Penggunaan Kultur Primer Kanker Payudara In Vitro Dalam Deteksi Sel Punca Menggunakan Gen Epcam dan CD44 = The use of in vitro breast cancer primary culture in stem cell detection using EpCAM and CD44 genes

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Abstrak

Kanker payudara menjadi penyebab kematian utama akibat kanker pada wanita. Metastasis dan kekambuhan menjadi faktor penyebab utama kematian akibat kanker. Metastasis menyebabkan sel tumor menginvasi dan menyebar melalui pembuluh darah menuju organ tubuh lain dan resistensi disebabkan karena sel punca yang memiliki kemampuan untuk self-renewal. Gen EpCAM dan CD44 dilaporkan memiliki kaitan dengan kepuncaan sel kanker. Sampai saat ini, pengembangan pengobatan kanker payudara masih terus dilakukan. Penggunaan kultur primer dalam studi in vitro terus dikembangkan karena hasil kultur primer homogen dengan lingkungan kanker primer. Optimasi kultur primer masih perlu dikembangkan. Selain itu, untuk melihat kepuncaan sel kanker diperlukan studi ekspresi gen terkait sel punca, yaitu EpCAM dan CD44. Penelitian ini bertujuan untuk mengoptimasi kultur primer kanker payudara dan mendeteksi sel punca menggunakan gen EpCAM dan CD44. Sampel kanker payudara didapatkan dari 10 pasien RS Cipto Mangunkusumo. Sampel yang digunakan adalah sampel high proliferative dan low proliferative. Metode kultur primer yang digunakan adalah metode enzimatis dan eksplan. Pengamatan kultur sel dilakukan selama 30 hari. Pada pengamatan molekuler, jaringan asal kanker dan sel hasil kultur primer digunakan untuk melihat ekspresi gen menggunakan metode qPCR. Hasil yang diperoleh menunjukkan bahwa metode yang berhasil untuk menumbuhkan sel kanker payudara adalah metode eksplan dan karakteristik sampel high proliferative. Sel sferoid (3D) didapatkan pada kultur kanker payudara. Hasil ekspresi gen menunjukkan ekspresi EpCAM dan CD44 tidak berbeda nyata (P>0,05) antara hasil kultur dan jaringan asal. Ekspresi gen yang tinggi diketahui berkorelasi dengan kehadiran sel punca

.....Breast cancer is the leading cause of death from cancer in women. Metastases and relapses are the main contributing factors to death from cancer. Metastases cause tumor cells to invade and spread through blood vessels to other organs of the body and resistance is caused due to stem cells having the ability to self-renew. The EpCAM and CD44 genes are reported to be associated with cancer cell stemness. To date, the development of breast cancer treatment is still being developed. The use of primary culture in in vitro studies continues to be developed because the results of the primary culture are homogeneous with the primary cancer environment. However, optimization of primary culture is still required to be developed. In addition, to see the cancer stemness, studies of stem cell-related gene expression are needed, namely EpCAM and CD44. This study aims to optimize the primary culture of breast cancer and detect stem cells using the EpCAM and CD44 genes. Breast cancer samples were obtained from 10 patients at Cipto Mangunkusumo Hospital. The samples used were high proliferative and low proliferative samples. The primary culture methods used were enzymatic and explanatory methods. Observation of cell cultures was carried out for 30 days. In molecular observations, cancer origin tissue and primary cultured cells were used to see gene expression using the qPCR method. The results obtained showed that the successful method for growing breast cancer cells is the explant method. Spheroid (3D) cells were obtained in breast cancer

cultures. Gene expression results showed that EpCAM and CD44 expression did not differ significantly ($P>0.05$) between culture results and tissue origin. High gene expression is known to correlate with the presence of stem cells.