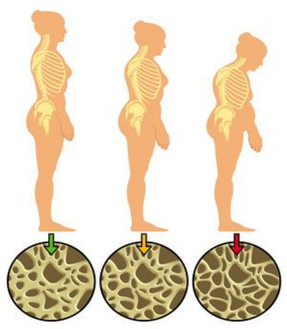
Novel principles for osteoporosis treatment

Biotech and Health Care

Background

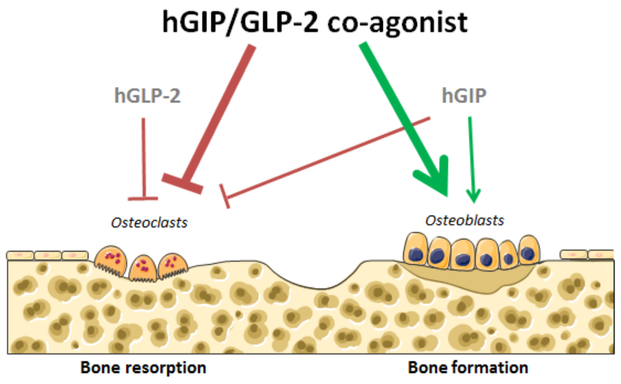
Osteoporosis: The silent killer

- Osteoporosis is a highly prevalent age-related disease
- One in 2 women and 1 in 5 men over the age of 50 years will suffer from an osteoporotic fracture and thereby be at increased risk of complications and death



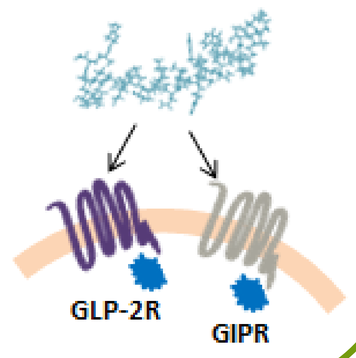
Aim

To develop a highly specific co-agonist which can inhibit bone resorption and stimulate bone formation *simultaneously*.

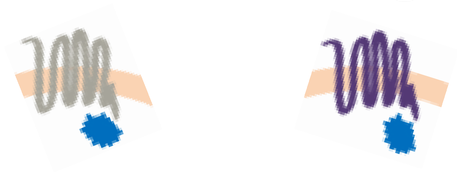


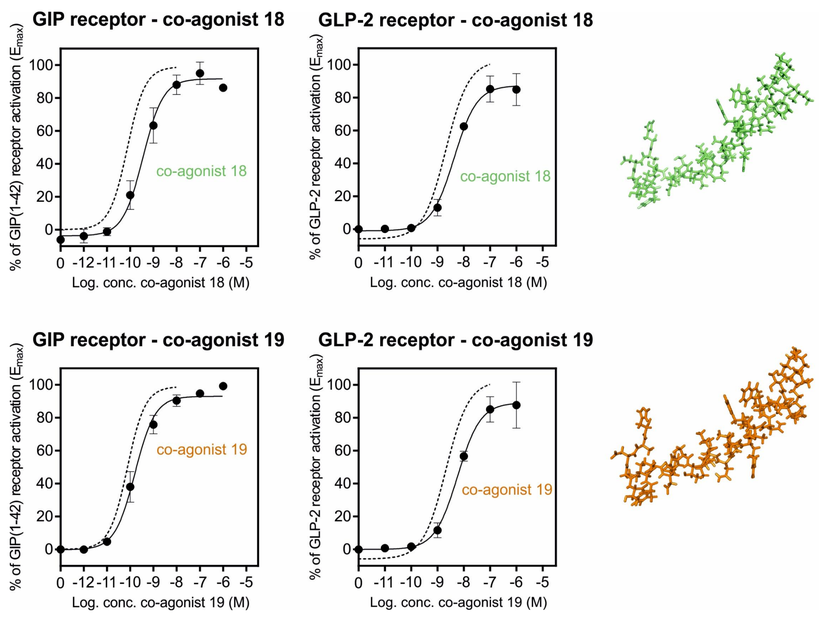
Co-agonist optimization

Improvement of:
Receptor affinity
Receptor activation

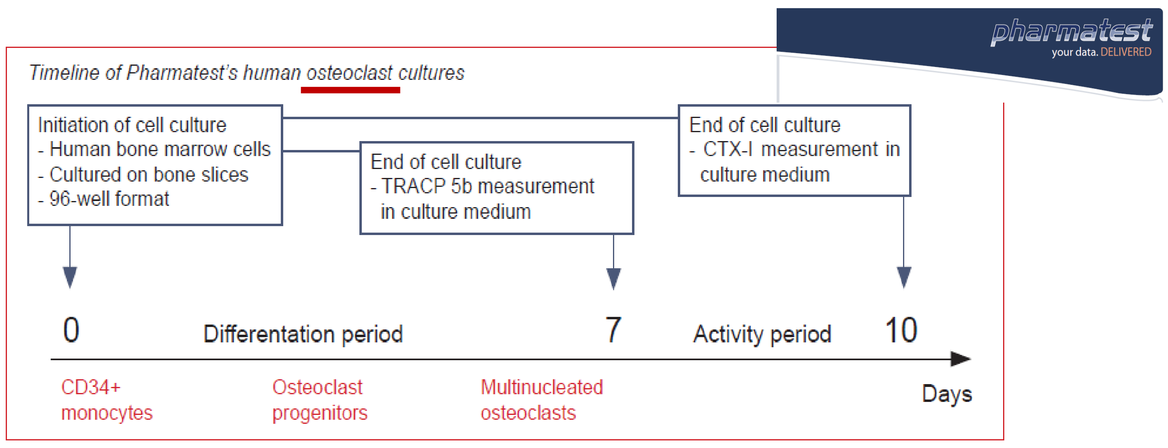


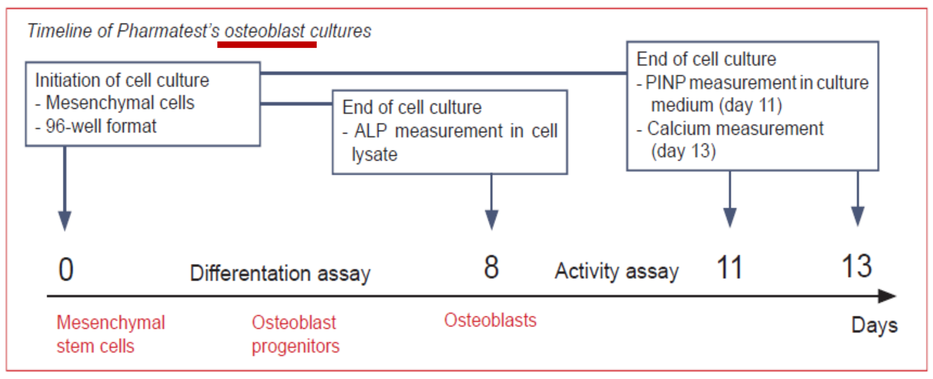
GIP-GLP-2 co-agonists





In vitro testing of selected co-agonists





Value proposition/USP

- Dual receptor agonist
- Small peptide backbone
- High potency
- High specificity

Business Opportunity/Objective/commercial perspectives

Worldwide, it is estimated that there are around 9 million osteoporotic fractures per year. In the United States, the direct costs of osteoporotic fractures are estimated at around $18 billion annually and in Europe the corresponding figure is around €36 billion. These costs are set to increase twofold or more by 2050. The technology is available for licensing and research collaborations.

Technology description

Based on published and unpublished data of ligand binding-modes to the GIP and GLP-2 receptors, we were able to develop GIPR/GLP-2R co-agonists of which the best two had potencies of maximum 6-fold difference compared to the native hormones on these two receptors.

Development phase/current state

At present we already succeeded in designing single molecules, that are capable of activating both the GIPR and GLP-2R with a very high potency. Ongoing work involves improvement of receptor affinity and prolonged T½.

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Intellectual property rights: Danish priority patent application filed on October 12, 2016

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