

High Value Nutraceuticals Masters Scholarship

CLOSING DATE: 30 August

PURPOSE

Cervical cancer is one of the most common cancers in women. In New Zealand (NZ), Māori women have almost twice the incidence compared with non-Māori women. Cervical cancer is mainly caused by human papillomavirus (HPV). Despite the HPV vaccination becoming more available, there are still many cervical cancer patients diagnosed every year in NZ who need effective treatment.

Dendritic cells (DC) are professional antigen presenting cells uniquely able to induce naïve T cell activation and effector differentiation. DC-based vaccine hence becomes a potentially effective cancer immunotherapy. However, a DC-based vaccine requires adjuvant(s) to induce effective immune response. We have previously identified that a polysaccharide named fucoidan extracted from NZ seaweed *Undaria pinnatifida* has antiproliferation effect in cultured cervical cancer cells, and the low molecular weight fucoidan (LMWF) fraction also exerts immunomodulation effect *in vitro*. We have discovered that *U. pinnatifida* grown in NZ contains a unique LMWF fraction, which has better bioactivities compared with others. We therefore hypothesise that fucoidan, especially the low molecular weight fraction, extracted from NZ seaweed *U. pinnatifida*, can be developed into an adjuvant to HPV DC-based cancer immunotherapy. It is expected that with the enhanced response, the combination immunotherapy will become an effective treatment for cervical cancer.

The overall aim of this research is to discover the potential of LMWF extracted from NZ seaweed *U. pinnatifida* to be developed into an adjuvant in cervical cancer immunotherapy. The specific aims are: 1) successfully obtain LMWF and develop a LMWF formulation as a potential immune-adjuvant; 2) study LMWF's ability to stimulate DC proliferation and maturation and its effect as an immune-adjuvant in a cell culture system.

The main outcome will be an immuno-adjuvant to be developed and ready to be applied in the clinical setting. Such new use will be attractive to researchers around the world, and we will submit the results to high impact journal for publication. An effective immuno-adjuvant may lead to a successful immunotherapy for cervical cancer, which will benefit all patients.

AMOUNT AND TYPE OF AWARD

The scholarship consists of:

- Contribution to tuition and compulsory student services fees of up to \$7,500; plus
- A stipend of \$12,500 per annum for up to 12 months paid in monthly instalments.

TENURE

The scholarship is for one year of full-time study (120 points) only. The recipient must commence study no later than February 2022.

ELIGIBILITY CRITERIA

- The successful candidate will demonstrate enthusiasm and have an outstanding academic record and be prepared to conduct the doctoral study in Auckland, New Zealand.
- High proficiency in English is essential. Applicants who have completed tertiary and/or postgraduate education in English will be prioritised.
- Knowledge in the areas of biochemistry, biomedical science, human physiology, chemistry, and clinical trial would be an advantage.
- The holding of this scholarship is conditional on acceptance into the AUT Master of Science (Research) or Master of Philosophy programme. Applicants must fulfil all conditions for admission to the AUT MSc (Research) or MPhil programme in AUT University, which can be found on the AUT University website <https://www.aut.ac.nz/study/study-options/science>. This includes having completed the required academic qualifications for direct entry and meeting the requirements for English language proficiency.
- **Due to COVID-19 situation, no offshore international applicant will be considered. Students who are already in New Zealand, both domestic and international can apply.**

APPLICATION REQUIREMENTS

Applicants must complete the online application available through the *AUT Scholarships Database* www.aut.ac.nz/scholarships. The following documentation must be uploaded or received on or before the closing date.

- A cover letter describing your research experience and your interest in this project.
- A curriculum vitae (no more than 3 pages) including the names and contact details of two referees.
- Academic transcript(s) for any previous tertiary study that was completed at a university other than AUT.
- Two academic references. Applicants must not submit referee's reports directly but send a request to their referees from the online application system. Please advise your referees that they will be receiving an email requesting a reference statement.

It is recommended that you contact Professor Jun Lu (jun.lu@aut.ac.nz) to discuss the project and requirement before sending in your application.

CLOSING DATE: Applications are open and will close on 30 August 2020. If an appropriate candidate is not identified the scholarship may be reopened.

SELECTION PROCESS

Applications will be considered by the principal investigator of the project and will be based on demonstrated strength in the following:

- the applicant's academic record;
- the applicant's past research experience and publication record (if appropriate);
- the referees' statements.

The Selection panel's decision will be final; if suitable applicants are not available the panel will not award the scholarship.

The scholarship will not be awarded if the selection panel is of the opinion that the applicants are not of sufficient merit; the position may then be re-advertised.

CONDITIONS OF ACCEPTANCE AND APPOINTMENT

- The award of the scholarship is conditional on the recipient gaining entry to and enrolling in an AUT Master of Science (Research) or Master of Philosophy programme in the School of Science.
- The stipend cannot be released until the successful applicant is enrolled at in the AUT Master of Science (Research) or Master of Philosophy programme at AUT. The scholarship is to be taken up no later than February 2022.
- The successful applicant will be required to sign the AUT Postgraduate Scholarships Contract.
- This scholarship may not be held in conjunction with any other scholarship without the approval of the Faculty Scholarships Committee and Scholarships Office.
- The successful applicant must be prepared to commit full-time to their programme of research (for the purpose of this award full-time will be considered to be 30 hours per week).
- Recipients will not normally be approved to hold employment for more than 17 hours per week and will be expected to declare their employment.
- The scholarship cannot be deferred.
- Recipients must be resident in New Zealand to receive stipend payments. The stipend will be paid monthly into the recipient's nominated New Zealand bank account. Stipends will not be paid to students living offshore. Reasonable annual holiday leave overseas of no more than four weeks is acceptable.
- Scholarship payments will not be made retrospectively.
- Recipients must notify the School and the Scholarships Office in writing if they wish to apply for a Leave of Absence or withdraw from their programme.
- Recipients who take up this Scholarship but do not complete at least two semesters of study at AUT may be required to pay back the full value of the scholarship received.