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Background and objectives The authors have previously shown that phosphorus-based dendrimer ABP targets monocytes to inhibit inflammation and osteoclastogenesis in two models of experimental arthritis. The authors have now further explored this model and tested the frequency and route of administration of dendrimer ABP.

Materials and methods The authors used two models of mouse arthritis: IL-1 ra-/- which develops a spontaneous arthritis at the age of 6 weeks. The KxB/N serum transfer arthritis, which is more severe, and develops upon the injection of auto-antibodies from KxB/N mice. Inflammation and paw-swelling were scored, cytokines were measured by Elisa, and histology was performed.

Results In the IL-1 ra-/- model of spontaneous arthritis, the i.v. injection of dendrimer was found to be optimal when administered every 3 weeks. To test for other route of administration, gavage was also performed once a week after solubilisation of dendrimer in an aqueous buffer. This suggests that dendrimer ABP is not degraded in the gastrointestinal tract and is absorbed efficiently using this route of administration.

In the KxB/N serum transfer model, which is more severe, several i.p. injections of serum interspaced with dendrimer ABP (every 3 days over the course of the experiment) were performed. The authors showed that injections of KxB/N serum (days 0 and 2) induced arthritis which was well controlled by dendrimer. Subsequent injection of serum (day 11) reactivated arthritis, thus mimicking flares of arthritis that are observed in RA. Again, arthritis was controlled by dendrimer. On day 20, 3 days after the last injection of serum performed on day 17, mice were euthanised and blood drawn for analysis. Quantification of serum pro-inflammatory cytokines (IL-1 β , TNF α , IL-6, IL-17) showed that i.v. dendrimer completely abrogated the inflammation seen in untreated arthritic mice. Bone destruction and osteoclast (OC) formation were also controlled in mice treated with dendrimer.

Conclusion Our data further argue in favor of strong anti-inflammatory and anti-OC properties of dendrimer ABP. Our data are also in favor of a possible oral administration of the compound.

18 FREQUENCY AND ROUTE OF ADMINISTRATION IN THE TREATMENT OF EXPERIMENTAL ARTHRITIS BY PHOSPHORUS-BASED DENDRIMER

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