Cloning and expression of pab gene of M. tuberculosis isolated from pulmonary TB patient in E.coli DH5α

Abstrak

Latar belakang: Antigen38 Mycobacterium tuberculosis merupakan agen serodiagnostik yang potensial karena mengandung
dua epitop spesifik untuk sel B. Mahalnya agen diagnostik menyebabkan lambatnya realisasi diagnosis TB secara cepat di
negara berkembang. Kami memproduksi antigen 38 rekombinan yang berasal dari galur lokal yang kemungkinan dapat
digunakan untuk memproduksi alat serodiagnostik TB yang ekonomis.
Metode: Gen pab diisolasi dari pasien TB paru di Malang, diklon ke plasmid pGEM-Teasy menjadi pMB38. Klon E.coli
DH5α yang membawa pMB38 diseleksi di medium yang ditambah dengan X-Gal. Ekspresi pab dilakukan menggunakan
pMBhis yang berasal dari pPRoExHTc dibawah kontrol promoter Trc dengan inang E.coli DH5α
Hasil: Pencocokan sekuen gen pab dari klon E.coli DH5α berwarna putih dengan gen pab dari M. tuberculosisH37Rv
memperlihatkan homologi sebesar 98%. Protein rekombinan yang sudah dihilangkan signal peptidanya ditemukan di
sitoplasma.
Kesimpulan: Gen pab dari pasien TB dapat diekspresikan secara intraseluler dengan sistem heterolog
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Abstract
Background: Mycobacterium tuberculosis antigen38 is a potent serodiagnostic agent containing two M. tuberculosisspecific
B-cell epitopes. The high price of imported diagnostic agents hinders realization of fast clinical TB diagnosis in
developing countries. Therefore, we produced recombinant antigen38 (recAg38M) from M. tuberculosis local strain, which
might be used to produce economical tuberculosis serodiagnostic kit.
Methods: Pab gene that was isolated from pulmonary TB patient in Malang was cloned into a plasmid vector (pGEMTeasy)
to construct pMB38. The E.coli DH5α clone carrying pMb38 was selected on X-gal medium. The expression of pab
was mediated using pPRoExHTc under the control of Trc promoter and E.coli DH5α as host.
Results: Alignment of the pab sequence from the white E.coli DH5α clones with that of M. tuberculosis H37Rv showed

98% homology. The recombinant protein in which the signal peptide has been deleted to prevent the protein being secreted
into medium was found in the cytoplasm.
Conclusion: pab gene of M. tuberculosis isolated from a TB patient could be expressed in heterologous system in E.
coliDH5α.