

## INTISARI

Penggunaan *injectable Platelet-Rich Fibrin* (i-PRF) sebagai generasi ketiga konsentrasi *platelet* dari PRP telah banyak digunakan sebagai salah satu perawatan regeneratif periodontal, karena mengandung *platelet*, leukosit dan *growth factors*. Namun kekurangan dari i-PRF adalah sifatnya yang cair, dan *growth factors* yang mudah terdegradasi dengan cepat, sehingga diperlukan suatu *scaffold* atau *guided tissue regeneration* (GTR) dalam bentuk nanofiber untuk dapat meningkatkan masa pakai i-PRF. Nanofiber kitosan-*polyvinyl alcohol* salah satu *scaffold* yang banyak diteliti dan dikembangkan karena bersifat biokompatibel. Penelitian ini bertujuan untuk melihat viabilitas dari inkorporasi i-PRF dengan nanofiber kitosan-*polyvinyl alcohol*, i-PRF serta nanofiber kitosan-*polyvinyl alcohol* terhadap sel *human primary fibroblast*.

Penelitian menggunakan nanofiber berukuran diameter 5 mm yang direndam dalam i-PRF 5% selama 10 menit, kemudian dimasukkan ke dalam sumuran yang berisi  $5 \times 10^3$  sel/well. Setelah proses inkubasi CO<sub>2</sub> pada suhu 37<sup>0</sup> selama 24 jam, tiap sumuran diberi *Methylthiazol Tetrazolium* (MTT) kemudian diinkubasi kembali selama 4 jam dan dilihat pada *Multimode Microplate Reader*. Viabilitas sel diukur dengan menghitung presentase sel yang hidup. Data dianalisis menggunakan uji *One Way ANOVA*.

Hasil penelitian menunjukkan inkorporasi i-PRF/nanofiber kitosan-*polyvinyl alcohol* menunjukkan rerata viabilitas sel diatas >90%. Hasil uji *Post-Hoc* menunjukkan tidak ada perbedaan yang bermakna antara i-PRF/nanofiber kitosan-*polyvinyl alcohol* dengan kelompok i-PRF ( $p > 0,05$ ). Kesimpulan dari penelitian ini adalah inkorporasi i-PRF/ nanofiber kitosan-*polyvinyl alcohol* berpengaruh terhadap viabilitas sel *human primary fibroblast*.

**Kata kunci:** *Injectable Platelet-Rich Fibrin*, nanofiber kitosan-*polyvinyl alcohol*, viabilitas, biokompatibel, sitotoksitas, periodontitis.

## ABSTRACT

*The use of injectable Platelet-Rich Fibrin (i-PRF) as a third generation of platelet concentrations from PRP has been widely used as one of the regenerative periodontal treatments, because it contains platelets, leukocytes and growth factors. However, the drawbacks of i-PRF are its liquid nature and growth factors which are easily degraded quickly, so a scaffold or guided tissue radiation (GTR) in the form of nanofiber is needed to increase the service life of i-PRF. Chitosan-polyvinyl alcohol nanofiber is one of the scaffolds that has been extensively researched and developed because it is biocompatible. This study aims to see the viability of i-PRF incorporation with chitosan-polyvinyl alcohol nanofiber, i-PRF and chitosan-polyvinyl alcohol nanofiber itself against human primary fibroblast cells.*

*This study used 5 mm-diameter nanofibers which were soaked in 5% i-PRF for 10 minutes, then put into wells containing  $5 \times 10^3$  cells/well. After the 24-hour CO<sub>2</sub> incubation process at 37<sup>0</sup>, each well was treated with Methylthiazole Tetrazolium (MTT) and then incubated for another 4 hours to viewed on the Multimode Microplate Reader. Cell viability was measured by calculating the percentage of viable cells. Data were analyzed using the One Way ANOVA test.*

*The results showed that the incorporation of i-PRF/chitosan-polyvinyl alcohol nanofiber showed an average cell viability of >90%. Post-Hoc test results showed no significant difference between the i-PRF/chitosan-polyvinyl alcohol nanofiber and the i-PRF group ( $p > 0,05$ ). The conclusion of this study is that the incorporation of i-PRF/ chitosan-polyvinyl alcohol nanofibers has an effect on the viability of human primary fibroblast cells.*

**Keywords:** *Injectable Platelet-Rich Fibrin, chitosan-polyvinyl alcohol nanofibers, viability, biocompatible, cytotoxicity, periodontitis.*