

## Effects of 200cH medications on mice bone marrow cells and macrophages.

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### ABSTRACT

Paracelsus once wrote: "All things are poison and nothing is without poison, only the dose permits something not to be poisonous." Latter Hahnemann formulated the *law of similars*, preparations which cause certain symptoms in healthy individuals if given in diluted form to patients exhibiting similar symptoms will cure it. Highly diluted natural complexes prepared according to Hahnemann's ancient techniques may represent a new form of immunomodulatory therapy. The lack of scientific research with highly diluted products led us to investigate the *in vivo* and *in vitro* actions of commonly used medications. Here we describe the results of experimental studies aimed at verifying the effects of *Mercurius solubilis*, *Atropa Belladonna*, *Lachesis muta* and *Bryonia alba*. All medications were at 200cH dilution. Animals were maintained for 7 days and were allowed to drink the medications, which were prepared in a way that the final dilution and agitation (200cH) was performed in drinking water. The medication bottle was changed and succussed every afternoon. Co-culture of non treated mice bone marrow cells and *in vitro* treated peritoneal macrophages were also performed. After animal treatment the bone marrow cells were immunophenotyped with hematopoietic lineage markers on a flow cytometer. We have determined CD11b levels on bone marrow cells after culture and co-culture with treated macrophages and these macrophages were processed to scanning electron microscopy. We have observed by morphological changes that macrophages were activated after all treatments. *Mercurius solubilis* treated mice showed an increase in CD3 expression and in CD11b on nonadherent bone marrow cells after co-culture with *in vitro* treatment. *Atropa Belladonna* increased CD45R and decreased Ly-6G expression on bone marrow cells after animal treatment. *Lachesis muta* increased CD3, CD45R and, CD11c expression and decreased CD11b *ex vivo* and in nonadherent cells from co-culture. *Bryonia alba* increased Ly-6G, CD11c and CD11b expression *ex vivo* and when in co-culture CD11b was increased in adherent cells as well as decreased in nonadherent cells. With these results we have demonstrated that highly diluted medications act on immune cells activating macrophages, and changing the expression profile of hematopoietic lineage markers. Highly diluted medications are less toxic and cheaper than other commonly used medications and based on our observations, it is therefore conceivable that this medications which are able to act on bone marrow and immune cells may have a potential therapeutic use in clinical applications in diseases where the immune system is affected and also as regenerative medicine as it may allow proliferation and differentiation of progenitor cells.

keywords: high diluted complexes, bone marrow, macrophages.



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