

# Peran lisat trombosit terhadap proliferasi dan marker invasi kanker matrix metalloproteinase-9 dan epithelial-cadherin sel punca kanker payudara cd24-/cd44 dalam kaitannya dengan platelet derived growth factor-ab = The Role of platelet lysate on the cd24 cd44 breast cancer stem cell proliferation and cancer invasion marker matrix metalloproteinase 9 and epithelial cadherin in the relation with platelet derived growth factor ab

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## Abstrak

### <b>ABSTRAK</b><br>

Latar Belakang: Trombositosis pada pasien kanker payudara KPD diduga berkontribusi pada penyebaran dan sifat invasi sel punca kanker payudara. Modifikasi lingkungan mikro tumor dapat dilakukan untuk meningkatkan efektivitas terapi anti kanker. Belum diketahui apakah platelet derived growth factor PDGF-AB dalam lisat trombosit LT juga berperan terhadap cancer stem cell CSC payudara CD24-/CD44. Tujuan: Penelitian ini bertujuan untuk menganalisis efek LT dan PDGF-AB didalamnya sebagai lingkungan mikro tumor pada proliferasi dan sifat invasi sel punca kanker payudara CD24-/CD44 yang ditandai dengan kadar matrix metalloproteinase-9 MMP-9 dan epithelial-cadherin E-cadherin. Metode: Penelitian ini merupakan studi eksperimental pada kultur sel punca KPD yang diberi LT dari pasien KPD dan donor sehat. Darah semua donor dilakukan pemeriksaan hematologi dan diproses untuk mendapatkan platelet rich plasma PRP. Jumlah trombosit per ?L PRP setiap donor dihitung. PRP diproses untuk mendapatkan LT. Kadar PDGF-AB LT diukur. LT 0,01 ditambahkan ke dalam medium dulbecco rsquo;s modified eagle rsquo;s medium DMEM -F12 untuk kultur sel punca KPD. Setelah inkubasi 48 jam, total jumlah sel, population doubling time PDT dan viabilitas sel dihitung dan dinormalisasikan terhadap nilai kontrolnya. Ekspresi MMP-9 dan E-cadherin dipilih sebagai penanda biologi sifat invasi dan diukur dengan metode enzyme-linked immunosorbent assay ELISA. Jumlah total sel, PDT, viabilitas sel, kadar MMP-9 dan E-cadherin dibandingkan antara pasien KPD dan donor sehat lalu dianalisis korelasinya dengan jumlah trombosit dan kadar PDGF-AB dalam lisat trombosit. Hasil: Jumlah trombosit dan kadar PDGF-AB dalam LT pasien KPD lebih tinggi dibandingkan LT donor sehat, keduanya dengan nilai  $p=0,02$ . LT pasien KPD memicu proliferasi sel punca KPD lebih baik dibandingkan LT donor sehat p

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### <b>ABSTRACT</b><br>

Background Thrombocytosis in breast cancer BC patient is supposed to play a role in the invasiveness of breast cancer stem cells. Modification of tumor microenvironment was proposed to increase the efficacy of anticancer therapy. Aim This study aimed to analyze the effect of platelet lysate PL as well as its platelet derived growth factor PDGF AB content as a tumor microenvironment on the CD24 CD44 breast cancer stem cell BCSC proliferation and invasiveness. Methods This experimental study treated BCSC culture with PL from BC patients or healthy donors. Venous blood from all donors were subjected to hematology test and processed to obtain PRP. Platelet counts in PRP were determined. PRP was processed to obtain PL. PDGF AB contents in PL were measured. PL 0.01 was supplemented into dulbecco rsquo s modified eagle

rsquo s medium DMEM F12 medium and used for culturing the CD24 CD44 BCSCs . After 48 hours, total cell count, population doubling time PDT , and cell viability were calculated and normalized to its control. Matrix metalloproteinase 9 MMP 9 and E cadherin was used as biological marker for CSC invasiveness and measured by enzyme linked immunosorbent assay ELISA method. Total cell count, PDT, cells viability as well as MMP 9 and E cadherin levels between BCSC, healthy donor platelet lysate and control group were compared and their correlation with platelet count in PRP and PDGF AB levels in platelet lysates were analyzed. Results Platelet counts and PDGF AB levels were higher in BC patient PL compared to healthy donor group, both with a p value of 0.02. BC patient PL could stimulate the proliferation of BCSCs higher than healthy donor PL p