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Isotopic Biomarkers for Rapid Assessment of Bone Mineral Balance in Biomedical Applications

AzTE Case # M10-102L

Inventors

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Invention Description

Loss of bone mineral content leads to a variety of significant medical problems such as osteoporosis. Development of new treatments for metabolic bone disease and evaluation of the effectiveness of existing therapies in individual patients are severely hampered by the lack of a reliable tool for quickly measuring changes in bone mineral balance in response to treatment.

Researchers at Arizona State University have developed a new tracerless calcium isotope biomarker of bone mineral balance. When properly applied, the calcium isotope biomarker reveals changes in bone mineral balance with unprecedented speed and detail and has the potential to dramatically improve the treatment for diseases such as osteoporosis. A complimentary strontium isotope biomarker provides, with equal rapidity, information on the speed of exchange of calcium between soft tissue and mineralized compartments.

Potential Applications

- Bone mineral balance research
- Early detection of bone disease
- Assessment of effectiveness of current treatments

Intellectual Property Status:

Benefits and Advantages

- Detection can be made before bone damage occurs
- Rapid results
- High level of detail

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