Comparison of different approaches for generation of tolerance-inducing antigen presenting cells

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GRADUATION DATE: 18.07.2023

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KEY WORDS

- ✓ Macrophage
- ✓ Dendritic cell
- ✓ Vitamin D3
- ✓ Dexamethasone
- ✓ A151 ODN

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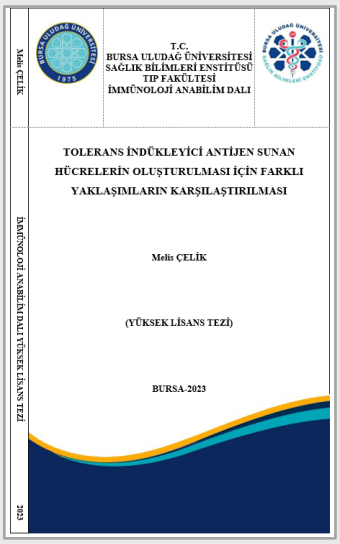

THESIS ABSTRACT

Many drugs and biological agents are used for the treatment of autoimmune diseases. To achieve therapeutic levels in target organs or tissues, they need to be administered in high doses, which can lead to serious side effects. In such cases, one alternative approach could be the systemic and/or local administration of dendritic cells and macrophages with induced tolerance-inducing properties.

In our study, we aim to compare different approaches for the generation of TolDHs (tolerogenic dendritic cells) and M2 phenotype macrophages. Dendritic cells derived from the bone marrow of C57BL/6 and BALB/c mice were treated with specific concentrations of vitamin D3, dexamethasone, and A151 ODN, and the expression of CD80, CD86, and CD11c markers was examined. Macrophages and the RAW.264.7 cell line were treated with specific concentrations of A151 ODN, and the levels of CD80 and CD86 were assessed. As a result, A151 ODN treatment significantly reduced the levels of CD80 and CD86 in bone marrow-derived macrophages. These results were found to be statistically significant. In dendritic cells, a decrease in CD80 and CD86 expressions was observed with vitamin D3+dexamethasone combinations and under conditions where A151 ODN was added.Based on these results, it is may be suggested that A151 ODN-induced bone marrow-derived macrophages and tolerogenic dendritic cells could be used as a therapeutic treatment approach in autoimmune diseases.

APPLICATION AREAS OF THE THESIS RESULTS

In our study, we aimed to convert bone marrow-derived macrophages from C57BL/6 and BALB/c mice into M2 phenotype macrophages by reducing their CD80 and CD86 expressions by adding A151 ODN, an immunosuppressive oligonucleotide. It was concluded that after the addition of the immunosuppressive oligonucleotide A151 ODN, the bone marrow-derived macrophages obtained from C57BL/6 and BALB/c mice had a decrease in CD80 and CD86 expression levels and their excitatory capacity could be reduced. As a result, according to the first data we obtained; Macrophages converted to an immunomodulatory phenotype with A151 are thought to have the potential to be used in the treatment of autoimmune diseases. In our study, dendritic cells obtained from C57BL/6 and BALB/c mice were treated with pharmacological agents such as vitamin D3, dexamethasone and A151 ODN oligonucleotide, an immunosuppressive oligonucleotide. As a result, dendritic cells that become tolerance inducers are thought to have the potential to be used as a therapeutic treatment method for autoimmune diseases.

ACADEMIC ACTIVITIES

Çelik M., Arslan G., Güvenç Bayram G., Dündar F.,.Yumuşak E., Karaçay M., Bal S. H., Yöyen Ermiş, D., Gürsel, İ., Akkoç A., Yalçın M. ve Oral, H. B. (2023, Mart). *A151 odn oligonükleotidini kullanılarak kemik iliğinden türevlenen makrofajın m2 fenotipine dönüştürülmesi* [Bildiri sunumu]. İmmüno romatoloji sempozyumu , Antalya