

New Insights Revealed by Genetic Studies and the Future of Treating Bone Health Related Issues

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This presentation will examine the major role played by genetic studies in the identification of a fundamental pathway, the Wnt/ β -catenin signaling pathway, and it's now appreciated multiple roles in bone cell biology. Specifically I will discuss how the genetic analysis of several families led to the discovery of this pathway and briefly summarize our work at understanding it's central role in the responsiveness of bone to mechanical loading. These studies have recently focused our attention on developing a better understanding of the strain environment within bone at the level of the osteocyte and how physical signals regulates the function of this bone cell. These fundamental studies will be of critical importance to our understanding of how to treat bone diseases such as osteoporosis and for the design of better scaffolds for use in fracture repair and bone regeneration.