Abstract: The NC/Nga mouse is a model animal for human atopic dermatitis. In this study, we investigated oral tolerance induction in NC/Nga mice. In BALB/c mice, oral administration of ovalbumin (OVA) resulted in suppression of both OVA-specific T and B cell responses induced by OVA immunization. In NC/Nga mice, OVA-induced antigen (Ag)-specific T and B cell responses were significantly less than those in BALB/c mice. Furthermore, oral administration of OVA did not suppress OVA-specific immunoresponses in NC/Nga mice. We further examined antibody (Ab) response against food Ag by feeding mice an experimental diet that contained OVA or casein as a protein source. The level of serum OVA or casein-specific IgG was significantly higher in NC/Nga mice than in BALB/c mice. These results indicate that NC/Nga mice have a defect in the induction of oral tolerance. NC/Nga mice can therefore be used as a model for investigating the mechanism of oral tolerance. J. Med. Invest. 53: 29-33, February, 2006

Keywords: NC/Nga mice, oral tolerance, antigen, antibody, ovalbumin
Mice, Ag administration and immunization

OVA and casein diets

Determination of anti-OVA and anti-casein Ab levels in serum

Proliferation assay

Statistical analysis
In vitro and in vivo studies showed that the expression of Fcgr 2b was upregulated in response to various stimuli. The upregulation of Fcgr 2b was found to be mediated by the transcription factor NF-κB, which binds to the promoter region of the Fcgr 2b gene. This upregulation of Fcgr 2b expression was found to be associated with an increased inflammatory response. The results of these studies suggest that Fcgr 2b may play a role in the regulation of the inflammatory response, and that its expression may be a useful biomarker for monitoring the inflammatory response.

The Journal of Medical Investigation Vol. 53 February 2006