Report for Joint Research Fiscal Year 2022

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Job Title	Senior Lecturer
Research Topic	Molecular and sero-epidemiologcal survey on the prevalence of human T-lymphotropic virus type 1 (HTLV-1), a causative agent of adult T-cell leukemia / lymphoma, and its measures for the prevention in Sabah, Malaysia
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Summary of Research Results for Fiscal Year 2022

HTLV-1 infection, adult T-cell leukaemia/lymphoma (ATL), has become a global epidemic, but prevalence studies are scarce and only conducted in endemic areas. The gaps in HTLV-1 prevalence data pose challenges to public health decision-making. To date, there are no published HTLV-1 prevalence data in Malaysia except for rare individual case reports, suggesting that HTLV-1 does exist in the country. In this study, a total of 1,968 samples were initially collected, consisting of 1,282 samples from blood donors from Kota Kinabalu, 304 samples from municipal workers from Kota Kinabalu City Hall, and 382 samples from febrile patients who went to Kota Belud Hospital. Screening using HTLV-1 agglutination test showed that all samples were negative. Further sample collection of 1,929 samples from Kudat found a total of 105 samples were agglutination positive and inconclusive. Of the 105 samples, 64 were positive by Western blotting and they were confirmed to be HTLV-1. This makes the prevalence of HTLV-1 in Sabah to be 3.3%.

ATL has a poor prognosis due its aggressiveness and resistance to current chemotherapies. The potential of natural products to be promising anticancer agents makes them an important area of research. The phenolic compound, gallic acid has shown remarkable anticancer and anti-HIV activities. However, there are no reports on its activity against HTLV-1 infected cancer cells. Therefore, this research investigated the effects of gallic acid on the viability of HTLV-1 infected cells using a luciferase ATP assay. Treatment with gallic acid at 50, 100 and 200 M remarkedly decreased the percentage of viable infected HUT102 cells. However, there were no notable changes between treatment times, suggesting the activity was

concentration-dependent but not time-dependent. The IC50 values for gallic acid at 24, 48 and 72h in the HUT102 cell line infected with HTLV-1 were 40.43, 41.62 and 43.89 M, respectively.