

Retinoid-Induced Modulation of Immunoglobulin M Secretion, by Bovine Mononuclear Leukocytes In Vitro

Brian J. Nonnecke¹, Timothy A. Reinhardt¹, and Sharon T. Franklin¹

¹ USDA, Agricultural Research Service, National Animal Disease Center, Metabolic Diseases and Immunology Research Unit, Ames, IA 50010-0070

Effects of *trans* and *cis* isomers of retinol and retinoic acid on IgM secretion by bovine peripheral blood mononuclear leukocytes were evaluated in vitro. Mononuclear leukocyte cultures that were unstimulated or stimulated by pokeweed mitogen were supplemented with isomers of retinol and retinoic acid at 10^{-10} to 10^{-6} M.

Concentrations of polyclonal IgM in supernatants from 14-d cultures were measured by an ELISA. Cultures stimulated by pokeweed mitogen consistently secreted more IgM than parallel, unstimulated cultures.

Retinoid supplementation did not affect basal IgM secretion by unstimulated cultures. However, each retinoid affected IgM secretion

by cultures stimulated by mitogen. The nature of the effect was dependent on the concentration of the specific retinoid. All-*trans*-retinoic acid enhanced secretion at 10^{-10} M and inhibited secretion at 10^{-6} M. The other retinoids, however, did not inhibit IgM secretion at any concentration. Each retinoid enhanced IgM secretion at one or more concentrations, although enhancement was produced by much lower concentrations of retinoic acid isomers than retinol isomers. These results indicate that retinol and retinoic acid modulate polyclonal IgM secretion by cultures of bovine mononuclear leukocytes stimulated by mitogen. Future research will determine which subsets of the mononuclear leukocyte population are affected and whether *trans*-retinoic acid is the metabolite that produces these effects.

Key Words: retinol • retinoic acid • immunoglobulin • bovine lymphocytes

Submitted on December 14, 1992

Accepted on March 15, 1993

This Article

- ▶ [Full Text \(PDF\)](#)
- ▶ [Alert me when this article is cited](#)
- ▶ [Alert me if a correction is posted](#)

Services

- ▶ [Similar articles in this journal](#)
- ▶ [Similar articles in PubMed](#)
- ▶ [Alert me to new issues of the journal](#)
- ▶ [Download to citation manager](#)
- ▶ [Get Permissions](#)

Citing Articles

- ▶ [Citing Articles via Google Scholar](#)

Google Scholar

- ▶ [Articles by Nonnecke, B. J.](#)
- ▶ [Articles by Franklin, S. T.](#)
- ▶ [Search for Related Content](#)

PubMed

- ▶ [PubMed Citation](#)
- ▶ [Articles by Nonnecke, B. J.](#)
- ▶ [Articles by Franklin, S. T.](#)