

## **Subcellular localization of the Akt kinase during T cell activation**

Lawrence P. Kane, Marianne Mollenauer and Arthur Weiss

Dept. of Medicine, University of California, San Francisco

San Francisco, CA 94143-0795

The Akt (or PKB) serine/threonine kinase has been linked to the control of diverse cellular processes, from transcriptional and translational control to glucose metabolism and cell survival. Consistent with the presence of an N-terminal PH domain, Akt is activated in a PI-3 kinase-dependent manner, and requires both PIP<sub>3</sub> and the intermediate kinase PDK-1 for full activation. In an attempt to better understand the activation and function of PI-3 kinase and Akt during T cell activation, we have followed the localization of full-length Akt or its PH domain during the early phases of T cell activation by antigen/APC. We find that the PH domain alone does not account in full for localization of Akt. Thus, the PH domain of Akt, and by association PIP<sub>3</sub>, is associated with the plasma membrane not only at the T cell-APC contact site, but also in the remainder of the cell. By contrast, full-length Akt is found mainly at the contact site, where activated Akt (as determined with phospho-specific antibodies) is located. We will also present structure/function analysis which addresses the issue of how full-length Akt is restricted to the T cell-APC contact site.