

## Implementation of the Quality Framework for Doctoral Training at Luxembourg Institute of Health

**Introduction: Doctoral education at LIH.** Since its creation in 1988, [LIH](#) is engaged in training doctoral candidates affiliated to universities in the Greater Region and beyond. Doctoral education is a mission defined by law and a key performance indicator in the LIH's performance contract with the Government. With regards to FNR's requirements for the new doctoral funding scheme PRIDE, LIH has developed a quality framework for doctoral training (QFDT). It shall to be complementary to that of PhD-awarding institutions. LIH will apply it to all its PhD candidates, regardless of funding source and university affiliation. All measures and procedures of the QFDT will be fully implemented at the latest at the onset of PRIDE (Q2 2016). A PhD training coordinator is in charge of completing the set-up of the QFDT and overseeing its consistent application. With this structured framework, it is warranted that LIH's doctoral candidates will complete their PhD with a wealth of scientific and transferable competences rendering them competitive for the labour market of both the public research and the industrial sector. The key elements of LIH's QFDT are described in the following sections. A more detailed description, an implementation plan in the form of a table and all institutional documents related to doctoral education are downloadable on a [webpage](#).

**Doctoral research environment and management.** LIH offers a highly stimulating research environment for early-stage researchers who want to specialise in biomedical, clinical, epidemiological or public health research. The institute has 3 thematic research departments (Infection & Immunity, Oncology, Population Health) and comprises a biobank, the Integrated BioBank of Luxembourg (IBBL). Its administrative services and part of the research units hold an ISO 9001:2008 certification. The research facilities, located on 3 campuses (Strassen, Eich, Esch-sur-Alzette) fulfil security norms and offer sufficient laboratory and office space. LIH comprises state-of-the-art technology platforms (cytometry, confocal microscopy, magnetic resonance imaging, analytical chemistry, genomics and proteomics) and an animal facility for experimentation with rodents and zebra fish.

The [Findit](#) portal of the Luxembourg National Library (BNL) gives access to research documentation. Currently, the portal provides access to the full text of 53,000 electronic journal titles, 93,500 science eBooks and several hundred specialised databases and reference platforms.

Good internal communication is ensured by an Intranet platform that allows sharing news and contains a document management system with all institutional policies and procedures. Numerous scientific meetings, courses and workshops as well as two major yearly social events gather LIH staff. In the frame of FNR-supported lecture series and other seminars, open to everybody and widely advertised, researchers can exchange with high-level scientists from abroad. PhD candidates are furthermore encouraged and enabled to attend the scientific events organised by their university.

The interplay and efficient communication flow between the stakeholders involved in doctoral training guarantee a good quality control at all levels of doctoral management: at the level of the PhD candidate and the supervisory team, the DTU (or other consortia), LIH and the PhD-awarding institution. Quality of doctoral training will be assessed throughout the doctoral life cycle. Within the university, it is ensured by the doctoral schools, the thesis supervisory committee (TSC, i.e. CET at UL) and the thesis assessment committee (TAC). In case a university at which an LIH PhD candidate is enrolled does not have specific TSC rules for the yearly monitoring of performance and project progress, LIH has developed a mandatory

procedure for TSC formation and functioning. For internal quality monitoring, the PhD training coordinator will conduct yearly electronic and/or face-to-face surveys with PhD candidates, supervisors and managers (DTU coordinators/heads of research unit or department) as of 2016. Precise questions on all aspects of doctoral training will allow assessing the quality of supervision, training courses, work environment and doctoral management. Quality indicators will be developed and a yearly report will be handed to the Executive Committee and Quality Management, who shall give advice on any necessary improvements.

**Recruitment and admission into doctoral training.** Since 2009, the institute conforms to the [European Charter](#) for Researchers and holds the 'HR Excellence in Research' label. LIH has a general recruitment procedure guaranteeing a transparent and fair-minded recruitment process. PhD candidates will be recruited by a selection committee composed of scientific experts and an HR representative. The latter has a consultative role and ensures the consideration of gender balance as well as the absence of employment discrimination and inappropriate interview questions.

To recruit the best candidates, PhD positions will be broadly advertised (website, social media pages, ADEM, [Euraxess](#) portal, science and PhD job portals, researchers' network). In the context of PRIDE, a pool of positions can be advertised in a single job offer and recruitment can be organised in cohorts.

In the context of PRIDE, the thematic fit, scientific quality and feasibility of PhD projects will be evaluated within the DTU. The Research and Knowledge Transfer Office (RKTO) can assist the DTU in projects evaluation, especially for the identification of the potential for socio-economic value creation. When pertinent, projects are also reviewed by the Methodology and Statistics team for feedback on the best suitable experimental design. Additionally, the PhD-awarding institution evaluates the suitability of PhD candidates and projects and decides on the final admission into doctoral training.

At LIH, doctoral candidates have a clear status as early-stage researchers. Since 2009, they are offered an employment contract which covers the whole PhD period (3 years +/- 1 year extension). As all newcomers, they participate in a 1.5-day induction, organised 3x/year, during which the scientific departments and the administrative and research-support services are presented. Moreover, they meet the PhD training coordinator individually for an introduction to the doctoral training environment.

**Supervision.** LIH has established general principles on the responsibilities of the PhD candidate, the PhD (co-)supervisor and the PhD training coordinator. The institute has also formulated specific criteria defining who is entitled to be a junior/senior supervisor. Supervision can be done by a single qualified person or a supervisory team with a clearly identified main supervisor. In case a main supervisor is not able to continue supervision for justified reasons, this task must be taken over by another member of the supervisory team. Upon the start of PRIDE, the establishment of a modifiable supervision agreement between PhD candidate and supervisory team will become compulsory. The agreement will contain all stipulations requested by FNR and will be based on the template of the Doctoral Education Agreement of UL.

In case of conflict between PhD candidate and supervisor(s), two contact points are advised: the HR manager for personal and workplace-related issues and an appointed mediator for scientific disagreements. Both will apply the same mediation guidelines (in development). Alternatively, the PhD candidate can make use of the mediation offer of his/her doctoral school/university.

PhD supervisors are evaluated within the internal quality monitoring process (surveys). As of 2016, a specific training course on PhD supervision will be proposed to supervisors and potential supervisors.

**Skills training and professional development (addressed in detail in section 2).** Every starting PhD candidate must be affiliated to a doctoral school/programme offering a palette of scientific, transferable skills and career development courses for which ECTS credits are granted. In parallel, LIH proposes its yearly coursework series '[Training & Workshops](#)'. For career orientation, LIH offers workshops in the frame of its lecture series (exchange with speaker on academic careers). From 2016 onwards, LIH will also organise biannual encounters with PhD holders from non-academic sectors to create awareness on alternative careers. In addition, the PhD training coordinator informs about relevant regional career events. PhD supervisors shall encourage teaching activities and supervision of trainees for their PhD candidates. The teaching load will be defined in the supervision agreement. Furthermore, PhD candidates are engaged in outreach activities (e.g. Science Festival, LIH Open Day, school visits) as organisers, speakers and/or facilitators. For this, they can benefit from logistic support and advice of the Communication Unit.

**Dissemination.** PhD candidates communicate their results to the scientific community by means of publications and oral/poster presentations. To avoid any early public disclosure of IP that would prevent further patent protection, PhD candidates, as all LIH employees, have the obligation to inform RKTO at the time of submitting any paper or abstract, as described in the 'IP protection policy for scientific publications and abstracts'. Furthermore, a policy regulating authorship on publications, based on the 'Vancouver recommendations', is currently being established to be applied from 2016 onwards. The Communication Unit gives support for the dissemination of results to the lay public (e.g. by newsletter, press release). The RKTO proactively traces research results that give scope for translation into socio-economic value and provides support in all steps of knowledge transfer. Rules on IP protection and ownership are clearly defined in a knowledge transfer policy.

The universities at which doctoral candidates enrol ensure that PhD theses are made publicly available as electronic file (and paper version) after an embargo period not exceeding two years.

**Good practice in research.** By signing a work contract with LIH, a PhD candidate accepts complying with the ethical standards of the researcher profession. PhD supervisors take the prime responsibility for their doctoral candidates to conduct research according to these standards. An ethical charter is part of LIH's internal regulations (ROI, in development). For animal experimentation, a specific ethical charter is available. If applicable, the main supervisor ensures that the PhD project is declared to and approved by ethics and data protection committees.

LIH promotes the responsible conduct of research in its ROI and has no tolerance for scientific misconduct. A procedure on management and investigation of suspected scientific misconduct as well as guidelines to avoid plagiarism are in place. With the onset of PRIDE, all PhD candidates will be asked to take training in ethics and responsible conduct e.g. the two-day course 'Good Scientific Practice' offered by UL.

**Thesis assessment committee and procedures.** The procedures are defined by the university at which the PhD candidate is registered. LIH will recommend that the committee contains at least one member external to the university and to the institute in order to guarantee objectivity and adequate quality control.

**Additional approaches for the QFDT.** LIH aims to valorise the PhD candidate's employee status by two new measures: the appointment of a representative for doctoral and postdoctoral researchers (elections in 2016), and the integration of PhD candidates into the staff appraisal system that will be implemented in January 2016.