Euro-BioImaging
European Research Infrastructure for Imaging Technologies in Biological and Biomedical Sciences

Interim Operation

Guidelines for User Access at High Throughput Microscopy EuBI Node Candidates

March 2016

The following guidelines are based on the principles that have been developed by the EuBI Preparatory Phase I consortium and guided successfully visiting scientists during the Proof-of-Concept Studies at participating High Throughput Microscopy (HTM) Facilities of several research institutions, such as e.g. the EMBL Heidelberg.

1 Guidelines for user access to a High Throughput Microscopy (HTM) Euro-BioImaging (EuBI) Node Candidate

1.1 General outline of the project schedule

1. The user interested to conduct a project at an HTM EuBI Node Candidate can learn about the respective facilities on the EuBI web access portal. **It is strongly recommended that the user contacts informally the Node Candidate of interest** to enquire about the feasibility to conduct the project in this place, to explore the possibilities also for scientific support and to estimate together the approximate user access costs.
2. For entering the formal procedure to apply for access, the user submits a concise application via the online EuBI web access portal, including a project milestone plan to the EuBI Hub. The application can include the specific request for accessing a pre-identified Node Candidate.
3. In a first step, the user application is then scientifically evaluated by an independent board of senior scientists representing a broad scope of scientific disciplines and imaging technologies offered by EuBI.
4. After positive evaluation the user application is then forwarded to the Node Candidate for their technical evaluation and feasibility check. The Node Candidate will contact the applicant, e.g. via Skype, to clarify potentially unclear issues. If the Node Candidate approves the application in this second step, the user is invited to visit this HTM EuBI Node Candidate and conduct the project work.
5. Due to space and personnel constraints each Node Candidate defines the number of external visitors who can be accepted for user access in a given period of time. The HTM EuBI Node Candidate makes every effort to host the scientist as soon as possible after application to maintain scientific competitiveness.
6. The logistics of the visit (e.g. accommodation, travel, shipment of reagents) should be arranged in communication with facility staff of the Node Candidate.
7. The access to HTM instrumentation is conducted in the facility of the HTM EuBI Node Candidate supported by the scientific environment when feasible.
8. After completion, the user will be asked to provide standardized feedback on various issues of his/her stay.
9. In the post visit period the scientist will inform the EuBI Hub when the results obtained at the EuBI Node Candidate are published in scientific journal(s) with appropriate mentioning of the support provided by the HTM EuBI Node Candidate in the acknowledgement section of the article and co-authorship where appropriate. Such outputs will be recorded in EuBI annual reports.

1.2 Application Guidelines

The user will send the brief application for access via a standardized template on the EuBI Web Access Portal. The application includes the following items:

1. A short CV of the applicant.
2. A short scientific project description containing the following information:
    - Project title
    - Scientific background of the project
    - Description of work proposed to be conducted at the HTM EuBI Node Candidate
    - Importance of the project for the overall research of the scientist
    - A milestone plan of the project with clear deliverables and routes for exit if the milestones are not achieved.
3. Further information requested
    - Equipment/technology that is envisaged to be used
    - Consent to cover part of the access costs, which will be charged to the application's institution. This amount will be negotiated with the EuBI Node Candidate granting access, after the full technical details of the project are defined and agreed
    - Previous experience of the applicant in light microscopy techniques (in particular the one that he/she intends to use at the HTM EuBI Node Candidate)
    - Biological hazards associated with the project
    - Agreement to acknowledge the HTM EuBI Node Candidate in publications resulting from data obtained during the visit with co-authorship where appropriate
    - In case the applicant is not a principal investigator: approval of the scientist's PI supporting the visit to the HTM EuBI Node Candidate

1.3 Evaluation Guidelines

The project application will be evaluated independently by scientific experts according to the following criteria:

1. Scientific excellence

- Significance/importance of the project in the context of international research and standards in the field
- Relevance/contribution of the project to the scientist's overall scientific work/interests
- Progress beyond state-of-the-art
- Relevance of the project's results for inclusion in future scientific publications
- Scientific quality of the research and study concept
- Benefit for applicant (e.g. training received, results obtained, scientific networking started, being able to apply for his/her own grant)
- Impact of project on field of science, economy and society

2. Feasibility of the project

- Feasibility of the project to be successfully conducted at the EuBI Node Candidate
- Availability of required technologies and expertise at the EuBI Node Candidate
- Availability of possible required supporting laboratory or animal facilities for the project
- Technical ability of the applicant to conduct the planned experiments, or the possibility to acquire the required skills in the time frame of the proposed project
- Reasonable estimation of project duration, and availability of the EuBI Node Candidate during the proposed time frame
- Reasonable estimation of project costs and coverage by the scientist
- Necessity to conduct the research at the requested EuBI Node Candidate (or could the applicant conduct the work at another EuBI Node Candidate that would be closer to his/her home laboratory, or that would be more qualified for the specified application)

If any of the questions above are evaluated as not feasible or insufficient, the application will be rejected.

1.4 Specific guidelines for user project management at HTM EuBI Node Candidates

1.4.1 Reporting and management during the HTM-based project

Project meetings will be held according to the milestone plan to discuss whether the respective milestone could be achieved (please see Appendix for exemplary milestone plan). If necessary, the timelines of the project and the milestone plan will be adapted accordingly, or the project will be terminated. Participants (also via teleconference) of these project meetings are: The scientist(s) conducting the project, the project supervisor at the home institution, and the facility staff of the HTM EuBI Node Candidate. A brief meeting report is generated by the meeting participants for documentation of the progress of the project.

1.4.2 Reporting after project completion

After access completion, the user is asked to report on the visit, the impact the results have on his/her future work, the quality of the scientific, technical and logistic support from the HTM EuBI Node Candidate and the respective research institution. The survey will be provided online by the EuBI Hub.

- Type of instruments used
- Satisfaction concerning given advice and information on usage of most appropriate imaging instrument(s)
- Satisfaction concerning logistic support at the facility (office space, computing, libraries, accommodation)
- Satisfaction concerning technical support to make best use of the imaging instrument(s)
- Satisfaction concerning training (if received) in imaging technology
- Satisfaction concerning scientific support to set up the experiments and interpretation of results
- Rating of scientific impact of imaging infrastructure usage on the project
- Satisfaction concerning administrative support

- In the future: List of publication(s) containing project results based on using HTM EuBI Node Candidate instrument(s)

APPENDIX 1

Example for a high throughput microscopy project milestone plan

Project title:
Identification of protein kinases/phosphatases with a role in Golgi structure and function

Aims of the project:
A human kinome and phosphatases targeting siRNA library will be screened for siRNAs that interfere with the morphology of the Golgi complex in a high-throughput laser scanning confocal-microscopy–based time-lapse assay. Identified hits will be further tested to interfere with the ER to Golgi transport of ts-O45-G by high throughput time-lapse spinning disk microscopy.

Estimated project duration:
In total the project is expected to last for 15 months. The total time spent in the facility of the ALM EuBI Node Candidate is estimated to be around 9 months.

Milestone plan:
MS1 (M6): Reagents
Establishment of a stable HeLa cell line expressing dsRed-H2B and GFP- GAnlNacT2.
This work will be conducted at the home institution.

Risk assessment and exit routes
If the establishment of the cell line fails, the project will be terminated. If it is delayed, following milestones will be delayed accordingly.

MS2 (M7): Laboratory assay
Establishment of the laser scanning microscopy based time-lapse imaging conditions for Golgi and H2B (in the facility of the ALM EuBI Node Candidate). Important feasibility controls include Golgi fragmentation kinetics after noccodazole treatment and unperturbed cell cycle progression of untreated cells under the imaging conditions.

Risk assessment and exit routes
If the establishment fails, the project will be terminated. If it is delayed, following milestones will be delayed accordingly.

MS3 (M10): High throughput microscopy assay
Establishment of automated high throughput image acquisition conditions such that existing image analysis procedures (available for Golgi analysis in the in the facility of the ALM EuBI Node Candidate) will be able to score well known Golgi phenotypes (siRNA targeting PLK1, GM130, GMAP210).

Risk assessment and exit routes
If the establishment fails, the project will be terminated. If it is delayed, following milestones will be delayed accordingly.

MS4 (M12): Pilot screen
Completion of a pilot screen testing for 20 siRNA known to affect Golgi morphology using the developed high throughput assay.

Risk assessment and exit routes
If the establishment fails, the project will be terminated. If it is delayed, following milestones will be delayed accordingly.

MS5 (M14): High throughput screen
Completion of the siRNA screen testing a human kinase and phosphatase library (available at the ALM EuBI Node Candidate) for effects on Golgi morphology using the developed high throughput assay. The screen will comprise three successfully analysed replicates.

Risk assessment and exit routes
If this fails, the project will be terminated. If it is delayed, following milestones will be delayed accordingly.

MS6 (M15): Secondary screen
Completion of the siRNA screen testing the primary hit siRNAs in a secretory transport assay (ts-O45-G) well established in the ALM EuBI Node Candidate.

Risk assessment and exit routes
If this is delayed, following milestones will be delayed accordingly.