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Contact: **Kara Dress; kara@ibmsonline.org**

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BONE CELLS PRODUCE CANNIBIS-RELATED COMPOUNDS THAT MAY REGULATE NORMAL BONE STRUCTURE

Montréal (25 June 2007)—Bone cells naturally produce cannabis-related compounds, known as endocannabinoids, which interact with targets on bone cells and stimulate the breakdown of bone. These compounds may play an important role in regulating normal bone structure and maintaining a healthy skeleton, which could help with the development of therapies for musculoskeletal diseases, such as osteoporosis. Susan Ridge, PhD, reported these findings today at the 17th Scientific Meeting of the International Bone & Mineral Society (IBMS).

Dr. Ridge and her team first measured the production of the specific endocannabinoids anandamide and 2-arachidonoyl glycerol (2-AG) in human bone cells. Using cultured cells, the team extracted and then determined the amount of 2-AG and anandamide using liquid chromatography and mass spectrometry.

The results showed for the first time the presence of 2-AG and anandamide in both osteoblasts (bone-building cells) and in osteoclasts (bone resorption cells) .Furthermore, certain factors that stimulate bone breakdown caused an increase in the production of the endocannabinoids.

The team then investigated the effects of endocannabinoids on the function of human osteoclast cells by treating the cells with 2-AG and anandamide. Cultures of osteoclasts treated with 2-AG showed a .5-fold increase in bone destroying activity. Similarly, osteoclasts treated with anandamide revealed a 3.5-fold increase in bone breakdown.

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"Our study suggests that these natural compounds are involved in regulating bone metabolism, particularly bone breakdown." says Dr. Ridge. "Knowing more about their role will help us to better understand the intricate mechanisms that are involved in maintaining a healthy skeleton and could possibly aid in the development of new therapies for bone disease."

For more information about Dr. Ridge's study, please visit www.ibmsonline.org.

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The International Bone & Mineral Society (IBMS) is the first and the largest international network of researchers, clinicians, companies and societies dedicated to promoting the generation and dissemination of knowledge of basic biology and clinical science of the skeleton and mineral metabolism. To learn more about IBMS, visit www.ibmsonline.org.