

## ABSTRACT

### THE INFLUENCE OF MAGNETIC FIELD EXPOSURE OF *EXTREMELY LOW FREQUENCY (ELF)* WITH 20 – 32 $\mu$ T INTENSITY ON IMMUNO MODULATION OF BALB/C MICE

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The objective of the study is to reveal the mechanism of immuno modulation on Balb/C mice wich were exposed to extremely low frequency magnetic field with 20 – 32  $\mu$ T intensity 8 hour/day intermitently for 15 days and 30 days. The variable used in this study are IL-10, IFN-gamma, IgG, and IgM detected by using immunohistochemical method.

The 15-day exposure in mice with extremely low frequency magnetic field with 20 – 32  $\mu$ T intensity showed a significance corelation with immuno modulation, reflected by the increase of IL-10 and IgM along with the decrease on IFN-gamma and IgG values. The increased IL-10 may possibly inpair the activity of Th1 cell in produce IFN-gamma, causing the decrease of number of T cell producing IFN-gamma. The decrease in IFN-gamma may influence the activation of plasma cell to produce immunoglobulin by switching the  $\mu$  to  $\gamma$  chain, hence the accumulmation of IgM and decreased production of IgG.

However the decreased IL-10 and IgM and the increased IFN-gamma and IgG occured only after exposure for 30 days. The immuno modulation remain following Th1 and Th2 balance although in decreasing quality. IFN-gamma and IgM contribution seems to decrease after 30-days exposure respectively 50% and 20%.

The result of the study reveals that the mechanism of immuno modulation after exposure for 15 days is still in the adaptation stage, meanwhile the exhausted stage in the form of immunodeficiency possibly occur only after 30-day exposure.

Keywords: *extremely low frequency magneic fields, exhausted stage, adaptation stage, immunodeficiency, Immuno Modulation*

