Video Article

Preparation of 2-dGuo-Treated Thymus Organ Cultures

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Abstract

In the thymus, interactions between developing T-cell precursors and stromal cells that include cortical and medullary epithelial cells are known to play a key role in the development of a functionally competent T-cell pool. However, the complexity of T-cell development in the thymus *in vivo* can limit analysis of individual cellular components and particular stages of development. *In vitro* culture systems provide a readily accessible means to study multiple complex cellular processes. Thymus organ culture systems represent a widely used approach to study intrathymic development of T-cells under defined conditions *in vitro*. Here we describe a system in which mouse embryonic thymus lobes can be depleted of endogenous haemopoeitic elements by prior organ culture in 2-deoxyguanosine, a compound that is selectively toxic to haemopoeitic cells. As well as providing a readily accessible source of thymic stromal cells to investigate the role of thymic microenvironments in the development and selection of T-cells, this technique also underpins further experimental approaches that include the reconstitution of alymphoid thymus lobes *in vitro* with defined haemopoietic elements, the transplantation of alymphoid thymuses into recipient mice, and the formation of reaggregate thymus organ cultures. (This article is based on work first reported Methods in Molecular Biology 2007, Vol. 380 pages 185-196).

Video Link

The video component of this article can be found at https://www.jove.com/video/906/

Protocol

Please visit Springer Protocols for more information about the preparation of ex vivo thymus organ cultures.

Disclosures

The authors have nothing to disclose.