

**Inhibitory Effects of Modified Arabinoxylan
from Rice Bran (BioBran/MGN-3)
on the Progression of Atopic Dermatitis
in NC Mice**

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Summary

BioBran/MGN-3 is an extract of arabinoxylan from rice bran. We investigated the immunoregulatory effects of BioBran/MGN-3 using NC mice, which naturally develop atopic dermatitis-like skin lesions together with high levels of serum IgE. BioBran/MGN-3 was administered orally to 5 NC mice, which were then immunised three times with ovalbumin (OVA). Blood samples were collected biweekly before and after immunisation. Levels of total IgE, as well as OVA-specific IgE, in the sera measured by specific ELISA were significantly decreased in BioBran/MGN-3 treated mice compared with untreated animals. Furthermore, atopic dermatitis-like skin lesions did not develop in any of the mice which received BioBran/MGN-3, whereas all those without the treatment developed lesions. We conclude that BioBran/MGN-3 has inhibitory effects on the progression of the atopic dermatitis-like skin lesions in NC mice.

This article is a revision of a presentation given at the 11th International Congress of Immunology (2001).

II-5-2 Inhibitory Effects of Modified Arabinoxylan from Rice Bran (BioBran/MGN-3) on the Progression

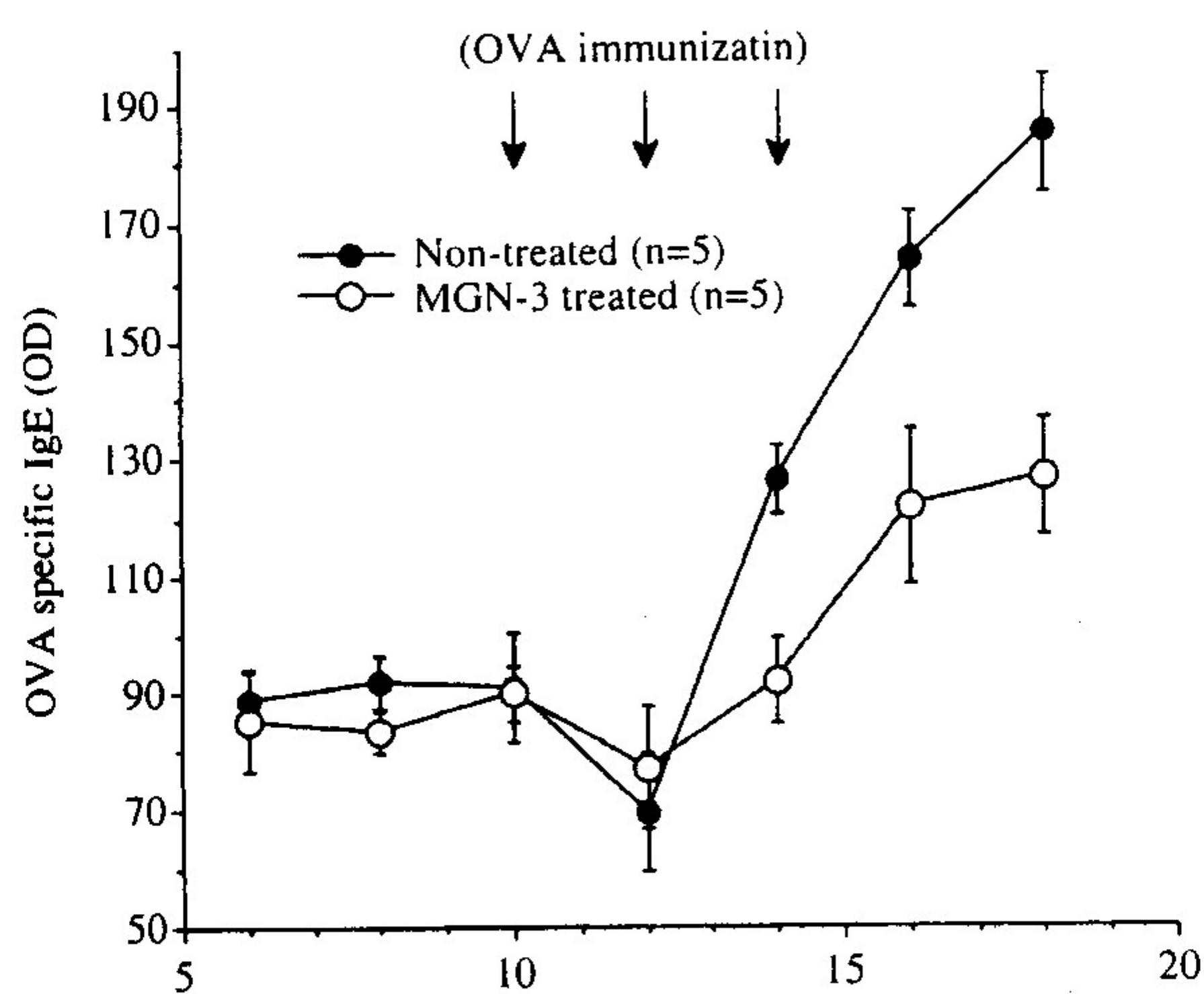


Fig.1 MGN-3 has inhibitory effects on the increase of serum OVA specific IgE concentration in NC mice

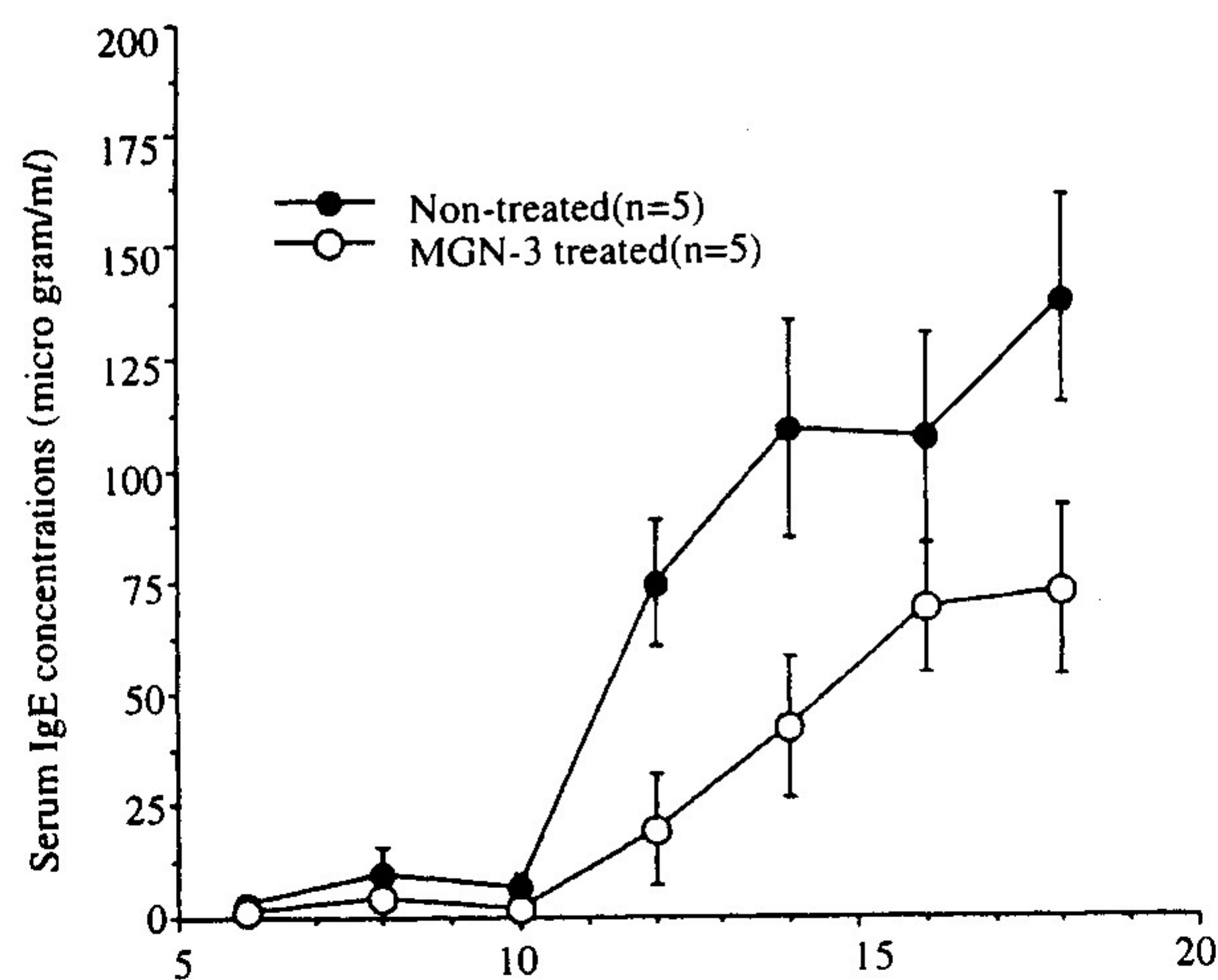


Fig.2 MGN-3 has inhibitory effects on the increase of serum IgE concentration in NC mice

Experimental Methods

[Animals]

4 week-old female NC/Nga mice were used. NC/Nga mice originated from Japanese fancy mice (Nishiki-Nezumi) and were established as an inbred strain in 1955. Reported biological characteristics include liver and kidney esterase like DBA/2 mice, high susceptibility to X-irradiation, and to anaphylactic shock after ovalbumin (OVA) immunisation.

II-5-2 Inhibitory Effects of Modified Arabinoxylan from Rice Bran (BioBran/MGN-3) on the Progression

[Methods]

0.5 % of BioBran/MGN-3 was mixed with commercial stock diet (Oriental Yeast Co., Ltd.) and administered orally to 5 NC mice throughout the study. 5 NCga mice without BioBran/MGN-3 treatment were used as control. OVA was injected intraperitoneally (i.p.) three times with 2 week intervals between immunisations. Blood samples were taken biweekly. Total serum IgE and OVA specific IgE were measured by specific ELISA. Mice were photographed biweekly to assess the progression of atopic dermatitis-like lesions.

Results

- 1) BioBran/MGN-3 inhibited the increase of total IgE in sera of NC mice (**Fig.1**).
- 2) BioBran/MGN-3 inhibited the increase of OVA-specific IgE in sera of NC mice immunized with OVA (**Fig.2**).
- 3) BioBran/MGN-3 had inhibitory effects on the progression of atopic dermatitis-like skin lesion in NC mice.