

**UJI VIABILITAS NANOHYDROXYAPATITE BATU KAPUR TERHADAP
ADIPOSE DERIVED MESENCHYMAL STEM CELL**

**(VIABILITY TEST OF NANOHYDROXYAPATITE OF LIMESTONE ON
ADIPOSE DERIVED MESENCHYMAL STEM CELL)**

ABSTRACT

Background : *Nanohydroxyapatite is the most promising material for tissue engineering due to its biocompatibility and biodegradability. Lime stone can be used as an alternative source of Hydroxyapatite. This is what underlies the author to support engineering tissue by utilizing Nanohydroxyapatite derived from lime stone. This research was conducted to test viability of Nanohydroxyapatite from lime stone on adipose derived mesenchymal stem cell for 24 hours and 48 hours*
Aim : *This study aims to examine the viability from lime stone on adipose derived mesenchymal stem cell*
Methods : *adipose derived mesenchymal stem cell is taken from healthy rabbit and planted in 96 well plates. Nanohydroxyapatite from lime stone with a concentration of 5%,10%,20%,30% dan 40%, were added to each well and incubated during 24 hour and 48 hours.*
MTT assay is performed to see the viability of adipose derived mesenchymal stem cell
Result : *The viability of adipose derived mesenchymal stem cell were increased after the addition nanohydroxyapatite from lime stone on concentration 5% until130%. The highest viability of the cell was shown after addition of 5%*
Conclusion : *Nanohydroxyapatite from lime stone has the potential in tissue engineering and the concentration of 5% shows the highest viability on adipose derived mesenchymal stem cell*

Keywords : *Nanohydroxyapatite, scaffold, limestone, adipose derived mesenchymal stem cell*

ABSTRAK

Latar belakang : *Nanohydroxyapatite merupakan material yang menjanjikan untuk rekayasa jaringan dikarenakan sifat biokompatibel dan biodegradasinya. Batu kapur dapat digunakan sebagai sumber alternative dari hydroxyapatite. Hal inilah yang mendorong peneliti untuk menunjang rekayasa jaringan dengan memanfaatkan nanohydroxyapatite dari batu kapur. Penelitian ini dilakukan untuk menguji daya viabilitas nanohydroxyapatite batu kapur terhadap adipose derived mesenchymal stem cell selama 24 jam dan 48 jam*
Tujuan : *Mengetahui viabilitas nanohydroxyapatite batu kapur terhadap adipose derived mesenchymal stem cell*
Metode : *Sel adipose diambil dari kelinci dan ditanam dalam 96 well plate. Nanohydroxyapatite dengan konsentrasi 5%, 10%,20%,30% dan 40%, dimasukkan ke dalam masing-masing well dan diinkubasi selama 24 jam dan 48 jam. MTT assay dilakukan untuk melihat viabilitas adipose derived mesenchymal stem cell*
Hasil : *Terdapat peningkatan nilai viabilitas dari konsentrasi 5% hingga 10%. Konsentrasi 5% menunjukkan viabilitas paling tinggi*
Kesimpulan : *nanohydroxyapatite batu kapur memiliki potensi dalam rekayasa jaringan keras dan pada konsentrasi 5% menunjukkan viabilitas paling tinggi.*

Kata kunci : *Nanohydroxyapatite, scaffold, batu kapur, adipose derived mesenchymal stem cell*