molecular interventions
pharmacological perspectives from biology, chemistry and genomics

August 2006 Volume 6, Issue 4
www.molinterv.org

DEPARTMENTS

Molecular Interventions (ISSN 1534-0384) is published by the American Society for Pharmacology and Experimental Therapeutics, 9650 Rockville Pike, Bethesda, MD 20814-3995. Published bimonthly in February, April, June, August, October, and December. Annual subscription rates: U.S.: $240 for institutions: and $78 for individuals. Outside the U.S.: $261 for institutions and $99 for individuals. The subscription price to ASPET members ($30) is included in membership dues. Single issue: $44. Subscriptions include access to the online version of *MI* at molinterv.org (ISSN 1543-2548). Indexed or abstracted by Biochemistry & Biophysics Citation Index, EMBASE/Excerpta Medica, Index to Scientific Reviews, ISI Alerting Services, ISI Web of Science, PubMed/Medline, and Science Citation Index-Expanded.

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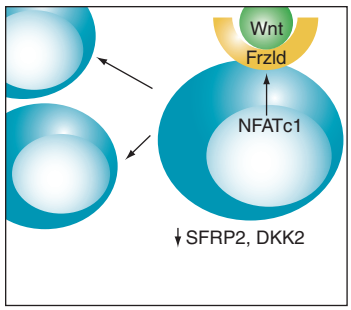
VIEWPOINTS



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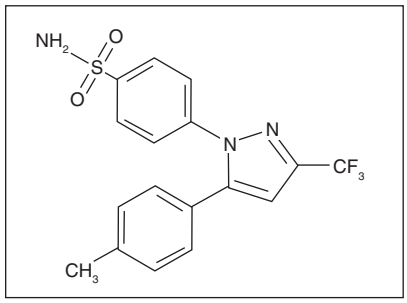
NFAT: Good to the bone

193 Controlling Bone Formation: NFAT Is a Positive Mediator

New findings reveal that the calcineurin-NFAT signaling pathway helps to promote osteoblast differentiation. Three recent papers reveal somewhat different mechanisms by which this could occur. In one study, transduction of calcineurin Aα increased expression of osteoblast differentiation markers, including Runx-2. In another study, NFATc1 cooperatively enhanced Osterix activation of the collagen 1a1 promoter, but did not enhance Runx-2 activity; evidence was provided for the formation of a novel NFATc1-Osterix complex. In a third study, expression of nuclear NFATc1 enhanced Wnt signaling. The observation that the Wnt pathway promotes bone formation is intriguing, because NFATc1 also is critical for osteoclastogenesis. The current findings could be relevant for the osteoporosis seen in patients given the calcineurin inhibitor cyclosporine to prevent transplant rejection, although the results need to be reconciled with aspects of the clinical picture.

Paula H. Stern

196 How Do You Define "Specific"?



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"Specificity": A qualitative or quantitative term?

With the push to develop the next blockbuster drugs, continued surveillance of current bestsellers may not be given the full attention due. Upon wide-spread use, unexpected adverse effects begin to emerge. Although touted as highly specific, many of the newly developed drugs are likely to have secondary molecular targets—a potential cause of adverse effects. A molecular pharmacology approach that screens for multiple drug targets may shed light on the mechanisms that underlie both desired and adverse side-effects.

Wolfgang Sadée and Laura M. Bohn

REVIEWS