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**Dynamics of Cellular Interactions During TCR-MHC Recognition
in
3-Dimensional Tissue Visualized by Two-Photon Microscopy**

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We have begun to use 2-photon laser scanning microscopy to study the spatial and temporal aspects of TCR signaling during thymocyte selection and antigen recognition by mature T cells. We find that thymocytes within 3-dimensional thymic organ cultures are highly motile and display preferentially interacts with positive selecting thymic stromal cells. A subset of these interactions involve long-lived, stable contacts, while another subset involves short-lived dynamics contacts and sequential interactions with MHC bearing stromal cells. We have been using a similar approach to examine mature T cells interacting with DCs in lymph nodes and results obtained from the two systems will be compared.

Bouso, P, Bhakta, N., Lewis, R. and Robey, E (2002) Dynamics of thymocyte-stromal cell interactions visualized by 2-photon microscopy. *Science*, 2002 Jun 7;296(5574):1876-80

The Forty-Second Midwinter Conference of Immunologists – January 25-28, 2003 – Pacific Grove, California (USA)