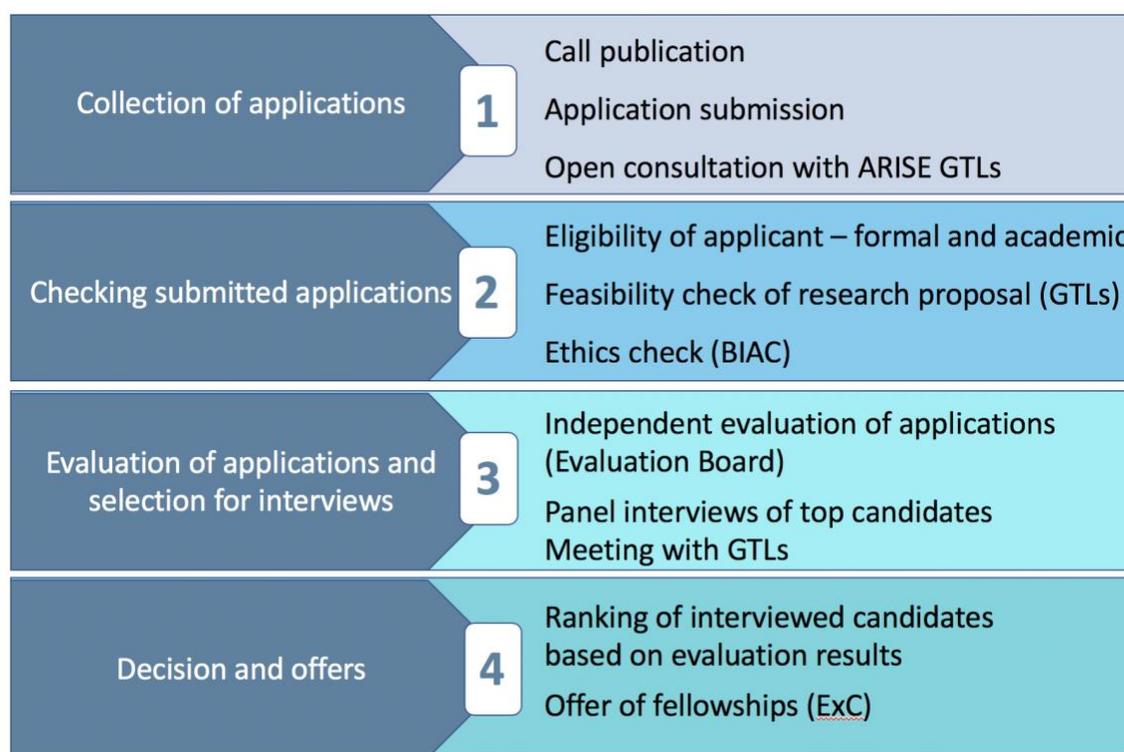
³ Word version available here:
https://acxngcvroo.cloudimg.io/v7/https://www.embl.org/files/wp-content/uploads/ARISE_Proposal_Template_Dec2020.docx?func=proxy

	<ul style="list-style-type: none"> - Detailed description of any other innovative research they have performed and their achievements - Other ways to demonstrate experience relevant to technology development and scientific services
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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	Publication of the call	Advertisement and opening of the call by the Programme manager (PM) and Programme Director (PD) . Follow-up of the application submission process.
	Application phase and open	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

	consultation period	contacted for further support and instructions on how to prepare and submit the application.
2	Eligibility check	To be performed by the PM , 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.
	Feasibility check	ARISE GTLs 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.
	Ethics check	Three members of the EMBL Ethics Committee check the ethical standing of the eligible proposals, before these are sent to the Evaluation Board for ranking. This check is based on the ethics self-assessment filled out by the candidates and relevant ethics session in the project proposal. If proposals raise critical ethical issues, the Ethics Board reserves the right to contact the applicants for additional information. If the proposal is deemed ethically unsuitable, the application will be rejected. Unsuccessful candidates will be duly notified with a justification for rejection.
3	Evaluation and ranking of written applications	Each application will be evaluated independently and remotely by three external international experts, members of the Evaluation Board (EB) . 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.
	Personal interviews of the top ranked applicants	Panel interviews 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 interviewed Face-to-Face (F2F)/alone by ARISE GTLs 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). The programme will support candidates to visit the groups and teams of their interests at other EMBL sites before the interview days.
4	Final funding decision	Final funding decision will be made by the ARISE Executive Committee (ExC) and the EB Chair and vice Chair based on the comprehensive evaluation of the candidate . Candidates must accept the offer within 14 days and choose which group they wish to join (if they received confirmation of supervision by more than one GTL).
	Feedback procedure	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 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
The professional excellence of the applicant	The excellence of the candidate's previous achievements	1 - 5	40%
	Impact of their contribution to the research field	1- 5	
The excellence of the proposed project	Quality and novelty of the proposed project and the proposal	1 - 5	40%
	Fit with the team/institution of the host, secondment host and partners	1 - 5	
Competence and potential of the applicant	Is the candidate well qualified to conduct the research project?	1 - 5	40%
	Can the candidate be expected to benefit from an ARISE Fellowship?	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	
1 (failure)	Relevant criteria are not sufficiently met
2 (poor)	Relevant criteria are met, but weaknesses are clearly visible
3 (satisfactory)	Relevant criteria are met, but with shortcomings
4 (good)	Relevant criteria are fully met
5 (excellent)	Relevant criteria are fully met and exceeded

INDICATIVE TIMELINE FOR THE FIRST CALL FOR FELLOWS

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

Open call:	1 Dec – 31 Jan
Eligibility check	1 Feb – 8 Feb
Feasibility assessment by GTLs –	8 Feb – 15 Feb
Ethics check	8 Feb – 15 Feb
Evaluation by the Evaluation Board:	16 Feb – 9 March
Panel interviews:	Indicative date: 12 – 15 April
Interviews with the groups:	Indicative date: 12 – 15 April Groups in EMBL Heidelberg: in the same week as the panel interviews Other EMBL sites: in the weeks preceding panel interviews
Decision to offer fellowships:	16 April
Deadline for accepting Fellowships	t.b. c. 30 April
Eventual offer from reserve list	t.b.c. (1 May 2021)
Start of the Fellows	1 May 2021 or later (no later than October 2020)

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 – Net EMBL Fellowship rates for Postdoctoral Fellows (social security contributions not included) ⁴

EMBL Fellowship rates with effect from 1 January 2020	Germany	France	Italy	UK	Spain
Postdoctoral Fellows	Stipend	Stipend	Stipend	Stipend	Stipend
Monthly stipend (first year)	3,419.92 €	3,106.56 €	2,883.07 €	£ 2,829.64	2,762.76 €
Monthly stipend (second year)	3,761.91 €	3,417.21 €	3,171.38 €	£3,112.60	3,039.03 €
Monthly stipend (third year)	3,818.33 €	3,468.47 €	3,218.94 €	£3,159.29	3,084.61 €

E.g., A Fellow starting in May 2021 will receive ca. 3420 Euro/month until 30 April 2022, when the fellowship will increase to ca. 3762 Euro/month + eventual inflation increments. In May 2022 the fellowship will increase again.

⁴ Gross Fellowships (stipend plus social security contributions) 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

Forty-six partner organisations (17 non-academic and 29 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 Researchers⁵*
- *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 website⁶.



⁵ https://euraxess.ec.europa.eu/sites/default/files/am509774cee_en_e4.pdf

⁶ <https://www.embl.org/training/technology-developers-programme/arise/research-focus/>

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 – APPLICANTS CHECKLIST

Before you apply:

- Download and read the Guide for Applicants
- Get in touch with the GTL(s) of interest to discuss your project ideas and learn about their research focus and plans
- Choose a Partner Organisation for your long secondments **(If you would like to make your secondment at an institution not listed within the ARISE partner organisations list, please get in touch with ARISE management team at arise@embl.org to get guidelines on the next steps.)**

- Write your project proposal using the template available in Annex 2⁷
- Complete the Ethics self-assessment included in the proposal template
- Contact your referees. **Please keep in mind that it is your responsibility that references reach us by the deadline (Jan 31, 2021). At least two out of three letters of reference must be submitted by the call deadline in order for your application to be eligible.**

Please note that only letters of reference submitted from an institutional e-mail address will be considered. For referees that only have a private e-mail account, please contact ARISE at arise@embl.org to inform us about this exception. In that case, referees should submit a scan of the signed document including the institutional stamp on it.

- Inform ARISE Programme Manager at arise@embl.org that you are applying for an ARISE Fellowship.

Submitting your application online⁸:

- Complete your online application⁹ by filling out the following sections:
 - Personal Information
 - Diversity Section
 - Upload Attachments:
 - Project proposal – 4 pages limit (please use the ARISE template and upload it as a PDF. Follow the instructions in the template and remember to delete them from the final version.

⁷ Word version available here:

https://acxngcvroo.cloudimg.io/v7/https://www.embl.org/files/wp-content/uploads/ARISE_Proposal_Template_Dec2020.docx?func=proxy

⁸ ***Please note that the application cannot be interrupted, saved and continued – thus we recommend you to have the whole batch of information ready before you start the submission of your application. Please refer to Annex 1 – Applicants checklist***

⁹ Link to the application portal:

https://www.embl.org/jobs/apply/?jobId=QHPEK026203F3VBQB688N79SB-3328&langCode=en_GB&langCode=en_GB

Please complete the ethics self-assessment included in the template)

Certificates – Please upload relevant certificates (PhD, MSc, BSc, other certificates relevant for your participation in ARISE)

Upload your CV (Please include at the end of your CV the full list of your publications and awards, if any)

Answer the ARISE Application questions which include:

Ethics self-assessment (Please confirm the ethics self-assessment questionnaire has been duly filled out and that any relevant ethical issues have been addressed in the section 3 of the project proposal)

Statement of interest - max 4,000 characters (Explain why you would like to join ARISE programme. Also, describe briefly:

- How you as an experienced professional hope to take advantage of the training offered, and which skill areas you feel would you would benefit from in particular.

- Outline any previously acquired knowledge or capability that you may transfer to the research group you will join and to your community of peers on the ARISE programme.)

Information about education (undergraduates and graduate studies), current position and any former experience at EMBL

Statement of expertise – max 2,500 characters (describe here your expertise in technology development, particularly related to service provision)

Information about the technology fields in which you have expertise & about the life science fields that would benefit from your project proposal

Statement of scientific excellence (answer the questionnaire and provide the information relevant for your participation in ARISE)

- Name(s) of GTL(s) of your choice and confirmation you have been in touch with them.
- The Partner Organisation (PO) of your choice for the long secondment
- About ARISE – How did you learn about ARISE programme?
- References (Please enter the contact information of your referees. Your referees will receive the invitation to submit the letter of reference directly to the programme. Make sure to contact your referees before in order to find out if they are available and willing to provide a reference. Please give your consent so we can contact your referees.)
- Data Privacy Statement
- Click on “Submit” to send your application to ARISE team!

ANNEX 2 – PROPOSAL TEMPLATE

ARISE Project Proposal template¹⁰

Applicants should independently prepare and submit their original 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 Research Infrastructures. The proposed project should not be of local interest only, but should have sufficient potential for international transfer.

Applicants are required to contact the groups of their choice¹¹ before submitting the proposal to get an overview of their field of work and current activities of the groups, and to discuss their idea for new method / technology development with the group or team leader(s).

Instructions are shown highlighted in grey and italic throughout this document. Before submitting, instructions highlighted in grey should be deleted.

Applicants must use the following formatting constraints: Arial, at least font size 10, margins (2.0cm side, 1.5cm top and bottom), single line spacing.

In drafting the proposal, applicants must follow the structure outlined below.

Structure of the proposal:

- *Abstract (max. 2,000 characters including spaces). This will not count towards the page limit.*
- *Keywords for technology and life science fields*

Start page count

*Please ensure that sections 1-3 do not exceed the limit of **4 pages**. It is up to the applicant to decide how many pages to allocate to each section within the 4-page limit.*

Section 1. Background, proposed project & its implementation

Section 2: Expected results & their impact

Section 3: Ethics

Stop page count

- *Ethics self-assessment*
- *Gantt chart*
- *References*

¹⁰ Word version available here:

https://acxnqcvroo.cloudimg.io/v7/https://www.embl.org/files/wp-content/uploads/ARISE_Proposal_Template_Dec2020.docx?func=proxy

¹¹ The full list of EMBL Group and Team Leaders participating in ARISE call 1 is available here: <https://www.embl.org/training/technology-developers-programme/arise/research-focus/>

Proposal Name / Candidate Name /

GTL(s) contacted / Partner Organisation chosen

ABSTRACT:

Please provide a short summary (max. 2,000 characters, with spaces) to explain in Lay Language your proposal (main objectives & how they will be achieved).

The abstract might be used in communication process with interested parties, please do not include any confidential information

KEYWORDS:

Please select up to 3 keywords for technology fields and 3 keywords for life science fields

Technology fields	Life science fields
<input type="checkbox"/> AI and machine learning	<input type="checkbox"/> Bioinformatics research
<input type="checkbox"/> Automation	<input type="checkbox"/> Biophysics
<input type="checkbox"/> Bioinformatics	<input type="checkbox"/> Biotechnology
<input type="checkbox"/> (Bio)chemical engineering	<input type="checkbox"/> Cell biology
<input type="checkbox"/> Chemistry and chemical biology	<input type="checkbox"/> Computational biology
<input type="checkbox"/> Computational modelling	<input type="checkbox"/> Developmental biology
<input type="checkbox"/> Data management	<input type="checkbox"/> Disease modelling
<input type="checkbox"/> Data science and big data	<input type="checkbox"/> Drug design
<input type="checkbox"/> Detector development	<input type="checkbox"/> Epigenetics
<input type="checkbox"/> High-precision mechanics	<input type="checkbox"/> Genome biology
<input type="checkbox"/> Image analysis	<input type="checkbox"/> Neurobiology
<input type="checkbox"/> Imaging, microscopy	<input type="checkbox"/> Structural biology
<input type="checkbox"/> Microfluidics	<input type="checkbox"/> Tissue biology
<input type="checkbox"/> Omics	<input type="checkbox"/> Translational research
<input type="checkbox"/> Robotics	<input type="checkbox"/> Planetary biology
<input type="checkbox"/> Software development	
<input type="checkbox"/> X-ray optics	

--- START PAGE COUNT ---

1. Background, proposed project & its implementation

In this section, you must provide a detailed description of the scientific and technical aspects of the proposal, demonstrating the originality and novelty of the proposed method/technology.

- **Introduction, state-of-the-art and objectives** - Provide an overview of the proposal. Discuss the state-of-the-art. Specify the objectives of the proposal, in the context of the state-of-the-art in the field. It should be indicated how and why the proposed work is important for the field. Specify any particularly challenging or unconventional aspects of the proposal, including multi- or inter-disciplinary aspects (if relevant).
- Describe the workplan and methodology of the planned work
- With which EMBL groups do you envision to develop the proposed technology and how would your project fit into the expertise, technologies and research focus already present in the group(s)
- Would some parts of the proposed project benefit from collaboration with some of the ARISE partner organisations¹², and if yes, with which.
- Describe the infrastructure and facilities (e.g. any equipment; specialist software) required to carry out the proposed work, taking into consideration what is available in the hosting centres. Describe any other necessary resources required and expected costs.
- List major potential risks associated with the research project implementation. Please be aware that during the interview you might be required to provide information on contingency plan/mitigation measures.

2. Expected results & their impact

The candidate has to show that the proposed technology / method will be useful to external researchers, and that it has potential to be offered as a service already during the fellowship time. To show the impact of the proposed technology, please describe:

- When do you expect to be able to start providing (pilot) access to the technology you propose to develop for other researchers (e.g. other EMBL or non-EMBL researchers)
- Will the technology that you envision to be developed be useful to other EMBL groups? Which groups do you foresee could be potential first users and why?
- Can you foresee which external (non-EMBL) researchers could be first users of the newly developed technology? Please describe why would they find the technology beneficial? Please provide few examples of means of dissemination of results.

¹² List of ARISE Partner Organisations available here: <https://www.embl.org/training/technology-developers-programme/arise/research-focus/>

The candidate has to provide practical information on the service provision:

- Please describe shortly how do you envision provision of services (e.g. virtual vs physical service, users handling machines alone vs Research Infrastructure scientist performing experiments for the users, duration of service per sample/user etc). Which obstacles do you expect to encounter related to the service provision?

3. Ethics

If ethical issues are raised by your project proposal (you answered "Yes" to any of the questions included in the ethics self-assessment – questionnaire below), please describe how they will be addressed.

If not applicable, please state "N/A".

---STOP PAGE COUNT---

Ethics self-assessment

Please fill out the questionnaire below about ethical issues – Answer only "Yes" or "No".

Please note that providing a duly filled in ethics self-assessment is part of the eligibility criteria.

The questionnaire is based on the ethics self-assessment for Horizon 2020 (H2020) projects¹³. ARISE is co-funded by H2020 programme and, thus, projects funded by ARISE must comply with H2020 ethical requirements.

If you answered "Yes" to any of the questions below, you must provide additional information about how these issues will be addressed in the section 3. "Ethics" (see above).

Section 1. Human embryos/foetuses	Yes	No
Does your research involve Human Embryonic Stem Cells (hESCs)?	<input type="checkbox"/>	<input type="checkbox"/>
Does your research involve the use of human embryos?	<input type="checkbox"/>	<input type="checkbox"/>
Does your research involve the use of human foetal tissues / cells?	<input type="checkbox"/>	<input type="checkbox"/>
Section 2. Humans	Yes	No
Does your research involve human participants?	<input type="checkbox"/>	<input type="checkbox"/>
Does your research involve physical interventions on the study participants?	<input type="checkbox"/>	<input type="checkbox"/>
Section 3. Human cells/tissues	Yes	No
Does your research involve human cells or tissues (other than from human embryos/foetuses)?	<input type="checkbox"/>	<input type="checkbox"/>
Section 4. Protection of Personal Data	Yes	No
Does your research involve processing of personal data?	<input type="checkbox"/>	<input type="checkbox"/>

¹³ Horizon 2020 guide "How to complete your ethics self-assessment": https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-self-assess_en.pdf

Does your research involve further processing of previously collected personal data (including use of pre-existing data sets or sources, merging existing data sets)?	<input type="checkbox"/>	<input type="checkbox"/>
Does your research involve publicly available data?	<input type="checkbox"/>	<input type="checkbox"/>
Is it planned to export personal data from the EU to non-EU countries?	<input type="checkbox"/>	<input type="checkbox"/>
Is it planned to import personal data from non-EU countries into the EU?	<input type="checkbox"/>	<input type="checkbox"/>
Section 5. Animals	Yes	No
Does your research involve animals?	<input type="checkbox"/>	<input type="checkbox"/>
Section 6. Non-EU countries	Yes	No
In case non-EU countries are involved, do the research related activities undertaken in these countries raise potential ethics issues?	<input type="checkbox"/>	<input type="checkbox"/>
Is it planned to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>
Is it planned to import any material from non-EU countries into the EU?	<input type="checkbox"/>	<input type="checkbox"/>
Is it planned to export any material from the EU to non-EU countries?	<input type="checkbox"/>	<input type="checkbox"/>
In case research involves low and/or lower-middle income countries, are any benefit-sharing actions planned?	<input type="checkbox"/>	<input type="checkbox"/>
Could the situation in the country put the individuals taking part in the research at risk?	<input type="checkbox"/>	<input type="checkbox"/>
Section 7. Environment	Yes	No
Does your research involve the use of elements that may cause harm to the environment, to animals or plants?	<input type="checkbox"/>	<input type="checkbox"/>
Does your research deal with endangered fauna and/or flora /protected areas?	<input type="checkbox"/>	<input type="checkbox"/>
Does your research involve the use of elements that may cause harm to humans, including research staff?	<input type="checkbox"/>	<input type="checkbox"/>
Section 8. Dual use	Yes	No
Does this research involve dual-use items in the sense of Regulation 428/2009 , or other items for which an authorisation is required? Dual use items according to Horizon 2020 programme are items, including software and technology, which can be used for both civil and military purposes, and shall include all goods which can be used for both non-explosive uses and assisting in any way in the manufacture of nuclear weapons or other nuclear explosive devices.	<input type="checkbox"/>	<input type="checkbox"/>
Section 9. Exclusive focus on civil applications	Yes	No
Could your research raise concerns regarding the exclusive focus on civil applications? (research projects funded under H2020 programme must be exclusively focused on civil applications and cannot be used for military purposes)	<input type="checkbox"/>	<input type="checkbox"/>
Section 10. Misuse	Yes	No
Does your research have a potential for misuse of research results?	<input type="checkbox"/>	<input type="checkbox"/>

Section 11. Other ethics issues	Yes	No
Are there any other ethics issues that should be taken into consideration?	<input type="checkbox"/>	<input type="checkbox"/>

Gantt chart

Here you can show the timeline for the major achievements in the project. The fellowship duration is 36 months. The proposed project must be feasibly undertaken within the fellowship duration).

References

Please list here the references relevant to your proposal.

ANNEX 3 – ARISE CALL 1: LIST OF GTLS

The following EMBL group and team leaders are open for ARISE fellows in 2020 (alphabetically sorted).

<p>ALEXANDROV THEODORE</p> <p>Team Leader, Structural and Computational Biology Unit <i>EMBL Heidelberg</i></p> <p>The Alexandrov team develops experimental and computational methods as well as software for spatial and single-cell metabolomics. We are seeking technology-focused method developers with experimental and/or computational skills or with expertise in software development to join us to develop next-generation services for ultrahigh-resolution spatial metabolomics.</p>	 <p>Alexandrov Team Contact</p>
<p>Technology Fields: AI and machine learning, imaging, microscopy, software development, metabolomics</p> <p>Life science fields: biotechnology, cell biology, developmental biology, epigenetics, neurobiology, tissue biology, metabolism</p>	

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.



[Bateman group](#)
[Contact](#)

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 computational biology group has developed and is maintaining Web services and resources on (meta) genomics and function prediction with more than 400.000 different users per month. The current focus is planetary biology that includes global microbial sampling and analysis, with needs for (meta) data organisation and visualization.



[Bork group](#)
[Contact](#)

Technology Fields: bioinformatics, data science and big data, AI and machine learning
Life science fields: bioinformatics research, computational biology, planetary biology

BRAZMA ALVIS

Team Leader, Functional genomics

EMBL-EBI Hinxton

The spatial localisation of gene and protein products in a cell or in an organism has a crucial importance in biology and are studied by a range of different technologies, including spatial transcriptomics and quantitative microscopy. These different types of data are collected in different bioinformatics resources, but are closely linked; In particular there is a growing need to link imaging data in BioImage Archive with spatial transcriptomics data in Expression Atlas, which will be the focus of the potential projects.



[Brazma group](#)
[Contact](#)

Technology Fields: bioinformatics, data management, image analysis

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

GUY COCHRANE

Team Leader, Data Coordination and Archiving

EMBL-EBI Hinxton

Serving a broad scientific community of data generators and consumers, Cochrane's team builds and delivers scalable open technologies, tools and services for the management, sharing, global exchange and analysis of sequence and related data. Through our diverse collaborations, these are deployed across such areas as health (e.g. the European COVID-19 Data Platform), agriculture (e.g. the FAANG Data Centre), biodiversity (e.g. the Darwin Tree of Life) and marine science (e.g. TARA Oceans).



[Cochrane team](#)
[Contact](#)

Technology Fields: bioinformatics, data management, data science and big data, software development, data standards

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

CREVENNA ALVARO

Head of Microscopy Service

EMBL Rome

As the head of microscopy, I am using my expertise in optics, programming and image analysis for two purposes: a, to further develop imaging technology; and b, to establish complex platforms such as spatial transcriptomics, tissue profiling and correlative X-ray imaging/super-resolution microscopy. I aim at bringing these services for the wider European research community through academic or industry collaborations.

Technology Fields: automation, image analysis, imaging, microscopy
Life science fields: epigenetics, tissue biology



[Microscopy
facility page](#)
[Contact](#)

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



[Crocker group](#)
[Contact](#)

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.



[Finn group](#)
[Contact](#)

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

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

FLICEK PAUL

Associate Director of EMBL-EBI Services, Head of Genes, Genomes & Variation Services

EMBL-EBI Hinxton

The Ensembl/GENCODE gene annotation, the leading reference annotation in the field of human and mouse genomics, is the fruit of 20 years of collaborative research, involving a broad network of biologists, experimentalists and bioinformaticians across the world who study all facets of gene transcription, through the convergence of a wide variety of experimental datasets (ESTs, RNA-Seq, CAGE, ChIP-Seq, etc) and computational analyses (evolution, motif discovery, etc). Our work is foundational to the majority of human and mouse genomic studies, hence our utmost efforts to reach exceptional accuracy in our annotations.



[Flicek group](#)
[Contact](#)

Technology Fields: AI and machine learning, bioinformatics, data science and big data

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

FURLONG EILEEN

Group Leader & Head of Genome Biology Unit

EMBL Heidelberg

The Genomics Technology Development (GenTechDev) Team develops a range of state-of-the-art spatial, multimodal single-cell genomics technologies (e.g. Seq-FISH+) to advance genomic research throughout EMBL, building on our rich expertise in cutting-edge single-cell genomics technology development and imaging. The GenTechDev team work closely with EMBL's core facilities to support users throughout EMBL with their experimental design, technology development and initial data analysis, helping EMBL scientists to stay at the forefront of developments in single-cell (spatial) genomics.



[Furlong group](#)
[Contact](#)

Technology Fields: bioinformatics, data science and big data, image analysis, software development

Life science fields: computational biology, genome biology, tissue 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.



[Garcia team](#)
[Contact](#)

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

Life science fields: bioinformatics research, biophysics, structural biology

HAASE KRISTINA

Group Leader, Tissue Biology and Disease Modelling Unit

EMBL Barcelona

Our group develops human disease models using primary and iPSC-derived cells and by in-house design and fabrication of novel microfluidic chips. Development of these models and associated assays (image-based and biological) are employed for vascular tissue engineering, drug development, and stem cell therapy applications and are at the core of our research. We interface with industrial and clinical partners to develop these models for practical real-world applications.



[Haase group](#)
[Contact](#)

Technology Fields: image analysis, imaging, microscopy, microfluidics
Life science fields: biotechnology, translational research, disease modelling

HUBER WOLFGANG

Group Leader, Genome Biology Unit
EMBL Heidelberg

This exciting opportunity in the group of Wolfgang Huber (www.huber.embl.de) includes development and maintenance of open source scientific software in statistics, data science and omics, and user experience improvement and training for a new, emerging national medical genome database. The engineer will work in the context of the Bioconductor network—the largest biological data science software project in the world and a vibrant international community (DOI 10.1038/nmeth.3252)—and will have the opportunity to drive forward one or more of the following topics: improved user experience, support tools for scientific developers, production



[Huber group](#)
[Contact](#)

of training and online help material, software to move forward reproducible research and open science, cloudification of research software, inter-language interfaces (R / Julia / Python / Javascript), factorization and low-dimensional embeddings of large matrices, such as from single cell multi-omics. As a contributor to the German Human Genome Archive (<https://ghga.dkfz.de>), a large national consortium to provide a data resource for human genomes and other omics data modalities for biomedical research and the future development of healthcare, he/she will be able to contribute to the development of its user experience and interface (in particular, programmatic access), training and online support material, in particular by developing example data analysis usage workflows.

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. Korbel'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 Korbel, 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 Korbel 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: automation, robotics

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



[Korbel group](#)
[Contact](#)

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



[Kreshuk group](#)
[Contact](#)

LEACH ANDREW

Head of Chemistry Services

EMBL-EBI Hinxton

We develop and deliver world-leading data and informatics resources, including ChEMBL, that enable important practical drug discovery questions to be addressed (e.g. “which target is best for this disease?”; “what molecule should I make next?”; “is this compound likely to be toxic?”). Our work involves leading technologies in cheminformatics, data science, software engineering, machine learning, AI and text analytics (among others) and team members develop skills that are in high demand in industry and academia.



[Laech team](#)
[Contact](#)

Technology Fields: AI and machine learning, software development, cheminformatics

Life science fields: structural biology, drug design, computational biology

MAHAMID JULIA

Group Leader, Structural and Computational Biology Unit

EMBL Heidelberg

Cellular cryo-electron tomography (cryo-ET) is the only method available for obtaining in situ structural information across scales - from whole cells to individual macromolecules. Fellows in the ARISE program can engage in any of the following developments of innovative technology solutions to advance in-cell cryo-ET to a higher level of robustness: engineering and 3D microprinting of tailored specimen



carriers, correlative (super-resolution) light and electron microscopy, automation of cryo-focused ion beam thinning and lamella lift-out, advanced software development for computational analysis. We are engaged in a large number of internal and external collaborations that lend our expertise to a wide range of biological questions, and work with industry partners for instrumentation development.

[Mahamid group](#)
[Contact](#)

Technology Fields: imaging, microscopy, automation, software development
Life science fields: biophysics, structural biology, computational 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



[Marquez group](#)
[Contact](#)

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 design, 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.



[Martin team](#)
[Contact](#)

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.



[Mattei team](#)
[Contact](#)

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.



[McCarthy team](#)

[Contact](#)

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

Life science fields: biophysics, drug design, structural biology

MCDONAGH ELLEN

Open Targets Informatics Science Director

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, Genetics Portal and COVID-19 target prioritisation tool 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.



[McDonagh page](#)

[Contact](#)

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

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

MCENTYRE JOHANNA

Associate Director of EMBL-EBI Services, Head of Literature Services

EMBL-EBI Hinxton

Using machine learning to find information buried in the research literature promises to change the way we do literature searching and more specifically at EMBL-EBI, will help curators add key information to data resources such as UniProt, the PDB, IntAct, and Reactome. The Europe PMC publications database provides a rich data source for the development of text mining techniques to extract key entities or assertions, rank article results, or article classification, in collaboration with one more curated data resources at the EBI.



[McEntyre team](#)

[Contact](#)

Technology Fields: AI and machine learning, data management data, science and big data, software development

Life science fields: bioinformatics research, computational biology

MÜLLER CHRISTOPH

Group Leader & Head of Structural and Computational Biology Unit

EMBL Heidelberg

Our group is pioneering the use of single-particle cryo-EM in the drug discovery process. Through the ARISE program we plan to develop a stable workflow for the high-throughput screening of ligand binding to drug targets by single-particle cryo-EM. Critical elements of the workflow comprise sample tracking throughout the workflow, automated EM grid dispensing, automated cryo-EM sample evaluation and HTP processing.



[Müller group](#)

[Contact](#)

Technology Fields: automation, data management, imaging, microscopy

Life science fields: biophysics, drug design, structural biology

PAPATHEODOROU IRENE

Team Leader, Gene Expression

EMBL-EBI Hinxton

Cellular and organismal phenotypes are described via EMBL-EBI's resources: Expression and Single Cell Expression Atlas, for gene expression; PRIDE, for protein expression. Integration in a single platform of gene and protein expression data is quite challenging, requiring novel analysis (including e.g. artificial intelligence approaches) and/or visualisation techniques for biologists to take full advantage to having gene and protein expression side by side and uncover relationships between gene and protein expression within and across different species, in baseline or diseased conditions.



[Papatheodorou group](#)
[Contact](#)

Technology Fields: AI and machine learning, bioinformatics, software development

Life science fields: bioinformatics research, computational biology

PAPP GERGELY

Team Leader, Instrumentation Team

EMBL Grenoble

Over the two past decades, the instrumentation team has developed instruments for neutron and x-ray scattering experiments with constant objectives of supporting the most challenging structural biology experiments and making the instruments available to the scientific community worldwide through services provided by synchrotron beamlines and high throughput crystallization facilities. As an example, our CrystalDirect automated harvesting technology is used at ALPX, an EMBL spinoff company (<https://www.embl.org/news/lab-matters/alpx/>), which provides MX services for drug design. Relying on patent applications, and technology transfers, most of the instruments used in Macromolecular Crystallography are commercialized worldwide (CrystalDirect™ automatic crystal harvester, HC-Lab crystal Humidity Controller, MD2S and MD3 X-ray Micro diffractometer families, BioSAXS sample changers). A similar strategy is being developed for our automated Cryo-EM sample grids preparation system.

Technology Fields: automation, image analysis, software development

Life science fields: drug design, structural biology

[Papp team – contact](#)

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.



[Pepperkok team](#)

[Contact](#)

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.



[Prevedel group](#)

[Contact](#)

Technology Fields: automation, imaging, microscopy, software development

Life science fields: biophysics, developmental biology, neurobiology

RIES JONAS

Group Leader, Cell Biology and Biophysics Unit
EMBL Heidelberg

The Ries group develops superresolution microscopy methods based on single-molecule localization microscopy (SMLM) and MINFLUX. With new optical and computational approaches, we push the resolution of microscopy towards the nanometer scale to enable imaging the structure and dynamics of multi-protein machines in cells.



[Ries group](#)
[Contact](#)

Technology Fields: image analysis, imaging, microscopy, software development
Life science fields: biophysics, cell biology, structural biology

SAWITZKE JIM

Head of Genetic & Viral Engineering Facility
EMBL Rome

For internal and external clients, the Genetic & Viral Engineering Facility design and construct new viral cargos which can be delivered to cells or mice for labelling, gene editing, epigenetic modification or gene therapy. We are also developing new technologies and methodologies using these viral tools to more rapidly, accurately, and at a higher frequency create targeted DNA changes in a way that is more accessible to a wide range of researchers.



[Sawitzke page](#)
[Contact](#)

Technology Fields: genetic engineering , virology, molecular biology
Life science fields: biotechnology, neurobiology, genome engineering

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



[Schneider group](#)
[Contact](#)

SCHWAB YANNICK

Team Leader, Cell Biology and Biophysics Unit

EMBL Heidelberg

The Electron Microscopy Core Facility at EMBL 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. Besides advanced methods for ultrastructural analysis, the EMCF is specialized in CLEM, in volume SEM and has recently developed workflows for high throughput TEM tomography data collection.

Technology Fields: automation, imaging, microscopy, software development

Life science fields: cell biology



[Schwab team](#)
[Contact](#)

SWOGER JIM

Head Mesoscopic Imaging Facility

EMBL Barcelona

The Mesoscopic Imaging Facility develops technologies such as Selective Plane Illumination Microscopy (SPIM), Optical Projection Tomography (OPT), and related sample handling protocols that allow optical characterization of meso-scale biological samples. Our developments are made available through the Facility to scientists both within EMBL and in the international research community.



[Swoger team](#)
[Contact](#)

Technology Fields: imaging, microscopy, optical instrumentation development

Life science fields: developmental biology, tissue 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.



[Trivedi group](#)
[Contact](#)

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

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.



[Velankar team](#)
[Contact](#)

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.



[Vizcaíno team](#)
[Contact](#)

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

Life science fields: bioinformatics research, computational biology, proteomics

ZERBINO DANIEL

Team Leader, Functional annotation of sequence variants and non-genic regions

EMBL-EBI Hinxton

My group focuses on the gene expression regulation mechanisms that guide the behaviour of cells as they differentiate and adjust to local conditions. We describe the genome's promoters and their enhancers by aggregating large arrays of multi-omic datasets (ChIP-Seq, DNaseI Hypersensitivity, ATAC-Seq, single-cell assays, eQTLs etc) into a structured Ensembl database, using a diversity of machine learning and visualisation approaches.



[Zerbino team](#)
[Contact](#)

Technology Fields: AI and machine learning, bioinformatics, data science and big data

Life science fields: bioinformatics research, computational biology, epigenetics

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.



[Zimmermann](#)
[group](#)
[Contact](#)

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



[Zimmermann team](#)

[Contact](#)