CELLULAR AND MOLECULAR BIOLOGY

Coordinator

Professor Vincenzo Scarlato – Department of Pharmacy and Biotechnology - Via Selmi 3 - Bologna - vincenzo.scarlato@unibo.it

Website


Duration

3 years

Academic year

2013/2014

Programme start date

01/01/2014

Programme held in

Italian / English

Main Department

Department of Pharmacy and Biotechnology

Associated Unibo Department

Department of Experimental, Diagnostic and Specialty Medicine

Partner Institution

Novartis Vaccines & Diagnostics - Siena

Research topics

- Molecular basis of the penetration of herpes simplex virus into the cell as the basis for the design of oncolytic viruses (Prof. Campadelli-Fiume)
- Mechanism of regulation of gene expression by Adenoviral DNA topoisomerase I (Top1) (Prof. Capranico)
- Study of the molecular basis of neurodegenerative diseases (Prof. Contestabile)
- Molecular mechanisms of energy transduction in membrane protein complexes (Prof. Francia)
- The Drosophila as a model system for the study of gene function in development and cancer (Prof. Gargiulo)
- Genetic factors in the pathogenesis of autism (Prof. Maestrini)
- Epigenetic regulation of gene expression in tumors (Prof. Perini)
- Cancer modelling in Drosophila (Prof. Pession)
- Mitochondrial genetics and dysfunctions in neurodegenerative disorders and tumorigenesis (Prof. Rugolo)
- Molecular and genetic basis of bacterial pathogenicity (Prof. Scarlato)
- Molecular mechanisms of redox signaling and regulation of energy metabolism in plants (Prof. Trost and Prof. Sparla)
- Role of conformational dynamics and protein-solvent interaction in the photocatalytic activity of photosynthetic reaction centers (Prof. Venturoli)
- Molecular aspects of microbial bioremediation (Prof. Zannoni)
- Nanobiotechnological methodologies in the study of the structural basis of neurodegenerative proteopathies and DNA-based nanofabrication (Prof. Zuccheri)

Requirements and admission procedures

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<th>Requirements</th>
<th>Admission procedures</th>
<th>Note on admission</th>
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<tr>
<td>An Italian university degree (laurea specialistica/magistrale - 4 years) or pre-reform degree (vecchio ordinamento - 4 years) or an equivalent degree obtained abroad. Also applicants whose degree will be awarded no later than December 31, 2013 can participate to the selection procedures.</td>
<td>Assessment of qualifications Oral examination</td>
<td>For applicants residing abroad, the oral examination can be done remotely through video-conference based on the IP protocol (such as through Skype with webcam). In this case, at the time of application for admission, applicants should indicate the choice of this mode for the oral examination and indicate a valid address/contact. The request must be authorized by the Admission Board upon verification of the conditions needed to ensure the proper conduct of the test (verification of the identity of the applicant). The applicant should contact the Admission Board at Skype &quot;vincenzo.scarlato&quot; and agree a timetable to carry out the oral examination, on days specified for the oral examination. The applicant must ensure his/her availability to the address indicated in the application beginning at the agreed hour and for the next two hours. In case the applicant is not found for three times by members of the Admission Board, he/she will be considered as definitely not registered with the oral examination.</td>
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Mandatory documents to be enclosed with the online application (failure to comply with such requirements will result in the exclusion from the competition)

1. CV
2. copy of Bachelor’s and Master’s degree, list of exams taken with grades and final mark (in Italian or English)
3. for those who do not hold a Master's degree when submitting the application: copy of the exams taken with grades

For documents listed at points 2. and 3., please note that:

- for degrees obtained in Italian Universities: upload a SIGNED self-declaration;
- for degrees obtained in non-EU Countries: upload the degree certificate issued by the relevant University;
- for degrees obtained in EU countries (except Italy): you can either upload a SIGNED self-declaration or the degree certificate issued by the relevant University, translated in Italian or English;
- all documents must contain the following information: personal data, name of the University, degree name, final score, transcript (see art. 2. of the call).

Other documents to be enclosed, if available

- Publications
- Communications to Congresses
- Any other relevant document (tenure of scholarships, awards, honours, attendance of courses, participation to Erasmus or other exchange programs, etc.)

Agenda

<table>
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<th>Description</th>
<th>When</th>
<th>Where</th>
<th>Time</th>
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<tbody>
<tr>
<td>Assessment of qualifications</td>
<td>07/10/2013</td>
<td>Department of Pharmacy and Biotechnology, Via Selmi 3</td>
<td>applicant presence not requested</td>
</tr>
<tr>
<td>Oral examination</td>
<td>14/10/2013</td>
<td>Department of Pharmacy and Biotechnology, Via Selmi 3</td>
<td>10 a.m.</td>
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</tbody>
</table>
Assessment criteria

Total score: 100/100

1. Assessment of qualifications
   - minimum score required for the admission to the oral examination: 30
   - maximum score: 50
   Score is assigned as follows:
   - evaluation of the final grade (in the case of applicants who have a degree / master's degree or Master's course or graduation old system) or evaluation of marks obtained in the course of university studies (in the case of applicants not owing the degree, but will get it by December 2013): maximum score 40
     - For applicants holding a degree (achieved in a foreign University):
       • degree mark by 95% or more, 40 points
       • degree mark by 90% or more, 35 points
       • degree mark by 85% or more, 30 points
       • degree mark by 80% or more, 25 points
       • degree mark by 75% or more, 20 points
     - For applicants without a degree (which will be achieved in a foreign University):
       • mean vote exams greater than or equal to 95%, 40 points
       • mean vote exams greater than or equal to 90, 35 points
       • mean vote exams greater than or equal to 85, 30 points
       • mean vote exams greater than or equal to 80, 25 points
       • mean vote exams less than 80%, 20 points
   - For applicants holding a degree (achieved in an Italian University):
     • degree mark 110 cum laude/110, 40 points
     • degree mark from 108/110 or more, 35 points
     • degree mark from 106/110 or more, 30 points
     • degree mark from 104/110 or more, 25 points
     • degree mark from 100/110 or more, 20 points
   - For applicants without a degree (which will be achieved in an Italian University):
     • mean vote exams greater than or equal to 29, 40 points
     • mean vote exams greater than or equal to 28, 35 points
     • mean vote exams greater than or equal to 27, 30 points
     • mean vote exams greater than or equal to 26, 25 points
     • mean vote exams less than 26, 20 points
   - publications on international peer reviewed journals: maximum score 5
   - scientific "minor" publications (nationally distributed, abstracts, posters, etc.): maximum score 2
   - assignee of scholarship for abroad: maximum score 3

The results of the assessment of qualifications will be posted on the bullet board of the Department and on the site [http://studenti.unibo.it](http://studenti.unibo.it), restricted access by University credentials (by selecting: sintesi delle richieste in corso → vedi dettaglio → risultati prova).

2. Oral examination
   - minimum score required in order to be listed in the final ranking: 30
   - maximum score: 50

The oral examination will focus on issues of Molecular and Cellular Biology, the applicant must discuss both of the past research activity, and of that he/she wishes to perform, and will also be evaluated with regard to the specific aptitude for research.

The results of the oral examination will be made public by posting them on the bulletin board of the Department and on the site [http://studenti.unibo.it](http://studenti.unibo.it) (by selecting: sintesi delle richieste in corso → vedi dettaglio → risultati prova2).

The final ranking with details of winners will be published on the site [http://studenti.unibo.it](http://studenti.unibo.it), restricted access by University credentials.
Any information concerning the publication of the final ranking will be available on [www.unibo.it/Dottorati/Bandi29](http://www.unibo.it/Dottorati/Bandi29).

The Admission Board will not send any communication to the applicants about the outcome of the tests. It is the responsibility of the applicants to be informed on the outcome (see art. 6 of the call).

Language requirements

For Italian applicants the knowledge of English will be assessed.
For foreign applicants the knowledge of Italian will be assessed.
The language assessment (English, or Italian for foreign applicants) will take place during the oral examination.

Positions and scholarships

Total number of positions: 10, of which:
- 4 positions with scholarship granted by the University of Bologna
- 1 position with scholarship "Fondo Giovani year 2012" granted by MIUR, committed to the Scope of Investigation 1 "Human health (study and treatment of cancer and degenerative diseases: new approaches based on knowledge of the human genome)"
- 2 positions with scholarship granted by private institutions (Novartis Vaccines & Diagnostics), committed to the following research topics:
  - "Thermoregulation of meningococcal antigens and virulence factors: determining a switch between colonisation and invasion"
  - "Approaches to new generation vaccines against pertussis and identification of new virulence factors"
- 3 positions without scholarship