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10.1126/science.1214798

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10.1126/science.1212652

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RESEARCH ARTICLE: Protein Kinase C η Is Required for T Cell Activation and Homeostatic Proliferation  
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T cells make specific use of different protein kinase C isoforms.

RESEARCH ARTICLE: PDLIM2 Inhibits T Helper 17 Cell Development and Granulomatous Inflammation Through Degradation of STAT3  
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ST Network: Expression2Kinases (XXK) Identify the signaling components that may mediate changes in genome-wide expression profiles.

ST Network: iBioMagazine  
Explore the human side of science.

SCIENCE TRANSLATIONAL MEDICINE
www.sciencetranslationalmedicine.org
Integrating Medicine and Science  
7 December issue: http://scim.ag/stm120711

FOCUS: Three Rs of Animal Testing for Regenerative Medicine Products  
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FOCUS: ROCK in a Stiff Place  
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RESEARCH ARTICLE: Age-Related Intimal Stiffening Enhances Endothelial Permeability and Leukocyte Transmigration  
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REPORT: Penetration of Tenofovir and Emtricitabine in Mucosal Tissues: Implications for Prevention of HIV-1 Transmission  
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M. Price
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