

## PHD PROGRAMME TABLE 38TH CYCLE

Section "Available Positions and Scholarships" integrated on 16/05/2022

Section "Available Positions and Scholarships" integrated on 01/07/2022

### ERRATA CORRIGE

PROGRAMME'S NAME	CELLULAR AND MOLECULAR BIOLOGY
DURATION	3 years
PROGRAMME START DATE	01/11/2022 (DD/MM/YYYY)
LANGUAGES	Italian, English
MANDATORY STAY ABROAD	3 months
COORDINATOR	Prof. Vincenzo Scarlato ( <a href="mailto:vincenzo.scarlato@unibo.it">vincenzo.scarlato@unibo.it</a> )
CURRICULA	N/A
RESEARCH TOPICS	<a href="#">Detailed list at the bottom of the present document</a>
PhD POSITIONS	13
ADMISSION PROCEDURE	Qualifications and research proposal evaluation Oral examination

### Available Positions and Scholarships

Pos. n.	Financial Support	Description	Positions linked to research topics
<b>1</b>	PhD Scholarship	Totally funded by the University of Bologna general budget	
<b>2</b>	PhD Scholarship	Totally funded by the University of Bologna general budget	
<b>3</b>	PhD Scholarship	Totally funded by the University of Bologna general budget	
<b>4</b>	PhD Scholarship	Funded by the Department of Pharmacy and Biotechnology with funds made available by the project PRIN 2020 - 202089LLEH - PI Prof. Marco Rinaldo Oggioni - CUP J35F22000580001	Transition from asymptomatic colonization to disease by human respiratory-tract bacteria as a target for vaccines and antimicrobial therapy
<b>5</b>	Research Grant	Provided by the Department of Pharmacy and Biotechnology. The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 27,258	Tumour metastasis and microenvironment: models and mechanisms
<b>6</b>	Research Grant	Provided by the Department of Pharmacy and Biotechnology. The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 27,258	Tumour metastasis and microenvironment: models and mechanisms
<b>7</b>	Research Grant	Provided by the Department of Pharmacy and Biotechnology. The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 27,258	Tumour metastasis and microenvironment: models and mechanisms
<b>8</b>	Research Grant	Provided by the Department of Pharmacy and Biotechnology. The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 27,258	Tumour metastasis and microenvironment: models and mechanisms

9	Research Grant	Provided by the Department of Pharmacy and Biotechnology. The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 27,258	Tumour metastasis and microenvironment: models and mechanisms
10	Research Grant	Provided by the Department of Pharmacy and Biotechnology with funds made available by the project PRIN 2020 - "WIRELESS AND NONGENETIC PHOTOSTIMULATION OF NEURON BY CELL-SPECIFIC TARGETING OF PHOTOVOLTAIC NANOPARTICLES: APPLICATION TO NEURODEGENERATIVE DISEASES OF RETINA AND BRAIN" - Settore LS5 - Code 2020WMSNBL_004 - CUP J33C22000080001 ref. Prof. Alberto Danielli. The research grant will have a duration of 12 months, renewable up to 36 months, and a gross percipient amount of € 19,367	Wireless and non-genetic photostimulation of neurons by cell-specific targeting of photovoltaic phage nanoparticles
11	PhD Scholarship	Totally funded by the University of Bologna general budget	
12	PhD Scholarship	Totally funded by the University of Bologna general budget	
13	PhD Scholarship	Funded by the Department of Pharmacy and Biotechnology with funds made available by the project PRIN 2020 - 2020RRJP5L_004 - PI Prof. Anna Maria Porcelli - CUP J33C22000060001	Biochemical mechanisms and cellular consequences of mitochondrial cation flux: from bioenergetics to metabolic rewiring

## Admission Exams

	DATE AND TIME	RESULTS
Qualifications and research proposal evaluation	Applicants' participation is not required	Available from <b>05/07/2022**</b>
Oral examination	<b>Date:</b> starting from <b>12/07/2022 - 10 a.m. CEST*</b> <b>Place:</b> In presence, Department of Pharmacy and Biotechnology, Via Selmi 3, Bologna. Remotely, using Microsoft Teams	Available from <b>20/07/2022**</b>

\* In case that the oral examination cannot be completed in one day due to the large number of applicants, the oral examination detailed schedule shall be made available on the webpage [Studenti Online](#) together with the results of the qualifications and research proposal evaluation. **During the oral examination, applicants may express their interest in one or more positions linked to specific research topics.**

\*\* The **results of the admission exams** will be available on the webpage [Studenti Online](#) (select "summary of the requests in progress" > "see detail" and open the .pdf file at the bottom of the page). **No personal written communication will be sent to applicants concerning the examinations results.**

## Required and Supporting Documents to be attached to the application

All the documents listed below **shall be drawn up in English or in Italian**. In case of documents originally issued in any other language (e.g. identity document, qualifications), an official English translation is required.

Only qualifications obtained **during the last 5 calendar years** shall be taken into consideration, except for the University Degree. The Admission Board will assess the relevance of the supporting documents to the PhD Programme.

REQUIRED DOCUMENTS	
Identity document	Valid identity document with photo (i.e. identity card, passport)
Degrees	Documents attesting the awarding of the first and second cycle degrees, the exams taken and the marks obtained (see Art. 3 of the Call for Applications)

<b>Curriculum Vitae</b>	<p><b>The Curriculum Vitae must be drawn up using exclusively the <a href="#">Curriculum Vitae form</a></b>, in Attachment 1 to the present PhD programme table and downloadable in .docx from the <a href="#">University Website</a> (select the PhD Programme → “More information”, then check “Notices” at the bottom of the page). <b>A 5 points penalty on the total qualification evaluation score shall be applied to applicants not using the attached form.</b> The curriculum vitae must contain the following pieces of information, subject to evaluation:</p> <ul style="list-style-type: none"> <li>- Name and final mark of the awarded second cycle degree, name of the awarding institution, thesis title and supervisor</li> <li>- Lists of publications (i.e. monographs, articles on scientific journals), minor publications (i.e. contributions in proceedings of national and international conferences, book chapters) and abstracts and posters presented during academic conferences</li> <li>- Research activity (please, indicate the kind and lengths of the research period; include research activities covered by research grants, and as a staff member of research units)</li> <li>- Periods of study abroad, outside the country of origin (e.g. Erasmus programme or other similar mobility programmes)</li> <li>- Other qualifications attesting the suitability of the applicants (scholarships, prizes, etc)</li> </ul>
<b>Research proposal</b>	<p>The multi-annual research proposal must meet the following requirements:</p> <ul style="list-style-type: none"> <li>- it must be drawn up <b>in English</b>;</li> <li>- it must mention <b>on the cover page the main research topic/s</b> the applicant is interested to and the project is about;</li> <li>- <b>it cannot exceed 20,000 characters</b>, including spaces and formula possibly used. This figure does not include: the title of proposal, the outline, references and images (such as graphs, diagrams, tables, etc. - if present);</li> <li>- <b>it must include:</b> the state of the art; description of the proposal; expected results; articulation of the proposal and implementation times; outline of the proposed findings assessment criteria; references.</li> </ul> <p>The research proposals that successful applicants shall carry out during their PhD career may possibly differ from the one proposed at the application stage. This shall be defined together with the supervisor and approved by the Academic Board.</p>
<b>SUPPORTING DOCUMENTS</b>	
<b>Personal statement</b>	<p>This must include the reasons prompting the applicant to attend the PhD Programme and those <b>relevant experiences and research interests</b>, that make the applicant suitable for the specific PhD Programme (3,000 characters maximum, including spaces).</p>

## Evaluation criteria\*

Scores will be expressed in points out of 100, as follows.

### 1. Qualifications and research proposal evaluation

Minimum score for admission to the oral examination: 30 points, Maximum score: 50 points

<b>Qualifications evaluation</b>	Second cycle degree final mark	<p><b>10 points max</b> (in brackets the points awarded to applicants holding a non-Italian degree, calculated according to the percentage with respect to the maximum score)</p> <ul style="list-style-type: none"> <li>- 10 points - 110 e lode (maximum score with honour)</li> <li>- 8 points - from 109 to 110 included (98-100% with respect to the maximum score)</li> <li>- 6 points - from 105 to 108 included (95-97% with respect to the maximum score)</li> <li>- 4 points from 101 to 104 included (90-94% with respect to the maximum score)</li> <li>- 3 points from 95 to 100 included (89-90% with respect to the maximum score)</li> </ul>
	(for graduands only) Weighted Average Mark (WAM)	<b>8 point max</b>

		(in brackets the points awarded to applicants holding a non-Italian degree, calculated according to the percentage with respect to the maximum score) - 8 points - from 29 to 30 included (98-100% with respect to the maximum WAM score) - 6 points da 27 a 28 included (95-97% with respect to the maximum WAM score) - 4 points da 25 a 26 included (90-94% with respect to the maximum WAM score) - 3 points da 23 a 24 included (89-90% with respect to the maximum WAM score)
	Publications	<b>7 points max</b> - 3 points for each publication on an internationally reknowned scientific journal - up to 1 point for each minor publication, poster or other evaluable publication
	Other qualifications (research activities, period of study abroad for no less than 1 continuative month)	<b>3 points max</b> (up to 1 point per month)
<b>Research proposal evaluation</b>	Scientific value and ground-breaking nature of the proposal	7 points max
	Description and structure of the proposal	7 points max
	Consistency of the proposal with the main research topics encompassed by the PhD programme	12 points max
	Proposal feasibility	4 points max

## 2. Oral examination

Minimum score for eligibility: 30 points, Maximum score 50 points

English language proficiency	5 points max
Research proposal presentation	20 points max
General knowledge of issues encompassed by the PhD Programme	25 points max

Oral examination aims to assess the suitability of the applicant for scientific research as well as the general knowledge of issues encompassed by the PhD Programme (see the list of [research topics](#) at the bottom of the present document).

**During the oral examination, the applicant's English proficiency shall be assessed.**

The oral examination is carried out in Italian or English.

\* Possible further evaluation criteria will be available on the [University website](#), selecting the relevant PhD Programme > "More information", at the bottom of the page in the section "Notices".

## Research Topics

- Cancer genome instability (Prof. Capranico)
- Molecular biotechnology of phages for the development of theranostic vector platforms (Prof. Danielli)
- Computational and functional genomics (Prof. Ferrè)
- Computational transcriptomics of human gene networks (Prof. Giorgi)
- Genomic analysis and molecular basis of autism and other neurodevelopmental disorders (Prof. Maestrini, Prof. Bacchelli)
- Cellular and molecular basis of neuropathologies (Prof. Monti)
- Gene expression regulation in cancer (Prof. Perini)
- Molecular characterization of solid tumors (Prof. De Biase)
- Mitochondria dysfunctions in neurodegenerative diseases and mitochondria gene mutations in cancer (Prof. Porcelli, Prof. Ghelli)

- Molecular and genetic basis of bacterial pathogenesis (Prof. Scarlato, Prof. Roncarati)
- Molecular mechanisms of redox signalling and energy metabolism regulations in plants (Prof. Trost, Prof. Sparla)
- Molecular and functional analyses of human and environmental microbial communities: interactions between microorganisms and habitat (Dott.ssa Cappelletti)
- Structures, functions and interactions of metalloproteins (Prof. Zambelli)
- Microbial and innate immune mechanisms at the start of infection (Prof. Oggioni)

## Attachment 1

### Curriculum Vitae

#### *PhD Programme in Cellular and Molecular Biology*

#### **Personal information**

First name(s) / Surname(s)	
Nationality	
Date of birth [day, month, year]	
Gender	

#### **University Education**

##### ***Master (2-years)***

Dates (start -end or planned end)				
Awarding institution	<i>(e.g. University of Bologna - Italy)</i>			
Title of qualification awarded	<i>(e.g. MSc in Biology)</i>			
<b>Marks</b>	<b>YOUR mark</b>	<b>Minimum PASS mark</b>	<b>Maximum mark</b>	<b>ECTS conversion (if available)</b>
Final grade (if available)				
Weighted average of the exams				
Title and topic of the Master's Thesis				

##### ***Master (5-years / Single cycle)***

Dates (start -end or planned end)				
Awarding institution	<i>(e.g. University of Bologna - Italy)</i>			
Title of qualification awarded	<i>(e.g. MSc in Pharmacy)</i>			
<b>Marks</b>	<b>YOUR mark</b>	<b>Minimum PASS mark</b>	<b>Maximum mark</b>	<b>ECTS conversion (if available)</b>
Final grade (if available)				
Weighted average of the exams				
Title and topic of the Master's Thesis				

#### **Employment**

Currently employed	<input type="checkbox"/> Yes <input type="checkbox"/> No
Summary of current employment	

Past employment record and skills obtained	
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**Publications**

*Please, list:*

- *Publications of the last five years (considering the last day of the call)*
- *Only papers accepted or published at the last day if the call will be considered - Submitted papers will be excluded*
- *Abstracts/posters to conferences already held at the last day of the call*

***ALL PAPERS/ABSTRACT MUST BE UPLOADED (or they will not be evaluated)***

Abstract/poster presented in national and international conferences
Publication on national and international journals
Chapters in books

**Research Experiences**

*Please, list periods of study abroad (Erasmus and/or others), scholarships, fellowships and research periods at universities or public/private institutions.*

- *Periods of time are calculated at the date of closure of the call*
- *Periods must be within the last 5 years excluding the calendar year of this call.*

**Other qualifications**

*Please, list prizes and fellowships*

- *last five years will be considered*

<b>Prizes for scientific capability</b>
<b>Certificates proving education or scientific ability</b>