

**PENGARUH MEDIA TERKONDISI SEL PUNCA MESENSIMAL
TERHADAP EKSPRESI GEN *PEROXISOME PROLIFERATOR
ACTIVATED RECEPTOR- γ* (PPAR- γ) TIKUS MODEL DIABETES
MELITUS TIPE 2**

Ida Ayu Preharsini Kusuma
15/389568/PMU/08527

INTISARI

Penelitian ini dilakukan untuk mengetahui pengaruh MT-SPM pada peningkatan berat badan dan kadar insulin puasa (FINS) serta peningkatan ekspresi gen PPAR- γ pada tikus model DM tipe 2. Media terkondisi sel punca mesensimal mengandung metabolit bioaktif hasil sekresi kultur SPM. *Peroxisome proliferator activated receptor- γ* (PPAR- γ) sebagai salah satu faktor transkripsi, berperan dalam homeostasis glukosa dan sensitivitas insulin. Pada penelitian ini dilakukan pengujian parameter dasar DM tipe 2 seperti berat badan dan FINS (ELISA) serta pengujian ekspresi gen PPAR- γ (qRT-PCR). Perhitungan kuantitas ekspresi relatif gen PPAR- γ dilakukan dengan metode Livak. Analisis data dilakukan dengan *Independent T-test* dengan signifikansi 95%. Hasil pengujian parameter dasar seperti berat badan menunjukkan peningkatan yang bermakna pada kelompok perlakuan (dengan penginduksian DM dan terapi MT-SPM) dibandingkan dengan kontrol positif (dengan penginduksian DM tanpa terapi MT-SPM). Kadar FINS pada perlakuan tidak mengalami peningkatan yang bermakna dengan kontrol positif. Ekspresi relatif gen PPAR- γ pada perlakuan mengalami peningkatan secara bermakna dibandingkan dengan kontrol positif. Ekspresi relatif gen PPAR- γ pada perlakuan mengalami peningkatan ekspresi sebesar 2,03 kali lipat. Hal ini menunjukkan bahwa komponen MT-SPM dapat meningkatkan ekspresi gen PPAR- γ .

Kata Kunci: DM tipe 2, gen PPAR- γ , MT-SPM, metode Livak

THE EFFECT OF MESENCHYMAL STEM CELL-CONDITIONED MEDIUM ON PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR- γ (PPAR- γ) GENE EXPRESSION IN TYPE 2 DIABETIC RAT MODELS

Ida Ayu Preharsini Kusuma
15/389568/PMU/08527

ABSTRACT

Prevalence of type 2 DM in Indonesia increase every year. A number of therapies have been used to overcome the disease, one of them is therapy with regenerative medicine such as stem cell. However, it still have limitation on controlling the proliferation. Therefore, therapy without cell is needed. Mesenchymal Stem Cell-Conditioned Medium (MSC-CM) contain secretion of cultured MSC. This research was conducted to find out the effect of MSC-CM on improvement of fasting insulin levels (FINS), body weight and PPAR- γ gene expression in rat model of type 2 DM. Peroxisome proliferator-activated receptor- γ (PPAR- γ) as one of the transcription factors, play a role in glucose homeostasis and insulin sensitivity. This research was conducted on measurement basis of type 2 DM parameters such as body weight and FINS (ELISA) as well as measurement of PPAR- γ gene expression (qRT-PCR). Calculation of the relative gene expression of quantity of PPAR- γ was done with Livak methods. Data analysis was conducted by the Independent T-test with a 95% significance. The results of measurement basis parameters such as body weight showed an increased significantly in the treatment group (with DM induction and MSC-CM therapy) compared with positive control (with DM induction without MSC-CM therapy). Levels of FINS at the treatment has no meaningful improvement compared with positive control. Relative gene expression of PPAR- γ on treatment increased significantly compared with the positive control. Relative gene expression of PPAR- γ treatment up-regulated of 2,03 times. This indicates that the MSC-CM component can enhance the expression of PPAR- γ gene.

Keywords : Type 2 DM, PPAR- γ gene, MSC-CM, Livak method