Introduction:
A strategy to accelerate the elimination of leprosy in Indonesia is by enhancing detection of leprosy cases as early as possible. Therefore markers that can be used to detect *M. leprae* early infection are needed for preventive action. *Nramp1* has been known to play a role in resistance to infection with *Mycobacterium* by influencing the level of intracellular pathogen replication in macrophages. The purpose of this study was to elucidate the role of protein expression NRAMP1, genotypic variants D543N, 3’UTR, INT4, and IgG and IgM anti PGL-1 in mechanisms of host resistance against infection with *Mycobacterium leprae*.

Methods:
This study was a cross sectional study. The research process includes examination of anti PGL – 1, genotype variants D543N , INT4, 3’UTR of NRAMP1 and NRAMP1 expression. Subjects observed in this study comprised case group (23 patients), those with multibacillary leprosy, and household contact group (28 individuals), consisting of those living in endemic areas.

Results:
NRAMP1 expression of household contact group was higher (9.18 ± 11.11) than that of leprosy patients group (0.35 ± 0.65), (p = 0.000). Household contact group had IgG and IgM anti PGL–1 level lower than that in leprosy group (median 81.03 ± IQD 380.92 , p=0.000 and median 574.73 ± IQD 312.50, p=0.000). D543N and NRAMP1 indicated lower the risk factors of leprosy (β=-0.338, p=0.004 ; β=-0.401, p=0.000). The risk of leprosy incidence is high if NRAMP1 protein level is < 1.5(Sensitivity = 91.3% ; specificity = 67.9%).

Conclusion:
NRAMP1 expression can be used for screening of leprosy.

Keywords: leprosy, NRAMP1, D543N, 3’UTR, INT4, anti PGL-1.