

# Pengaruh Bakteri *Lactococcus Lactis* ssp *Lactis* YPD01 Asal Dadih Terhadap Perkembangan Maturasi Sel Dendritik In Vitro Dari Subyek First Degree Relatives Dan Non-First Degree Relatives DM Tipe 2 = The Effect Of *Lactococcus Lactis* ssp *Lactis* YPD01 From Dadih On The Development Of In Vitro Dendritic Cell Maturation From First Degree Relatives And Non-First Degree Relatives Of Type-2 DM

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## Abstrak

First-degree relatives (FDR) adalah generasi pertama (anak) dari orangtua yang memiliki riwayat diabetes melitus tipe 2. Kejadian DM tipe 2 pada FDR secara genetik berisiko 2 kali lipat dibandingkan Non FDR. Penyakit ini didasari adanya inflamasi derajat rendah kronik berhubungan dengan menurunnya aktivitas anti-inflamasi. Diperlukan upaya pencegahan diantaranya dengan memberikan probiotik yang diharapkan dapat meningkatkan kemampuan anti-inflamasinya. Bakteri *Lactococcus lactis* ssp *lactis* YPD 01 adalah bakteri yang dominan ditemukan pada makanan dadih yang berasal dari Sumatera Barat. Penelitian ini bertujuan untuk menganalisis pengaruh pemberian *Lactococcus lactis* ssp *lactis* YPD01 terhadap perkembangan monosit menjadi sel dendritik dengan mengkaji peran CD11C, CD80 dan CD40 pada kultur darah PBMC subjek FDR dan NFDR DMT2. CD40 dan CD80 berperan dalam penanda perubahan karakter sel-sel dendritik sebagai sel penyaji antigen dan penting dalam mengaktivasi sel T helper. Sebanyak 22 sampel darah masing-masing subjek FDR dan NFDR DMT2 dikultur dengan menambahkan *Lactococcus lactis* ssp *lactis* YPD01 pada hari ke-0 dan diinkubasi selama 3 hari, 6 hari dan 9 hari. Pada kondisi awal H-0 tanpa stimulasi diketahui bahwa pada subjek FDR DMT2 didapatkan ekspresi CD40 tiga kali lipat lebih tinggi dibandingkan dengan ekspresi CD80 pada sel dendritik. Pemberian *Lactococcus lactis* ssp *lactis* YPD01 dapat menyebabkan perkembangan ekspresi CD40 pada subjek FDR DMT2 menurun dibanding tanpa pemberian *Lactococcus lactis* ssp *lactis* YPD01.

.....First-degree relatives (FDR) are the first generation (children) of parents who have a history of type 2 diabetes mellitus. Occurrence of type 2 DM in FDR genetically at risk 2 times compared to Non FDR. This disease is based on chronic low-grade inflammation associated with decreased anti-inflammatory activity. Prevention efforts are needed, including by giving probiotics which are expected to increase their anti-inflammatory abilities. bacteria *Lactococcus lactis* ssp *lactis* is the dominant bacteria found in dadih food originating from West Sumatra. This study aims to analyze the effect of administration of *Lactococcus lactis* ssp *lactis* YPD01 on the development of monocytes into dendritic cells by examining the role of CD11C, CD80 and CD40 in PBMC subjects FDR and NFDR DMT2. CD40 and CD80 play a role in markers of changes in the character of dendritic cells as antigen-presenting cells and are important in activating T helper. A total of 22 blood samples from each of the FDR and NFDR groups DMT2 was cultured by adding *Lactococcus lactis* ssp *lactis* YPD01 on day 0 and incubated for 3 days, 6 days and 9 days. In the H-0 initial condition without stimulation it was known that in FDR DMT2 subjects the expression of CD40 was three times higher than the expression of CD80 in dendritic cells. Giving *Lactococcus lactis* ssp *lactis* YPD01 can cause the development of CD40 expression in FDR DMT2 subjects to decrease compared to without administration of *actococcus lactis* ssp *lactis* YPD01.