

Potensi EPCAM sebagai Biomarker untuk Diagnosis Kanker Kolorektal melalui Deteksi Ekspresi Gen pada CTC dan PBMC = EPCAM Potential as a Biomarker for Colorectal Cancer Diagnosis through Detection of Gene Expression in CTC and PBMC

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Abstrak

Kanker kolorektal merupakan salah satu kanker yang memiliki angka penderita yang tinggi di dunia. EPCAM adalah salah satu gen yang diekspresikan pada karsinoma dan ditemukan dalam circulating tumour cell (CTC) yang umum digunakan sebagai penanda kanker. Peripheral blood mononuclear cell (PBMC) adalah sel darah perifer yang juga diduga mengekspresikan gen EPCAM, dan perlu diteliti lebih lanjut sebab kelimpahan PBMC di dalam tubuh lebih banyak dibandingkan CTC. Penelitian dilakukan dengan tujuan untuk mendeteksi ekspresi gen EPCAM pada CTC dan PBMC kanker kolorektal menggunakan metode semi-quantitative RT-PCR dan direct immunofluorescence sehingga potensi EPCAM sebagai biomarker untuk diagnosis kanker kolorektal diketahui. Isolat CTC dan PBMC yang berasal dari delapan sampel darah penderita kanker kolorektal diteliti melalui isolasi dan kuantifikasi RNA, kemudian dilanjutkan dengan amplifikasi cDNA, dan pewarnaan antibodi. Hasil penelitian menunjukkan tidak adanya ekspresi gen EPCAM pada CTC dan PBMC menggunakan metode semi-quantitative RT-PCR. Hasil pengamatan dengan metode direct immunofluorescence menunjukkan pada salah satu sampel PBMC terdapat protein yang belum dapat dipastikan sebagai EpCAM, namun pada CTC ekspresi gen EPCAM tidak terdeteksi. Berdasarkan hasil penelitian, dapat disimpulkan bahwa ekspresi gen EPCAM tidak terdeteksi pada CTC dan PBMC dengan metode semi-quantitative RT-PCR. Penelitian lebih lanjut diperlukan untuk mengkonfirmasi protein yang terdeteksi pada PBMC adalah EpCAM.

.....Colorectal cancer is one of the most common cancers in the world. EPCAM is one of the genes expressed in carcinoma and found in circulating tumor cells (CTC) which is commonly used as a cancer marker. Peripheral blood mononuclear cell (PBMC) is a peripheral blood cell that is also thought to express the EPCAM gene and needs to be investigated further because PBMC is more abundant in the body than CTC. The research was conducted to detect the expression of the EPCAM gene in CTC and PBMC of colorectal cancer using semi-quantitative RT-PCR and direct immunofluorescence methods so that EPCAM potential as a biomarker for colorectal cancer diagnosis is known. CTC and PBMC isolated from eight blood samples of colorectal cancer patients were evaluated through RNA isolation and quantification, followed by cDNA amplification, and antibody staining. The results showed that EPCAM gene expression was not detected both in CTC and PBMC using the semi-quantitative RT-PCR method. Furthermore, the direct immunofluorescence method showed that EPCAM gene expression was not detected in CTC. However, a protein that has not been confirmed as EpCAM was detected in PBMC. Based on the results of the study, it can be concluded that the EPCAM gene expression was not detected both in CTC as well as in PBMC by semi-quantitative RT-PCR method. Further research is required to confirm that the protein detected in PBMC is EpCAM. CTC, direct immunofluorescence, ekspresi gen, EPCAM, kanker kolorektal, PBMC, semi-quantitative RT-PCR.