letters

Is malaria linked to the absence of α-galactosyl epitopes in Old World primates?

In an interesting viewpoint article[1], Uri Galili discusses the significance to xenotransplantation in humans of the absence of Galα1-3Galβ1-4GlcNAc-R structures (termed the α-galactosyl epitope) and the corresponding appearance of natural (anti-Gal) antibodies in humans. Nonprimate mammals and New World monkeys express the α-galactosyl epitope and have no anti-Gal antibodies[1]. Galili suggests that selective pressure exerted by a pathogen endemic to the Old World might have resulted in the inactivation of the α1,3 galactosyltransferase (α1,3GT) gene, which synthesizes α-galactosyl epitopes. Thus, Old World primates may have developed a defensive mechanism against the pathogens through the loss of immune tolerance and the production of anti-Gal antibodies[1].

There is evidence to suggest that the malaria parasite may be the pathogen responsible for this selective pressure[2]. Primate malaria is endemic in the Old World and is believed to have been introduced to the New World during the time of Christopher Columbus. Malaria is known to have exerted selective pressure on human populations at the level of globin and human major histocompatibility complex (MHC) HLA genes[3,4]. The human malaria parasite *Plasmodium falciparum* expresses terminal α-linked galactose in glycoproteins[5], which is recognized by antibodies in normal[2] and immune[6] human sera. Clearly however, the levels of natural anti-Gal antibodies in human plasma do not provide complete protection from infection with any of the four human malaria parasites, including *P. falciparum*. On the other hand, *P. falciparum* readily infects certain New World monkeys, but not Old World monkeys[7]. It will be interesting to determine if *P. falciparum* growth *in vitro* is influenced by anti-Gal antibodies, and whether or not other parasite species that infect Old World primates contain α-galactosyl epitopes.

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Circulating soluble adhesion molecules: more observations on the increased levels in disease

In the October issue of *Immunology Today*, Andrew Gearing and Walter Newman reviewed the many recent findings that demonstrate increased levels of various members of the selectin and immunoglobulin superfamilies in different disease states. Furthermore, they suggest that these increases may provide a useful means of monitoring disease progression. This review has generated much interest and two items of the correspondence that has been received by *Immunology Today* follow. In the first letter, Giovanni Pizzolo *et al.* describe the increase of soluble intercellular adhesion molecule 1 (sICAM-1) in Hodgkin's disease and discuss how this may play a role in the pathophysiology of the disease. In the second letter, Stephan Martin *et al.* suggest that the increase in soluble adhesion receptors may play a protective role in autoimmunity, particularly in individuals who do not demonstrate an increased risk of developing type 1 diabetes, but who do represent a genetic risk.

Circulating soluble ICAM-1 in patients with Hodgkin's disease

In a recent article in *Immunology Today*, Gearing and Newman provided an exhaustive overview of the disease states in which increased levels of circulating soluble adhesion molecules have been detected, and discussed the issue of their possible physiological relevance[1]. However, they did not mention a number of recent studies relating to the level of circulating soluble intercellular adhesion molecule 1 (sICAM-1) in Hodgkin's disease (HD) (Refs 2–4), as these data only became available while their review was in press. Therefore, to add to this review, we would like to summarize and briefly comment on these new data.

We investigated ICAM-1 tissue immunoreactivity and serum levels of sICAM-1 in adult patients presenting with HD. The ICAM-1 molecule was found to be expressed strongly in tissues involved in the disease, and serum levels of sICAM-1 were higher in HD patients (79 cases) than in normal controls (538±235 *versus* 399±128 ng ml^{-1}; $P<0.01$). Levels of sICAM-1 were also higher in patients with more-advanced HD