iMED Critically Thinking Science - International Doctoral Program in Molecular Mechanisms of Disease

iMED APPLICANTS' GUIDE, 2ND COHORT 2020

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UNIVERSITY OF COPENHAGEN

GENERAL DESCRIPTION OF THE PROGRAMME

12 PhD positions are now open at the Biotech Research and Innovation Centre (BRIC – www.bric.ku.dk), University of Copenhagen (UCPH) for talented young researchers who want to pursue a PhD degree in life sciences. In this 2019-round, priority will be given to recruit PhD student to the following laboratories: Andersen, Arnes, Brakebusch, Engelholm, Frödin, Grønbæk, Issazadeh, Khodosevich, Porse, Sørensen, Weischenfeldt and Won. The scheme is co-funded by the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement no. 801481.

The **International Doctoral Programme in Molecular Mechanisms of Disease (iMED)** will recruit 24 international doctoral fellows in total to BRIC, UCPH. 12 fellows were recruited in 2019, and 12 more to be recruited in 2020. The fellows will formally be enrolled in the PhD programme Molecular Mechanisms of Disease (MoMeD – www.momed.ku.dk) with currently 125fellows, in order to obtain a PhD degree upon successful completion of their fellowship. MoMeD is one out of 22 programs under the Graduate School of Health and Medical Sciences counting 1600 PhD fellows.

Host institution: BRIC is a Centre of Excellence initiated in 2003 by the Danish Ministry of Science, Technology and Innovation. BRIC has around 250 employees and 24 independent research groups. BRIC's overall strategic mission is to perform cutting-edge disease-oriented biomedical research within cancer, metabolic and neurological diseases. The centre is internationally recognised as a leading player in a variety of disciplines including epigenetics, chromatin biology, RNA biology, stem cell research, cancer biology, invasion and metastases, neuro-degenerative diseases and bioinformatics.

Programme vision and content: iMED, is an international competitive doctoral training programme with the ***VISION*** **that the next generation of researchers should possess the abilities to perform and connect excellent science to exploitation and value for the surrounding society.**

Training activities includes:

1 Individual interdisciplinary research projects within molecular mechanisms of disease
2 Interdisciplinary co-supervision
3 International secondments and international co-supervisor
4 Transferable skills training (project management, science communication, commercialisation etc.)
5 Dedicated career development programme (peer-mentoring, career mentoring, competence mapping, career seminars etc.)

Supervision: Each fellow will be supervised by a team of three supervisors. The main supervisor will be a BRIC PI with expertise in the core of the fellow's project. An external interdisciplinary co-supervisor will ensure supervision in the interdisciplinary aspects of the project and an international top expert based in another country, will co-supervise the fellow to ensure an international level of the research project.

Partner Organisations: A number of Partner Organisations (Novo Nordisk A/S, Roche Innovation Centre Copenhagen A/S, Sunstone Ventures, Videnskab.dk, EU-LIFE) will offer transferable skills training, career activities and secondment opportunities.

COMPETENCES AND TRAINING PLAN

The iMED training activities include 1) **training-through-research** at host institution and through **international secondments**, 2) course-based and hands-on **training in scientific and technical skills, open science and transferable skills** and 3) through participation in a **career development programme**. Training is primarily delivered by the host institution (BRIC and UCPH) and the iMED partner organisations (POs). Some activities are mandatory for all fellows, whereas others are voluntary and will be planned according to the research project, fellow background and interest.

iMED training plan

	Year 1	Year 2	Year 3
Research skills training	**Training through research and courses (BRIC, international host, UCPH, EU-LIFE):** • Interdisciplinary research project • International research visits • Specific scientific and technical courses		
	Open science training - Workshop/course/hands-on activity (BRIC, UCPH): • Good scientific conduct, ethics & research integrity • Data management • Open access publishing		
Transferable skills training	**Mandatory courses/workshops/hands-on activities (BRIC, POs):** • Project planning & management 1		
		• Entrepreneurship and commercialisation	
			• Project Planning & Management 2
	• Dissemination, communication and outreach		
	Voluntary courses/workshops (BRIC, UCPH, POs): • Pitch training (PO) • Tutoring and supervision (BRIC) • Scientific writing skills (BRIC) • Oral presentation (UCPH) • Grants writing (UCPH) • Leadership in academia (UCPH)		
Career development programme	• Career development plan • Peer-mentoring		
		• Career day: Alternative career options, competence mapping etc. (BRIC, POs and iMED fellows)	
			• CV writing and interview training course (PO)
		• Career-mentoring (BRIC alumni)	
	Lecture series and seminars (Internal and external PIs, BRIC alumni. LIBRA): • 'The academic route to PI´ • ´My life in science´		
Summer schools	**Annual summer school for all iMED and MoMeD students:** • Research training (poster and oral presentation) • Career programme (alternative job opportunity seminars, informal 'career cafes' with PIs etc.) • Translational skills trainings		

Dark blue: mandatory, light blue: voluntary activity. POs: Partner Organisations

Competences

The training programme will support competence-building in six main areas important for the fellows' successful completion of their iMED fellowship and for their future career: Research abilities, innovation and entrepreneurship, communication and dissemination, research governance, collaboration and personal competences.

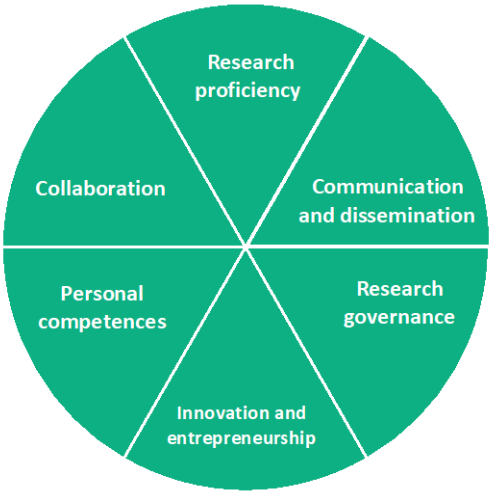

Figure 4. Fellow competences

Research proficiency: Scientific knowledge and method, good analytical skills, lateral thinking, and advanced research technologies

Communication and dissemination: Public responsibility and engagement, media types, journalistic writing, oral and written scientific presentation

Research governance: Professional conduct, ethics, data, risk and project management, gender and sex in research, open access

Innovation and entrepreneurship: Pitching, developing and protecting ideas and inventions, IPR in collaborations, commercialization of inventions

Personal competences: Prioritization, time management, self-reflection, responsibility, engagement, mentoring skills, life balance

Collaboration: Team work, equity and diversity, stakeholder awareness, international and intersectoral understanding, organisation skills

Career Development Plan

An individual **Career Development Plan** (CDP) will be developed within the first three months of the training phase. The fellow is responsible for CDP development, in dialogue with the main and co-supervisors. The CDP shall contain a detailed description of the research project and a training plan describing courses and activities planned to secure progression of the research project (e.g. specific scientific and technical courses) and fellow career development (transferable skills training and career activities). Planned secondments (scope, place, timing and duration) needs also to be well-described.

HOST ENVIRONMENT, RESEARCH OPPORTUNITIES, TECHNOLOGIES AND SERVICES

BRIC is a centre of Excellence initiated in 2003 by the Danish Ministry of Science, Technology and Innovation. BRIC has app. 210 employees and 24 independent research groups, with 60-65% international researchers. The work environment is open, informal and collaborative.

BRIC's research groups follow the overall strategic mission of performing cutting-edge disease-oriented biomedical research within cancer, metabolic and neurological diseases. The centre is nationally and internationally recognised as a leading player in a variety of disciplines including epigenetics, chromatin biology, RNA biology, stem cell research, cancer biology, invasion and metastases, neuro-degenerative diseases and bioinformatics. BRIC's researchers have contributed with crucial insight into the basic understanding of how and why diseases occur, have discovered new disease-related genes, identified new diagnostic markers and clinical targets, which are essential to provide more efficient treatment. **iMED's research programme focuses on molecular mechanisms of disease**, matching the strategic mission and strengths of BRIC.

BRIC occupies 9000 sq.m. of modern laboratories and offices in the Copenhagen Biocenter , which is located in UCPH's natural and medical sciences campus. BRIC offers state-of-the-art facilities, including eight well-organised core facilities (High-throughput screening, FACS, sequencing, light-microscopy, in-vivo imaging, histology and bioinformatics, single-cell facility). The core facilities, including expert training, are open to all BRIC researchers and students. Also, all larger equipment at BRIC is common and available to all, even when purchased by a single or few laboratories. Further, BRIC's researchers have access to a number of core facilities at the faculty of Health and Medical Sciences , where we primarily use the animal facility (Department of experimental medicine) and the Core Facility for Transgenic mice.

BRIC research groups recruiting for an iMED student in 2020

For details on BRIC's research groups and research areas see www.bric.ku.dk/Research/. Below is a table with an overview of the recruiting group´s research areas. To read more about the proposed projects please consult the iMED website: www.imed.ku.dk

Recruiting Group	**Recruiting Group**
Main Research areas	**Main Research areas**
Andersen Group	**Issazadeh-Narvikas Group**
Molecular pathogenesis of malignancies in the hepatobiliary. Keywords: Translational genomics, precision medicine, patient characterization and stratification, drug resistance	Our research team puts emphasis on understanding the basic signaling pathways involved in maintenance of central nervous system (CNS) homeostasis, its importance to interact with immune system, to prevent Neuroinflammation, and Neurodegeneration.
Arnes Group	**Khodosevich Group**
Pancreas Development, Pancreatic Cancer, long non-coding RNAs, Cell fate, transcriptional regulation.	Brain development, mental disorders, neuron types.
Brakebusch Group	**Porse Group**
Rho GTPases, genetically modified mice, skin inflammation, skin cancer	Hematopoietic stem cells, Leukemic stem cells, epigenetic regulators
Engelholm Group	**Sørensen Group**
Cancer research, cancer invasion, extracellular matrix remodelling, tumour microenvironment, Antibody Drug Conjugates (ADC's), animal models	DNA replication stress and DNA damage response pathways, cell cycle control, epigenetics, Familial breast cancer, precision oncology
Frödin Group	**Weischenfeldt Group**
Kinase signaling, functional cancer genetics, drug target identification, liver cancer mouse models, CRISPR-based genome editing (in cells/in vivo/methods development).	Tumor evolution, genomic rearrangements, mutational processes, cancer-associated chromatin conformation changes, precision oncology
Grønbæk Group	**Won Group**
Kinase signaling, functional cancer genetics, drug target identification, liver cancer mouse models, CRISPR-based genome editing (in cells/in vivo/methods development).	Single cell genomics. Computational biology. Systems biology

Institutional administrative support, services and facilities

BRIC has a well-developed administration, supporting the centre's researchers. The support is located in conjunction with BRIC's research laboratories and offices. The support includes the service listed below. As part of UCPH and the Faculty of Health and Medical Sciences, BRIC is further supported by central departments taking care of HR, IT and financial management of externally funded projects. In addition, UCPH has a dedicated EU office, a Technology Transfer Office and an International Staff Mobility Office who will all support the programme.

- **Laboratory service**: Work safety, equipment repair, dishwashing, purchase of lab reagents etc.
- **Front office/secretary support**: Office supplies, organisation of seminars, conference support etc.
- **Financial support**: Overview of grant portfolio and budgets, budgets for grant applications etc.
- **Grants office**: Information on grant opportunities, feedback on application, communication with funding bodies, career guidance for young researcher related to grant strategy etc.
- **PhD and postdoc training coordination**: Coordination and implementation of courses, handling of enrolment, guidance of fellows on administrative matters etc.
- **Communication and outreach support**: The support is focussed on science communication and organisation of outreach activities to the broad public in collaboration with BRIC's researchers.
- **Scientific project management**: A team of coordinators with a background in natural and medical sciences offer project management support to PIs coordinating larger projects and programmes. The COFUND administrative officer will be part of this team.

Student and postdoc association (ASAP)

ASAP is a volunteer-based organization open for all students and postdocs at BRIC. ASAP offers career oriented actitivties (seminars with companies, scientific writing courses etc), mentorship for new-comers and social events (movie nights, Friday cafees, quiz nights etc).

EVALUATION AND SELECTION

Eligibility criteria

1) **International mobility:** Candidates can have any nationality but must undertake transnational mobility according to the MSCA rules (must not have resided or carried out their main activity in Denmark for more than 12 months in the three years prior to the call deadline). Also, applicants working at UCPH for more than 3 months before the deadline will be considered ineligible.

2) **Education:** Candidates must hold a **master's degree** (or equivalent) at the time of application*. They should have obtained their degree no longer than three years before application deadline. Candidates holding an MD will be able to apply until five years from obtaining their degree, to meet the different career path of this group of candidates. Exceptions to these rules are made for applicants with prolonged career breaks due to parental leave, illness or mandatory military/civil service (documentation required as part of the application). Also, **candidates must not already have obtained a PhD degree**.

***Application without a final master degree diploma is feasible, but the thesis should be defended and the diploma issued no later than October 15th, 2019, so that the diploma (or other official documentation of the obtained degree) is available at the site visit October22-23rd in case the applicant is called for an interview.*

Application requirements and how to apply online

Application can only happen online via the link on the iMED homepage. A complete set of application material submitted in due time is required to be eligible:

- **Online application** form including personal details
- **List with names and contact information of minimum one, maximum two referees**, whereof one should preferably be the master thesis supervisor, or other senior scientists that the candidate has worked closely with. The Reference template available on the iMED homepage should be used and uploaded under the field 'references' in the online application system. References will be directly obtained from the referees by the iMED coordinator.
- **A declaration of eligibility** signed by the candidate. The eligibility template available on the iMED homepage should be used and uploaded under the field "Decleration of Eligibility" in the online application system.
- **Degree diplomas.** To be uploaded under 'diplomas' in the online application system.
    - **English Language Skills.** You need a test of your English skills unless you belong to one of the following categories:
    - You come from a country where English is the official language.
    - You come from an EU or EEA country.
    - You can document that English was the language of instruction during your BSc or MSc education (please enclose documentation with your application, upload under "other relevant materials").

    We only accept TOEFL or IELTS test results. Please enclose copies of the test results and certificates with your application. Language tests older than two years are not accepted. Students must have a minimum score of 6.5 in IELTS, 560 in the written TOEFL test or 83 in the online TOEFL test.

- **Documentation of career breaks** (leave of absence), if any. In the online system, if choosing yes in the drop-down menu for leave of absence, the time period needs to be indicated and documentation uploaded under the field 'other relevant materials'.
- **Curriculum Vitae** outlining;
- bio sketch incl. short and long-term career perspectives
- publications
- research experience
- fellowships and awards
- scientific communication (oral and poster)
- other professional merits (teaching, supervision, technology transfer activities, outreach activities, mobility experience)
- Motivation letter (cover letter) outlining (max 1 page);
- the candidate's general motivation for taking on doctoral training
- specific motivation for applying to this programme, indication of four-five laboratories at BRIC (prioritized list), that the candidate would like to join
- outline of main research interests the fellow would like to address in the indicated host laboratories, if selected for a fellowship

Selection process

The selection workflow is split in four stages as outlined in the figure below and will be based on clear evaluation criteria and scoring (1-5) in each round of evaluation (preselection, shortlisting, final scoring).

Eligibility check: Upon deadline, eligibility will be checked of all submitted applications. Applicants are informed if their application is ineligible and should not expect further with regard to their application.

Shortlisting: The selection committee will evaluate all eligible applications based on the application material using the predefined selection criteria and score them from 1-5. Each application will be evaluated individually by two members. The academic officer will collect all scores. If large discrepancies exist between the two scores of the same application, a third member will be asked to evaluate the application. The committee will rank the candidates scoring ≥3 and shortlist among these up to 48 for assessment and evaluation. Candidates scoring below 3 cannot be shortlisted. All shortlisted candidates will be assessed according to the Ministry Order on the Appointment of Academic Staff at Universities 2012 and the University of Copenhagen's guidelines 2013. The assessment will conclude whether the individual candidate is formally qualified for the positions. The candidates will be informed of their own assessment with the possibility to comment on errors.

Evaluation step 1: Shortlisted qualified candidates will be invited for skype interviews with two IPC members. The interviews will be held using standardized interview guides to make interviews as comparable, fair and unbiased as possible. After the skype interviews, each interviewing committee member score the interviewed candidates. The academic officer collects all scores and if large discrepancies are found between two interviewers' scoring, a consensus meeting will be held. A ranking list will be made including only candidates with a score of ≥3 and invitation of up to 2x12 candidates for site visits will be made for each call. Candidates not selected for site visits, will be informed and a redress opportunity will be provided.

Evaluation step 2: Selected candidates are invited for a site visit to BRIC, to interview with the IPC committee and individual recruiting BRIC group leaders. The committee interview will consist of a short presentation of the candidate's master thesis project, a short chalk-talk presenting an original predefined scientific article and an interview session. Immediately after the interviews, each committee member scores individually the interviewed candidates. The academic officer collects all scores and if large discrepancies are found between interviewers' scoring, a consensus meeting will be held. Candidates scoring ≥3 in the interview are considered qualified to be considered for a fellowship and will be ranked according to their scores, whereas fellows scoring below 3 cannot be considered for a fellowship. The candidates will also have interviews with the individual group leaders indicated on their priority list, will visit BRIC's facilities, be introduced to the iMED programme, employment conditions and settlement as a foreign researcher in Copenhagen and meet with BRIC student representatives.

Final selection. .

All candidates will be evaluated using the predefined scoring of 1-5 in all evaluation phases. Only candidates scoring ³3 will pass to the next evaluation/selection phase. At the site visit interviews, all candidates scoring ³3 will be considered as qualified to for a fellowship and pass to the final selection. The final selection of the candidates to be offered a fellowship, will besides the site visit scores, depend also on the individual matching of the candidates' and host groups' priorities Candidates not selected will receive their individual score and be informed of the opportunity to redress.

Rectification/redress: For questions on eligibility candidates can by email address their concern. The questions will be handled by the management team. In relation to evaluation, UCPH has a consultation procedure where all applicants for positions are heard in relation to their evaluation and has an opportunity to make rectifications.

Evaluation criteria

To make the selection transparent and merit-based, the following three categories of weighed criteria will form the basis for candidate selection. Each criteria category will be **scored from 1-5** (see below). Only candidates

with a score of ≥3 will be ranked and can pass to the next evaluation step. At the stage of short-listing and for evaluation step 1, all three categories will be evaluated. For evaluation step 2, only categories 2 and 3 will be evaluated.

CRITERIA

Category 1: Education and track record (70% of score at shortlisting and evaluation step 1)

Master degree in a field relevant to the proposed research field the candidate wishes to engage in during the fellowship (Candidates can swap to another research field than that of their master degree, however, they need a sufficient background to address the proposed research question, for feasibility of the project and expected career development)

- Grades obtained during education
- Experience with original research project for master thesis
- Other research experience
- Publications
- Fellowships and awards
- Scientific communication (oral and poster)
- Other professional merits (teaching, supervision, technology transfer activities, outreach activities, mobility experience).

Category 2: Scientific potential (70% evaluation step 2)

- Outcome of master thesis (grades, outcome in terms of exploitation and communication)
- Scientific communication skills (chalk talks at site visit)
- Ability to reflect and form scientific ideas (Presentation of previous research and the research question(s)/ideas the fellow would like to address if selected for a fellowship during skype and site visit)
- Scientific abilities and competences obtained in previous work (reference letters)

Category 3: Motivation (30 % of score at shortlisting and evaluation step 1, 30% evaluation step 2)

- The candidate's general motivation for taking on doctoral training
- The candidate's specific motivation for applying to this programme and for joining the specified laboratories at BRIC

SCORING

5: Excellent. The candidate meets all the selection criteria in the category with high quality and any shortcomings are minor.

4: Very good. The candidate meets most of the selection criteria the category with high quality with a few shortcomings.

3: Good. The candidate meets most of the selection criteria the category with a good quality, but improvements could be expected.

2: Fair. The candidate meets most of the selection criteria the category with a fair quality, but there are several shortcomings

1: Poor. The candidate meets the selection criteria the category inadequately and there are significant shortcomings.

<u>The iMED Selection Committee (iSC)</u>

iSC will be a standing committee with the following members: The iMED coordinator (interim director of BRIC, Anders Lund), three BRIC PIs (MoMeD director Kim Jensen, head of postdoc programme Jesper Andersen and head of education Marie Kveiborg) and four independent international experts: Dr. Graça Raposo, Institut Curie, France, Assoc. Prof. Petr Svoboda, Institute of Molecular Genetics, Czech Republic, Prof. Sara Ek, Department of Immunotechnology, Lund University and Prof. Luciano Di Croce, Centre for Genomic Regulation, Spain. The experts have been selected based on their expertise with development and implementation of international innovative doctoral training programmes within biomedicine, and doctoral COFUND programmes. Committee members will shortlist and evaluate the candidates, score each candidate after each selection process step and make the final selection of candidates to offer a fellowship.

APPOINTMENT CONDITIONS

Employment will be in compliance with Danish national legislation and both recruitment, employment terms and conditions are aligned with the EU Charter and Code. All fellows will be offered **39 months of employment; three months as a research assistant, followed by 36 months as a doctoral fellow/PhD-student**.

Employment and working conditions

The iMED fellows will receive an employment contract with UCPH. The employment and working conditions will be equal to those of all other researchers employed at BRIC and UCPH. The terms of employment, salary and pension are in accordance with agreements between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State. The terms of employment include:

- Scale regulated salary and pension
- Regulated work week of 37 hours/week
- Full social benefits including health care
- Right to salary during holidays (six weeks of holidays per year on top of national holidays)
- Right to salary during own illness and child's first two sick days
- Right to parental leave (up to 32 weeks paid leave) and two child care days/child/year until age 7

The overall working conditions at UCPH is set out in a 'Personnel Policy'. The policies are presented in a Personnel Policy Handbook and centred around a set of basic principles ensuring an **open, collaborative, secure, including and developing work environment with equality for all staff**. Accordingly, the iMED fellows will:

- Have flexible work hours and be encouraged to attain work-life balance
- Participate in university satisfaction and well-being assessments
- Have annual Performance and Development Reviews with nearest leader (main supervisor)
- Be able to run and vote for university elections
- Be hosted in a healthy physical work environment (mandatory training of all new staff at BRIC in occupational health and safety issues and handling of potential hazardous reagents, governmental-regulated laboratory facilities and work procedures, non-smoking and alcohol policy, controlled indoor climate)
- Be hosted in a healthy psychosocial work environment (freedom of speech, no-tolerance of harassment and bullying, coaching on stress-handling and in case of long-term illness)

Salaries

Danish salaries are generally some of the highest in Europe and the fellows will receive a competitive salary. The salaries at UCPH follows scales regulated by collective agreements and includes 17.1% pension paid into a pension fund, that the researcher can transfer if not staying in Denmark.

The salary is dependent on scales in Danish Kroner and will in 2019 be 30,861 DKK, which depending on the exchange rate approximates to 4132 EUR/Month. This is the minimum salary including pension - More experienced candidates will receive a higher salary according to salary scales.

Support offered to candidate researchers during application, recruitment and employment

During application, the candidates can contact the management team of iMED if required by email (MoMeD@bric.ku.dk). During recruitment and relocation to Denmark, selected fellows will be supported by iMED's programme coordinator and the HR department at the Faculty of Health and Medical Sciences. Further, UCPH's **International Staff Mobility Office** (www.ism.ku.dk) will support selected fellows with issues as residence and work permits, housing, tax and pension, banking, medical care, childcare and language and culture. They also offer a dual career network open for spouses of UCPH researchers. During the training, the fellows will besides project and career supervision primarily receive support from the programme coordinator (preparation of periodic project reports, course enrolment, contact point to the Graduate School etc.). Also, they will have support from the iMED ombudsman if required. They will offer peer-support to each other through the iMED peer-mentoring programme giving them a network at BRIC and their integration into the institute and the Danish research environment will be further supported through enrolment in MoMeD with 115 PhD students and by BRIC's Student and postdoc Association offering both social and scientific activities

as well as mentoring. Further, UCPH has a well-established **Student Ambassador** counselling programme, offering impartial legal advice to PhD students about their rights. The advice is provided for free and without obligations.