ABSTRAK

Damayanti, Anggela. 2013. Pengaruh Vaksinasi *Outer Membrane Protein* (OMP) *Mycobacterium tuberculosis* Subkutan Terhadap Jumlah Sel T $CD4^+$ Mencit BALB/c Secara *In Vivo***.** Tugas Akhir, Fakultas Kedokteran, Universitas Brawijaya. Pembimbing: (1) Dr. dr. Dwi Yuni H, M.Kes (2) dr. Ahmad Dian W, Sp. THT-KL

Mycobacterium tuberculosis merupakan patogen yang menyebabkan penyakit radang paru kronis. Salah satu pencegahannya adalah dengan vaksinasi BCG. Namun, vaksinasi BGC tingkat efektifitasnya sangat bervariasi. *Mycobacterium tuberculosis* mempunyai *Outer Membrane Protein* (OMP) yang bersifat imunogenik dengan berat molekul 71 kDa. Pada penelitian ini, digunakan *Outer Membrane Protein* (OMP) hasil pemotongan *M. tuberculosis*. Uji Elektroforesis SDS-PAGE menunjukan *Outer Membrane Protein* (OMP) mengandung protein dengan berat molekul mendekati 71 kDa. OMP digunakan sebagai vaksinasi subunit yang diimunisasi secara subkutan pada daerah tengkuk mencit. Terdapat 2 macam perlakuan, yaitu mencit yang divaksin dan mencit yang tidak divaksin menggunakan OMP. Total mencit yang digunakan adalah 18 mencit. Penghitungan dilakukan di limpa mencit menggunakan metode *flowcytometry* dengan isolasi sel T $CD4^+$. Hasil uji Independent Sample t-Test menunjukan angka signifikansi < 0.05, yang berarti ada perbedaan pengaruh induksi vaksin *Outer Membrane Protein* (OMP) yang signifikan terhadap jumalh sel T $CD4^+$ pada limpa mencit. Kesimpulan dari penelitian ini adalah *Outer Membrane Protein* (OMP) mengandung protein imunogenik dengan berat molekul mendekati 71 kDa, pemberian *Outer Membrane Protein* (OMP) secara subkutan mampu menginduksi respon imun pada mencit.

Kata kunci : OMP *Mycobacterium tuberculosis*, subkutan, sel T $CD4^+$.

ABSTRACT

Damayanti, Anggela. 2013. *Effect of Subcutaneous Vaccination Using Outer Membrane Protein (OMP) of Mycobacterium tuberculosis on CD4$^+$ T Cell Level In Mice Strain BALB/C*. Final Assignment, Faculty of Medicine, Brawijaya University. Supervisors: (1) Dr. dr. Dwi Yuni Nur H, M.Kes (2) dr. Ahmad Dian W, Sp. THT-KL

Mycobacterium tuberculosis is a pathogen than infected one third of world population. One way to prevent the TB is using BCG vaccination. However, the effectiveness of BCG is on a wide range (0-80%). *Mycobacterium tuberculosis* has *Outer Membrane Protein (OMP)* with molecular weight 71 kDa that is immunogenic. In this research, *Mycobacterium tuberculosis* was cut down to get a *Outer Membrane Protein (OMP)*. The *Outer Membrane Protein (OMP)* was tested by Electroforesis SDS-PAGE. The result showed that there was protein with molekuar weight 71 kDa on the *Outer Membrane Protein (OMP)*, indicating that *Outer Membrane Protein (OMP)* has immunogenic protein. *Outer Membrane Protein (OMP)* was used as a subunit vaccine that was injected subcutanly on the back regio of the mice neck. In this research used 2 groups : mice didn't injected *Outer Membrane Protein (OMP)* and mice injected OMP. 18 mice were used. The level was counted from the spleen, using flowcytometry method with isolation of CD4$^+$ T cell. Independent T test was under 0,05, indicating that there was significant difference in any type of induction to the CD4$^+$ T cell level in the spleen of the mice. The conclution of this research is *Outer Membrane Protein (OMP)* of tuberculosis contains immunogenic protein with molecular weight 71 kDa, the subcutaneous injection of *Outer Membrane Protein (OMP)* tuberculosis was able to induce immune response on mice.

Key Words: OMP *Mycobacterium tuberculosis*, Subcutaneous, CD4$^+$ T cell.

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