Super Active Leptin Antagonists for Treatment of Autoimmune Diseases and CKD-associated Cachexia

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Categories
Superactive High Afinity Leptin antagonist, mutein, multiple sclerosis, inflammatory bowel disease, rheumatoid arthritis, fibrosis, cardiovascular disease, CKD Cachexia, Osteoarthritis

Development Stage
(1) In vivo tests in animal (mouse) models, (2) Preparation of second generation of antagonists with increased affinity toward leptin receptor and longer in vivo persistence in circulation

Patent Status
Patent number application: WO2011/132189A3

Highlights
- Advances treatment of many diseases by blocking undesired leptin effects
- Interacts with mammalian leptin receptor with affinity identical to non-mutated leptins
- Can be easily prepared in large quantities as recombinant protein expressed in E. coli
- Effectiveness established in three mice models of human acute and chronic fibrosis

Our Innovation
- Recombinant leptin mutein acts as antagonist
- Isolated DNA molecule encoding super active leptin antagonist
- Strong potential for pharmalogic agent for CKD (Chronic Kidney Disease) associated cachexia, autoimmune and inflammatory diseases, cancers, and cardiovascular disease, among others
- Substitution of two to four amino acid residues of leptin to alanine converts agonist to antagonist without reducing affinity toward leptin receptor

The Opportunity
- Addresses multiple markets for treatment of multiple disease entities, specifically, CKD associated cachexia
- Expands various research fields stressing proteins that inhibit leptin activity

Development Milestones
- Testing super active leptin antagonist activity in additional in vivo models e.g., Cachexia Inflammatory Bowel Disease in mice or others
- Preparation of leptin antagonists with more potent activity in vivo

Additional Information

Patent Status

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