

**ANNOUNCEMENT FOR THE OPENING OF AN INTERNATIONAL SELECTION TENDER PROCEDURE  
FOR DOCTORATE HIRING PURSUANT TO DECREE-LAW NO. 57/2016 OF 29 AUGUST, AS AMENDED  
BY LAW NO. 57/2017, OF 19 JULY AND SUPPLEMENTARY LEGISLATION**

1. The meeting of the Scientific Board of the Faculty of Medicine of the University of Lisbon, held on December 18, 2018, deliberated the opening of an international selection tender for 1 vacancy of doctorate to perform duties of scientific research in the scientific area of Biostatistics in a fixed-term public service work contract scheme with the duration of 30 months, with a view to developing research in quantitative HIV latency models, as part of the project “Quantitative Studies of HIV Latency (QuaSHLat),” funded by the Foundation for Science and Technology (FCT). A summary of this project's goals is found in Annex I to this Announcement.

2. Applicable legislation:

Decree-Law no. 57/2016, of 29 August, which approved the doctorate-hiring scheme intended to foster scientific and technological employment for all knowledge areas (RJEC), as amended by Law no. 57/2017, of 19 July, also taking into account the provisions of Regulatory Decree no. 11-A/2017, of 29 December.

General Public Service Labour Law (LTFP), approved in annex to Law no. 35/2014, of 20 June, under its current wording.

3. Pursuant to article 13 of RJEC, the tender selection panel shall be formed by:

Chairman: Prof. Ruy Miguel Ribeiro, Ph.D, Associate Professor with Aggregation from the Faculty of Medicine of the University of Lisbon;

1st Member: Prof. Ana Espada Sousa, Ph.D, Researcher-Coordinator of the Faculty of Medicine of the University of Lisbon;

2nd Member: Prof. Luís Silva Graça, Ph.D, Associate Professor with Aggregation from the Faculty of Medicine of the University of Lisbon.

4. Workplace shall be at the Faculty of Medicine of the University of Lisbon.

5. The monthly remuneration to be paid is the one provided for in Article 5(1) of Regulatory Decree no. 11-A/2017, of 29 December, corresponding to level 33 of the single remuneratory table, approved by Ordinance no. 1553-C/2008, of 31 December, in the amount of 2,128.34 Euros without prejudice to Article 5(3) of the Regulatory Decree-Law.

6. The contract is concluded for a period of 12 months, automatically renewable for 12 + 6 months, up to a maximum duration of 30 months, except if:

6.1 The scientific body of the FMUL proposes its termination based on an unfavourable evaluation of the work developed by the doctorate, which shall be communicated to the interested party up to 90 days before the expiry of the initial contract or the renewal in force;

6.2 Any of the causes for extinction in Article 289 of the LGTF applies;

6.3 The doctorate communicates in writing, no later than 30 days before the expiry of the contract or the renewal in force, the intention not to renew it, with the subsequent expiration of the fixed-term contract concluded following this notice.

7. Any national, foreign and stateless applicant(s) who hold a doctorate degree in a field of knowledge or speciality that covers the scientific area of Biostatistics or related scientific area, as well as those to whom, pursuant to Decree- Law no. 341/2007, of 12 October, regulated by Ordinance no. 227/2017, of 25 July, the totality of the rights inherent to the degree of Doctor was recognised, or to whom, pursuant to Decree-Law no. 283/83, of 21 June, an equivalence to or recognition of the degree of Doctor has been granted can submit their applications. The equivalence, recognition or registration of the degree of Doctor shall be obtained within the deadline for submitting applications.

#### 8. Formalisation of applications:

8.1 Applications are formalised by means of an application file, made available at the e-mail address of the Faculty of Medicine of the University of Lisbon, at, <http://www.medicina.ulisboa.pt/menu-topo/recursos-humanos/procedimentos-concursais/> sent to the Director of the Faculty, including the identification of this announcement, full name, number and date of the identity card, Citizen Card, or civil identification number, taxpayer number, date and place of birth, occupation, residence and contact address, including e-mail address and telephone number.

8.2 The applications shall include documents proving that the conditions provided for in section 7 for tender admission are met, namely:

- a) Copy of the certificate or diploma;
- b) Doctoral thesis or equivalent document(s) that determined the granting of this academic degree;
- c) Curriculum vitae, detailed and structured pursuant to the items under section 12, indicating, with an attached copy, up to three works considered by the applicant most relevant to the items under section 12;
- d) Motivation letter for the research proposed in the project, written in English, where the applicant shall also submit his/her skills as per the items appearing under section 12;
- e) Other documents deemed relevant for analysing the application.

8.3. Applicants shall send the documents mentioned in 8.1 and in 8.2, in PDF format, to the e-mail address ([candidaturasrh@medicina.ulisboa.pt](mailto:candidaturasrh@medicina.ulisboa.pt)) to be sent by the last day of the tender period, which shall be set at 30 days after this Announcement is published in the Official Government Gazette. (This announcement can also be published, among others, at the Public Employment Pool and on the Internet pages of FMUL and FCT, I.P., in Portuguese and English.) An applicant may, if faced with the impossibility or technical difficulties in sending any of the documents referred to in 8.1 and 8.2 via e-mail, send them in a physical format, respecting the aforementioned date, by registered mail with acknowledgement of receipt to the postal address Faculty of Medicine of the University of Lisbon, Área de Recursos Humanos e Vencimentos, Av. Professor Egas Moniz, 1649-028 Lisboa (Lisbon), or deliver them by hand at the Human Resources Department, floor 3, lift 11, in the building of the Santa Maria Hospital. If the justification provided by the applicant for the delivery of the documents only in a physical format is not accepted, the Chairman of the Panel shall grant him/her a period of 5 business days to submit them also in a digital format.

8.4 The application and the documents can be submitted in either Portuguese or English, except the motivation letter, which shall be drafted in English.

9. By decision of the Director of the Faculty of Medicine of the University of Lisbon, applicants who do not comply with the provisions of sections 7 or 8 shall not be admitted to the tender, and applicants who do not submit their application using the form, or who do not deliver all the documents referred to in subparagraphs a) to d) of section 8.2, or submit them in a way that is considered illegible, incorrectly filled or invalid, shall be automatically excluded. He shall also be entitled to ask any applicant, in case of doubt and for the purposes of admission to the tender, to produce documents that prove his/her statements.

10. Approval with absolute merit:

10.1 The Panel shall decide on approval or rejection with absolute merit of every applicant, via a justified roll-call voting where no abstentions are allowed.

10.2 The applicant who obtains a favourable vote of more than half of the members of the panel shall be deemed approved with absolute merit.

10.3 The applicants whose scientific and curricular background is relevant for the scientific area(s) of the tender shall be approved with absolute merit.

10.4 If no applicant is approved with absolute merit, the tender is deemed to have received no response, and, subsequently the position shall not be filled.

11. Pursuant to Article 5 of the RJEC, selection is to be made based on the evaluation of the applicants' scientific and curricular career.

12. The scientific and curricular career evaluation focuses on the relevance, quality and up-to-dateness **and is conducted in accordance with the evaluation criteria appearing in this section** with particular importance given to the curriculum vitae, to the motivation letter and to the contributions deemed by the applicant to be most important:

**12.1. Quality of the applicant in the project's core areas, which has been assigned a weighting factor of 70%.**

These areas include: 1) knowledge proven with a practical demonstration of the mathematical modelling of biological systems (with preference given to virus dynamics and/or of the immune system), including differential equations, stochastic processes, computer simulation; 2) knowledge proven with a practical demonstration of the mathematical modelling of biological systems (with preference given to virus dynamics and/or of the immune system), including descriptive and inferential analysis, as well as general models of mixed effects; 3) programming experience in one or more of the following systems: R, C++, SciPy, MatLab, Mathematics, or Monolix; 4) proven experience in writing and publishing articles in indexed journals, with preference given to works in the field of the tender; 5) very good knowledge of written and spoken English.

The quality of the applicant in the project's aforementioned core areas shall be evaluated from the curricular analysis, in keeping with the following criteria, with the corresponding valuations:

- i) Courses attended and corresponding marks, considering: (marks from 0 to 4)
  - Quality of the Ph.D thesis, including scientific publications thereof;
  - Topics and types of the attended courses, including their quality;
- ii) Demonstrating practical knowledge of programming and use of static, numeric and symbolic computing software; (0 to 4 marks)
- iii) Scientific publications: this parameter takes into account publications in international indexed scientific journals of which the applicant was the author or co-author, but also books, chapters in books, and proceedings from international conferences where the applicant was the speaker, considering: (marks from 0 to 6)
  - their nature, impact, scientific/technological level and innovation;
  - diversity and multidisciplinary as well as international collaboration;
  - the importance of the contributions to the advancement of the current state of knowledge in the scientific area for which the tender is open.
- iv) Recognition from the international scientific community: this parameter takes into account (0 to 4 marks)
  - scientific awards;
  - editorial activities in scientific journals;
  - participation in editorial bodies of scientific journals;
  - coordinating and taking part in scientific event programming commissions;
  - holding invited lectures at scientific meetings or at other institutions;
  - actual introduction at international / national conferences (poster or speaker)
- v) Demonstrating knowledge of English, via successfully attended courses or with practical application (for example, everyday use), and the motivation letter; (marks from 0 to 2)

As indicated in each case, marking the evaluation of items i) to v) shall be as follows: i) 0 to 4; ii) 0 to 4; iii) 0 to 6; iv) 0 to 4; v) 0 to 2 marks. And the final mark of the component pertaining to core areas is obtained by adding the marks in each of the items i) to v).

#### **12.2. Quality of the applicant in the project's supplementary areas, which has been assigned a weighting factor of 30%. .**

These areas include: 1) the ability to conduct interdisciplinary work in the field of Biomathematics; 2) experience in supervising Ph.D, master's and/or bachelor's degree students; 3) participation in research teams regarding projects in the scientific field in question; 4) science-related management and organisational activities; 5) participation in science dissemination activities.

The quality of the applicant in the supplementary areas of the above-mentioned project shall be evaluated via curricular analysis and the motivation letter, in keeping with the following criteria with the corresponding valuations:

- ii) Participation in scientific projects: this parameter takes into account the participation and coordination of scientific projects by the applicant, subject to competitive bidding, considering: (marks from 0 to 4)
  - their territorial scope and dimension;
  - the technological level and importance of the contributions;
  - their innovation and diversity.
- iii) Promotion of scientific activity; this parameter takes into account the capacity for participation, coordination and leadership of research teams shown by the applicant. (marks from 0 to 2)

iii) Monitoring and supervising students: this parameter takes into account the supervision of Ph.D, master's degree and bachelor's degree students, interns and research fellows, considering: (marks from 0 to 4)

- their number and quality;
- the scope and scientific impact of resulting publications;
- award-winning works and international recognition.

iv) Being motivated to interdisciplinary scientific work, considering the motivation letter submitted; (marks from 0 to 8)

v) Knowledge expansion and dissemination activities, namely within the context of fostering culture and scientific practices, considering: (marks from 0 to 2)

- Scientific and technological dissemination publications:
- Participation in and coordination of scientific dissemination activities

As indicated in each case, marking the evaluation of items i) to v) shall be as follows: i) 0 to 4; ii) 0 to 4; iii) 0 to 4; iv) 0 to 8; v) 0 to 2 marks. And the final mark of the component pertaining to supplementary areas is obtained by adding the marks in each of the items i) to v).

12.3 Each applicant's final mark shall be calculated by obtaining the weighted average of the marks in 12.1 and 12.2, with weightings of 70% and 30%, respectively.

13. If the final mark for all applicants in this tender is under 9.5, the tender is deemed to have received no response, and, subsequently the position shall not be filled.

14. The panel may decide that the 4 (four) applicants with the highest marks in the scientific and curricular career evaluation, according to the criteria and weightings found under section 12 of this Vacancy Opening Announcement, shall be called upon to sit for an interview or to undergo a public presentation or demonstration session, intended to clarify aspects related to the results of their research, and weighted at 10% of the total evaluation, with the other applicants automatically left out of the tender process. In this case, the scientific and curricular career evaluation shall be weighted at 65% for the core areas (as described in 12.1) and 25% for the supplementary areas (as described in 12.2).

15. The Panel, whenever it deems it necessary, may ask the applicant to produce additional documents that prove his/her statements, where relevant to the analysis and classification of his/her application.

16. Classification of the applicants:

16.1. Each member of the panel assigns a classification to each of the applicants in each evaluation criterion, on a scale of 0 to 20, ranking the applicants according to their final classification, which corresponds to the sum of the partial classifications assigned in each evaluation criterion, and taking into account the weighting assigned to each parameter.

16.2. The applicants shall be ranked via the application of the successive voting method laid down in Article 20 of the ULisboa Tender Regulations.

16.3. The panel decides by absolute majority, and abstentions are not allowed.

16.4. The applicants' final classification corresponds to the ranking resulting from the application of the method referred to in section 16.2.

17. Minutes of the meetings held by the panel shall be drafted, containing a summary of what happens during those meetings, as well as the votes cast by each of the members and their reasons, being made available to the applicants upon request.

18. The panel's final decision is approved by the Director, who is also responsible for concluding the respective contract.

19. False statements provided by the applicants shall be punished by law.

20. The list of admitted and non-admitted applicants as well as the final classification list shall be posted in the facilities located at Av. Professor Egas Moniz, 1649-028 Lisboa (Lisbon), published on the webpage of the Faculty of Medicine of the University of Lisbon, and the applicants shall be notified in accordance with the legislation in force.

21. Preliminary Hearing and Final Decision Deadline: After being notified, the applicants have 10 business days to state their opinion. Within 90 (ninety) days from the deadline for submitting applications, the panel shall announce its final decisions.

22. This tender is exclusively intended to fill this specific vacancy and can be terminated at any time until the approval of the final applicant ranking, expiring with the respective occupation of said vacancy.

23. Non-discrimination and equal access policy: The Faculty of Medicine of the University of Lisbon actively promotes a non-discrimination and equal access policy, wherefore no applicant can be privileged, benefited, impaired or deprived of any rights whatsoever, or be exempt of any duties based on their ancestry, age, sex, sexual preference, marital status, family and economic conditions, instruction, origin or social conditions, genetic heritage, reduced work capacity, disability, chronic illness, nationality, ethnic origin or race, origin territory, language, religion, political or ideological convictions and union membership.

24. Pursuant to Decree-Law no. 29/2001, of 3 February, disabled applicants shall be preferred in a situation of equal classification, and said preference supersedes any other legal preferences. The applicants must solemnly declare their respective degree of disability, type of disability and communication/expression means to be used during selection period on their application form, under the regulations above.

Faculty of Medicine of the University of Lisbon, 07 January 2019

The Director, Professor Fausto J. Pinto, PhD

## **Summary of the project entitled “QuaSHLat – Quantitative Studies of HIV Latency”**

HIV/AIDS is responsible for one of the biggest pandemics in history. The United Nations declared that this infection has led to History's greatest reversal in quality of life. Over 40 million people have died as a result of this infection since it was first described in 1981. However, HIV also represents one of science's biggest success stories in response to a social problem. The development of anti-retroviral medication has enabled infected persons with access to such medication to lead virtually normal lives. And, in the last few years, new discoveries have led to the start of discussion regarding the “cure for HIV.”

The biggest obstacle to that cure lies in the details of this virus' life cycle. To complete its life cycle, the virus integrates its DNA into the genome of the cell it infects in the human body. When this happens, the virus is likely to become latent; i.e., it becomes “dormant” and does not produce copies of itself. These infected cells are virtually indistinguishable from non-infected cells. However, later on, the virus in these cells could reactivate and start to produce new viruses, thus reactivating an infection that appeared to be extinct. Doing away with these stored latent cells is the ultimate goal of HIV treatment.

This project will develop mathematical models to quantify HIV integration into its target cells, the formation of the latent state, as well as pharmacological measures to reverse this state. Though many details of the molecular mechanisms involved are known, the dynamic and quantitative aspects are much less understood. Here, new mechanistic models will be developed regarding latency in the body and cells. The goal of these models is to quantitatively describe the processes in greater detail, to contribute, in the long run, toward an agenda regarding a cure for HIV.

The team and its collaborators have additional expertise in mathematics applied to modelling biological systems, HIV infection, and laboratory procedure. Collaborators (funded by their own projects) shall provide data regarding infections in humans, non-human primates, and in vitro. Moreover, some quantitative in vitro experiments are also planned as part of this project. Thus, we have a unique data set whose interpretation shall be highly driven by the models to be developed. On the other hand, the models could entail additional confirmatory experiments. Integrating both aspects (modelling and experiments) within the same project allows for very close interaction and feedback between these activities.

The models developed and calibrated in this project will contribute toward gaining a better understanding of the HIV infection latency mechanisms. As is the case with previous viral infection models, the knowledge provided by this approach will help speed up the development of innovative treatment where the reversal of latency is possible and we will be closer to finding a cure for HIV.

The following comprise a few references related to the project:

Perelson AS & Ribeiro RM (2013) Modeling the within-host dynamics of HIV infection. *BMC Biology* 11: 96

Cardozo E. F., et al. (2017) Treatment with integrase inhibitor suggests a new interpretation of HIV RNA decay curves that reveals a subset of cells with slow integration. *PLoS Pathogens* 13: e1006478

Cao Y, et al. (2018) Probabilistic control of HIV latency and transactivation by the Tat gene circuit. *Proc Natl Acad Sci U S A.* 115:12453-12458