



"Annex 1" updated on 27 maggio 2020

(The updates and the corrections are highlighted in red colour)

(ANNEX 1)

CALL FOR PhD POSITIONS – 36th CYCLE

PHD PROGRAMME IN COMPLEX SYSTEMS FOR QUANTITATIVE BIOMEDICINE

PhD Programme Coordinator	Prof. Enzo Medico
Department	Oncology
PhD Programme Length	3 years
PhD web site	https://phd-csqb.campusnet.unito.it/do/home.pl
Course start date	1 st October, 2020
Departments involved in PhD programme	Department of Physics, Department of Oncology, Department of Life Science and Systems Biology, Department of Clinical and Biological Science, Department of Computer Science, Department of Molecular Biotechnology and Health Science, Department of Pharmaceutical Science and Technology, Department of Clinical Science, Department of Neuroscience "Rita Levi Montalcini", Department of Mathematics "Giuseppe Peano", Polytechnics of Turin

Positions offered¹	
n. 13 positions with scholarship, of which 1 reserved to students graduated outside Italy.	Of which: <ul style="list-style-type: none">- 6 scholarships funded by the University of Torino- 1 funded by the Department of Physics (Dipartimenti di Eccellenza Project) and linked to a specific project- 1 funded by the Department of Neurosciences and linked to a specific project- 5 scholarships funded by IIGM (Italian Institute for Genomic Medicine)

¹ All additional scholarships and apprenticeship contracts (Legislative Decree no. 81/2015 art.45), which may become available after the publication of this Call, will be announced on the University websites [Dottorati di Ricerca](#) and [PhD](#) until Call's deadline.



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<p>n. 3 positions reserved to students selected within specific international mobility programmes or within specific agreements in which the University of Torino is involved</p>	<p>Of which:</p> <ul style="list-style-type: none"> - 1 scholarship funded by CSC (Chinese Scientific Council) - 2 scholarships funded by H2020-MSCA-ITN-2020, IDEN-BM Project
<p>n. 1 position covered by research grant</p>	
<p>n. 4 positions without scholarships</p>	

CALL FOR POSITIONS

Admission procedure

Assessment of qualifications, written test and interview

Qualifications to be uploaded in the on-line application

- Master's Degree Thesis Abstract
- Publications (max 3)
- Letters of reference signed by professors or qualified researchers

Assessment criteria

maximum score 100 points

Assessment of qualifications

Maximum score 20 points

Bachelor / First-level degree: 30%

maximum score 10 points

Final grade of Master / 2nd-level degree (or weighted average of grades obtained, for candidates applying under condition) 70%

110-110L _____ 10 points
 from 107 to 109 ___ 8 points
 from 104 to 106 ___ 6 points
 from 100 to 103 ___ 3 points
 =< to 99 _____ 1 point

Abstract or summary of the Master thesis

maximum score 4 points



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Publications 0.5 points for each paper on journals, books or international conferences papers with review panel (max 3 will be assessed)	maximum score 2 points
Other qualifications Second/additional master degree: 2 points. Italian specialising master 1 st and 2 nd level degree if relevant: 2 points Training courses outside the University of origin: 1 point	Maximum score 3 points
Letters of reference signed by professors or qualified researchers (0.25 points each)	Maximum score 1 point
Written test	Maximum score 40 points
Minimum threshold (qualifications + written test) for accessing the interview	30 points
Oral interview	Maximum score 40 points
Minimum threshold for passing the interview	30 points
Further information on examinations The written test will be performed remotely and will consist in outlining a research project, chosen by the candidate from the list below, highlighting specific aspects whose details will be defined following a draw to be performed at the start of the written test for all candidates. Candidates will have four hours to complete the project, which must be in English and reflect the perspectives of complexity and systems biology, both from a methodological and conceptual point of view. The property of language, scientific value, feasibility during the PhD course, objectives and scientific impact of the project will be evaluated. The interview will be conducted in English and will focus on the research project outlined during the written test. The candidate may optionally use a powerpoint presentation with no more than 10 slides. Time for presentation: 10 minutes. Questions and discussion: 10 minutes.	

Titles of research projects

PhD Programme in COMPLEX SYSTEMS FOR QUANTITATIVE BIOMEDICINE

1) Identification and characterization of lncRNAs involved in epigenetic regulation for neural development.



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(Tutors: Salvatore Oliviero, Michele Caselle).

Details of the projects: [here](#)

2) Physical characterization of theranostic (magnetic) nanocarriers.

(Tutors: Caterina Guiot, Roberta Cavalli).

Details of the projects: [here](#)

3) Using Topic Modelling methods to analyze spatial transcriptomic datasets.

(Tutor: Michele Caselle; External Tutor: Antonio Scialdone).

Details of the projects: [here](#)

4) Reliable Deep Learning Methods for Cancer Genomics.

(Tutor: Piero Fariselli; External Tutors: Isidro Cortes-Ciriano, Tiziana Sanavia).

Details of the projects: [here](#)

5) Exploration of multi-omics integration approach for diagnosis, prognosis and response to treatment of colorectal cancer.

(Tutor: Francesca Cordero; External Tutor: Alessio Gordon Naccarati).

Details of the project: [here](#)

6) Experimental and computational modeling of acute myeloid leukemia-niche interactions: gathering insights into new therapeutic approaches.

(Tutors: Ada Funaro, Marco Scianna).

Details of the project: [here](#)

7) Modelling CAR-engineered immunotherapy against advanced tumors of serous membranes.

(Tutors: Dario Sangiolo, Alberto Puliafito).

Details of the project: [here](#)

8) Modelling HIFs pathways in cancerogenesis.

(Tutors: Luigi Preziosi, Luca Primo; External Tutor: Sandro Malacrida).

Details of the project: [here](#)

9) Deciphering stroma-cancer cell circuits regulated by transcription factor EB (TFEB) by scRNA seq analysis in a transgenic mouse model of pancreatic adenocarcinoma (PDAC). (Tutors: Federico Bussolino, Raffaele Calogero).

Details of the project: [here](#)

10) Alternative transcriptome in cancer.

(Tutor: Michele De Bortoli; External Tutor: Marco Beccuti)

Details of the project: [here](#)

11) Cell population dynamics in colon cancer organoids.

(Tutors: Luca Primo, Matteo Osella).

Details of the project: [here](#)

12) Role of Semaphorins and Plexins in regulating the cross-talk between immune cells and vessel in cancer.



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(Tutor: Enrico Giraudo).

Details of the project: [here](#)

13) Using Genomic DNA and RNA Sequences to Diagnose Cancer (Fellowship funded by Chinese Scientific Council).

(Tutor: Enzo Medico; External Tutor: Leonardo Chiariglione).

Details of the project: [here](#)

14) Dissection of the molecular networks driving cell-specific effects of Citron Kinase deletion (Fellowship funded by Dept. of Neuroscience).

(Tutor: Ferdinando Di Cunto)

Details of the project: [here](#)

15) Data Mining for cancer genomics (Fellowship funded by Dept. of Physics)

(Tutor: Michele Caselle)

Details of the project: [here](#)

16) Identification of new cancer biomarkers - (n. 2 Fellowships; proposal submitted to H2020-MSCA-ITN-2020, n. 956245, acronym IDEN-BM)

(Tutor: Michele De Bortoli, External tutor: Veronica Negro)

Details of the project: [here](#)

17) Transcriptome analysis to characterize T cell response to non-small cell lung cancer (NSCLC) chemo-immunotherapy.

(Tutor: Federico Bussolino, External tutor: Giorgio Scagliotti).

Details of the project: [here](#)

18) Deconvolution of medulloblastoma *resistome* tracking of drug- tolerant subclones through single cell and bulk RNA-sequencing. (*titolo abbinato a borsa finanziata da IIGM /research project linked to the scholarship funded by IIGM*)

(Tutor: Michele Caselle, External tutor: Matteo Cereda).

Details of the project: [here](#)

19) Deciphering alternative splicing dynamics in cancer through third-generation RNA sequencing. (*titolo abbinato a borsa finanziata da IIGM /research project linked to the scholarship funded by IIGM*)

(Tutor: Michele Caselle, External tutor: Matteo Cereda).

Details of the project: [here](#)

20) Understanding and leveraging gene regulatory networks in T-lymphocytes to improve cancer immunotherapy. (*titolo abbinato a borsa finanziata da IIGM /research project linked to the scholarship funded by IIGM*)

(Tutor: Enzo Medico, External tutor: Luigia Pace).

Details of the project: [here](#)

21) Analysis of the regulatory networks underlying the differentiation of the adaptive immune responses. (*titolo abbinato a borsa finanziata da IIGM /research project linked to the scholarship funded by IIGM*)



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(Tutor: Dario Sangiolo, External tutor: Luigia Pace).

Details of the project: [here](#)

22) DP3: Early detection and prognosis of prostate cancer: an integrated model between biology and technology. (*titolo abbinato a borsa finanziata da IIGM /research project linked to the scholarship funded by IIGM*)

(Tutor: Francesca Cordero, External tutors: Giovanna Chiorino, Alessio Gordon Naccarati).

Details of the project: [here](#)

23) Computational models for the identification of new targeted therapies in colorectal cancer (*title linked to the position covered by research grant*)

(Tutor: Enzo Medico, External tutor: Alberto Bardelli).

Details of the project: [here](#)

24) Epigenomic landscape of metastatic colorectal cancer (mCRC) xenografts: challenges and opportunities.

(Tutor: Francesca Cordero, External tutor: Andrea Bertotti).

Details of the project: [here](#)