Resistance and Susceptibility to Malarial Infection: A Host Defense Strategy against Malaria

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Abstract:

Background: In an effort to understand what limits the virulence of malaria parasites in relation to the host genetic and immunogenic background, we investigated the possibility that the parasite and host genotype crossover interactions constrain virulence. Methods: Two groups of mice from different genotypes were used (C57BL/6 (B6) and DBA/2 mice). The mice were infected with a virulent parasite line Plasmodium yoelii 17XL (P. yoelii 17XL). Parasitemia, hematocrit value and lymphocytes yielded by livers and spleens were evaluated. Fluorescence Activated Cell Sorting (FACS) analysis illustrated phenotypic characterization of lymphocytes. Results: Infection with P. yoelii 17XL did not result in the death of DBA/2 mice. In contrast, B6 mice developed significantly high parasitemia and succumbed to death. Using (FACS) analysis, DBA/2 mice were found to experience a marked expansion of interleukin (IL)-2Rβ+ CD3int cells and γδ T cells in the liver, especially in the recovery phase. The expansion of unconventional T cells (i.e. B220+ T cells) was also marked in DBA/2 mice. Conclusion: The outcome of murine malaria infections depends on the dynamic interplay between the immune-mediator and the genotype of the host.

Keywords:

Malaria, Immune cells, DBA/2 mice

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