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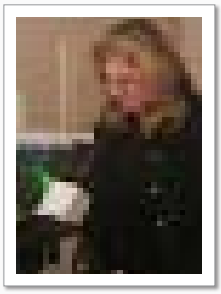

Anja Nohe

Using a systems biology approach to identify new target in skeletal formation

Osteroporosis impacts one out of two women and one out of four men bythe age of 50 and these numbers increase to 90% of women and 33% of men by the age of 75.A limited number of treatments have been developed to reduce the loss of bone, most have potentially serious side effects, are cost prohibitive, or difficult to use. The main treatments affect the bone resorbing cells. While there are treatments that affect the bone forming cells, they have several side effects. Treatments that affect both populations like enhancing bone formation while inhibiting bone resorption are lacking.

Bone morphogenetic proteins BMPs are potent growth factors that can drive bone formation in vivo. However high amounts are needed and evidence suggests that long term exposure to BMPs can lead to Osteopenia, making the BMPs difficult as a therapeutic for osteoporosis. We used a systems biology approach to develop a model of BMP signaling and verified this approach by experiments. Based on this model we identified new possible targets to enhance BMP2 signaling driving osteogenesis without induction of osteoclastogenesis. This was confirmed by injection of peptides into the tail vein of mice targeting these pathways in vivo.

Biography

Anja Nohe an assistant professor at the University of Delaware and the director of the laboratory for Cellular Signaling and Dynamics. She received her PhD in Physiological Chemistry in Germany. After her postdoctoral fellowship at the University of Western Ontario, she became a faculty member in Chemical and Biological Engineering at the University of Maine until she relocated to the Department of Biological Sciences at the University of Delaware. Dr Nohe has over 30 publications focusing on skeletal development and nanomedicine. Her lab is interested i identifying new targets and therapies for the treatment of osteoporosis, osteoarthritis and breast cancer.

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