Potensi Inhibisi Ekstrak Tertarget Lunasin dari Kedelai terhadap Ekspresi PD-L1 pada Tikus Kanker Payudara = Inhibition Potential of Lunasin Targeted Extract from Soybean on PD-L1 Expression in Breast Cancer Mice

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Abstrak

Latar belakang: Kanker payudara merupakan kanker dengan insidensi tertinggi dan tingkat kematian kedua tertinggi di Indonesia. PD-L1 berperan penting dalam keganasan dengan melemahkan respon imun pejamu terhadap sel tumor. PD-L1 inhibitor sering digunakan untuk mengobati kanker payudara. Tingginya harga PD-L1 inhibitor menjadi masalah sehingga dibutuhkannya alternatif pengobatan dengan jangkauan harga lebih rendah. Ekstrak tertarget lunasin (ET-Lun) memiliki efek mencegah karsinogenesis salah satunya terhadap PD-L1.
Metode: Eksperimental in vivo penelitian dilakukan pada tikus Sprague Dawley (SD) yang dibagi menjadi 5 kelompok terdiri atas kelompok perlakuan dan tanpa perlakuan. Kelompok perlakuan semuanya diberikan DMBA untuk induksi kanker payudara (20mg/kgBB) dibagi menjadi kelompok (1) Kontrol negatif diberikan DMBA; (2) Kontrol positif diberikan DMBA dan tamoksifen (10 mg/kgBB); (3) Kuratif diberikan DMBA dan ET-Lun (500 mg/kgBB); dan (4) Kombinasi diberikan DMBA, tamoksifen (10 mg/kgBB) dan ET-Lun (500 mg/kgBB). Kelompok tanpa perlakuan yaitu (5) kelompok normal yang tidak diberi apa-apa. Setelah diterminasi, preparat histopatologi jaringan payudara didapatkan yang kemudian diberikan pewarnaan HE dan IHK. Histoscore digunakan untuk penilaian tingkat ekspresi PD-L1. Setelah didapatkan data histoscore dari preparat tersebut, analisis data dilanjutkan.
Hasil: Ekspresi PD-L1 pada kelompok normal = 138,33±8,41; kontrol negatif = 188,13±8,58; kontrol positif = 170,52±7,14; kuratif = 166,68±1,99; dan kombinasi = 150,85±6,49. Analisis data menunjukkan perbedaan bermakna pada seluruh antar kelompok (p=0,000) terkecuali antar kelompok kontrol positif dengan kelompok kuratif (p=0,872).
Kesimpulan: Pemberian ekstrak tertarget lunasin dari kedelai dapat menurunkan ekspresi PD-L1 pada jaringan kanker payudara tikus SD yang diinduksi DMBA.
.....Introduction: Breast cancer is a cancer with the highest incidence and the second highest mortality rate in Indonesia. PD-L1 plays an important role in malignancy by enhancing the host immune response to tumor cells. PD-L1 inhibitors are often used to treat breast cancer. The high price of PD-L1 inhibitors is a problem that requires alternative treatment with lower prices. Lunasin extract has the effect of preventing carcinogenesis, one of which is against PD-L1. However, there have been no studies reporting the effect of lunasin extract on PD-L1 in breast cancer.
Method: Experimental in vivo research was conducted on Sprague Dawley (SD) rats which were divided into 5 groups consisting of treatment and no treatment groups. All treatment groups were given DMBA (20 mg/kgBW) for breast cancer induction divided into groups (1) Negative control was given DMBA; (2) Positive controls were given DMBA and tamoxifen (10 mg/kgBW); (3) Curative were given DMBA and lunasin extract (500 mg/kgBW); and (4) Combinationwere given DMBA, tamoxifen (10 mg/kgBW) and lunasin extract (500 mg/kgBW). The group without treatment is (5) the normal group. After termination,

histopathological preparations of breast tissue were obtained which were then stained with HE and IHK. The histoscore was used to assess the expression level of PD-L1. After obtaining histoscore data from these preparations, data analysis was continued.
Result: PD-L1 expression in the normal group = 138.33±8.41; negative control = 188.13±8.58; positive control = 170.52±7.14; curative = 166.68±1.99; and combination = 150.85±6.49. Data analysis showed significant differences in all between groups (p=0,000) except between the positive control group and the curative group (p=0,872).
Conclusion: Administration of a targeted extract of lunasin from soybeans can reduce PD-L1 expression in DMBA-induced SD rat breast cancer tissue.