

CALL FOR APPLICATIONS (Call ID 2020-098)**Posts of Full-Time or Part-Time Research Support Officer I, II, III or IV (Bioinformatics)****TargetID – “Novel Drug Targets for Infectious Diseases” (TargetID – COV.RD.2020.11)****MCST COVID-19 R&D Fund 2020**

1. Applications are invited for the posts of Research Support Officers to carry out duties in relation to the **TargetID** Project which is funded by the COVID-19 R&D Fund 2020 of the Malta Council for Science & Technology and Malta Enterprise Corporation, and in which the University of Malta is the lead partner.

2. Applicants should possess the following qualifications:

Research Support Officer/s I (RSOI) Bioinformatics (Full-Time or Part-Time) - a Bachelor's degree in computational science or a related subject.

Research Support Officer/s II (RSOII) Bioinformatics (Full-Time or Part-Time) - a Master's degree in Bioinformatics or Computer Science (or related subjects). Experience in the Linux environment and the programming languages R and/or Python is a must. Experience in running bioinformatics pipelines for genomic and/or RNA-Seq analysis would be an asset.

Research Support Officer/s III (RSOIII) Bioinformatics: RNA-Seq/WGS (Full-Time or Part-Time) - a doctoral degree in Bioinformatics, Computational Biology, or a related field. Experience in the Linux environment and the programming languages R and/or Python is a must. Experience in setting up and running bioinformatics pipelines for genomic and/or RNA-Seq analysis is also required.

Research Support Officer/s IV (RSOIV) Bioinformatics (Full-Time or Part-Time) - a doctoral degree in Bioinformatics, Computational Biology, or a related field. Experience in handling and analysing bioinformatics sequence data is a must. Previous post-doctoral experience with systems biology, machine learning and deep learning algorithms will be considered as an asset.

The University of Malta is an Equal Opportunity employer.

3. The posts are for an initial period of 12 months, which may be extended further and carry the following initial remuneration:

Research Support Officer I - €20,800 per annum or €10 per hour;
Research Support Officer II - €24,960 per annum or €12 per hour;
Research Support Officer III - €31,200 per annum or €15 per hour;
Research Support Officer IV - €41,600 per annum or €20 per hour.

For a post on a part-time basis, the hours of work per week shall be an average of 20 or as agreed with the principal investigator.

4. Candidates should submit their letter of application, a copy of their curriculum vitae, a scanned copy of their certificates (certificates of degrees must be submitted in English), and contact details of at least two referees. Applications must be sent by e-mail to projects.hrmd@um.edu.mt by not later than **Wednesday, 16 December 2020**.

Late applications will not be considered.

5. Further information about the vacancy may be obtained from:
<https://www.um.edu.mt/hrmd/recruitment/projects>.

Office of the University,
Msida, 24 November 2020



The Malta Council for
Science & Technology

CALL FOR APPLICATIONS

Posts of Full-Time or Part-Time Research Support Officer I, II, III or IV (Bioinformatics)

TargetID – “Novel Drug Targets for Infectious Diseases”

MCST COVID-19 R&D Fund 2020

Further Information

1. **TargetID** will identify genes that regulate molecules that show deranged expression after SARS-Cov-2 infection, with the aim of finding suitable drug targets that would prevent COVID-19 induced cytokine storms. RNA-Seq and whole genome sequencing data will be generated from 1000 individuals and analysed using a combination of approaches, including family-based studies and biological pathway analysis, to mine transcriptome and WGS data for relevant genes and genetic variants. Genetic variants that alter risk for severity of COVID-19 infection will also be highlighted. This project will lead to a number of high impact publications, and the data generated will be an invaluable resource which will be useful for future research grant applications. Further information may be obtained by contacting the Principal Investigator, Dr Stephanie Bezzina Wettinger at stephanie.bezzina-wettinger@um.edu.mt.
2. The appointees will be expected to work at such places and during such hours as may be determined by the University authorities.
3. The selection procedure will involve:
 - a. scrutiny of qualifications and experience claimed and supported by testimonials and/or certificates (copies to be included with the application);
 - b. shortlisting; and
 - c. an interview and / or extended interview.
4. The posts are for an initial period of 12 months, which may be extended further and which will be subject to a probationary period and to the provisions of the Statutes, Regulations and Bye-Laws of the University of Malta which are now or which may hereafter be in force.
5. The appointees' list of duties are indicated below:

Research Support Officer/s I (RSOI) Bioinformatics (Full-Time or Part-Time)

The RSOI will be responsible for the servers, data storage, installation of bioinformatics software, running of bioinformatics pipelines, and provision of basic IT support to all users. The RSOI will:

- i. Liaise with IT Services at UM for the setup of the processing and storage servers (including networking between these). This setup includes the OS installation (Linux) and any software required for our bioinformatics needs;
- ii. Download and check RNA-Seq data from 1000 data sets, making it ready for use at the Bioinformatics facility. This step includes quality control of the data;

- iii. Download and check DNA HTS Data from 1000 data sets, making it ready for use at the Bioinformatics facility. This step includes quality control of the data;
- iv. Download Sanger sequencing data;
- v. Carry out regular maintenance, QC checks and back-ups of the data;
- vi. System administration of servers at the Bioinformatics facility at UM;
- vii. Train other users on how to access data on the servers and how to run bioinformatics analyses;
- viii. Set up the IT requirements for public outreach events and other dissemination activities;
- ix. Attend team and project meetings as required;
- x. Provide other basic IT support as needed;
- xi. Maintain the project website, and other electronic dissemination platforms; and
- xii. Assist in other duties as directed by the Principal Investigator of the project.

Research Support Officer/s II (RSOII) Bioinformatics (Full-Time or Part-Time)

The RSOII will provide additional bioinformatics support in the analysis of RNA-Seq and WGS data as required. The RSOII will form part of the Bioinformatics Team which will:

- i. Carry out a range of bioinformatics and statistical analyses on 1000 data sets;
- ii. Carry out regular QC to determine and take into account potential batch effects and carry out sample specific QC (gender checks and relationship checks) to ensure no sample mix-up;
- iii. Assist the rest of the Bioinformatics team to design pipelines for variant filtering, prioritisation and annotation;
- iv. Assist in the data analysis for reverse phenotyping experiments where the phenotype of individuals found to carry specific variants is ascertained;
- v. Create lists of all known genetic variants in short-listed candidate genes and determine frequencies of these variants in selected groups;
- vi. Attend project team meetings as required;
- vii. Participate in dissemination and outreach activities as part of the project team;
- viii. Contribute to the writing of scientific papers;
- ix. Participate in scientific conferences; and
- x. Assist in other duties as directed by the Principal Investigator of the project.

Research Support Officer/s III (RSOIII) Bioinformatics: RNA-Seq or WGS (Full-Time or Part-Time)

The RSOIII (RNA-Seq) will form part of the bioinformatics team and will be heavily involved in the analysis of the RNA-Seq data. Duties include:

- i. Be responsible for the technical aspects of RNA-Seq data processing of 1000 data sets;
- ii. Design QC and data analysis pipelines for transcript mapping, identification and quantification of transcripts and the comparative analysis of transcript abundance in relevant pathways;
- iii. Design, develop, and run a differential analysis pipeline for the analysis of publicly available RNA datasets from COVID-19 patients with different disease severity to select biological pathways of relevance;

- iv. Carry out a range of bioinformatics and statistical analyses to assess sequence quality, trim sequencing fragments, remove contaminating reads, issue alignment statistics and normalisation;
- v. Design the pipeline for the analysis of RNA-Seq data from the sample cohort.
- vi. Develop and validate bioinformatics methods for RNA-Seq
- vii. Assist in other parts of the project as required (e.g. WGS data analysis);
- viii. Attend project team meetings as required;
- ix. Participate in dissemination and outreach activities as part of the project team;
- x. Contribute to the writing of scientific papers;
- xi. Participate in scientific conferences; and
- xii. Assist in other duties as directed by the Principal Investigator of the project.

The RSOIII (WGS) will form part of the bioinformatics team and will be heavily involved in the analysis of WGS data.

- i. Oversee the technical aspect related to bioinformatics data processing of WGS data of 1000 data sets, pipeline design, quality control, mapping and variant calling;
- ii. Design, develop and run a pipeline for variant filtering, prioritisation and annotation;
- iii. Map sequencing reads to the human reference sequence using appropriate bioinformatics tools;
- iv. Call variants and generate variant call files (vcf) for each sample;
- v. Carry out appropriate data QC;
- vi. Assist in other parts of the project as required (e.g. RNA-Seq data analysis);
- vii. Attend project team meetings as required;
- viii. Participate in dissemination and outreach activities as part of the project team;
- ix. Contribute to the writing of scientific papers;
- x. Participate in scientific conferences; and
- xi. Assist in other duties as directed by the Principal Investigator of the project.

Research Support Officer/s IV (RSOIV) Bioinformatics (Full-Time or Part-Time)

The RSOIV will be leading the computational analyses of the RNA-Seq and WGS data. The RSOIV will form part of the Bioinformatics Team and will:

- i. Oversee all aspects of RNA-Seq and WGS data processing of 1000 data sets each of RNA-Seq and WGS;
- ii. Lead the design of all QC and data analysis pipelines required for the successful completion of the project. These include pipelines for the analysis of RNA-Seq data as well as WGS data;
- iii. Design, develop, and run a differential analysis pipeline for the analysis of publicly available RNA datasets from COVID-19 patients with different disease severity to select biological pathways of relevance;
- iv. Lead the development of mathematical algorithms required to query the RNA-Seq datasets according to the project requirements;
- v. Assist in the analysis and interpretation of RNA-Seq and WGS data;

- vi. Oversee the data analysis for reverse phenotyping experiments;
- vii. Take part in curation of variants, clinical interpretation and scientific evaluation of short-listed variants and relevant genes;
- viii. Build models that can be used to determine the effects of candidate variants on a large number of variables, for which data is already available, in an efficient and high throughput manner;
- ix. Attend and lead project team meetings as required;
- x. Participate in dissemination and outreach activities as part of the project team;
- xi. Contribute to the writing of scientific papers;
- xii. Participate in scientific conferences; and
- xiii. Assist in other duties as directed by the Principal Investigator of the project.

Office of the University,
Msida, 24 November 2020