Cannabinoid-based Bone Anabolic Treatment (Yissum)
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Cannabinoid agonist restrains bone resorption and stimulates bone formation

Categories	**Bone formation, osteoporosis, fracture healing, endossseous implants agonist for peripheral cannabinoid receptor**
Development Stage	**In vivo proof of principle; expanded pre-clinical experiments**
Patent Status	**Patent portfolio at various stages (from provisional to granted patents_**
Market Size	**Currently, the osteoporosis, fracture healing and enhancement of endosseous implant anchorage drug market is worth $20.0 billion**

Highlights

- **Osteoporosis is characterized by an imbalance between bone formation and resorption resulting in net bone loss and increased susceptibility to fractures. In addition, complications associated with bone fractures and anchorage of bone**

implants are increasing because of the increased life expectancy and associated increase in fracture incidence and and insufficient bone formation required to support the implants.

- **Most anti-osteoporotic drugs in clinical use, such as bisphosphonates, estrogen, and calcitonin are anti-resorptive and used mainly to prevent postmenopausal bone loss. Use of PTH(1-34), the only clinically approved bone anabolic agent, is restricted to two years, because of bone cancer risk. Enhancement of fracture healing and implant anchorage by bone anabolic agents gained limited clinical success, mainly because of their proteinous nature.**
- **Signaling of the peripheral cannabinoid receptor (CB2) is involved in the regulation of bone remodelling, slowing down and rescueing bone loss**

Our Innovation

- **A highly potent synthetic cannabinoid agonist, which is specific for CB2 and therefore not psychoactive. It inhibits bone resorption and stimulates bone formation.**

Key Features

- **Attenuates and reverses bone loss: restores bone mass and architecture.**
- **No psychotropic or anti-annorexigenic activities.**
- **Development Milestones**

- **Further development of this treatment for the osteoporosis indication involves the standard path, e.g., toxicology, mutagenesis, in vivo pharmacology, stability studies and clinical trials. Proof of concept is still required for the fracture healing and implant anchorage indictions.**

The Opportunity

- **Osteoporosis is the most prevalent degenerative disease in developed countries. The number of patients is expected to increase to 50 million in 2015.**
- **The global market for bisphosphonates, the most commonly prescribed class of drugs for the prevention and treatment of osteoporosis, is approaching $10 billion and is growing rapidly.**
- **Complications associated with fracture healing and implant anchorage are extremely common in orthopaedic and dental surgery.**

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