PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

The double-edged sword of donor T-cell chimerism in skin grafts

ArticleInfo		
ArticleID	:	111
ArticleDOI	:	10.1186/ar-2001-66883
ArticleCitationID	:	66883
ArticleSequenceNumber	:	68
ArticleCategory	:	Paper Report
ArticleFirstPage	:	1
ArticleLastPage	:	1
ArticleHistory	:	RegistrationDate : 2001–2–14 OnlineDate : 2001–2–14
ArticleCopyright	:	Biomed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130753311

Nathalie Lambert,[Aff1]

Aff1 Fred Hutchinson Cancer Research Center, Seattle, USA

Keywords

Chimerism, organ transplant, tolerance, organ transplant, tolerance

Context

Cells migrating from an organ transplant to the host, called microchimeric cells, have been involved in both acceptance and rejection of the graft. The specific aim of this study is to understand the conditions in which donor cells induced the two different outcomes: tolerance or immunity.

Significant findings

With a clear and straightforward experimental design of donor chimerism from skin grafts in mice, the authors show the two opposing roles of microchimeric cells, which were mainly donor T cells. In summary: donor microchimeric T cells induce tolerance only in immunologically immature hosts, whereas in others microchimerism results in immunity. However, if the graft expresses antigens that are not expressed by chimeric cells, rejection results. Donor T cells can migrate to the host thymus and induce tolerance. Chimeric donor T cells are unable to tolerize mature naive T cells, and in these conditions donor T cells are immunogenic. In conclusion, the presence of chimeric cells, mainly donor T cells, can lead to acceptance or rejection of the graft.

Comments

This study is outstanding in the field of organ transplantation, since it illustrates that donor chimeric cells could have beneficial as well as harmful results. Therefore clinical studies in this field must take into account the different conditions described to avoid an increased number of rejections. However, there should be some reservations regarding the animal model, because immunodeficient recipient mice were used to increase the chances of chimerism, and this model might not perfectly reflect a 'human model'.

Methods

Skin graft, immunodeficient mice, flow cytometry, cytotoxic T lymphocyte and proliferation assays

References

1. Anderson CC, Matzinger P: Immunity or tolerance: opposite outcomes of microchimerism from skin grafts. Nature Med. 2001, 7: 80-87.