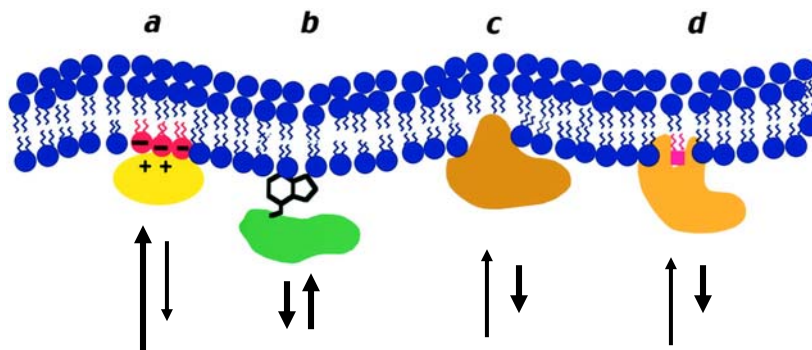
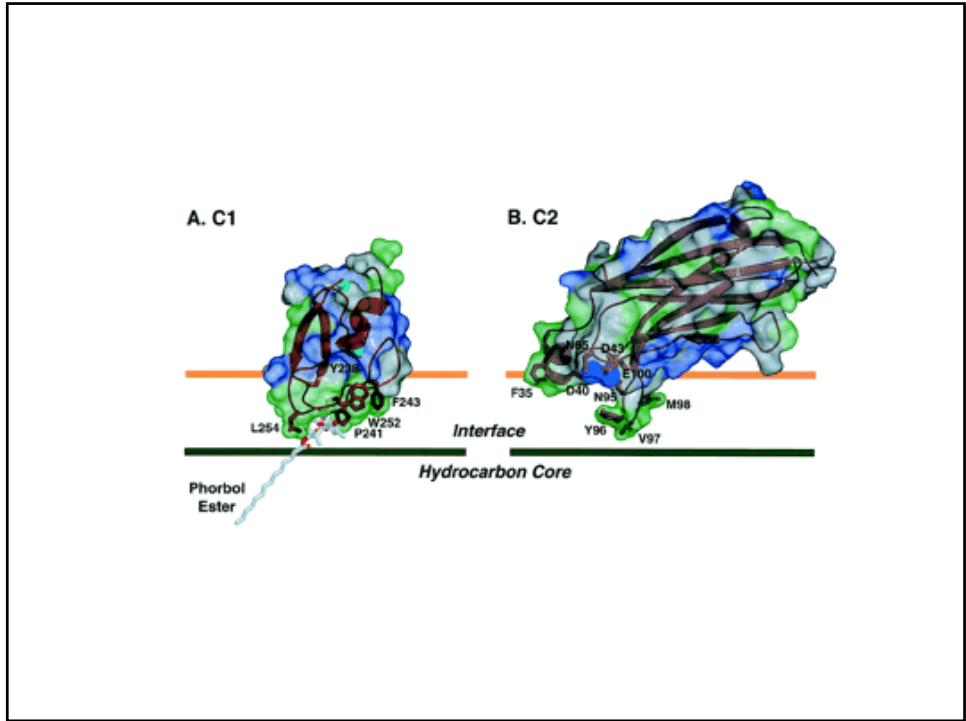


Control of protein function

Subcellular Targeting by Membrane Lipids

Different Types of membrane protein interactions





Primers in Biology

Taken from **Protein Structure and Function**
Gregory A Petsko and Dagmar Ringe

<p>EF-hand</p> <p>Example: Calmodulin Function: calcium binding Specificity: Ca²⁺</p>	<p>LRR</p> <p>Example: Rpn1 Function: protein-protein interactions Specificity: various</p>	<p>PTB</p> <p>Example: Shc Function: protein-protein interactions Specificity: phosphotyrosine</p>
<p>ANK (ankyrin repeat)</p> <p>Example: Swi6 Function: protein-protein interactions Specificity: various</p>	<p>C2</p> <p>Example: PKC Function: electrostatic switch Specificity: phospholipids</p>	<p>Death domain (DD)</p> <p>Example: FADD Function: protein-protein interactions in pathway that triggers apoptosis Specificity: other DD domains through heterodimers</p>

WW



Example: Pin1
Function: protein–protein interactions
Specificity: proline-rich sequences

LIM



Example: CRP2
Function: protein–protein interactions, usually in transcription regulation
Specificity: various

F-box



Example: Skp2
Function: protein–protein interactions in ubiquitin-dependent protein degradation
Specificity: various

C1



Example: PKC
Function: recruitment of proteins to the membrane
Specificity: phospholipids

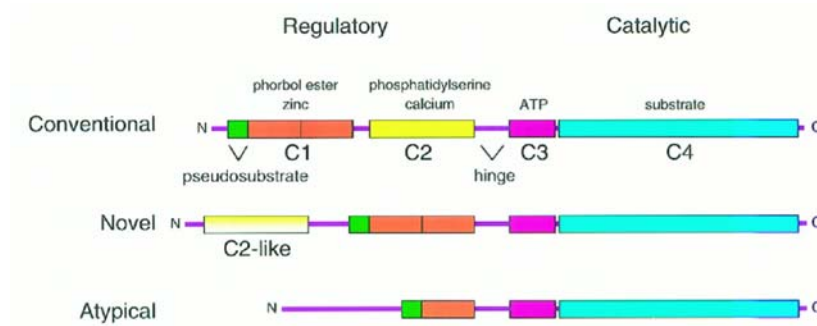
Fibronectin



Example: Fibronectin III
Function: protein–protein interactions in cell adhesion to surfaces
Specificity: RGD motif of integrins

Protein Kinase C: a paradigm for regulation of protein function by two membrane-targeting modules

Different PKC Isoforms



Cell, Vol. 95, 307-318, October 30, 1998, Copyright ©1998 by Cell Press

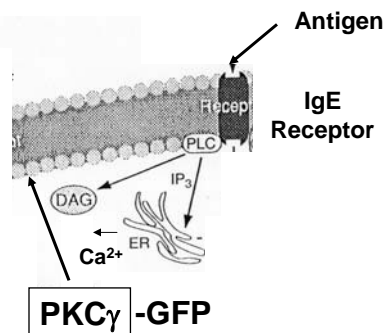
Protein Kinase C as a Molecular Machine for Decoding Calcium and Diacylglycerol Signals

Elena Oancea and Tobias Meyer*
Department of Cell Biology
Duke University Medical Center
Durham, North Carolina 27710

Receptor mediated signal transduction processes utilize the same signaling proteins and second messengers to induce different cellular functions.

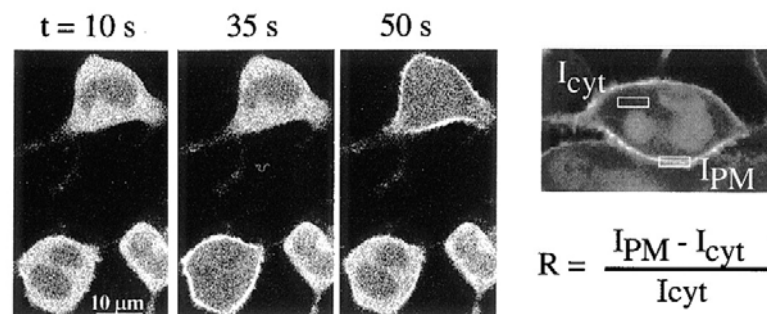
How specificity can be achieved for a particular pathway?

System used

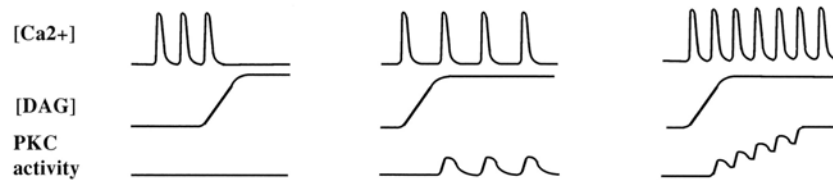


While it has been shown that cPKC isoforms require Ca^{2+} as well as DAG to be fully active, little is known about the activation steps that leads to maximal kinase activity.

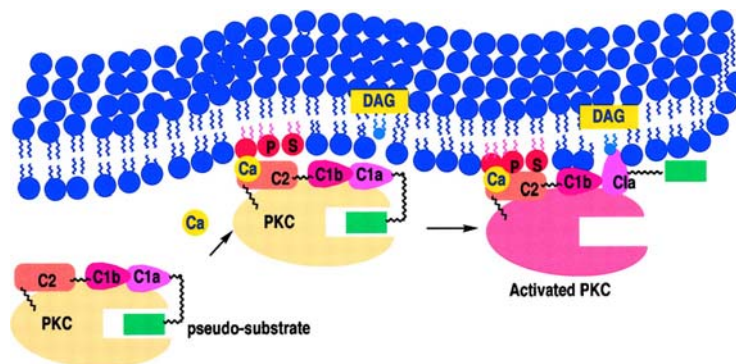
Receptor Activation Induces a Translocation of $\text{PKC}\gamma$ -GFP to the Plasma Membrane



Model for the Decoding of Ca^{2+} and DAG Signals by cPKC Isoforms



Proposed Mechanism



In vitro binding and activation

